

Draft Revised Forest Plan

Custer Gallatin National Forest



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Custer Gallatin National Forest

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Chapter 1. Introduction

1.1 About the Custer Gallatin National Forest

The Custer Gallatin National Forest encompasses over 3 million acres in southern Montana and the northwest corner of South Dakota. Stretching over 400 miles from its westernmost to its easternmost boundaries, the Custer Gallatin is the most ecologically, socially, economically, and culturally diverse national forest in the Forest Service’s Northern Region.

The Custer Gallatin National Forest consists of two individual proclaimed national forests: the Custer National Forest and the Gallatin National Forest. In 2014, the two forests were combined to be administratively managed as one national forest. For ease of discussion throughout this document, the Custer Gallatin National Forest will also be referred to as the Custer Gallatin or forest when referencing the single administrative unit, the staff that administers the unit, or the national forest lands within the unit. The consolidated forest continues to operate with the forest plans developed for each forest in the 1980s.

The Custer Gallatin is administered in seven ranger districts, with offices located in Camp Crook, South Dakota, and in Ashland, Red Lodge, Livingston, Gardiner, Bozeman, and West Yellowstone, Montana. The supervisor’s office is located in Bozeman, and an office is also located in Billings, Montana. For planning purposes, the forest plan arranges the forest into the six geographic areas displayed in figure 1.

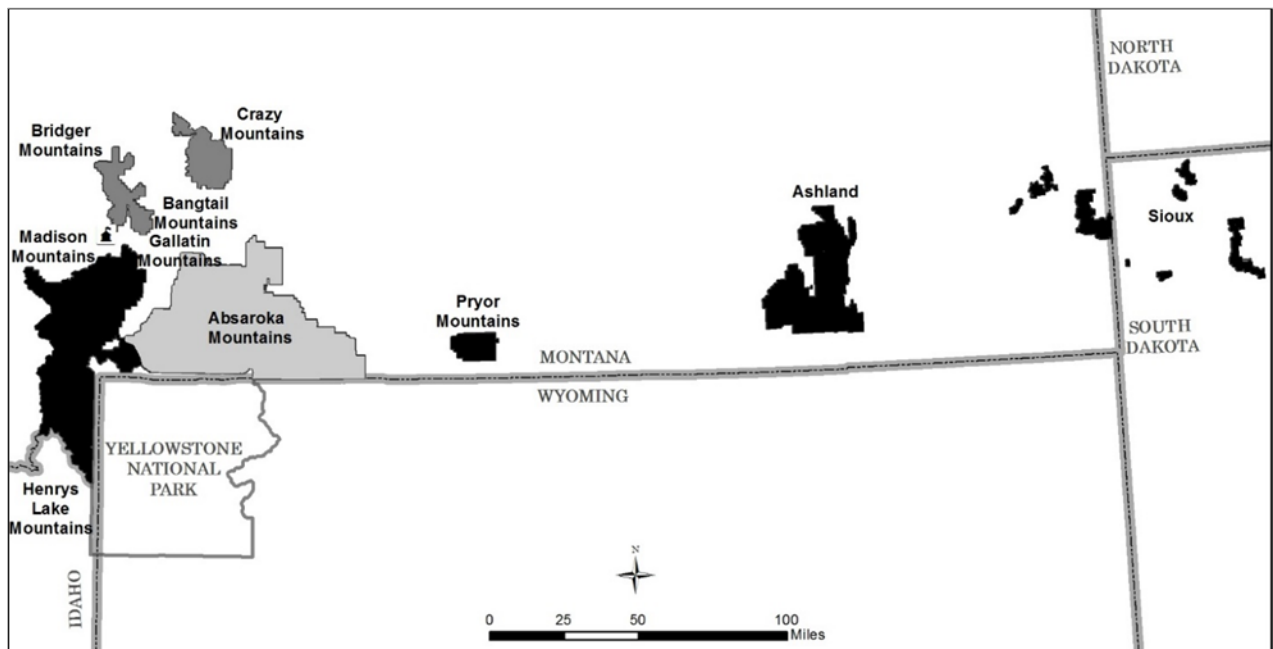


Figure 1. Location of Custer Gallatin National Forest and geographic areas

1.2 Purpose of this Land and Resource Management Plan

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

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

It is important to note that this plan does not authorize site-specific prohibitions or activities; rather it establishes overarching direction, similar to zoning in a community. Project or activity decisions will need to be made following appropriate procedures. Site-specific analysis in compliance with the National Environmental Policy Act (NEPA) would need to be conducted for activities to comply with the broader direction of the forest plan. The revised plan will provide guidance for project and activity-level decision making on the forest for the next 10 to 15 or more years.

1.3 Plan Structure

This proposed plan is designed to communicate the concepts of strategic guidance and adaptive management for the Custer Gallatin. The proposed plan is organized as follows:

Chapter 1 describes the purpose of the land management plan, plan content, future project consistency with the plan, rights and interests, and how best available science will be considered.

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

Chapter 3 contains the proposed geographic area (GA) plan direction and distinctive roles and contributions of each geographic area. Plan components specified at the geographic area level are those that are not adequately addressed by forestwide plan components. The Custer Gallatin National Forest is divided into six geographic areas.

Chapter 4 contains a proposed monitoring program. Following chapter 4 is a glossary of terms. Appendices appear separately as follows:

- Appendix A: Potential Management Approaches and Possible Actions
- Appendix B: Maps
- Appendix C: Priority Watersheds and Conservation Watershed Network
- Appendix D: Vegetation Classifications and Development of Vegetation Plan Components
- Appendix E: Northern Rockies Lynx Management Direction, Record of Decision

1.4 Plan Content

Content of the draft revised plan includes:

- Forestwide and geographic area desired conditions, goals, objectives, standards, and guidelines;
- The suitability of lands for specific multiple uses, including those lands suitable for timber production;
- An estimate of the long-term sustained yield and projected timber sale quantity;
- A description of the forest's distinctive roles and contributions within the broader landscape;
- The identification of priority restoration watersheds;
- Proposed management actions and strategies that may occur on the forest over the life of the plan;
- Areas proposed to be recommended to Congress for inclusion in the National Wilderness Preservation System;
- Rivers identified as eligible for inclusion as part of the National Wild and Scenic River System; and
- The plan monitoring program.

Numbers such as acres, miles and volumes are approximate due to the use of geographic information systems data and rounding.

1.4.1 Plan Components

Introduction

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

Every plan must identify where plan direction applies. Plan direction may apply forestwide, to management areas, or to geographic areas. This proposed plan presents two types of components:

- Forestwide components that apply across the landscape, but may be applicable to specific areas as designated on a map; and
- Geographic area components that are specific to an area or place, such as a river basin or valley, and reflect values and local conditions within that specific geographic area. The geographic areas may also have directions that applies to specific areas as designated on a map.

Forestwide components would apply to all national forest land, unless otherwise stated under direction for geographic areas. The forestwide components would apply to the geographic areas unless other direction is noted within the geographic area section. If so noted, this direction may supplement or supersede what is stated in the forestwide section. If no mention is made to a particular resource component in the geographic area section, then the forestwide direction is to be followed. The geographic area components allow us to focus on specific circumstances in specific geographic locations.

The forestwide and geographic area components would apply to the designated areas and special emphasis areas. If so noted, the designated area and special emphasis area direction may supplement or supersede what is stated in the forestwide section or geographic area direction.

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

- The level of direction (forestwide = FW, for geographic area direction the geographic area abbreviation is used)
- The type of direction (where DC = desired condition, GO = goal, OBJ = objective, STD = standard, GDL = guideline, SUIT = suitability, MON=monitoring question)
- The resource (for example, WTR = watersheds and WL = wildlife)
- A unique number (a numerical order starting with "01")

For example, forestwide direction for desired conditions associated with watersheds would be identified starting with FW-DC-WTR-01. The desired conditions for the Absaroka Beartooth Geographic Area would be identified starting with AB-DC-WTR-01. The identifiers are included as part of the headings in chapters 2 and 3 with the unique number preceding each plan component.

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

Desired Conditions

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

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

Desired conditions help frame the purpose and need during project-level planning. The project or activity must contribute to the maintenance of or movement toward at least one or more desired conditions and cannot move away from other forest plan desired conditions over the long term.

Goals

A plan may include goals (GO) as plan components. Goals are broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Goals are expressed in broad, general terms, but do not include completion dates (36 Code of Federal Regulations 219.7(e)(2)). Goals may be appropriate to describe a state between current conditions and desired conditions, but without specific amounts of indicators. Goals may also be appropriate to describe overall desired conditions of the forest that are also dependent on conditions beyond the forest or Forest Service authority.

Objectives

An objective (OBJ) is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets (36 Code of Federal Regulations 219.7(e)(1)(ii)). Objectives describe the focus of management on the forest 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. As with desired conditions, objectives can be forestwide or specific to geographic areas.

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, unanticipated resource constraints, etc. A single project may meet multiple objectives.

Standards

A standard (STD) is a mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 Code of Federal Regulations 219.7(e)(1)(iii)). As with desired conditions, standards can be developed for forestwide application or specific to a geographic area.

Guidelines

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

Suitability of Lands

Specific lands within the forest will be identified as suitable (SUIT) 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 Code of Federal Regulations 219.7(e)(1)(v)). Suitability identifications may be made after consideration of historic uses and of issues that have arisen in the planning process.

Identifying suitability of lands for a use in the forest plan indicates that the use may be appropriate, but does not make a specific commitment to authorize that use. Final suitability determinations for specific authorizations occur at the project- or activity-level decision-making process. Generally, the lands on the forest are suitable for all uses and management activities appropriate for national forests, such as outdoor recreation, grazing, or timber harvest, unless identified as not suitable. Every plan must identify those lands that are not suitable for timber production (§ 219.11) (36 Code of Federal Regulations 219.7(e)(1)(v)). For forestwide suitability determinations, see chapter 2; for geographic area-specific suitability determinations, see chapter 3.

1.4.2 Differences by Alternative

Because a preferred alternative has not been identified, the draft plan includes plan components by alternatives (B, C, D, and E). The majority of plan components do not differ by alternative. The inclusion of plan components that differ by alternative will be indicated by grayed-out text and the alternative label. Land allocation by alternative can be viewed in the map appendix and in tables throughout this plan.

1.5 Other Required Plan Content

1.5.1 Distinctive Roles and Contributions within the Broader Landscape

The description of the Custer Gallatin's distinctive roles and contributions within the broader landscape reflects those things that are truly unique and distinctive (36 Code of Federal Regulations 219.2(b)). This description is important because it is a source of motivation or reasons behind desired conditions. It is important to have an understanding of the ecological, social or economic, and cultural or historic context of the Custer Gallatin National Forest in order to better gauge the relative importance of each role. The National Forest System lands within the boundary of the Custer Gallatin National Forest are also referred to as the "plan area."

The Custer Gallatin encompasses over 3 million acres in southern Montana and the northwest corner of South Dakota (figure 1); stretching over 400 miles from its westernmost to its easternmost boundaries.

The Custer Gallatin is among the most ecologically, socially, economically, and culturally diverse national forest in the Forest Service's Northern Region.

For planning purposes, the forest plan arranges the forest into six geographic areas, extending from the Montana-Idaho border near the tristate corner of Idaho, Montana, and Wyoming, across southern Montana and into western South Dakota. Each of the six geographic areas has its own set of distinctive roles and contributions (described in chapter 3). The following distinctive roles and contributions were derived from public input and forest plan assessment reports.

Ecological Characteristics

The forest is made up of a series of distinctive landscapes and "island" mountain ranges and is characterized by the topographical transition between western mountainous terrains and eastern pine savannas. The elevation ranges from about 3,300 feet on lower elevations of the pine savanna geographic areas to over 12,000 feet on mountain peaks in the Beartooth Mountains, where Granite Peak, Montana's highest peak, is located.

The Custer Gallatin has ten research natural areas that are part of a national network of ecological areas for research, education, and maintenance of biological diversity. The Custer Gallatin is home to two special areas, created to protect or enhance unique or special resources. Three National Natural Landmarks recognize the country's best examples of ecological and geological features.

Ecoregion

The Custer Gallatin is located within two distinct ecoregions: the Middle Rockies Ecoregion and the Northwestern Great Plains Ecoregion, and touches on a third ecoregion, the Wyoming Basin Ecoregion. Ecoregions are large ecological zones covering millions of acres distinguished by common climatic and vegetation characteristics. Approximately 81 percent of the Custer Gallatin is in the Middle Rockies Ecoregion. This ecoregion is located mostly in southwestern Montana, eastern Idaho, and northern Wyoming, as well as island mountain ranges in Wyoming and South Dakota. The severe, mid-latitude, humid continental climate is marked by warm to cool summers and severe winters. The mean annual temperature varies greatly by elevation and high elevations are more subarctic. Vegetation consists of coniferous forest, alpine meadow, and shrubland-grassland steppe.

Approximately 19 percent of the Custer Gallatin is in the Northwestern Great Plains Ecoregion consisting of ponderosa pine-shrubland-grassland steppe. This ecoregion encompasses the Missouri Plateau section of the Great Plains in southeastern Montana, northeastern Wyoming, and the western portion of the Dakotas. The dry mid-latitude steppe climate is marked by hot summers and cold winters. The region is an unglaciated, rolling plain of shale and sandstone punctuated by occasional buttes.

The Middle Rockies, Northwestern Great Plains, and Wyoming Basin Ecoregions converge at the southwestern part of the Pryor Mountains. A small amount of the Custer Gallatin (less than 1 percent) is in the Wyoming Basin Ecoregion around the Pryor Mountains and consists of semi-desert shrubland-grassland.

The Custer Gallatin is inhabited by hundreds of species of native mammals, birds, fish, reptiles, amphibians, and invertebrates. The diverse ecology and geographic span of the forest contributes to the diversity of wildlife species. Wildlife habitat on the Custer Gallatin is extremely diverse, ranging from

southwest Montana's rugged mountain peaks to the pine forests, buttes and bluffs of the pine savanna ecosystem in South Dakota and eastern Montana.

Montane and Pine Savanna Ecosystems

The Custer Gallatin has termed its mountainous Middle Rockies Ecoregion area as montane and the Northwestern Great Plains Ecoregion area as pine savanna. Montane ecosystems of the Custer Gallatin include the Madison, Henrys Lake, Gallatin, Bridger, Bangtail, Crazy, Absaroka, Beartooth, and Pryor Mountain ranges. The pine savanna ecosystem includes the Ashland and Sioux Ranger Districts.

Pine Savanna. The pine savanna ecosystem is characterized by rolling plains and tablelands of moderate relief. The Ashland and Sioux Districts stand out from the surrounding plains because of their elevation and the presence of ponderosa pines amongst the rolling plains. The area lies in the rain shadow east of the Rocky Mountains. The climate is a semiarid continental regime. Winters are cold and dry, and summers are warm to hot. Evaporation usually exceeds precipitation, and the total supply of moisture is low. Vegetation consisting of ponderosa pine, hardwood trees, shrubs, forbs and grasses are supported in all gradations of cover. On the driest sites, ponderosa pine is short and generally open, grown with grass understories. Moist north-facing sites have dense stands of taller ponderosa pine, with shrub and herbaceous understories, including species of the mountain forests to the west. Draws and ravines that support many hardwood trees (green ash, box elder, and aspen) and shrubs also dissect the landscape. Grasses include blue grama, wheatgrass, and needlegrass. Shrubs include sagebrush, chokecherry, and snowberry.

The Ashland District drains to the Tongue and Powder Rivers (tributaries to the lower Yellowstone River). Otter Creek, a tributary of the Tongue River, bisects the Ashland District. Most of the Sioux District drains to the Little Missouri, Grande, or Moreau Rivers (tributaries to the Missouri River). Those drainages on the Ashland and Sioux districts include typically intermittent, warm-water streams, wetlands, constructed ponds, and springs, which provide habitat for populations of native fish, amphibians, and other aquatic species as well as terrestrial wildlife.

Montane. The montane ecosystem is characterized by mountainous regions ranging with altitudinal zonation of semi-desert vegetation, coniferous forests on the lower mountain slopes, and alpine tundra toward the upper. Temperature and snowfall vary greatly with altitude. Winds are from the west or southwest, with much of their moisture precipitated where they cross the Pacific ranges. Due to aridity, forests are sometimes restricted to northern and eastern slopes. Although south- and west-facing slopes receive comparable precipitation, they are hotter and evaporation is higher. Consequently, they support fewer trees and are covered by shrubs and grasses. Lodgepole pine, Douglas-fir, subalpine fir, Engelmann spruce, limber pine, and whitebark pine are the predominant conifer vegetation. The lower slopes of the mountains are dominated by grasslands and shrublands.

Tributaries to the upper Missouri River originate in these mountains, including the Madison and Gallatin rivers. Tributaries to the Yellowstone River originate in these mountains including the Boulder and Stillwater Rivers. These rivers and other streams hold westslope cutthroat trout, Arctic grayling, Yellowstone cutthroat trout and other aquatic species.

The montane ecosystem, except the Pryor Mountains, also encompasses the Custer Gallatin's portion of the Greater Yellowstone Area (the largest nearly intact ecosystem in the lower 48 States). Native animals, including grizzly bears, gray wolves, and bison, roam the Madison, Henrys Lake, Gallatin, Absaroka, and

Beartooth Mountains. Whitebark pine, a candidate species for Federal listing under the Endangered Species Act, is found at higher elevations. Whitebark pine in the Greater Yellowstone Area exhibits lower blister rust infection than other ecosystems, such as the Northern Continental Divide. The Custer Gallatin National Forest cooperates with other agencies in the Greater Yellowstone Coordinating Committee to coordinate land management on over 15 million acres of federal land in the Greater Yellowstone Area.

Social and Economic Characteristics

The Custer Gallatin has a history of multiple, co-existing uses, including recreation, mining, grazing, timber, hunting and fishing. The national forest contributes to a variety of economic enterprises including ranches, outfitters and guides, destination ski and recreation areas, large mines, gateway resort and agricultural communities. Given proximity to Yellowstone National Park and renowned attractions such as the Beartooth Highway and Big Sky Ski Resort, the national forest is part of an international destination.

The Custer Gallatin National Forest contributes to local and regional economies by providing important natural resources including drinking water for municipalities, timber and forest products, livestock forage, fish and wildlife, and minerals that meet local and national needs. Wood from across the forest supplies the regional forest products industry, as well as individual and community uses such as firewood and Christmas trees. The Ashland and Sioux Ranger Districts manage two of the largest national forest livestock grazing programs. The Stillwater Complex is the only primary producer of platinum and palladium in the United States, and one of only three such producers in the world. In addition to timber, rangelands, and minerals, popular species and biological diversity on the forest contributes to the economic sustainability of communities through ecotourism, wildlife viewing, hunting, and fishing.

The Custer Gallatin provides a wide range of recreation opportunities. Year-round opportunities range from highly developed sites to more primitive and dispersed recreation opportunities. The Custer Gallatin is renowned for hunting, fishing, and wildlife watching. Unique developed recreation opportunities include cabin and lookout rentals, regionally significant ski areas, rock and ice climbing, and a visitor center that focuses on the 1959 earthquake that formed Earthquake Lake. Recreation opportunities include a network of motorized and nonmotorized roads and trails. Winter recreation includes extensive trail networks for snowmobiling, cross-country and downhill skiing, and snowshoeing. Outfitter and guides provide additional access to unique backcountry, hunting, and floating opportunities along the Yellowstone and Gallatin Rivers. The forest's recreation program contributes to the economic sustainability of local communities.

The forest contains over 1 million acres of designated wilderness including portions of the Lee Metcalf and Absaroka-Beartooth Wilderness Areas. Approximately 848,000 acres of the forest are allocated as inventoried roadless areas. Congress also designated portions of the inventoried roadless areas as the 155,000-acre Hyalite Porcupine Buffalo Horn Wilderness Study Area, and the 37,000-acre Cabin Creek Wildlife and Recreation Area. These allocations provide for landscapes that allow for more primitive recreation experiences. The existence of these primitive landscapes may provide for inspiration and meaning to those who value wild places, even if they never go there.

The Custer Gallatin provides water for agriculture and other downstream uses as well as three municipal watersheds and water sources: Bozeman, Hyalite and Lyman Creeks (Bozeman), West Fork Rock Creek (Red Lodge), and Whiskey Spring (West Yellowstone).

Cultural and Historical Characteristics

Scattered throughout the Custer Gallatin's pine savannas, forests, mountains, and valleys are more cultural resource sites than any other national forest in the Forest Service's Northern Region. More than 10,000 years of human history is represented. Historically, the Custer Gallatin was the ancestral homeland and travel way of native people now referred to as the Crow, Northern Cheyenne, Sioux, Eastern Shoshone, Northern Arapahoe, Shoshone-Bannock, Nez Perce, Mandan, Hidatsa, Arikara, Salish and Kootenai. Native American use of the Custer Gallatin over the centuries is manifest in hundreds of archaeological, sacred sites, and other areas of traditional cultural importance, many of which are listed or eligible to be on the National Register of Historic Places. Significant spiritual, traditional use, and ceremonial sites are located on the Custer Gallatin and are in use today by tribal members.

The Custer Gallatin's cultural resources represent a wide variety of cultural and historical themes, including Native American use, Tribal-U.S. Government conflict, mining, agricultural development, ranching, timber, transportation, homesteads, local settlement, fire detection, recreation, Civilian Conservation Corps projects, and Forest Service administrative history. The eastern districts contain some of the most varied and complete cultural resources in the Northern Great Plains.

1.5.2 Priority Watersheds

The Planning Rule requires land management plans to identify watershed(s) that are a priority for maintenance or restoration (36 Code of Federal Regulations 219.7(f)(1)). Identification of these watersheds is to focus efforts on the integrated restoration of watershed conditions in these areas. Information about priority watersheds on the Custer Gallatin can be found in appendix C.

1.5.3 Plan 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. 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 07.11). See chapter 4 for the monitoring program.

1.5.4 Proposed and Possible Actions

The 2012 Planning Rule requires land management plans to "...contain information reflecting proposed and possible actions that may occur on the Custer Gallatin during the life of the plan, including: the planned timber sale program; timber harvesting levels; and the proportion of probable methods of forest vegetation management practices expected to be used (16 United States Code 1604(e)(2) and (f)(2)). Such information is not a commitment to take any action and is not a 'proposal' as defined by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 Code of Federal Regulations 1508.23, 42 U.S.C. 4322(2)(C)). (36 Code of Federal Regulations 219.7(f)(1))." Management approaches and strategies presented in this section may include suggestions for on-the-ground implementation, analysis, assessment, inventory or monitoring, and partnership and

coordination opportunities the Custer Gallatin is proposing as helpful to make progress in achieving its desired conditions. The potential approaches and strategies are not intended to be all-inclusive, nor commitments to perform particular actions.

The possible actions and potential management approaches and strategies the Custer Gallatin may undertake to make progress in achieving the desired conditions described in this plan can be found in appendix A.

1.6 Project and Activity Consistency with the Plan

As required by National Forest Management Act and the Planning Rule, subject to valid existing or statutory rights, all projects and activities authorized by the Forest Service after approval of this plan must be consistent with the applicable plan components (16 U.S.C. 1604(i)) as described at 36 CFR 219.15. Previously approved and ongoing projects and activities are not required to meet the direction of the forest plan and will remain consistent with the direction in the 1986 and 1987 forest plans, as amended.

All project or activity approval documents, made after the effective date of the plan, will describe how the project or activity is consistent with the applicable components of the forest plan. 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 or statutory rights:

- Modify the proposed project or activity to make it consistent with the applicable plan components;
- Reject the proposal or terminate the project or activity;
- Amend the plan so that the project or activity will be consistent with the plan as amended;
- Amend the plan contemporaneously with the approval of the project or activity so that the project or activity will be consistent with the plan as amended. This amendment may be limited to apply only to the project or activity

Resource plans (example travel management plans) developed by the Custer Gallatin that apply to the resources or land areas within the planning area must be consistent with the plan components. Resource plans developed prior to this plan decision will be evaluated for consistency with the plan and updated if necessary.

Authorizations for occupancy and use made before this plan approval may proceed unchanged until time of reauthorization. At time of reauthorization, all permits, contracts, and other authorizing instruments must be made consistent with the forest plan, subject to existing valid rights, as provided at §219.15(d).

1.6.1 Determining Consistency

Because of the many types of projects and activities that can occur over the life of the plan, it is not likely that a project or activity can maintain or contribute to the attainment of all desired conditions, nor are all desired conditions relevant to every activity (for example, recreation desired conditions may not be relevant to a fuels treatment project). Most projects and activities are developed specifically to maintain or move conditions toward one or more of the desired conditions of the plan.

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

1. Goals, desired conditions, and objectives. The project or activity contributes to the maintenance or attainment of one or more goals, desired conditions, or objectives, or does not foreclose the opportunity to maintain or achieve any goals, desired conditions, or objectives, over the long term.
2. Standards. The project or activity complies with applicable standards.
3. Guidelines. The project or activity:
 - a. Complies with applicable guidelines as set out in the plan; or
 - b. Is designed in a way that is as effective in achieving the purpose of the applicable guidelines (36 CFR 219.7(e)(1)(iv)).
4. Suitability. A project or activity would occur in an area:
 - a. That the plan identifies as suitable for that type of project or activity; or
 - b. For which the plan is silent with respect to its suitability for that type of project or activity.

1.7 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 Custer Gallatin'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 considers 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.

1.8 Relationship to Policy and other National Environmental Policy Act Decisions

Forest Service policies will generally not be re-iterated in plan components. Decisions for travel management on specific roads, trails, and motorized areas are addressed in the Custer National Forest and the Gallatin National Forest Travel Plan decisions or subsequent travel plan National Environmental Policy Act decision. Decisions outlining required protection and prevention measures are addressed in applicable weed management environmental analysis decisions (Custer National Forest Noxious Weed Management Environmental Impact Statement and Record of Decision [2006] and the Gallatin National Forest Noxious and Invasive Weed Treatment Project Environmental Impact Statement and Record of Decision (2005)) or subsequent weed National Environmental Policy Act decision Oil and gas availability and leasing environmental analysis decisions are also not addressed as part of this forest plan.

1.9 Rights and Interests

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

1.10 Best Available Science

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 proposed action was provided by the Assessment Report of Ecological, Social, and Economic Conditions on the Custer Gallatin National Forest (February 2017) and associated resource reports, and the best available scientific information and analyses therein. From this foundation, resource specialists used a number of resources that included peer-reviewed and technical literature, databases and data management systems, and modeling tools and approaches. Geographic information system data and product precision may vary, but provide a sufficient depiction for purposes of the proposed action. Resource specialists considered what is most accurate, reliable, and relevant in their use of the best available scientific information.

1.11 Maintaining the Forest Plan and Adapting to New Information

The forest plan is an integral part of an adaptive management cycle that guides future management decisions and actions. Forest plan-level adaptive management includes:

- Assessing information relevant to the Custer Gallatin;
- Developing land management direction to respond to social, economic, and ecological conditions;
- Monitoring management outcomes and changing circumstances; and
- Revising or amending management strategies accordingly.

This adaptive management cycle enables the Custer Gallatin to identify and respond to changing conditions, changing public desires, and new information, such as that obtained through research and scientific findings. The forest's monitoring program is an integral part of this adaptive management cycle, consisting of monitoring questions and performance measures. The monitoring evaluation report will indicate whether a change to the forest plan may be warranted, based on new information.

Chapter 2. Proposed Forestwide Direction

2.1 Introduction

This chapter contains proposed direction that applies forestwide, unless additional or more restrictive direction is found in the “geographic area” direction found in chapter 3. Forestwide direction includes desired conditions, goals, objectives, standards, guidelines, and suitability of lands for forest uses and activities. It is not required that every topic include the full suite of plan components, and not every type of plan component is included for every topic.

Desired conditions describe the vision for the Custer Gallatin National Forest, while other plan components (such as, objectives, standards, and guidelines) and management approaches give guidance on how to achieve this vision. Management actions should be designed to move towards applicable desired conditions or not foreclose the opportunity to maintain or achieve the desired conditions over the long term. Management actions may have short-term negative effects in order to achieve desired conditions over the long term.

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

The possible actions and potential management approaches and strategies the Custer Gallatin may undertake to make progress in achieving the desired conditions described in this plan can be found in appendix A.

Other Forest Service direction, such as laws, regulations, policies, Executive orders, and Forest Service directives (manual and handbook), are not repeated in the forest plan. The following standards and guidelines apply to national forest land administered by the Custer Gallatin National Forest. These standards and guidelines are intended to supplement, not replace, the national and regional policies, standards, and guidelines found in Forest Service manuals and handbooks.

See the glossary for definitions and information on the terminology used in this chapter.

2.2 Vision for the Custer Gallatin National Forest

The Custer Gallatin National Forest is a widely diverse landscape that sustains abundant native plants and animals, clean air and water, and productive soils, enhancing the quality of life for those who use and depend on the Custer Gallatin for life-enriching activities and livelihoods. Ecological services and multiple use products derived from this landscape are outcomes of management practices that are sustainable, enhance resiliency and adapt to societal and technological changes. Tribal members continue to have access to places of spiritual, ceremonial, and traditional cultural importance and the ability to collect traditional material. The Pryor Mountains, Ashland and Sioux Districts, offer distinct ecological conditions from the surrounding plains. Pine savannas of the Ashland and Sioux Ranger Districts drive local economies whereas higher profile buttes and hills are ecologically distinct from the surrounding plains providing forage, wildlife, timber, scenery and recreation opportunities largely unavailable outside national forest lands. The Pryor Mountains retain its remote, backcountry character. In the Greater Yellowstone Area, the Custer Gallatin is part of a large connected expanse of core public

lands providing outstanding scenery, opportunities for solitude, and primitive recreation. Front country areas are actively managed for multiple uses and transition to private land beyond the national forest boundary.

2.3 Ecosystems

2.3.1 Introduction

The 2012 Planning Rule adopts a complementary ecosystem and species-specific approach, known as a “coarse-filter or fine-filter approach,” to provide the natural diversity of plant and animal communities and ensure long-term persistence of native species in the plan area. The coarse filter aims to provide adequate representation (distribution and abundance) of ecological land units considering the historical range of variability based upon an understanding of the natural disturbance regimes of the ecological land units (Haufler, 1999). This coarse filter approach does not necessarily prescribe reserves, but rather recognizes ecological processes and provides for a dynamic distribution of ecological units across the landscape over time. Thus, a coarse filter strategy has been viewed both as a reserve system and as an approach to managing dynamic landscapes considering natural disturbance regimes. Coarse-filter plan components are designed to maintain or restore ecological conditions and processes for ecosystem integrity and diversity within agency authority and the inherent capability of the land. Individual species (species at risk, special interest) fine-filter assessments are conducted to evaluate whether sufficient amount and distribution of habitat is provided under the coarse filter strategy. Fine-filter plan components provide for additional specific habitat needs, when those needs are not met through the coarse-filter components. Although many influences on vegetation are not easily controlled, the intent of plan components is to collectively provide for the full suite of native biodiversity across the Custer Gallatin.

Ecological desired conditions are described at broad spatial scales. Desired conditions are designed to ensure that the ecosystem is diverse and sustainable and that it provides for desired ecological, social or economic services and benefits. Desired conditions may not be achievable in all areas when considering site potential and capability. For example, some areas have crossed a threshold where primary ecological processes have degraded beyond the point of self-repair, and that is not easily reversed without significant inputs of resources.

While all ecosystems consist of similar components and processes, each is unique in its individual make-up. Each ecosystem displays its own pattern of landform and soil, its unique climate and weather patterns, and its own history of use and disturbance, which has resulted in the current condition. In directing management toward achieving desired conditions, it is essential to treat each unit of the landscape (soil, ecological site, and watershed) according to its own potential and capability and consider how it fits with both smaller and larger units of the landscape.

Ecological functions (for example, nutrient cycling, herbivory, natural disturbances) drive ecological conditions (for example, structure, connectivity and refugia as well as species composition, distribution and diversity). Ecological conditions perpetuate landscape heterogeneity and unique ecosystems, such as those contained in shrublands, grasslands, riparian areas, and old-growth forests, promoting biodiversity through a variety of structure and functions to which plant and animal communities have adapted and evolved. Ecological integrity allows ecosystems to respond and adjust to

both natural disturbances and human influence under current and future climatic conditions without long-term adverse changes.

2.3.2 Air Quality (AQ)

Introduction

Air quality is one of the many resources the Forest Service monitors and protects on its public lands. Clean air is an important resource, not only because it provides life to nearly all living organisms, but also because it contributes to clean water and healthy fisheries, soils, and ecosystems and helps boost economies through tourism and recreation (for example, clear vistas and fresh air). Air pollutants can deposit onto landscapes or exist in the air at levels that negatively affect water quality and ecosystem function (examples are algal blooms, mercury build-up in fish tissues, ozone damage, or the extirpation of rare plants).

The Forest Service must comply with Federal and State air quality laws and standards including the Clean Air Act and Wilderness Act. The 1970 Clean Air Act and amendments provides the foundation for protections of clean air on Federal lands. Under the Act, national ambient air quality standards (NAAQS) were established to protect human health and resources by identifying standards for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM_{2.5} and PM₁₀), and sulfur dioxide. All Federal, State, and private entities must comply with national ambient air quality standards. Monitoring on and near the national forest indicates that the Custer Gallatin complies with national ambient air quality standards. Smoke from wildfires is considered a natural part of the landscape and background conditions, and thus is exempt from national ambient air quality standards violations.

The 1977 Clean Air Act amendments direct Federal land managers to “preserve, protect, and enhance the air quality” in 156 mandatory class I national parks and wilderness areas. Class I areas (also known as class I airsheds) are wilderness areas that were designated before August 7, 1977, and are larger than 5,000 acres. All other land managed by Federal land managers is designated class II. Air quality-related values must be identified and protected in class I airsheds.

The Wilderness Act mandates that wilderness areas (class I and II) be preserved for wilderness character and managed to preserve and protect natural wilderness conditions. The Custer Gallatin does not manage any class I areas. There are two class II wilderness areas: the Absaroka-Beartooth Wilderness and Lee-Metcalf Wilderness. Yellowstone National Park and the Northern Cheyenne Reservation are both class I airsheds in close proximity to the Custer Gallatin.

The Custer Gallatin National Forest is a member of the Montana and Idaho Airshed Group, which implements a smoke management plan for these two states. The smoke management unit in Missoula, Montana, reviews, coordinates, and approves prescribed burning activities with a goal of allowing fire to function in its natural role while still meeting air quality standards. Despite these efforts, there can be temporary spikes in localized air pollution.

Air quality concerns on the Custer Gallatin include rising nitrogen levels (on the west side of the national forest), which may be coming from agricultural operations west or southwest of Montana. Smoke is also an air quality concern, including PM_{2.5} and other chemical constituents, from wildfires (local, regional,

and long-distance), which are predicted to increase in frequency, intensity, and duration, and parts of the Custer Gallatin near urban areas that experience frequent inversions.

Desired Conditions (FW-DC-AQ)

01 The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur.

Goals (FW-GO-AQ)

01 The Forest Service cooperates with Federal, State, and tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (for example, the Montana and Idaho Airshed Group) to minimize smoke impacts.

2.3.3 Soils (SOIL)

Introduction

National environmental laws governing national forest management have consistently identified two distinct mandates: Forest Service lands provide goods and services for the American public and management actions must maintain the land's inherent ability to produce those goods and services for the enjoyment and use of current and future generations. Soil and land productivity must not be reduced as a result of management actions. Soil productivity is considered to be maintained when the soil's capacity to support desired types and amounts of native vegetation remains unchanged from pre-disturbance levels.

Soils support terrestrial life by providing nutrients for plant growth through their ability to allow air and water to enter through the soil surface and circulate down through the soil profile, the ability to store water for subsequent plant use while also allowing for the drainage of excess water, the ability to buffer soil pH and detoxify contaminants, ability to limit both wind or water erosion, and the ability to support beneficial soil micro-organism populations as well as macro- and micro-invertebrates. All of the above are soil functions critical to sustaining the ability of national forest lands to provide desired goods and services for the public.

Each soil has its own inherent capacity to produce desired goods and services as well as inherent susceptibilities to degradation from different types of soil disturbance. Given the extensive land management practiced on national forests, opportunities are rare on Forest Service lands to increase soil productivity beyond the inherent capacity of local soil resources. Thus, inherent productivity of the soil plays a critical role in how these lands can and should be managed.

The effect of management actions on all of the above soil functions, relative to a soil's inherent potential, determines soil quality. Soil quality, in turn can be used as a measure of success in maintaining inherent soil productivity and, if needed, a road map for how to move towards recovery if soil productivity has been reduced. The key to success in restoring soil productivity, when reduced, is to work with natural processes of soil restoration and where possible enhance those processes.

Coarse woody debris play an essential role of improving overall soil fertility levels in conifer stands which inherently grow on low fertility soils. Coarse woody debris in contact with the ground surface also

provides a range of other soil benefits including moderation of soil temperature and moisture conditions and protecting the ground surface from erosion. Thus, maintaining adequate levels of coarse woody debris in managed conifer forests is an important component of maintaining soil productivity in these areas.

Desired Conditions (FW-DC-SOIL)

- 01** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits.
- 02** Areas of highly erodible soils or land types with high mass failure potential are not destabilized.
- 03** Organic substrates (vegetative litter, coarse woody debris, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions.
- 04** Coarse woody debris (downed wood greater than or equal to 3 inches diameter) is present across the forested landscape, and is variable in amount, size, species, and stages of decay across the forest both spatially and over time. Low amounts are found on warm, dry potential vegetation types, in developed recreation areas, and other areas where the concern for fire impacts to values at risk is elevated. Higher amounts occur in the cold and cool, moist potential vegetation types as well as riparian areas.

Standards (FW-STD-SOIL)

- 01** Vegetation management activities shall not exceed 15 percent detrimental soil disturbance (detrimental soil disturbance) for pre-existing plus new management-caused soil detrimental soil disturbance in activity areas. If pre-existing activity-caused detrimental soil disturbance levels already exceed 15 percent prior to a management action, then the total of prior plus new activity-caused detrimental soil disturbance must not exceed the pre-existing detrimental soil disturbance level and should move toward improvement.
- 02** Vegetation management activities in riparian management zones (riparian management zones), both the inner and outer, shall not exceed 12 percent detrimental soil disturbance for pre-existing plus new management-caused detrimental soil disturbance in activity areas within the riparian management zone. If pre-existing detrimental soil disturbance levels already exceed 12 percent detrimental soil disturbance in an activity area within the riparian management zone prior to a management action, then the total mitigation detrimental soil disturbance shall not exceed 12 percent with an expected, long-term trend towards continued improvement.

Guidelines (FW-GDL-SOIL)

- 01** Ground-based mechanical equipment used for vegetation management should not operate in areas where sustained grades exceed 35 percent in order to minimize the likelihood of downslope rill and gully erosion occurring along equipment tracks.
- 02** New temporary road construction should minimize long-term loss of topsoil material along road prisms, to limit the extent of long-term detrimental soil disturbance created as a result of soil displacement along the temporary road corridor.

- 03** After a road is decommissioned or the cessation of management activities on temporary roads, soil conditions along the road prism should be remediated corresponding to the site’s restoration potential using proven restoration methods, to improve both the efficiency and effectiveness of road decommissioning.
- 04** To maintain soil productivity, mechanical scarification used to prepare a seedbed for conifer reestablishment should not result in detrimental soil displacement.
- 05** The use of ground-based equipment for timber harvesting or temporary road construction should be avoided in areas of high landslide potential to maintain land stability and improve operator safety.
- 06** To limit degradation of topsoil resources and reduce the creation of new noxious weed infestation sites, a topsoil lift of no less than 6 inches and no more than 2-feet deep (based on properties of the local soil resource) should be removed separate from lower quality or less fertile subsoil and substrate materials for all new soil pit or trench excavations. This guideline only applies where an actual hole or trench is dug. It does not apply to excavations associated with the maintenance or construction of system roads or their associated drainage or erosion control features, or to the installation of water pipelines developments for livestock on grassland portions of the pine savanna where no restricting soil feature or features exist above the installation depth.
- 07** To maintain the productivity of conifer stands as well as all inner riparian management zones (inner riparian management zone), vegetation management prescriptions in those areas should ensure that sufficient quantities of coarse woody debris (CWD) are left on the ground site after timber harvesting. Table 1 identifies minimum levels of coarse woody debris to be retained after timber harvesting in vegetation management units as well as minimum distribution criteria. Coarse woody debris on the ground should be mainly comprised of the largest diameter, coarse woody material present. This guideline applies to all timber harvesting activities, including salvage.

Table 1. Minimum average levels of coarse woody debris (CWD) within each treatment unit after timber harvesting

R-1 Broad Potential Vegetation Type	Common Conifer Species Present	Minimum Average CWD (trees per acre) Fuels PPN*	Minimum Average CWD (trees per acre) all other PPN	Distribution
Warm Dry, Pine Savanna	Ponderosa pine	4	6	60% or more of each treatment unit at or above CWD minimum
Warm Dry, montane	Ponderosa pine Douglas-fir	6	8	60% or more of each treatment unit at or above CWD minimum
Cool Moist	Douglas-fir Lodgepole pine	7	10	60% or more of each treatment unit at or above CWD minimum
Cold	Engelmann spruce Subalpine fir Lodgepole pine Whitebark pine	10	14	60% or more of each treatment unit at or above CWD minimum

* PPN = primary purpose and need

- 08** Large burn pile footprints at landings should be scarified after burning in a manner that exposes the mineral soil surface over about 50 percent of the burned area so good soil seed contact can be obtained for seeded native species. Target levels may be adjusted slightly based on site conditions (management approaches).

2.3.4 Watershed, Aquatic, and Riparian Ecosystems

Introduction

This introduction provides a brief synopsis of aquatic and riparian components on the Custer Gallatin and the themes used for plan component development, including native fish, aquatic habitat, riparian areas, and water quality. National forest lands supply high quality water that supports a variety of uses throughout the Custer Gallatin. Watersheds, aquatic ecosystems, riparian areas, and wetlands have changed from historic conditions. Current conditions and trends indicate:

- A decline in westslope and Yellowstone cutthroat trout numbers in the montane portion of the planning area has occurred during the past several decades due primarily to invasive species, habitat alteration, and changes in climate. Westslope cutthroat trout and Yellowstone cutthroat core or conservation populations currently occupy approximately 9 percent and 46 percent, respectively, of their historic range within the plan area. They remain strong in some isolated stream reaches throughout the Custer Gallatin, particularly where natural barriers exist or barriers have been constructed to exclude nonnatives.
- The Custer Gallatin has a wide variety of angling opportunities amongst diverse habitats ranging from prairie sportfish ponds in the pine savanna units to rivers, streams, and alpine lakes in the montane units.
- Fisheries communities (composed of warm-water species) are generally less understood from a historical context in the pine savanna ecosystems, but the Ashland and Sioux Geographic Areas do have streams (intermittent and perennial) that provide habitat for native prairie fish, and other aquatic and semi-aquatic assemblages.
- Stream flow alterations occur throughout the planning area from both private and Federal lands. Flow alterations have resulted in habitat degradation leading to dewatering of critical habitats, stream alterations, and decreased low flows during critical times.
- Many inventoried road culverts are confirmed to be partial barriers or total barriers to native fish species during some part of the year. In some cases, these barriers may be beneficial for retention of native fish populations by creating refugia that excludes nonnative fish.
- The Montana Department of Environmental Quality (2014) lists 34 stream reaches on the Custer Gallatin National Forest as water quality impaired under the Clean Water Act, some of which are a result of forest activities. However, the Custer Gallatin has improved roads and watershed conditions such that those streams remaining listed have degraded conditions due to high background levels of sediments, contaminants, etc., and conditions that are outside of Forest Service control.
- The Custer Gallatin has been working to restore soil, watershed, and aquatic habitat conditions by implementing best management practices, removing excess roads, improving road conditions (reducing sediment), removing fish migration barriers, and implementing riparian conservation strategies.

- The Watershed Condition Framework Assessment completed in 2016 determined that 226 out of 273 (or 83 percent) of watersheds on the Custer Gallatin are in class 1 condition (functioning appropriately). There are 47 watersheds (or 37 percent) that are rated as class 2 (functioning at risk). There were no class 3 (non-functioning) watersheds. The most prevalent negative effect to montane watersheds were nonnative species displacement of native salmonids while in pine savanna watersheds the departure from expected aquatic ecosystem composition is difficult to quantify because of the lack of habitat reference sites. Three subwatersheds are currently designated as “priority” within the watershed condition framework where planning or ongoing restoration work is occurring; the Bozeman, Hyalite, and Shields Watersheds. Restoration work is also planned or ongoing in other drainages as priority under the watershed condition framework. The watershed prioritization process will occur intermittently throughout the life of this plan.
- Aquatic species of conservation concern for the Custer Gallatin are being identified at the regional level. The list can be reviewed at the Northern Region website at: [http://www.fs.usda.gov/goto/Northern Region/SCC](http://www.fs.usda.gov/goto/NorthernRegion/SCC).
- Riparian and wetland vegetation types are currently mapped on over 75,400 montane acres and 2,100 pine savanna acres of the Custer Gallatin National Forest, which is less than 3 percent of the plan area. Riparian areas are important elements of watersheds that provide critical transition zones linking terrestrial and aquatic ecosystems. Riparian management zones, with associated plan components, will be established to protect the ecological integrity of these areas.

2.3.5 Watershed and Aquatics (WTR)

Desired Conditions

- 01** Watershed features, including natural disturbance regimes and aquatic or riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity.
- 02** Spatial connectivity is prevalent within or between watersheds. Lateral, longitudinal, vertical, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These network connections provide unobstructed physical and chemical routes to areas critical for fulfilling life history requirements of aquatic, riparian-associated, and many upland species of flora and fauna.
- 03** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species.
- 04** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation.
- 05** The sediment regime within water bodies is within the within the range of conditions of the reference watersheds, as defined by agency monitoring. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
- 06** In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference

dimensions (such as, bankfull width, depth, entrenchment ratio, slope, and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, within the range of conditions of the reference watersheds, as defined by agency monitoring.

- 07** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.
- 08** Municipal watersheds provide clean drinking water for those downstream communities that derive their principal water from them.
- 09** Beavers play an important ecological role within suitable habitat by increasing water residence time and spatial extent of water on the landscape, and aquatic and riparian habitat complexity.
- 10** Riparian vegetation provides breeding, feeding and sheltering opportunities, as well as habitat connectivity and movement corridors for a wide range of terrestrial, semi-aquatic and avian wildlife species.
- 11** Instream and riparian habitat conditions in managed watersheds move towards conditions similar to those in reference watersheds (conditions such as, large woody debris recruitment, pool frequency and residual depth, width-to-depth ratios, stream shading and temperature, bank stability, etc.).
- 12** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (such as, total maximum daily loads) or is permanently above natural or background levels.

Goals

- 01** The Forest Service cooperates with Montana Fish Wildlife and Parks and South Dakota Fish and Game to reintroduce genetically pure native fish species in their historic range or introduce in locations the state(s) and the Custer Gallatin agree to for native fish species conservation.

Objectives

- 01** **Alternatives B and C:** Per decade, complete 600 miles of stream and headwater spring restoration; and 50 acres of lake, pond, and wetland restoration projects across the spectrum of montane and pine savanna habitats.

Alternative D: Per decade, complete 800 miles of stream and headwater spring restoration; and 100 acres of lake, pond and wetland restoration projects across the spectrum of montane and pine savanna habitats.

Alternatives E: Per decade, complete 200 miles of stream and headwater spring restoration; and 10 acres of lake, pond and wetland restoration projects across the spectrum of montane and pine savanna habitats.

- 02 Alternatives B and C:** Per decade, replace 5 to 7 stream crossing structures to meet Aquatic Organism Passage (AOP) design standards on National Forest System roads, prioritized in the Conversation Watershed Network.

Alternatives D: Per decade, replace 7 to 10 stream crossing structures to meet Aquatic Organism Passage (AOP) design standards on National Forest System roads, prioritized in the Conversation Watershed Network.

Alternatives E: Per decade, replace 1 to 3 stream crossing structures to meet Aquatic Organism Passage (AOP) design standards on National Forest System roads, prioritized in the Conversation Watershed Network.

- 03 Alternatives B and C:** Per decade, progress towards conservation of an at-risk aquatic species is made by completing 5 to 7 projects with design features that restore habitat or populations of such species.

Alternatives D: Per decade, progress towards conservation of an at-risk aquatic species is made by completing 8 to 10 projects with design features that restore habitat or populations of such species.

Alternatives E: Per decade, progress towards conservation of an at-risk aquatic species is made by completing 1 to 3 projects with design features that restore habitat or populations of such species.

Standards

- 01** Management activities in source water protection areas shall be consistent with applicable source water protection requirements and goals. Short-term effects from activities in source water protection areas may be acceptable when those activities support long-term benefits to source water protection areas and aquatic resources. Table 2 provides the current source water protection areas designated as municipal waters on the Custer Gallatin National Forest.

Table 2. Municipal waters of the Custer Gallatin National Forest

Community	Geographic Area	Source Water	Hydrologic Unit Code	Hydrologic Unit Name
Bozeman	Northern Gallatin Mountains	Bozeman Creek	100200080904	Bozeman Creek
Bozeman	Northern Gallatin Mountains	Hyalite Creek	100200081001	Upper Hyalite Creek
Bozeman	Bridger Mountains	Lyman Creek	100200080802	Lower Bridger Creek
Red Lodge	Absaroka Beartooth Mountains	West Fork Rock Creek ¹	100700060905	Lower West Fork Rock Creek
West Yellowstone	Madison Mountains	Whiskey Spring ¹	100200070204	Middle South Fork Madison River

1. Municipal groundwater wells currently supply municipal water.

Note: This list contains the source water protection areas currently designated as municipal water sources, although all water that originates on the Custer Gallatin could be used for municipal supply at some point downstream.

- 02** New, replacement, and reconstructed stream crossing sites (culverts, bridges, and other stream crossings) in fish-bearing streams shall accommodate at least the 100-year flow (unless site conditions or lack of resource values preclude installation of a structure that size) and allow the passage of fish.
- 03** Portable pump set-ups shall include containment provisions for fuel spills and fuel containers shall have appropriate containment provisions. Vehicles shall be parked in locations that avoid entry of spilled fuel into streams.
- 04** Project-specific best management practices (including the more protective of both Federal and the states' of Montana and South Dakota best management practices) shall be incorporated in land use and project plans as a principle mechanism for controlling non-point pollution sources, to meet soil and watershed desired conditions, and to protect beneficial uses.

Guidelines

- 01** To maintain stream channel stability and aquatic habitat, large woody debris should not be cut or removed from stream channels unless it threatens critical infrastructure or human safety, such as mid-channel bridge piers.
- 02** To maintain or protect spawning adult fish, juvenile fish, and fish eggs and embryos new or reconstruction management activities that have the potential to directly deliver sediment outside of natural levels to spawning and rearing habitat, should be limited to times outside of spawning, rearing, and incubation seasons unless the short term effects would be offset by a long term benefit.
- 03** To protect the ecological functions that beavers provide management actions to reduce beaver threats to infrastructure should use techniques that sustain beavers (such as, using pipes to reduce water levels, notching dams to restore streamflow).
- 04** To restore watersheds, management activities in watersheds with approved total maximum daily loads (TMDLs) should be designed to comply with the total maximum daily load allocations. Projects that produce short-term sediment or nutrient increases should result in a long-term decrease in sediment or nutrient delivery and sediment or nutrient yield in the stream system, which would comply with total maximum daily loads.
- 05** New and reconstructed water withdrawal systems (such as new stream diversions and associated ditches) should be screened to prevent fish and aquatic biota (such as amphibians) capture and water drafting or pumping sites shall also be screened and located away from native fish spawning locations.
- 06** When drafting water from streams, pumps should be screened to prevent capture of fish and other aquatic organisms such as amphibians. During the spawning season for native fish, pumping sites should be located away from spawning gravels.

2.3.6 Riparian Management Zones

Introduction

Riparian management zones are areas in watersheds near surface water where riparian and riparian-associated resources, functions, goods, and service receive primary emphasis, and where management activities are accordingly subject to specific standards and guidelines. Riparian management zones include riparian corridors, wetlands, intermittent streams, and other areas near surface water that are critical for maintaining the integrity of aquatic ecosystems, by (1) influencing the delivery of sediment, organic matter, and woody debris to streams; (2) enhancing root density and rooting depth to maintain or improve channel stability; (3) shading the stream; and (4) protecting surface and groundwater quantity and quality. Likewise, riparian habitats are disproportionately critical in providing habitat and habitat connectivity for fish, other aquatic biota, and wildlife.

Since land management actions (such as, thinning of conifers where they have expanded into riparian vegetation) may be necessary to achieve desired conditions within riparian management zones, riparian management zones are not intended to be “no touch zones,” but rather “carefully managed zones” with an increase in protections in close proximity to water resources. Various land-use activities (vegetation management, livestock grazing, recreation activities, etc.) within riparian management zones may be allowed at the project level (specifics are in the plan components) but riparian and aquatic conditions must be maintained, restored, or enhanced. All activities that cause soil compaction or soil erosion are precluded, minimized, or mitigated within riparian management zones.

To achieve watershed and riparian management zone desired conditions, the riparian management zone is broken into two areas called the inner and outer riparian management zones (table 3). Management activities are more restrictive in the inner riparian management zone than the outer riparian management zone and those differences are called out in specific plan components in this section. In general, the inner riparian management zone contains the riparian area itself, whereas the outer riparian management zone recognizes the need to manage the riparian ecotone (the transition between upland and riparian areas) differently than adjacent upland areas.

Desired Conditions

- 01** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism.
- 02** Riparian management zones are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge, and have an intact flow regime similar to historical flow patterns.

Table 3. Riparian management zones: Distances (in feet) and descriptions of inner and outer areas on each side of a stream reach, lake, pond or wetland by riparian management zone category with descriptions. The break location between inner and outer riparian management zones should be identified in the field based on site characteristics

Stream, Wetland, or Water Body Type	Minimum Distance: (Inner/Outer) Total	Riparian Management Zone Description
Category 1: Fish bearing streams	(100/100) 200	<p>The inner riparian management zone will consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the slope break or inner gorge where side slopes exceed 35 percent, or to the outer edges of the 100-year floodplain, or to the outer edge of riparian vegetation, or to 100-foot slope distance from the edge of the stream, whichever is greatest.</p> <p>The Category 1 outer riparian management zone is the space between the outer edge of the inner riparian management zone and a distance equal to the height of one site-potential tree, or 100-foot slope distance (200 feet total, including both sides of the stream channel), whichever is greatest.</p>
Category 2: Perennial and intermittent non-fish-bearing streams	(100/0) 100	<p>The inner riparian management zone will consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the slope break or inner gorge where side slopes exceed 35 percent, or to the outer edges of the 100-year floodplain, or to the outer edge of riparian vegetation, or to 100-foot slope distance from the edge of the stream, whichever is greatest.</p> <p>There is not an outer riparian management zone for Category 2.</p>
Category 3: Wetlands, fens/peatlands, greater than one acre, natural lakes/ponds, and constructed ponds*/reservoirs	(100/50) 150	<p>The inner riparian management zone will consist of the water body or wetland and the surrounding banks extending to the top of the slope break where side slopes exceed 35 percent, or to the outer edge of riparian vegetation, or to the extent of seasonally saturated soil, or the extent of unstable and potentially unstable areas or to 100-foot slope distance from the outer edge of the water body or wetland or maximum pool elevation of constructed ponds and reservoirs, whichever is greatest.</p> <p>The outer riparian management zone is the space between the outer edge of the inner riparian management zone; the extent of unstable and potentially unstable areas; or 50 feet slope distance, whichever is greatest.</p>
Category 4: Wetlands, fens/peatlands, seeps, and springs less than or equal to one acre or lands identified as landslide prone	(50/50) 100	<p>The inner riparian management zone will consist of the water body or wetland or landslide prone area and the surrounding area extending to the top of the slope break where side slopes exceed 35 percent, or to the outer edge of riparian vegetation, or to the extent of seasonally saturated soil, or the extent of unstable and potentially unstable areas or to 50-foot slope distance from the outer edge of the water body or wetland or landslide prone area or maximum pool elevation of constructed ponds and reservoirs; whichever is greatest.</p> <p>The outer riparian management zone is the space between the outer edge of the inner riparian management zone; the extent of unstable and potentially unstable areas; or 50 feet slope distance, whichever is greatest.</p>

If an already established road is located within the inner riparian management zone and is more than 50 feet from the ordinary high watermark or bank-full channel, then the inner riparian management zone can end at the toe of the road fill, so that the road prism and all uphill area of that point is considered part of the outer riparian management zone.

Riparian management zones do not apply to seasonal ditches that were constructed to deliver water to downstream users.

Riparian management zone protections do not apply to constructed ponds or reservoirs less than 1 acre, which are developed for the purpose and continued use of livestock watering. Constructed ponds or reservoirs greater than one acre, developed for the purpose and continued use of livestock watering, receive riparian management zone protections only if shorelines are composed of riparian vegetation and the pond or reservoir has a constructed outlet or spillway where water regularly is conveyed throughout the course of the year. Constructed ponds may be removed and rehabilitated for hydrologic and riparian restoration purposes as opportunities arise.

Standards

- 01** Vegetation management, using mechanical treatments, shall only occur in the inner riparian management zone if the purpose is to restore or enhance aquatic and riparian-associated resources. However, in the inner riparian management zone, non-mechanical vegetation treatments such as hand fuel treatments, prescribed fire, and sapling thinning may be authorized, as long as aquatic and riparian-associated resources are maintained or enhanced. Hazard trees may be removed for purposes such as protecting human safety.
- 02** Pesticides, other toxicants and chemicals, or bio-controls shall only be applied within riparian management zones if needed to maintain, protect, or enhance aquatic and riparian resources or to restore native plant communities.
- 03** Refueling activity, equipment maintenance, and storage of fuels and other toxicants shall be located outside of inner riparian management zone to minimize effects to aquatic resources. If refueling, equipment maintenance or storage is needed within riparian management zones, the locations must be approved by the Forest Service and have an approved spill containment plan that includes appropriate containment provisions.
- 04** Extraction of saleable mineral materials shall not be allowed within riparian management zones.

Guidelines

- 01** To reduce the likelihood of sediment input to streams and to reduce adverse effects to stream channels and riparian areas, placer activities (prospecting, exploration, and mining) should be conducted in a manner that precludes sediment input to streams. Processing facilities should be located outside of the inner riparian management zone and have containment provisions that minimize sediment and other by-products inputs to stream courses.
- 02** To reduce the likelihood of sediment input to streams and to reduce adverse effects to stream channels and riparian areas, new permanent livestock handling or loading facilities (for example, corrals), livestock handling activities, and livestock trailing should be located outside of the riparian management zone unless it can be demonstrated these facilities or handling activities will not affect the riparian area functionality or that such placement improves an existing situation. Livestock trailing is allowed when herding livestock away from riparian areas to uplands or to another pasture to meet riparian resource desired conditions.
- 03** To reduce the likelihood of sediment input to streams and reduce adverse effects to stream channels and riparian areas, temporary fire facilities (such as, incident bases, camps, staging areas, heli-spots, retardant batch plants, and other centers for incident activities) should be located outside of riparian management zones. When no practical alternative exists, all appropriate measures to maintain, restore, or enhance aquatic and riparian associated resources should be used.
- 04** To reduce the likelihood of sediment input to streams and reduce adverse effects to stream channels and riparian areas, the following activities should be avoided in riparian management zones: new permanent or temporary roads and the construction of machine fireline, except where necessary for stream crossings or where those activities would contribute to attainment of aquatic and riparian desired conditions.

- 05 To reduce the likelihood of sediment input to streams and reduce adverse effects to stream channels and riparian areas, new landings, skid trails, staging or decking should be located outside riparian management zones. If these activities are needed inside of riparian management zones, minimize the disturbance area footprint and locate activities outside the active floodplain.
- 06 To meet the role of downed or large woody debris in aquatic and riparian ecosystems, vegetation treatments inside riparian management zone should retain enough wood onsite to meet riparian ecosystem demands, except where they would be a threat to public health and safety.
- 07 To protect ecosystem functions of the inner riparian management zone, vegetation management in the outer riparian management zone should be specifically designed to ensure the ecosystem functions of the inner riparian management zone are protected.
- 08 To maintain thermal cover for aquatic systems and riparian biota, and to minimize the risk for potential wind-throw, clear-cut harvest should not occur in the riparian management zone, unless necessary for riparian restoration.
- 09 To ensure present and future woody debris recruitment into aquatic and riparian ecosystems and to ensure there are no adverse effects to aquatic habitat and biota from excessive sediment delivery and other direct and indirect effects, salvage harvest should not occur in inner riparian management zones.

Suitability

- 01 Riparian management zones are not suitable for timber production, but timber harvest, including by commercial means, may be allowed for purposes such as public safety, fuels reduction, riparian and riparian ecotone habitat restoration, and wildlife habitat enhancement.
- 02 Firewood gathering is not suitable within the inner riparian management zone.

2.3.7 Conservation Watershed Network (CWN)

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 pure westslope and Yellowstone cutthroat trout is prioritized, specifically in areas with an absence of non-native competition and also in pine savanna geographic areas where perennial water and native fish species overlap. Conservation watershed network tables and maps are located in appendix C.

Desired Conditions (FW-DC-CWN)

- 01 Conservation watershed networks have high quality water and habitat and functionally intact ecosystems that support native fish, aquatic, and other riparian-dependent species and contribute to conservation and recovery of westslope and Yellowstone cutthroat trout, arctic grayling, native prairie fish assemblages, and aquatic species of conservation concern.

Objectives (FW-OBJ-CWN)

- 01 Reduce sediment production on five to eight miles per year of National Forest System roads within the critical watershed network by enhancing the roadway drainage erosion control mechanisms.

Guidelines (FW-GDL-CWN)

- 01 To decrease sediment input to streams and retain or improve high quality habitat in the conservation watershed network, net increases (measured from beginning to end of each project) in number of stream crossings and road lengths should be avoided in riparian management zones, unless the net increase would improve ecological function in aquatic ecosystems.

2.3.8 Terrestrial Vegetation

Introduction

The Custer Gallatin supports a diversity of plant communities growing on sites that include warm, dry woodland, shrubland, and grassland foothills and prairies; montane to subalpine forests and open parklands; and cold, steep timberline and alpine areas. Riparian or wetland, aspen, woody draws and other less abundant communities are scattered throughout this broad and diverse landscape.

Conifer expansion into aspen, woody draws, shrublands, grasslands and meadows may in part reflect natural ecotone dynamics, but fire exclusion, climate, and grazing history have likely caused more extensive ecotone conifer colonization and infilling of more open-canopied pine savanna ecosystems than would be present under historic disturbance regimes.

Vegetation characteristics are influenced by inherent site features, such as soils and topography, which interact with dynamic system drivers, such as climate, vegetative succession, fire, insects, disease, invasive species, floods, droughts, and human uses and developments. Vegetation is also dynamic and varying across time and space. Plan components that address composition, structure, and function of vegetation communities represent the coarse filter. Coarse filter plan components are designed to support disturbance regimes that will maintain and reinforce the desired vegetation conditions.

The fine filter for vegetation is addressed by components specific to three categories of native plant species: (1) threatened, endangered, proposed, and candidate species which are designated by the U.S. Fish and Wildlife Service; (2) species of conservation concern, which are identified by the regional forester; and (3) other species or communities identified by the local unit which do not fall into the above categories, but are of local net importance.

Vegetation plan components are informed by multiple data sources, with emphasis placed on the natural range of variation. Natural range of variation is used as the ecological reference to assess ecosystem integrity. Additional factors include expected future climate conditions, resilience or resistance to disturbances, and wildlife habitat needs. Social and economic needs were also considered along with the natural range of variation to define desired conditions.

Desired conditions for vegetation in chapter 2 are to be applied at the forestwide scale. Certain ecosystem characteristics, such as tree size and density, are also applicable at the scale of individual geographic areas. Individual project areas are generally not expected to contain the full range of variability for any given ecological characteristic that would be found at the forestwide scale. Rather, projects and activities must either contribute towards or not preclude the achievement of the desired conditions at the national forest scale. Standards and guidelines are designed to ensure that project activities are conducted in a manner that move the Custer Gallatin towards desired conditions. Desired conditions may be achieved through both natural processes and management activities.

2.3.9 At-Risk Plant Species (PRISK)

Introduction

This section addresses plant species that are recognized as at-risk species under the Endangered Species Act or by the regional forester of the Forest Service. Federal at-risk species include those recognized as threatened, endangered, proposed, or candidate species under the Endangered Species Act by the U.S. Fish and Wildlife Service. At the time of the preparation of this forest plan, only whitebark pine (*Pinus albicaulis*) falls under the Endangered Species Act, as a candidate species. Whitebark pine is important as a keystone species providing a unique ecosystem function and contribution to grizzly bear habitat. The threats to its persistence on the landscape within the Greater Yellowstone Ecosystem are noted in the Regional Forester's rationale for listing the species as "at-risk." If any plants in the plan area become listed in the future, the general plan components would apply and additional species-specific components may be needed.

At-risk plant species designation also includes species of conservation concern, which are species other than federally recognized species that are known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long term in the plan area (36 Code of Federal Regulations 219.9; Forest Service Handbook 1909.12.52).

The identification of plant species of conservation concern is a dynamic process. New scientific information may prompt changes in the list of plant species of conservation concern over time. Because of the dynamic nature of species additions to or removals from the list over time, the species list will not be found in the forest plan, but rather will be a referenced list which will be maintained and updated by the regional forester over time. The Regional Forester's list of plant species of conservation concern for the Custer Gallatin National Forest and associated species-specific evaluation of distribution, abundance, population trends, habitat trends, habitat attributes, and relevant threats should be referenced for details and can be reviewed at the Northern Region land management planning webpage: <https://www.fs.usda.gov/detail/r1/landmanagement/planning/?cid=fseprd500402>.

Botanical surveys focus on increasing information about at-risk plant species and additional plant species that may qualify as at-risk plant species in the future, but for which information is currently lacking to make any needed changes to the list by the regional forester.

Forest Service Manual 2670 provides additional at-risk species management direction. Applicable weed management environmental analysis decisions (Custer National Forest Noxious Weed Management Environmental Impact Statement and Record of Decision [2006] and the Gallatin National Forest Noxious and Invasive Weed Treatment Project Environmental Impact Statement and Record of Decision [2005]) or subsequent environmental analysis decisions provide protection measures to follow when treating invasive plants near or in at-risk plant populations.

Desired Conditions (FW-DC-PRISK)

In addition to desired conditions outlined below, meeting or moving towards the desired conditions outlined for each of the broad potential vegetation types found in the terrestrial vegetation and invasive species sections are intended to also provide for long-term persistence of at-risk plant species. Associated broad potential vegetation types for at-risk plant species' habitats and unique habitats for

individual species can be viewed at the Northern Region land management planning webpage:
<https://www.fs.usda.gov/detail/r1/landmanagement/planning/?cid=fseprd500402>.

- 01** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.

Goals (FW-GO-PRISK)

- 01** The Custer Gallatin National Forest cooperates with the Greater Yellowstone Coordinating Committee-Whitebark Pine Subcommittee on whitebark pine conservation strategies and adaptive management of habitat.
- 02** The Custer Gallatin National Forest works with other agencies and landowners to expand inventories, identify potential habitat for at-risk species, and promote protection and restoration of associated habitats.
- 03** The Custer Gallatin National Forest collaborates with Federal and State agencies, Tribes and other partners regarding applicable conservation plans in seeking progress towards conservation of at-risk plant species.

Objectives (FW-OBJ-PRISK)

- 01** **Alternatives B and C:** Progress towards conservation of an at-risk plant species is made by completing at least two projects per decade with design features that restore habitat or populations of such species.

Alternative D: Progress towards conservation of an at-risk plant species is made by completing at least three projects per decade with design features that restore habitat or populations of such species.

Alternative E: Progress towards conservation of an at-risk plant species is made by completing at least one project per decade with design features that restore habitat or populations of such species.

Standards (FW-STD-PRISK)

- 01** Ground disturbing vegetation management activities that have potential to adversely affect the long-term persistence of at-risk plant populations shall be avoided or mitigated.
- 02** When treating invasive plants in or near at-risk plant occurrences, protective measures shall follow those outlined for sensitive plant species in the Gallatin and Custer National Forest Noxious Weed Management Environmental Impact Statements and Record of Decisions, 2005 and 2006, respectively, or for at-risk plant species in subsequent weed management National Environmental Policy Act decision

Guidelines (FW-GDL-PRISK)

- 01** When project -specific analysis determines that management activities may potentially impact known at-risk plant populations, mitigation or protection measures should be provided to maintain the populations or sustain habitats of at-risk plant.

- 02 Wildfire control lines and retardant should not be placed within known populations of at-risk plant species with the exception of where they may be allowed for purposes of restoration or being advantageous to the at-risk plant species, or when needed to protect human life or private property.
- 03 When conducting management activities in or near whitebark pine trees or stands identified for collection of scion, pollen, or seed; areas identified as important for cone production or blister rust resistance; and whitebark pine plantations, project-level design criteria or wildland fire management strategies should protect them from potential loss to support the recovery or long-term persistence of this species.

2.3.10 Forested Vegetation (VEGF)

Introduction

Forested vegetation plan components are designed to maintain and enhance ecological integrity, diversity, function, and resiliency while contributing to social and economic sustainability as required by the 2012 Planning Rule. Desired conditions are based on an analysis of the natural range of variation for key ecosystem characteristics. This analysis provides an understanding of how ecosystems are dynamic and change over time in a manner that is resilient to perturbations and disturbance. As such, the natural range of variation is a guide to understanding how to maintain or restore a resilient ecosystem with structural and functional properties that will enable it to persist into the future. Although the natural range of variation is the underpinning, desired conditions also represent an integration of additional factors such as wildlife habitat needs, existing or anticipated human use patterns, potential future climate conditions, resiliency to future disturbances, and ecosystem services that may be desired (such as reduction of fire hazard or production of forest products).

The forested Vegetation (VEGF) section deals exclusively with lands with the potential of being forested, not areas such as grasslands, shrublands or alpine environments. By definition, these lands are found on one of the three forested Northern Region Broad Potential Vegetation Types found on the Custer Gallatin: cold, cool moist, and warm dry. Due to important differences in species composition and biophysical setting, the warm dry potential vegetation type has been divided into two zones: montane and pine savanna. Forested desired conditions vary by broad potential vegetation types due to important differences in climatic conditions, productivity, biodiversity, and disturbance regimes. Broad potential vegetation types essentially represent aggregations of similar biophysical environments (such as climate, aspect, and soil characteristics) that produce plant communities of similar composition, structure, and function. The vegetation communities that would develop over time, given no major disturbances (the climax plant community), would be similar within a potential vegetation type. However, existing vegetation condition may vary widely on a potential vegetation type, reflecting each site's unique history, pattern of disturbances, and point in time along the successional pathways. The key ecosystem characteristics below change through time whereas potential vegetation types generally remain constant.

The desired ranges apply to the forestwide and at the geographic area scales as indicated and would not necessarily be appropriate to apply at smaller scales, such as project areas. Rather, projects and stand-level treatments would contribute to the broad desired conditions, and not preclude their achievement. Fluctuations in vegetation conditions over time are expected. Managing a particular vegetation characteristic at the upper, lower, or mid-point of the desired range may be appropriate, as influenced by

other ecological, social, or economic objectives. Appendix A provides more discussion on how to interpret and manage towards desired conditions for forested vegetation.

Desired Conditions (FW-DC-VEGF)

- 01** The amount and distribution of forest cover types supports the natural diversity of seral stages, habitats, and species diversity across the landscape and allows for appropriate recruitment and responses following disturbances. The desired condition for the distribution of dominance types is shown in table 4. Desired condition ranges apply at the forestwide scale.
- 02** The plan area supports the natural diversity and distribution of native tree species, generally within the natural range of variation. This diversity and distribution supports the resilience and adaptive capacity of individual tree species. The forestwide desired condition for presence of tree species is described in table 5.

Table 4. Existing and desired conditions for coniferous forest dominance types (percentage of forest area in the dominance type). Desired condition applies to lands with a forested potential vegetation, at the forestwide scale

Dominant Species ¹	Desired Range ² (% of Area)	Existing Condition ³ (% of Area)
Douglas fir	15% - 30%	23%
Ponderosa pine	10% - 15%	8%
Lodgepole pine	15% - 30%	24%
Engelmann spruce/Subalpine fir	10% - 20%	12%
Whitebark pine	15% - 20%	14%

- 1. Dominance reflects the most common tree species in a stand
- 2. Desired condition is informed by a natural range of variability analysis using SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (appendix D)
- 3. Existing condition is from the “Dom40” attribute of Northern Region Vegetation Map data based on 2015 imagery (Brown, 2016) and does not include recently disturbed forest. Existing condition values do not sum to 100% because approximately 15% of the forested vegetation is in an early seral condition and not associated with dominance by any particular species or is dominated by minor species such as aspen

Table 5. Existing and desired for tree species presence (percentage of forested area where particular species are present). Desired condition applies to lands with a forested potential vegetation, at the forestwide scale

Species	Desired Range ¹ (% of Area)	Existing ² (% of Area)
Douglas fir	20% - 40%	26% (22% - 29%)
Ponderosa pine	10% - 15%	9% (7% - 12%)
Lodgepole pine	20% - 40%	32% (28% - 36%)
Engelmann spruce	20% - 30%	34% (29% - 37%)
Subalpine fir	30% - 40%	42% (37% - 45%)
Whitebark pine	15% - 25%	20% (17% - 23%)

- 1. Desired range refers to the proportion of forested area with at least one live tree of the species per acre, in any size class. Range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (appendix D).
- 2. Existing condition (with 90 percent confidence limit) comes from the Northern Region Forest Inventory and Analysis Summary Database v. 1.9.12.

- 03** The plan area supports a diversity of successional stages that is ecologically resilient and sustainable. Table 6 represents the desired condition of successional stages (estimated by size classes) across the

landscape. The location and abundance of size classes fluctuate over time as forests develop, are influenced by disturbances, and may be limited by site productivity and species composition. The range of desired conditions allows for variations in the mix of structural stages to respond to potential changes in climate. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales.

Table 6. Existing and desired conditions for tree size classes within Northern Region Broad Vegetation Types. Desired condition applies to lands with a forested potential vegetation, at the forestwide and geographic area scales

Northern Region Broad Potential Vegetation Type ¹	Size Class ²	Desired Range ³ (% of Area)	Existing ⁴ (% of Area)
Cold	Seedling and Sapling (<5" DBH)	5% - 25%	8%
	Small Tree (5–9.9" DBH)	5% - 25%	36%
	Medium Tree (10–14.9" DBH)	50% - 75%	55%
	Large tree (15" + DBH)	5% - 20%	1%
Cool Moist	Seedling and Sapling (<5" DBH)	5% - 35%	15%
	Small Tree (5–9.9" DBH)	5% - 30%	22%
	Medium Tree (10–14.9" DBH)	35% - 60%	60%
	Large tree (15" + DBH)	10% - 25%	3%
Warm Dry-montane	Seedling and Sapling (<5" DBH)	10% - 40%	23%
	Small Tree (5–9.9" DBH)	5% - 15%	24%
	Medium Tree (10–14.9" DBH)	20% - 35%	50%
	Large tree (15" + DBH)	30% - 60%	3%
Warm Dry-Pine Savanna	Seedling and Sapling (<5" DBH)	5% - 35%	38%
	Small Tree (5–9.9" DBH)	1% - 25%	6%
	Medium Tree (10–14.9" DBH)	1% - 25%	48%
	Large tree (15" + DBH)	55% - 95%	8%

1. Northern Region Broad Potential Vegetation Type is a coarse grouping of Northern Region Habitat Type Groups that is applicable for broad-scale analysis and monitoring
2. Size class is the average diameter class of live trees, shown as ranges of diameter at breast height, or 4.5 feet above ground level. A stand within a particular size class may contain trees of multiple diameters, smaller or larger than the average class range
3. Desired condition is informed by a natural range of variability analysis using SIMPPLE, a spatially explicit, landscape level, dynamic simulation model (appendix D)
4. Existing condition is forestwide. Data Source: Northern Region Vegetation Map data based on 2015 imagery (Brown, 2016)

04 The plan area supports a range of forest densities across the landscape that is resilient and sustainable. Table 7 displays the desired condition ranges for the percent of each broad potential vegetation type in each density class. The range of desired conditions allows for variations in the mix of density classes across the landscape to respond to potential changes in climate. Low-density vegetation conditions provide resilience to drought stress, fires, and insect and disease outbreaks. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales.

Table 7. Existing and desired conditions for density classes within Northern Region Broad Vegetation Types. Desired condition applies to lands with a forested potential vegetation, at the forestwide and geographic area scales

Northern Region Broad Potential Vegetation Type ¹	Density Class ²	Desired Range ³ (% of Area)	Existing ⁴ (% of Area)
Cold	Low (<40% canopy cover)	20% - 65%	26%
	Medium (40–60% canopy cover)	20% - 55%	22%
	High (>60% canopy cover)	15% - 30%	52%
Cool Moist	Low (<40% canopy cover)	10% - 35%	22%
	Medium (40–60% canopy cover)	25% - 45%	18%
	High (>60% canopy cover)	30% - 65%	60%
Warm Dry -montane	Low (<40% canopy cover)	35% - 65%	36%
	Medium (40–60% canopy cover)	30% - 50%	19%
	High (>60% canopy cover)	5% - 20%	45%
Warm Dry -Pine Savanna	Low (<40% canopy cover)	60% - 95%	76%
	Medium (40–60% canopy cover)	5% - 20%	22%
	High (>60% canopy cover)	5% - 25%	2%

1. Northern Region Broad Potential Vegetation Type is a coarse grouping of Northern Region Habitat Type Groups that is applicable for broad-scale analysis and monitoring
2. Density classes are defined by average canopy cover. Canopy cover refers to the proportion of the forest floor covered by the vertical projection of tree crowns
3. Desired condition is informed by a natural range of variability analysis using SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (appendix D)
4. Existing condition is forestwide. Data Source: Northern Region Vegetation Map data based on 2015 imagery (Brown, 2016)

05 Snags (standing dead trees) occur within all forested potential vegetation and cover types to provide adequate habitat for snag-dependent wildlife. Snags vary in amount and distribution across the landscape over time based on site productivity, species composition, and disturbance patterns such as wildfire, wind, insects, and disease. A range of decay classes is present. The average desired quantity of snags (snag density) is described in table 8. The desired condition for the distribution of snags, defined as the percent of the area containing at least one snag of a given size class, is shown in table 9. While achieving these desired average conditions at large scales, snags are unevenly distributed across the forest with densities that are generally higher in riparian areas to provide for snag-dependent species and woody debris in streams and lower along roads and in developed sites or other areas where the concern for human safety is elevated. Individual stands may have no snags, or a higher quantity, depending upon site-specific conditions. Desired condition ranges for each forest type apply at both the forestwide and geographic area scales.

Table 8. Average existing and desired conditions for snag density; 90% confidence limit shown in (). Desired condition applies at the forestwide and geographic area scales

Snag Analysis Group ¹	Snags per Acre 10"+ Existing ²	Snags per Acre 10"+ Desired ³	Snags per Acre 15"+ Existing ²	Snags per Acre 15"+ Desired ³	Snags per Acre 20"+ Existing ²	Snags per Acre 20"+ Desired ³
Lodgepole Pine	22.4 (16.5–29)	30.7 (21.9–40.3)	3.7 (2.3–5.3)	4.2 (2.5–6.1)	0.6 (0.1–1.1)	0.8 (0.1–1.6)
Warm Dry	9.3 (6.6–12.5)	9 (3.9–15.7)	2.1 (1.3–3)	1.5 (0.3–3)	0.5 (0.1–0.9)	0.2 (0.1–0.6)
Cold	28.4 (23.1–33.6)	27.5 (21.8–33.6)	8.2 (6.2–10.3)	7.9 (5.9–10.1)	2.1 (1.3–3)	2.1 (1.2–3)
Cool Moist	19.9 (15–25.3)	22.5 (16.9–28.7)	6.3 (4.4–8.4)	7.1 (4.9–9.5)	1.6 (0.8–2.6)	1.8 (0.8–3)

1. Snag analysis groups are consistent with the Northern Region Broad Potential Vegetation Types except that areas dominated by lodgepole pine are separated.
2. Existing condition (with 90% confidence limit) is forestwide average and comes from the Northern Region Summary Database v. 1.9.12.
3. Desired condition is also a forestwide average and is derived from snag levels (with 90% confidence interval) found in predominantly unmanaged areas of the Custer Gallatin National Forest. Data source: Northern Region Summary Database v. 1.9.12

Table 9. Existing and desired conditions for snags [90% confidence limit shown in ()]. Desired condition applies at the forestwide and geographic area scales

Snag Analysis Group ¹	% of Area with at least one snag per Acre 10"+ Existing ²	% of Area with at least one snag per Acre 10"+ Desired ³	% of Area with at least one snag per Acre 15"+ Existing ²	% of Area with at least one snag per Acre 15"+ Desired ³	% of Area with at least one snag per Acre 20"+ Existing ²	% of Area with at least one snag per Acre 20"+ Desired ³
Lodgepole Pine	36% (29% - 43%)	47% (37% - 56%)	12% (8% - 17%)	15% (9% - 21%)	3% (1% - 5%)	4% (1% - 8%)
Warm Dry	20% (16% - 25%)	17% (10% - 25%)	8% (5% - 11%)	5% (1% - 10%)	3% (1% - 5%)	2% (0% - 4%)
Cold	43% (37% - 49%)	44% (37% - 51%)	23% (18% - 28%)	24% (18% - 30%)	9% (6% - 13%)	10% (6% - 13%)
Cool Moist	39% (32% - 47%)	44% (36% - 52%)	21% (16% - 27%)	25% (18% - 32%)	9% (5% - 14%)	10% (5% - 16%)

1. Snag analysis groups are consistent with the Northern Region Broad Potential Vegetation Types except that areas dominated by lodgepole pine are separated (appendix D).
2. Existing condition (with 90% confidence limit) comes from the Northern Region Summary Database.
3. Desired condition is also a forestwide average and is derived from snag levels (with 90% confidence interval) found in predominantly unmanaged areas of the Custer Gallatin National Forest. Data source: Northern Region Summary Data Base

06 The amount of wildland fire per decade is within the natural range of variation to maintain resilient ecological conditions and adequate habitat for snag-dependent wildlife. Table 10 displays the desired condition ranges for each broad potential vegetation type. Desired condition ranges for each forest type apply at both the forestwide and geographic area scales.

Table 10. Existing and desired conditions for average amount of wildland fire per decade within Northern Region Broad Vegetation Types. Desired condition applies to lands with a forested potential vegetation, at the forestwide scale

Northern Region Broad Potential Vegetation Type ¹	Fire Severity Classification ²	Desired Range ³ (% of Area)	Existing ⁴ (% of Area)
Cold	Low Severity	0% – 1%	1%
	Mixed and High Severity ⁵	1% – 15%	3%
Cool Moist	Low Severity	0% – 5%	1%
	Mixed and High Severity	1% – 20%	4%
Warm Dry-montane	Low Severity	0% – 15%	3%
	Mixed and High Severity	10% – 30%	14%
Warm Dry-Pine Savanna	Low Severity	15% – 75%	9%
	Mixed and High Severity	0% – 20%	20%

1. Northern Region Broad Potential Vegetation Type is a coarse grouping of Northern Region Habitat Type Groups that is applicable for broad-scale analysis and monitoring.
2. Fire severity classification is defined in Fire Regime Condition Class Guidebook (National Interagency Fuels, 2010) .
3. Desired condition is informed by a natural range of variability analysis using SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (appendix D).
4. Existing comes from 2006 to 2015 Monitoring Trends in Burn Severity (MTBS) data.
5. Does not apply to whitebark pine covertypes (areas currently dominated by whitebark pine) where the desired condition is no moderate or high severity fire.

07 Landscape-scale patch configuration and composition is conducive to ecological processes operating within their natural range of variation including the extent, intensity and frequency of disturbance events, to provide for habitat connectivity, wildlife movement and gene flow. In montane ecosystems, the density of patches per square mile is doubled relative to 2017. In particular, large, contiguous patches of medium-sized, closed canopy forest conditions are reduced (smaller percentage of landscape) as well as disaggregated to reduce contagion and increase landscape-level ecosystem diversity and heterogeneity. In turn, the extent and density of early and late seral patches is increased. Early seral conditions are also less aggregated and more evenly distributed across the landscape resulting in greater diversity and contrast among patches. Table 11 shows the desired patch size distribution at the geographic area and forestwide scale.

08 The extent, concentration and distribution of large live tree structure is sufficient to provide structural diversity, wildlife habitat, future snags, and potential future late-seral forest conditions. The desired range of large tree structure is shown in table 12. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales.

Table 11. Current and desired patch size distribution for three broad seral stages in each Northern Region Broad Potential Vegetation Type. Desired condition applies to lands with a forested potential vegetation, at the forestwide scale

Northern Region Broad PVT	Patch Size (Acres)	Early-Seral (0-5" DBH): Current 1 (% of PVT)	Early-Seral (0-5" DBH): Desired (% of PVT)	Mid-Seral (5-15" DBH): Current1 (% of PVT)	Mid-Seral (5-15" DBH): Desired (% of PVT)	Late-Seral (>15" DBH): Current1 (% of PVT)	Late-Seral (>15" DBH): Desired (% of PVT)
Cold	<40	5%	3% - 6%	10%	11% - 16%	1%	11% - 14%
	40-100	1%	1% - 2%	5%	4% - 8%	0%	4% - 6%
	100-500	2%	1% - 5%	11%	6% - 14%	0%	7% - 11%
	500-1,000	1%	0% - 2%	5%	2% - 6%	0%	3% - 6%
	>1,000	1%	0% - 8%	59%	3% - 16%	0%	8% - 32%
Cool Moist	<40	6%	5% - 11%	13%	11% - 14%	2%	12% - 15%
	40-100	2%	1% - 4%	8%	4% - 6%	1%	4% - 5%
	100-500	3%	1% - 6%	14%	6% - 10%	1%	6% - 9%
	500-1,000	1%	0% - 2%	6%	2% - 5%	0%	2% - 4%
	>1,000	5%	0% - 8%	39%	4% - 15%	0%	8% - 19%
Warm Dry - montane	<40	7%	7% - 15%	14%	10% - 16%	3%	19% - 23%
	40-100	2%	2% - 4%	7%	2% - 4%	1%	6% - 9%
	100-500	2%	3% - 6%	13%	2% - 5%	1%	7% - 15%
	500-1,000	1%	1% - 3%	5%	0% - 2%	0%	2% - 6%
	>1,000	10%	1% - 10%	36%	0% - 4%	0%	4% - 23%
Warm Dry - pine savanna	<40	5%	1% - 11%	8%	0% - 9%	3%	5% - 6%
	40-100	2%	0% - 1%	4%	0% - 2%	1%	2% - 3%
	100-500	4%	0% - 4%	7%	0% - 5%	1%	4% - 7%
	500-1,000	3%	0% - 3%	4%	0% - 3%	1%	2% - 4%
	>1,000	24%	0% - 20	32%	0% - 21%	1%	35% - 76%

Data Source: Northern Region Vegetation Map data based on 2015 imagery (Brown, 2016)

Table 12. Existing and desired conditions for large live tree structure.¹ Desired condition applies to lands with a forested potential vegetation, at the forestwide and geographic area scale

Northern Region Broad Potential Vegetation Type ²	Desired Range ³ (% of area)	Existing ⁴ (% of area)
Cold	45%–80%	26% (21%–30%)
Cool Moist	30%–60%	33% (27%–40%)
Warm Dry-montane	45%–80%	31% (24%–39%)
Warm Dry-Pine Savanna	55%–95%	13% (8%–18%)

1. Large tree structure refers specifically to stands with 5 live trees greater than 15 inches in the warm dry broad potential vegetation type, 10 live trees greater than 15 inches in the cool moist broad potential vegetation type, and 8 live trees greater than 15 inches in the cold broad potential vegetation type.
2. Northern Region Broad Potential Vegetation Type is a coarse grouping of Northern Region Habitat Type Groups that is applicable for broad-scale analysis and monitoring.
3. Desired condition is informed by a natural range of variability analysis using SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (appendix D).
4. Existing condition (with 90% confidence limit) comes from the Northern Region Summary Database v. 1.9.12.

09 Forest composition, structure, and pattern allows for native forest insect and diseases to occur across their native extent and affect vegetation at a scope and scale consistent with their natural role. Forests impacted by insects and disease provide structural features including snags, downed wood, and decaying live trees important for wildlife habitat.

- 10** The amount of old growth is maintained or increased relative to existing condition in table 13. The location and condition of old growth is dynamic over time. Development and maintenance of old growth stands is influenced by succession, natural disturbance regimes, silvicultural treatments, and climate. Landscape-level resiliency is provided by promoting a mosaic of younger forests to replace old growth when it is killed by stand-replacing events. The desired condition of old growth is described in table 13.

Table 13. Forestwide desired and existing condition of old growth

Northern Region Broad Potential Vegetation Types	Existing Condition	Desired conditions
Forestwide	17% (15% - 20%)	Old growth is distributed widely across the forest, and levels vary depending on available compositions and structures, disturbance levels, and management objectives. The amount of old growth is generally similar to or greater than that of the existing condition. Old growth distribution that complements habitat connectivity is desired. Old growth is resilient to impacts that might result in the loss of old growth characteristics, such as insect infestations, wildfire, and drought. Old growth contains components that contribute to high quality habitat, including large or very large live trees with rot or broken tops, snags, downed woody material, and a diversity of tree size classes and canopy layers. A variety of old growth types are present.
Warm Dry-montane	4% (1% - 6%)	Old growth is dominated by Douglas-fir, often in large patches with an uneven-aged and irregular tree distribution. Stands are resilient to low severity disturbance. Other species such as juniper and aspen are valuable habitat components.
Warm Dry-Pine Savana	3% (1% - 6%)	Old growth is dominated by pure stands of large, fire-resistant ponderosa pine, in various patch sizes with an uneven-aged and irregular tree distribution. Stands are resilient to low severity disturbance.
Cool Moist	22% (16% - 27%)	Old growth in this broad potential vegetation type may be subject to wider pulses of availability, due to the preponderance of lodgepole pine and high severity low frequency disturbance regimes. Old growth includes spruce/fir or Douglas-fir dominated stands, often with dense canopy layers, as well as even-aged lodgepole pine.
Cold	32% (26% - 37%)	Old growth in this broad potential vegetation type generally consists of whitebark pine, Engelmann spruce, and subalpine fir, with stand-level resiliency and open structures desired in whitebark pine types versus spruce/fir types which may be denser and more layered.

Old growth forests are defined specifically as forests that meet the minimum criteria established for the Northern Region of the Forest Service (Green et al., 2011) unless more current regionally-directed best available science becomes available.

Existing condition shown is the mean percent of old growth with the 90% confidence interval (see glossary) shown in parenthesis. Source is Northern Region Summary Database, Forest Inventory and Analysis data.

Objectives (FW-OBJ-VEGF)

- 01** Alternatives B and C: Implement five to eight forested vegetation management projects per decade with explicit primary or secondary purposes of benefitting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and general terrestrial ecosystem conditions.

Alternative D: Implement eight to ten forested vegetation management projects per decade with explicit primary or secondary purposes of benefitting wildlife, whitebark pine and other at-risk

species habitat, pollinator habitat, non-commercial vegetation, and general terrestrial ecosystem conditions.

Alternative E: Implement two forested vegetation management projects per decade with explicit primary or secondary purposes of benefitting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and general terrestrial ecosystem conditions.

- 02 Alternatives B and C:** Each decade 600 to 750 acres treated by forested vegetation management projects have explicit primary or secondary purposes of benefitting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and general terrestrial ecosystem conditions.

Alternative D: Each decade 800 acres treated by forested vegetation management projects have explicit primary or secondary purposes of benefitting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and general terrestrial ecosystem conditions.

Alternatives E: Each decade 500 acres treated by forested vegetation management projects have explicit primary or secondary purposes of benefitting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and general terrestrial ecosystem conditions.

Guidelines (FW-GDL-VEGF)

- 01** To contribute to biodiversity and landscape heterogeneity, as well as provide habitat for old-growth-associated plant and animal species, vegetation management (including timber harvest, fuels treatment, or prescribed fire) in old growth other than lodgepole pine, should be used only to achieve one or more of the following purposes:
1. To maintain or restore old growth habitat characteristics and ecosystem processes.
 2. To increase resilience to disturbances or stressors (such as drought, high severity fire, bark beetles) that may have negative impacts on old-growth characteristics or abundance at stand or landscape scales.

Exceptions to this guideline are allowed to address imminent concerns for human safety or infrastructure that is essential to community welfare (such as, utilities, communications). Old growth should be defined by criteria presented in Green et al. (2011) or other regionally-directed best available science.

- 02** To maintain habitat connectivity and minimize disturbance of old-growth associated wildlife, road construction (permanent or temporary) or other developments should be avoided in old growth unless access is needed to implement vegetation management activities and purposes as outlined in FW-GDL-VEGF-01.
- 03** To maintain snags (standing dead trees) over the long term for wildlife habitat and ecosystem processes, all vegetation management projects should retain at least 40 snags per 10 acres. Due to their rarity and high value for wildlife, the largest snags available should always be prioritized for retention. Guideline applies as an average of treatment units across a project area and allows for variation in snag retention among treatment units with the intent of preserving the most desirable

snags. Snags need not necessarily be present on every acre or in every treatment unit; they may be clumped as appropriate for the site, species, and existing snag distribution. If fewer than the minimum desired snags are present, live trees should be retained within treatment units with a preference for the largest and most decadent trees available. Large, live replacement trees may also count FW-GDL-VEGF-05. Trees with evidence of rot or wildlife use are preferred. Live replacement trees do not need to be retained where retention is not possible due to operational limitations associated with harvest or burning implementation. Snags should be retained greater than 300 feet away from roads in areas open for firewood collection. Exceptions to the snag retention guideline may occur in areas where the minimum number of snags or live replacement trees of sufficient sizes are not present prior to management activities and where there is elevated concern with public safety or fire risk (such as, developed sites, near landings, and in areas adjacent to infrastructure).

- 04 If snags retained to meet FW-GDL-VEGF-03 are felled (for safety concerns) during vegetation management activities (such as, timber harvest), they should be left on site to provide coarse woody debris. The purpose of this guideline is to maintain snags (standing dead trees) over the long term for wildlife habitat and ecosystem processes. Exceptions may occur where there is elevated concern with public safety or fire risk (such as, developed sites and areas adjacent to infrastructure).
- 05 Vegetation management prescriptions should retain, on average, 50 live trees per 10 acres greater than 15 inches in the warm dry broad potential vegetation type, 100 live trees per 10 acres greater than 15 inches in the cool moist broad potential vegetation type, and 80 live trees per 10 acres greater than 15 inches in the cold broad potential vegetation type. Guideline applies as an average across treatment units. Large live trees need not be present on every acre; they may be clumped as appropriate for the site and species. If the minimum amount of large or very large trees are not present, leave all that are available. No replacements or smaller sizes need be left unless desired in the site-specific prescription.

The purpose of this guideline is to maintain large tree structure in order to provide for resilience, future seed sources, structural diversity and wildlife habitat, future snags and downed wood, and to increase future management options. Trees best suited to leave are the longest-lived, windfirm, most fire adapted species available. Exceptions may occur when there are no or fewer desirable large trees available due to factors such as insects, disease, lack of wind-firmness, lack of desirable species, or where retention is not possible due to operational limitations associated with harvest or burning implementation. Retained trees may also function as replacement snags, or be mixed in clumps with snags to meet FW-GDL-VEGF-03.

2.3.11 Grassland, Shrubland, Woodland, Riparian, and Alpine Vegetation (VEGNF)

Introduction

This section includes plan components that apply to grassland, shrubland, woodland, riparian, alpine, and sparse vegetation. Shifts in plant composition can occur by natural forces or as a result of human actions. Disturbances are natural and necessary parts of all ecosystems. Healthy ecosystems are resilient or able to recover if external disturbances occur, thereby allowing various combinations of plant species and seral states to fluctuate over time. Invasive plant species establishment and conifer encroachment can pose threats to grassland, shrubland, woodland, and riparian ecosystem resilience.

In some cases, it may take many years to develop conditions that meet desired conditions. If an area has recently experienced a large extent wildfire, it can be many years before the necessary structural complexity can develop at a landscape level. Conversely, an area with little disturbance over many years may be in a dense canopy cover.

Other vegetation types not described in the following section or appendix D exist on the Custer Gallatin in minor amounts. Project level desired conditions may need to be determined on a project specific basis based on best available science and local information.

Desired Conditions (FW-DC-VEGNF)

The following desired conditions for grasslands, shrublands, juniper woodlands, deciduous woodlands, riparian or wetlands, alpine, and sparsely vegetated settings support ecological diversity, function, and resiliency. The following desired conditions describe a suite of characteristics that represent a coarse filter of key ecosystem characteristics that support ecological diversity and integrity. Key ecosystem characteristics of resiliency in these ecosystems include a diversity of plant composition, structure, ground cover, life forms, and associated processes. The broad potential vegetation types (based on site potential outlined in applicable habitat type descriptions; ecological site descriptions or equivalent descriptions and outlined in appendix D), were aggregated into broad ecosystems having similar life forms, processes, and disturbance response. Habitat types, ecological site descriptions, or similar descriptions can provide project-specific desired conditions for resilience, which are consistent with forest plan course-filter ecosystem desired conditions.

- 01** Native plant communities are self-sustaining relative to site capability and potential, and support a mosaic of diverse seral stages, life forms and age classes.
- 02** Native plant species dominate. Nonnative species (such as cheatgrass, Kentucky bluegrass, timothy, and smooth brome) may be present, but do not increase in abundance or extent from management activities.
- 03** Healthy plant communities and floral biodiversity support a complementary suite of native pollinators (birds, bats, and insects). In turn, pollinators sustain native plant communities, symbiotically contributing to overall ecological integrity of plant and animal communities.
- 04** Grassland, shrubland, woodland, riparian, alpine, and sparsely vegetated plant communities support desired conditions described in table 14.

Table 14. Desired conditions for grasslands, shrublands, xeric woodlands, deciduous woodlands, riparian or wetlands, alpine, and sparsely vegetated broad potential vegetation types

Broad Potential Vegetation Type	Desired Condition Description by Vegetation Type
Xeric Grassland	<p>Xeric Grassland plant communities in the pine savanna geographic areas have high diversity of medium height native perennial cool and warm season grasses (for example, western wheatgrass, needle-and-thread grass, green needlegrass, little bluestem) and short cool and warm season grasses (for example, blue grama, prairie junegrass), Xeric Grassland plant communities in the montane geographic areas have high diversity of tall and medium height, native perennial cool and warm season grasses (for example, Idaho fescue, bluebunch wheatgrass, needle-and-thread grass) and short grasses (for example, Sandberg bluegrass, junegrass).</p> <p>Subshrubs and shrubs may be present with minor cover. There is a variety of forbs in varying amounts. The diversity of plant species present allows for drought tolerance. Individual species can vary greatly in the amount of production depending on growing conditions. Vegetation typically has strong and robust root systems that allow production to increase considerably with favorable growing conditions. This vegetation type provides for soil stability and a functioning hydrologic cycle. Plant litter is a common component and is available for soil building and moisture retention. There is very little movement of plant litter off-site with natural plant mortality typically being low. Biological soil crusts are present in arid areas where plant cover is low and plants are more widely spaced. Bare ground is present because of the warm dry nature of these sites but at low amounts.</p> <p>Encroachment by conifers is limited since these grasslands are either maintained by a high frequency, low-severity fire regime or are maintained by site conditions where they do not require fire to maintain grassland vegetation. These vegetation types are generally tolerant of fire although recovery is a function of fire intensity and species. Maintenance of grasslands is dependent, in part, on periodic fires for nutrient release and encroaching shrubs and trees.</p>
Mesic Grassland	<p>Mesic Grassland plant communities have greater amounts of forbs, higher cover, and higher species richness than xeric grasslands. Mesic grasses are long lived, moderately deep -rooted native perennial cool season grass species (for example, Idaho fescue, upland sedges, western needlegrass, etc.) with a wide variety of mesic forbs present in varying amounts. Shrubs may be present with minor cover. Biological soil crusts are found on almost all soil types while these more moist habitats generally support more lichens and mosses than other types of crusts. Bare ground is typically low across most sites; plant litter is the dominant ground cover and available for soil building and moisture retention. Plant litter rarely moves off-site.</p> <p>These vegetation types are generally tolerant of moderate intensity wildfire. Common dominant grasses, such as Idaho fescue, may be top-killed, but the root crowns and associated growing points are protected and respond favorably with vigorous regrowth in light to moderate intensity fire. Frequent burning maintains diversity in these vegetation types.</p>

Broad Potential Vegetation Type	Desired Condition Description by Vegetation Type
<p>Xeric Shrubland</p>	<p>Xeric Shrubland plant communities in the pine savanna geographic area is largely Wyoming big sagebrush Other xeric shrubs include skunkbush sumac, silver buffaloberry and silverberry. Xeric Shrubland plant communities in the montane geographic area support shrub species such as, mountain big sagebrush, Wyoming big sagebrush, low sagebrush, black sagebrush, and bitterbrush. Overstory species vary by location and site type. For example, Wyoming, black, and low sagebrush tends to occupy the lower, drier and hotter sites with shallow soils whereas mountain big sagebrush typically dominates sites with deeper, well developed soils with more plant available moisture. The understory is typically dominated by grass or grass-like species such as western wheatgrass in the pine savanna areas or Sandberg bluegrass, Idaho fescue, or bluebunch wheatgrass in the montane areas. Canopy cover varies depending on the site and growing conditions, but is typically low to moderate. Biological soil crusts are found on almost all soil types, but are more commonly found in arid areas where plant cover is low and plants are more widely spaced. Bare ground is present in higher amounts when compared to mesic shrubland sites.</p> <p>Sagebrush and native perennial grass/forb communities have a diversity of age and cover classes on the landscape to provide a variety of wildlife habitats and productivity conditions. Suitable habitat for greater sage-grouse is distributed across priority (core) and general habitat areas and includes breeding, nesting, brood-rearing, and wintering habitats. Distribution of these habitats allow for dispersal and genetic flow. Open sagebrush habitat with limited or no overstory trees, such as ponderosa pine or Douglas-fir, provides habitat connectivity. Site-specific conditions apply to an area being used by sage grouse for the appropriate life stage and not across the entire landscape.</p> <p>Resilient sagebrush ecosystems typically have a mosaic of multiple seral plant communities across the landscape. Fire occurs infrequently, or in small extents, as a natural process, limiting colonization of conifer trees and establishment by invasive species. The natural fire regime of xeric shrublands maintains a patchy distribution of shrubs, so the general aspect of the vegetation is shrub-steppe grassland. Periodic, low-intensity burns can reduce sagebrush cover and increase abundance of herbaceous species, creating a mosaic of shrubland-grassland patches.</p>
<p>Mesic Shrubland</p>	<p>Mesic shrubland plant communities in the pine savanna geographic area support shrub species such as chokecherry, snowberry, serviceberry, and silver sage. Mesic shrubland plant communities in the montane geographic area support shrub species such as chokecherry, snowberry, ninebark, serviceberry, shrubby cinquefoil, snowfield big sagebrush These mesic shrubs are the dominant overstory species with grass or grass-like species (such as western wheatgrass, green needlegrass or Sprengel's sedge in the pine savanna areas or Idaho fescue or mountain brome in montane areas) and various mesic forbs (for example, yarrow, or gallium in the pine savanna areas or cinquefoil, sticky geranium, and prairie smoke in the montane areas) typically dominating the understory. Shrub canopy cover varies depending on the site and growing conditions (for example, temperature, timing and amount of precipitation), but is typically moderate to high, and may result in lower cover of understory species.</p> <p>Most of the mesic shrub species are vigorous root crown sprouters and respond favorably to fire, typically sprouting immediately following fire. However, extremely hot and intense fires that occur during summer months can cause damage to these shrublands and seed banks. However, periodic less intense burns can maintain these systems.</p>

Broad Potential Vegetation Type	Desired Condition Description by Vegetation Type
<p>Xeric Woodland</p>	<p>Xeric woodlands are typically hot and dry, or are steep sites, with shallow, skeletal soil. Fire can easily kill young limber pine and Rocky Mountain juniper because of their thin bark. However, fuel loads in these systems are generally light due to open rocky terrain, and fires do not generate severe damage or considerably alter vegetation composition.</p> <p>Juniper woodland is characterized by an open-tree canopy or patchy woodland that is dominated by Rocky Mountain or Utah juniper. Cover of conifers is limited, as it is maintained by a natural high frequency, low-severity fire regime. While any associated sagebrush are often killed by fire, nonlethal or mixed-severity fires that burn in a mosaic pattern leave live individuals and promote age class diversity and sprouting of other shrubs (such as, rabbitbrush, horsebrush) and grass species.</p> <p>Limber pine woodland is characterized by an open-tree canopy or patchy woodland that is dominated by limber pine. A sparse to moderately dense short-shrub layer is usually present. Shrubs may include Wyoming big sagebrush, black sagebrush, rubber rabbitbrush, skunkbush sumac, Woods' rose, common snowberry, or western snowberry. Herbaceous layers are generally sparse, but range to moderately dense; they are typically dominated by perennial grasses and forbs. Clark's nutcrackers have co-adapted an important mutualism with limber pine, and are the primary harvester and disperser of its seeds. These woodlands often originate with and are likely maintained by fire. Regeneration on burns is largely from germination of seedlings from Clark's nutcracker seed caches.</p>
<p>Mesic Deciduous Woodlands</p>	<p>Mesic Deciduous Woodlands</p> <p>Cottonwood may be present along with riparian shrubs and herbaceous species. In wide valley bottoms, the vegetation typically is a mosaic of all lifeforms with patterns reflecting the meander patterns of the stream or river. Plains, narrowleaf, or black cottonwood are supported at lower elevations with Engelmann spruce and subalpine fir at higher elevations; on drier sites, Douglas-fir and Rocky Mountain juniper may be present along riparian corridors.</p> <p>Aspen stands have a diversity of age and structural classes are maintained to provide wildlife habitat, natural fuel breaks, and other ecosystem functions. Aspen stands are joined together by a shallow, subsurface root network. Stands expand and contract over time in response to natural disturbances like browsing and wildfire. Where aspen occur, there is always water near the surface and stands thrive best in abundant sunlight. Healthy stands have a mix of older, middle aged and young "trees" (stems) and support a wide variety of forbs and shrubs. The rich understory of an aspen stand is many times more diverse than the floor of a conifer forest.</p> <p>Woody Draws (also known as green ash draws) are dominated by green ash trees with a shrub and herbaceous undergrowth. Other minor deciduous tree components may include boxelder, aspen, or paper birch. Shrubs such as chokecherry, serviceberry, wild plum, and hawthorn dominate the taller and more conspicuous shrub layer. Herbaceous species such as Sprengel's sedge and shade-tolerant forbs, dominate the lower layer. All age groups of hardwood tree species are present (seedlings, saplings, pole, and mature) in late-seral states while age classes may vary in earlier seral states following disturbances. Bare ground is typically low (Ashland and Sioux Geographic Areas).</p> <p>Typically, with the exception of conifers, species in mesic deciduous woodland systems respond favorably to fire. The growing points of the vegetation are usually protected in the moist to saturated soil or have sprouting capabilities. Regrowth typically occurs within the same growing season.</p>

Broad Potential Vegetation Type	Desired Condition Description by Vegetation Type
Riparian / Wetlands	<p>Riparian Ecosystems are comprised of a mosaic of communities dominated by native species which tolerate and are adapted to periodic flooding and an associated seasonally high water table. Riparian vegetation is dominated by a variety of species, age classes, and structure including deciduous trees, willows, alders, birches, sedge, and hydric grasses depending on stream substrate, gradient, elevation, soil-hydrologic, and disturbance processes. Dominant shrubs may include mountain alder, various species of willows, river birch, dogwood, hawthorn, chokecherry, rose, silver buffaloberry, Rocky Mountain maple and snowberry, among others. A wide variety of native herbaceous species, including, grasses, sedges, rushes, spikerushes, bulrushes and forbs, are present in the understory in varying amounts. The riparian complex is a mosaic of herbaceous and woody plant communities that armor streambanks and create floodplain roughness, slowing flows, and facilitating bank and floodplain development and associated riparian species recruitment and regeneration.</p> <p>Wetlands - Groundwater dependent Ecosystems support deeply rooted vegetation and include, but are not limited to, seeps, springs, fens, marshes, and wetlands. Wetlands are comprised by dominant native vegetation adapted to saturated (anerobic) soil conditions. Low willow species (for example, wolf willow) and bog birch are typically present in subalpine wetlands. Herbaceous species may be dominated by sedges, rushes, spikerushes, cattails, and bulrushes. Bryophytes, including sphagnum, are often well represented in fens.</p> <p>Typically, with the exception of conifers, species in riparian/wetland systems respond favorably to fire. The growing points of the vegetation are usually protected in the moist to saturated soil or have sprouting capabilities. Regrowth typically occurs within the same growing season.</p>
Alpine	<p>Alpine and subalpine ecosystems are dominated by short stature and relatively slow growing shrubs and herbaceous species, although some conifers (for example, subalpine fir, whitebark pine) may be present with minor cover as krummholtz patches. Wetland communities are present in snowloaded depressions, and support various willow species (for example, planeleaf willow), along with wetland herbaceous species (such as tufted hairgrass, marsh marigold).Vegetation cover is typically low to moderate, depending on site characteristics. The plant communities are dominated by a number of native shrubs, forbs, grass and grass-like species including: arctic willow (turf community), mountain avens (cushion plant community), mountain heather and moss-heather (snow bed communities).</p> <p>Many of these areas experience only patchy fire due to the low amounts and patchiness of fuels. The fire-return interval is typically very long in alpine ecosystems. Historically, stand-replacing fires occur infrequently in adjacent associated subalpine woodlands. Fire severity and spread is usually variable due to the short duration without snow cover. In addition, limited fuel loading and rock scree fields preclude fires from spreading if lightning strikes do occur (montane districts).</p>
Sparsely Vegetated	<p>Sparsely vegetated areas occupy harsh talus sites, rocky sites, disturbed sites, exposed sites, or badlands. Tree and herbaceous cover is low due to limited soil development and dry growing conditions, site disturbance, or rocky conditions. Natural rock outcrops cover a wide range of rock types, varying from acidic to highly calcareous. Native vegetation is sparse. Bryophytes and lichens often occur in crevices and occurs on open rock surfaces where the competition from vascular plants is absent. Species composition can vary widely, depending on the moisture regime and adjacent communities contributing to the seed source.</p> <p>Many of these areas experience only patchy fire due to the low amounts and patchiness of fuels. Fire severity and spread is usually variable due to fuel settings of adjacent associated habitats. In addition, limited fuel loading and rock scree fields preclude fires from spreading if lightning strikes do occur.</p>

Northern Region Broad Potential Vegetation Type is a coarse grouping of Northern Region Habitat Type Groups that are applicable for broad-scale analysis and monitoring. See crosswalks for habitat type groupings in Appendix D

Service Major Land Resource Area (MLRA)-specific Ecological Site Descriptions also describe resilient communities Local habitat type classifications for grasslands, shrublands, and woodlands describe resilient communities (Appendix D). Where available, local Natural Resources Conservation Service Major Land Resource Area (MLRA)-specific Ecological Site Descriptions also describe resilient communities

Goals (FW-GO-VEGNF)

- 01** The Custer Gallatin works with other agencies and landowners to expand inventories, identify potential habitat for at-risk species, and promote protection and restoration of associated habitats.
- 02** The Custer Gallatin collaborates with Federal and State agencies, Tribes and other partners regarding applicable conservation plans in seeking progress towards conservation of grasslands, shrublands, woodlands, alpine, and sparsely vegetated lands.
- 03** The Custer Gallatin collaborates with Federal and State agencies, Tribes and other partners with emphasis on important plant communities and key habitats of greatest conservation need such as sagebrush-grasslands, aspen, woody draws, and riparian areas.

Guidelines (FW-GDL-VEGNF)

See additional plan components for shrubland habitats for greater sage-grouse habitat needs and big game winter ranges in the wildlife section. See riparian and wetland related plan components outlined in watershed, aquatics, riparian section and permitted grazing section.

- 01** To maintain grassland and shrubland ecosystems, invasive species control activities and projects to control conifer encroachment should not impact important wildlife habitat or at-risk species.
- 02** To promote habitat heterogeneity, prescribed fire management should include a mosaic of burned and unburned areas (including different fire regimes for example frequency, season, extent, intensity, type and time since last burn).
- 03** To minimize erosion from ground disturbance in fragile alpine or subalpine settings, new facilities should be directed away from alpine or subalpine vegetation or rehabilitated to reduce erosion.
- 04** To minimize habitat fragmentation, where there are other options for siting a facility, choose the habitat that is already more fragmented or locate development at the edge of intact areas.
- 05** To minimize impacts to habitat diverse areas, new facilities should be avoided or managed to avoid degradation in areas of habitat and species diversity such as ridges, and rocky or naturally moist areas that are still in a natural or near natural state.
- 06** To minimize stem damage, soil compaction, or root damage from frequent human use, new buildings or other structures associated with developed sites or outfitter and guide camps should be located outside of aspen stands or woody draws.
- 07** To minimize impacts to cavity nesting habitat, vegetation treatment should retain trees with signs of cavity nesting, cavities, or loose or cracked bark on the tree trunk or branches, where this will not conflict with aspen regeneration, woody draw restoration or human safety.
- 08** To minimize browsing pressure or trampling and rubbing damage to vegetation, new allotment infrastructure should not attract livestock into aspen stands or woody draws (for example, new water developments should be located away from hardwoods and new fences should not funnel or congregate livestock into hardwoods).

- 09 To minimize stem damage, soil compaction, or root damage from frequent human use, new permanent or temporary roads should not be constructed or permanently retained in aspen stands or woody draws except as needed to cross the area or as needed for restoration purposes.
- 10 To maintain hardwood habitats, hardwood trees should not be cut except for purposes of human safety or selective cuts for regeneration purposes.

2.3.12 Fires and Fuels (FIRE)

Introduction

Fire is a primary and necessary ecological process that has shaped and maintained forest and non-forest ecosystems, which in turn sustain native plant communities and wildlife species. The absence of fire in many areas of the Custer Gallatin over the last century, mainly due to fire suppression, has led to a fire deficit. This fire exclusion has altered natural fire regimes and has been detrimental to native vegetation, fauna and ecosystem processes. Fire on the landscape occurs due to unplanned (natural and human caused) and planned (prescribed fire) ignitions. The majority of natural ignitions and the largest fires on the Custer Gallatin occur in mid-July through late September, and are generally wind-driven events. Typical fire behavior in the ponderosa pine woodland and savanna landscapes on the east side of the Custer Gallatin includes low intensity, fast-spreading surface fires with occasional uncharacteristic large stand-replacing fires. The more mountainous landscapes on the central and west side of the Custer Gallatin experience mixed intensity, mixed severity fires and high intensity, large stand-replacing fires. Prescribed fires (broadcast and piled) typically occur in the spring (March–June) and in the fall (September–November) with fire intensities dependent upon the objectives of the individual project.

Fire management strives to balance the natural role of fire while minimizing the impacts from fire on values to be protected, especially in the wildland urban interface. 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. Wildland fire may occur on all acres, depending on expected fire effects and resource objectives.

Treatment of vegetation for hazardous fuels mitigation is intended to reduce fire intensity and thus the probability of crown fire and spotting. Treatments can also focus on restoring and maintaining natural fire regimes and reducing the negative impacts of wildfires to watershed health, wildlife habitat, community values at risk, air quality, and the safety of fire personnel and the public. Refer to plan components for other vegetation management direction, most of which would also apply to fuel reduction treatments.

Desired Conditions (FW-DC-FIRE)

- 01 Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. Please refer to the glossary for the definition of fire regimes.
- 02 Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland-urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk.

- 03** There are minimal detrimental impacts to values at risk from wildland fire.

Goals (FW-GO-FIRE)

- 01** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the Custer Gallatin to provide education about wildfire risk and that wildland fire is an essential ecological process.
- 02** The Custer Gallatin National Forest coordinates fire management actions with State, local, tribal and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration.

Objectives (FW-OBJ-FIRE)

- 01** Alternatives B and C: Hazardous fuels mitigation occurs on a minimum of 6,000 acres per year. Treatment includes initial entry and maintenance to ensure desired conditions are achieved.
- Alternative D: Hazardous fuels mitigation occurs on a minimum of 7,000 acres per year. Treatment includes initial entry and maintenance to ensure desired conditions are achieved.
- Alternative E: Hazardous fuels mitigation occurs on a minimum of 4,000 acres per year. Treatment includes initial entry and maintenance to ensure desired conditions are achieved.
- 02** Natural unplanned wildfire occurs on a minimum of 375,000 acres per decade, as conditions allow, in all vegetation types.

Standards (FW-STD-FIRE)

- 01** All wildfires shall have a management response that considers risk to life and safety, taking into account the costs and effects to resources and values at risk.

Guidelines (FW-GDL-FIRE)

- 01** To meet multiple resource desired conditions, the Custer Gallatin should use wildland fires forestwide where and when conditions permit.
- 02** To reduce the negative impacts of wildfires to values at risk, improve fire control opportunities, or decrease risk to fire personnel and the public, fuels treatments should be designed to remove or rearrange the live and dead vegetation as necessary to reduce fire intensity.
- 03** To minimize natural resource damage, minimum impact suppression tactics should be utilized in sensitive areas, such as designated wilderness, wilderness study areas, recommended wilderness, designated and eligible wild and scenic river corridors, research natural areas, special areas, riparian management zones, sensitive habitat of at-risk species, cultural and historic sites, National recreation, scenic and historic trails, the Continental Divide National Scenic Trail corridor, and the Beartooth Scenic Byway. Exceptions to this guideline may occur when a more direct attack is needed to protect life or adjacent property or mitigate risks to responders.

2.3.13 Carbon Storage and Sequestration (CARB)

Introduction

Carbon sequestration is the process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and soils. The sink of carbon sequestration in forests and wood products helps to offset sources of carbon dioxide to the atmosphere, such as deforestation, forest fires, and fossil fuel emissions.

Sustainable forestry practices can increase the ability of forests to sequester atmospheric carbon while enhancing other ecosystem services, such as improved soil and water quality. Planting new trees and improving forest health through thinning and prescribed burning are some of the ways to increase forest carbon in the long run. Harvesting and regenerating forests can also result in net carbon sequestration in wood products and new forest growth (also see Terrestrial Vegetation and Soils sections).

Desired Conditions (FW-DC-CARB)

- 01 Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates.

2.3.14 Invasive Species (INV)

Introduction

A species is considered invasive if it meets two criteria: (1) it is nonnative to the ecosystem under consideration, and (2) its introduction causes, or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112, 1999). Invasive species includes all taxa, including plants (such as state and county designated noxious weeds), vertebrates, invertebrates (such as emerald ash borer, non-native mussel larvae), and pathogens (such as blister rust or white-nosed syndrome fungus).

Management activities for aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens) is based upon an integrated pest management approach on all areas within the National Forest System, and on areas managed outside of the National Forest System under the authority of the Wyden Amendment (P.L. 109-54, section 434), prioritizing prevention and early detection and rapid response actions as necessary (Forest Service Manual 2902). Integrated pest management is an ecosystem-based strategy that focuses on long-term prevention of invasive species or their damage through a combination of techniques such as physical, biological or chemical control, habitat manipulation, modification of cultural practices, or ultra violet light (for white-nose syndrome pathogen control). While each situation is different, the following major components are common to all integrated pest management programs: prevention, early detection/rapid response, control and management, restoration, and collaboration.

There is a regulatory designation of certain terrestrial and aquatic invasive plants that are identified as “noxious weeds” defined through Federal and individual State statutes. A noxious weed is defined by Montana Code Annotated (MCA 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.” A noxious weed is defined by South Dakota Code (chapter 38-22, article 12:62:02:01) as “a weed which the commission has designated as

sufficiently detrimental to the state to warrant enforcement of control measures.” Noxious weeds are capable of successfully expanding their populations into new ecosystems beyond their natural range and can create lasting impacts to native plant communities. Impacts from noxious weeds can be exacerbated by fire, native pests, weather events, human actions, and environmental change.

Weed seed free special orders that are in effect for National Forest System lands to help prevent the spread of noxious weeds (1997 Montana National Forest System lands and 2007 South Dakota National Forest System lands of the Custer National Forest) continue to be enforced. The following paraphrases the weed seed free special orders:

For National Forest System lands in Montana the possession or storage of hay, grain, straw, cubes, pelletized feed or mulch that is not certified as being noxious weed free or noxious weed seed free by an authorized State Department of Agriculture official or designated county official is prohibited; each individual bale or container must be tagged or marked as weed free and reference the written certification. Exempt from this Montana National Forest System Special Order are: (1) persons with a permit specifically authorizing the action or omission; and (2) transporting feeds, straw, or hay on Federal, State, and county roads that are not forest development roads or trails.

For National Forest System lands in the South Dakota Portion of the Custer Gallatin National Forest, possessing or storing any hay, hay cubes, straw, grain, or other forage or mulch product, without original and current documentation from a state certification process that meets or exceeds the North American Weed Free Forage (NAWFF) or comparable certification standard is prohibited. Tags, twine, or other certification marking is required on all individual bales, containers, sacks, etc., as required or provided for by the product’s state of origin. Exempt from this order are: (1) persons with a permit specifically exempting them from this order; (2) any member of an organized rescue force in the performance of an official duty under emergency conditions; (3) feed pellets one inch in diameter and smaller or steam-rolled feed grains; (4) persons transporting forage products across National Forest System lands without unloading or using the products on National Forest System lands, roads, or trails. Protection and prevention measures outlined in applicable weed management environmental analysis decisions (Custer National Forest Noxious Weed Management Environmental Impact Statement and Record of Decision [2006] and the Gallatin National Forest Noxious and Invasive Weed Treatment Project Environmental Impact Statement and Record of Decision (2005)) provide invasive plant species management direction. In addition to current environmental analysis decisions or subsequent environmental analysis decisions for weed management, Forest Service Manuals 2070, 2080, 2150 and 2900 provide additional invasive species management direction.

The purpose of the invasive species plan components are to ensure that all Forest Service management activities are designed to minimize or prevent establishment or spread of invasive species on national forest lands, or to adjacent areas, and to provide for healthy resilient and resistant ecosystems.

Desired Conditions (FW-DC-INV)

01 Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new invasive species become established on the national forest. Where invasive species occur, their range is reduced where possible, or at a minimum, they do not expand. Desired nonnative species occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems.

- 02** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.

Goals (FW-GO-INV)

- 01** Coordination and cooperation with federal, state and county agencies, Tribes, non-government organizations, permittees, and adjacent landowners support integrated pest management including invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities.
- 02** Coordination with State or County agencies and Tribes support implementation and enforcement of regulations, permits, plans, and guidance on invasive species management across the national forest, including but not limited to:
- a. State regulations and protocols related to prevention and control of aquatic and terrestrial invasive species (including noxious weeds);
 - b. State regulations associated with utilizing, storing, transporting, or certifying invasive species-free (or noxious weed-free) straw, hay, mulch, gravel, forage, seed, or other materials;
 - c. State aquatic invasive species regulations, management plans, disinfecting protocols, fish and wildlife management plans, early detection and rapid response plans, or other statewide or region-wide invasive species management plans.
 - d. State required wildlife handling permits, which also address disease and invasive species prevention protocol.
- 03** Agreements and memorandums of understanding with other Federal, State or County agencies, Tribes, non-government organizations, and other partner organizations address invasive species issues. Collaborative efforts such as “cooperative weed management areas,” “cooperative invasive species management areas,” or similar collaborative partnerships support invasive species management across the landscape.
- 04** A coordinated (internally and externally) invasive species management, awareness, and education approach supports:
- a. Improved invasive species awareness.
 - b. Opportunities for cooperators, organizations and members of the public to adopt areas on the Custer Gallatin for invasive species management are provided. This would include survey, inventory, monitoring, and treatment.
 - c. Development and distribution of invasive species education materials at high use areas and Forest Service offices.

Objectives (FW-OBJ-INV)

- 01** Alternatives B and C: Noxious weed species management actions are employed annually on 2,500 to 4,500 acres of inventoried acres so that new infestations are prevented; densities of existing infestation are reduced; total acres or areas infested are reduced; infested acres or areas are restored and rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated

depending on infestation characteristics, management opportunities, and resource values at risk; and uninfested areas are maintained and protected.

Alternative D: Noxious weed species management actions are employed annually on 4,500 to 7,000 acres of inventoried acres so that new infestations are prevented; densities of existing infestation are reduced; total acres or areas infested are reduced; infested acres or areas are restored and rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics, management opportunities, and resource values at risk; and uninfested areas are maintained and protected.

Alternative E: Noxious weed species management actions are employed annually on 500 to 2,500 acres of inventoried acres so that new infestations are prevented; densities of existing infestation are reduced; total acres or areas infested are reduced; infested acres or areas are restored and rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics, management opportunities, and resource values at risk; and uninfested areas are maintained and protected.

Standards (FW-STD-INV)

- 01** For all new projects or activities, the risk of noxious weed introduction or spread shall be determined and appropriate mitigation measures shall be implemented. Activities shall be designed to minimize the risk of spreading the infestation.
- 02** Decisions authorizing the use of chemicals shall outline protection measures for treatment and measures to minimize contamination of water resources and injury to non-target desired plants and animals, including at-risk species.
- 03** Invasive plant treatments in or near at-risk-plant populations shall use methods that are not detrimental to the long-term persistence of the species (refer to decisions made for sensitive plant species in current forest weed EISs or subsequent weed management National Environmental Policy Act decisions for at-risk plants).
- 04** Forest Service employees and agency-authorized personnel shall use required best management practices and other agency requirements to minimize noxious weed establishment and spread.
- 05** Forest Service employees and agency-authorized personnel shall use best management practices and agency guidance to inspect and clean equipment (including boats, rafts, waders and boots, drafting equipment, water tenders, helicopter buckets, etc.) prior to use in a water body or when moving between watersheds or water sources to reduce the potential for the introduction of aquatic invasive species, including aquatic pathogens.

Guidelines (FW-GDL-INV)

- 01** Following soil-disturbing management activities, reseeding with Forest Service-approved, weed-free seed and locally-adapted native plant species should occur promptly during optimal moisture conditions for germination in order to reduce soil erosion, reduce noxious weed invasion and provide site conditions conducive for native species establishment.

2.3.15 Wildlife (WL)

Introduction

This section provides direction designed to maintain the diversity of animal communities and support the persistence of native wildlife species on the Custer Gallatin. Terrestrial wildlife species on the Custer Gallatin include birds, mammals, reptiles, and invertebrates. Aquatic and semi-aquatic species such as fish, amphibians, beavers and invertebrates, are addressed separately under Watershed. Wildlife habitat on the Custer Gallatin is extremely diverse, ranging from the rugged topography and alpine environs associated with the highest peaks in the state of Montana, to the more temperate coniferous forest slopes at mid-elevations, to the pine-savanna and badland ecosystems at lower elevations in the eastern Districts. Such diversity and associated complexity provides conditions for a vast array of wildlife species and guilds, with over 600 species of mammals, birds, reptiles and invertebrates recorded on the Custer Gallatin, according to the Montana Natural Heritage Program in 2018. Many species are residents, with some individuals spending their entire lives within the national forest, while others are migratory, and spend only part of their life cycle here.

The 2012 Planning Rule adopts a complementary ecosystem- and species-specific approach, known as a coarse-filter or 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 biological diversity on the Custer Gallatin. Fine-filter plan components are designed to provide for additional specific habitat needs for native animal species when those needs are not met through the coarse-filter plan components. Since habitat for wildlife is composed of both physiological and biological conditions on the landscape, most of the coarse-filter plan components that benefit wildlife are found throughout the “ecosystems” section of the plan, under headings for air quality, soils, watershed, aquatic, riparian, and terrestrial vegetation. Fine filter components are included in the wildlife section to address factors that affect the animals themselves, or to address specific habitat conditions that may not fall within the coarse filter considerations.

Fine-filter plan components include additional, sometimes species-specific, items needed to contribute to the recovery of federally listed threatened or endangered species, conserve proposed and candidate species, and maintain the long term persistence of species of conservation concern within the plan area or within the species’ range. Additional fine-filter plan components may be included to address other species as well, but are not required under the 2012 Planning Rule. Collectively, the term “at-risk species” refers to federally listed threatened, endangered, proposed and candidate species as well as Forest Service species of conservation concern. Threatened, endangered, proposed, and candidate species are identified by the U. S. Fish and Wildlife Service, which maintains current information regarding which listed species may be present on the Custer Gallatin National Forest. Species of conservation concern are those species, other than federally listed threatened, endangered, proposed, or candidate species, that are known to occur in the plan area, and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species capability to persist over the long term in the plan area. Terrestrial wildlife species of conservation concern for the Custer Gallatin National Forest are found at the Northern Region land management planning webpage: <https://www.fs.usda.gov/detail/r1/landmanagement/planning/?cid=fseprd500402>.

Desired Conditions (FW-DC-WL)

- 01** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure.
- 02** Habitat conditions contribute to species recovery needs such that population trends of listed species are stable or increasing across their range. Lands within critical habitats designated by the U.S. Fish and Wildlife Service provide the physical and biological features identified as essential to the conservation and recovery of listed species.
- 03** Vegetation conditions are generally within the natural range of variation as described for vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.
- 04** Habitat conditions provide security and refuge for wildlife to escape from stresses and threats, while still meeting basic needs such as feeding breeding, sheltering and movement.
- 05** Landscape patterns throughout the Custer Gallatin provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time.
- 06** Habitat conditions within the Custer Gallatin near boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries.
- 07** Human-related foods and attractants are unavailable to wildlife. Natural wildlife foraging patterns are the norm, while food conditioning and habituation of animals, and associated wildlife conflicts with humans do not occur.
- 08** There is low or no risk of disease transmission between domestic animals and wildlife.

Goals (FW-GO-WL)

- 01** Through Forest Service cooperation and collaboration with other agencies and Tribal governments in the development of conservation strategies and recovery plans, as well as coordinated management of habitat, federally listed species occurring on national forest lands achieve recovery, and the need for listing of additional wildlife species under the Endangered Species Act is prevented.
- 02** The Forest Service coordinates management actions with other federal, state and local agencies, Tribes, and adjacent land owners. Opportunities to manage wildlife habitat and provide for connectivity are expanded through coordination and collaboration along and across administrative boundaries.
- 03** Through cooperation with willing landowners and other entities, non-federal lands within the national forest boundary are acquired, or managed under conservation easements where needed to maintain or restore wildlife habitat structure, function, or connectivity.

- 04** The Forest Service engages in partnerships with state and federal agencies, Tribes, universities, permittees and other willing entities, to conduct ecological research, improve or coordinate inventories and monitoring, and expand data and knowledge collection where needed.
- 05** The Forest Service works with partners to develop and disseminate information designed to increase public awareness of the high value of wildlife resources such as biodiversity, habitat connectivity, recreation opportunities, cultural or spiritual connections, safety issues and co-existence.

Objectives (FW-OBJ-WL)

- 01** **Alternatives B and C:** Progress towards conservation of an at-risk wildlife species is made by completing three to seven projects per decade with design features that restore habitat or populations of such species.

Alternative D: Progress towards conservation of an at-risk wildlife species is made by completing eight to ten projects per decade with design features that restore habitat or populations of such species.

Alternative E: Progress towards conservation of an at-risk wildlife species is made by completing one to two projects per decade with design features that restore habitat or populations of such species.

- 02** **Alternatives B and C:** Ten projects per decade are completed that are designed to maintain or improve habitat for one or more terrestrial wildlife species.

Alternative D: Twelve projects per decade are completed that are designed to maintain or improve habitat for one or more terrestrial wildlife species.

Alternative E: Five projects per decade are completed that are designed to maintain or improve habitat for one or more terrestrial wildlife species.

Standards (FW-STD-WL)

- 01** A food and attractant storage special order shall apply to the Absaroka Beartooth Mountains; Bridger, Bangtail, and Crazy Mountains; Madison, Henrys Lake, and Gallatin Mountains, and Pryor Mountains Geographic Areas.

Guidelines (FW-GDL-WL)

- 01** To maintain or restore habitat connectivity for wildlife, management actions should not create movement barriers to wide-ranging species such as medium to large carnivores and wild ungulates, except where necessary to provide for human or wildlife safety.
- 02** **Alternatives B, C and D:** Vegetation management activities in a key linkage area should include design features to restore, maintain or enhance habitat connectivity for long distance range shifts of wide ranging wildlife species.
- 03** **Alternatives B, C and D:** New permanent facilities or structures for administrative or public use should not be constructed within key linkage areas unless needed to address on-going or imminent resource concerns within the key linkage area, including but not limited to, degradation of wildlife habitat connectivity. Any new permanent facilities or structures and relocation of existing facilities

within key linkage areas should be designed and located so that wildlife movement patterns are not permanently disrupted.

- 04** Alternatives B, C and D: To maintain habitat quality and limit disturbance effects on wildlife movement patterns, a key linkage area should be free of sustained substantial disturbance for at least four years out of every 10-year period, including at least two consecutive years of no sustained substantial disturbance. Sustained substantial disturbance is the use of heavy equipment or low-level helicopter flights for vegetation management actions for a total of more than 30 days throughout an entire key linkage area in a calendar year.
- 05** Management activities should avoid disturbance at known active raptor nests and fledging areas during the breeding season. Raptors that establish nests near existing human use areas are assumed to be tolerant of the level of activity present when the nest was established.
- 06** To protect airborne migratory species, new wind energy developments should be located and designed to minimize impacts to birds and bats.
- 07** Projects resulting in ground disturbance should be scheduled to avoid known reptile and amphibian reproductive areas and hibernacula during breeding and wintering seasons.

Bats (WLBAT)

Introduction

Bats are important contributors to biological diversity with multiple species present in the Custer Gallatin National Forest. In addition, bats contribute to ecological integrity by controlling insect populations, supplying nutrients in cave environments through guano deposition, and may even have a minor (incidental) role as pollinators in the forest. The northern long-eared bat was listed as a threatened species under the Endangered Species Act in April 2015. The Custer Gallatin is at the very western edge of this species' range; however, the U.S. Fish and Wildlife Service has determined the species may be present in the Ashland and Sioux Geographic Areas. In listing this species, the U.S. Fish and Wildlife Service stated that white-nose syndrome is the primary threat and subsequent cause of the species' decline. White-nose syndrome is considered a threat to a wide range of bat species. At the time this plan was written, white-nose syndrome has not yet been detected on the Custer Gallatin National Forest, but it has been progressively moving in this direction.

Desired Conditions (FW-DC-WLBAT)

- 01** The Custer Gallatin National Forest provides habitat that maintains bat species diversity, and contributes to the long-term conservation of native bat species. Key habitats such as winter hibernacula and maternity roosts are free from disturbance and disease.

Standards (FW-STD-WLBAT)

- 01** Forest Service employees and agency-authorized personnel such as contractors, researchers and permittees, shall use established decontamination procedures prior to entering caves or abandoned mines known to be used as roost sites or winter hibernacula by bats.

Guidelines (FW-GDL-WLBAT)

- 01 To maintain vegetative conditions that may be associated with microclimates of winter hibernacula, tree removal through mechanical means or prescribed fire should not occur within 0.25 miles of known bat winter hibernacula at any time of year, except when hazard tree removal is needed to protect human life or property.
- 02 To protect young, vulnerable bats, vegetation management should not remove trees within 150 feet of known bat maternal roosts during the pup season. Roost trees may be removed once adults and young bats have moved on after the pup season, but replacement roost trees should be retained in the general vicinity to provide for maternal roosts in the future.
- 03 To avoid potential disturbance of, and disease transmission to bats, new developed recreation sites such as roads, trails, campgrounds, picnic areas, or other features that concentrate human use, should not be placed within one-half mile of known bat hibernacula or maternal roost sites.
- 04 If bats are observed roosting in or on buildings, bridges, or other structures identified for removal or reconstruction, then demolition and construction activities should only occur once bats have left for the season. If facilities used by bats are to be removed and not replaced, then bat structures should be installed to compensate for habitat loss.
- 05 Bat-friendly closure devices should be used when mines or caves with suitable habitat for bats are to be closed for human safety reasons.

Big Game (WLBG)

Introduction

Big game animals generally include terrestrial wildlife species that are commonly enjoyed and used by the public for viewing, photography, hunting, trapping, and subsistence, including cultural or tribal uses. This section addresses multiple big game species collectively, while certain species, including bighorn sheep, bison, and grizzly bears, have separate sections with species-specific plan components.

Desired Conditions (FW-DC-WLBG)

- 01 Wildlife resources contribute to social and economic benefits, including diverse and sustainable opportunities for research, wildlife viewing, photography, hunting, and trapping. Wildlife abundance and distribution supports state wildlife harvest and population objectives.

Goals (FW-GO-WLBG)

- 01 The Forest Service engages in cooperation and collaboration with State wildlife management agencies, Tribal governments and other interested partners in the development of management strategies, including monitoring programs, to maintain suitable habitat conditions and big game populations in numbers and distribution that allow for sustainable, high quality hunting experiences on National Forest System lands.

Guidelines (FW-GDL-WLBG)

- 01 Vegetation management projects on big game winter range should retain coniferous forest cover (where it exists) to provide for snow intercept, hiding cover and thermal regulation for big game species. Exemptions may be made for the following reasons:

- a. For research studies
 - b. For conifer removal from hardwood stands to promote hardwood regeneration or facilitate hardwood stand maintenance
 - c. For removal of small conifers (less than 10 inches diameter) from areas that are desirable as grassland, shrubland or meadows types
 - d. For safety reasons such as fuel or hazard tree reduction around dwellings, developed sites, and administrative sites
 - e. For hazardous fuel reduction projects aimed at protecting nearby communities; for example within municipal watersheds
 - f. Where long- and short-term benefits gained from improved forage for big game outweigh the negative impacts of reducing snow intercept, hiding and thermal cover
 - g. Where restoration is needed for conservation of at-risk species
- 02** To avoid stressing wildlife when energy demands are high, management activities should be located and scheduled to minimize disturbance of wild ungulates on winter ranges during the winter and in known calving, fawning, lambing, or kidding areas during the reproductive season. Exceptions may occur when needed for protection of other resources as mandated by law, regulation or policy. In such cases, management actions should be concentrated in time or space to reduce impacts to native ungulates.
- 03** If site-specific analysis determines that secure habitat is lacking in a project or analysis area, road construction, reconstruction or relocation should not result in a reduction of secure habitat during big game hunting seasons (archery and rifle). The intent of this guideline is to maintain secure habitat during a time when big game animals are vulnerable, and added pressure from hunting may cause displacement of native ungulates from public land.

Bighorn Sheep (WLBHS)

Introduction

Bighorn sheep occur in the montane ecosystem geographic areas south of Interstate 90. Bighorn sheep were widespread in Montana historically, and were used by Native Americans and early European explorers for food, clothing and tools. Settlement of the western United States led to significant declines of bighorn sheep due to subsistence hunting, range competition with domestic livestock, and contact with domestic sheep, which led to contraction of disease resulting in major die-offs in multiple bighorn sheep herds. Since then, statewide restoration efforts led by Montana Fish Wildlife and Parks focused on habitat improvement projects and bighorn sheep transplants to recolonize areas of historic habitat. Disease transmission from domestic animals, particularly domestic sheep and goats, is considered a primary threat to bighorn sheep populations. At the time this plan was written, there were no permitted grazing allotments on the Custer Gallatin stocked with domestic sheep or goats.

Desired Conditions (FW-DC-WLBHS)

- 01** Habitat conditions support robust bighorn sheep populations that can if necessary, serve as source populations for translocation to facilitate recolonization of wild sheep in historic ranges or help augment existing populations where appropriate.

- 02 Native bighorn sheep do not intermingle with, or contract contagious disease from, domestic livestock.

Goals (FW-GO-WLBHS)

- 01 Through Forest Service cooperation and collaboration with Tribal governments, State wildlife management and livestock health agencies, livestock permittees or producers, targeted weed sheep or goat operators, and pack goat users to develop livestock management protocols and habitat management strategies to minimize risk of disease transmission between domestic livestock and native bighorn sheep.

Bison (WLBI)

Introduction

The Yellowstone bison population is unique in that it is genetically pure (for example isolated from domestic livestock), and it contains thousands of individuals that exhibit wild behavior and roam relatively freely over a very large landscape. As such, this bison population is of great importance to local, regional, national and tribal forest visitors. The Custer Gallatin National Forest is unique in that it borders Yellowstone Park on the north and west sides, where bison naturally tend to migrate to lower elevation habitats on National Forest System lands when winter snows become too deep in the Park. The framework for management of Yellowstone bison is found in the Interagency Bison Management Plan, including the delineation of management zones where bison presence is tolerated and management is emphasized. At the time the plan was written, bison were located only in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area and the Absaroka Beartooth Geographic Area.

Desired Conditions (FW-DC-WLBI)

- 01 Native bison have access to forage, security and movement corridors to facilitate distribution of the species to suitable habitats within the plan area.
- 02 Suitable habitat accommodates bison migrating out of Yellowstone National Park in winter, as well as supporting year-round bison presence on the Custer Gallatin National Forest. Adequate connecting corridors exist between suitable habitats to facilitate bison on the landscape with sufficient distribution to be resilient to stressors, adaptable to changing conditions, and contributing to stable or increasing genetic diversity.
- 03 Educational materials, including signage at trailheads and campgrounds where bison may occur, are available to help forest users understand wild bison behavior and act accordingly in order to avoid conflicts.
- 04 **Alternative D:** Bison are present year round with sufficient numbers and adequate distribution to provide a self-sustaining population on the Custer Gallatin National Forest.

Goal (FW-GO-WLBI)

- 01 The Forest Service engages with State, Federal, Tribal, and other willing partners to expand the science of bison ecology, foster awareness of the important biological, ecological and cultural roles of bison on the landscape, and cooperatively develop adaptive strategies to manage bison and their habitats to facilitate natural movement of bison into and between suitable habitats.

Objectives (FW-OBJ-WLBI)

01 Alternatives B and C: Complete one habitat improvement project within, or for the purpose of creating or connecting, suitable bison habitat every three years.

Alternative D: Complete three habitat improvement projects within, or for the purpose of creating or connecting, suitable bison habitat per year.

Alternative E: No objective for bison habitat improvement.

Guidelines (FW-GDL-WLBI)

01 Alternatives B, C and D: To promote bison expansion within management zones, vegetation treatment projects and management actions taken to resolve bison-livestock conflicts should favor bison within these zones.

Alternative E: To minimize impacts to livestock operations, vegetation treatment projects and management actions taken to resolve bison-livestock conflicts should favor livestock.

02 To facilitate progressive expansion of bison management zones over time, bison habitat improvement projects should be strategically placed within and in close proximity to existing management zone boundaries.

03 Alternatives B, C and E: To facilitate bison expansion into unoccupied, suitable habitat, management actions should not impede bison movement unless needed to achieve interagency bison population and distribution.

Alternative D: To facilitate bison expansion into unoccupied, suitable habitat, management actions should not impede bison movement.

Canada Lynx (WLLX)

Introduction

The Canada lynx was listed as a threatened species by the U.S. Fish and Wildlife Service in 2000. As a result, the Northern Rockies Lynx Management Direction was amended to existing forest plans in 2007. The Northern Rockies Lynx Management Direction contains goals, objectives, standards and guidelines for managing lynx habitat on forest lands. However, the wording in the Northern Rockies Lynx Management Direction is not always consistent with the definitions for plan components in the 2012 Planning Rule; for example, “objectives” in the Northern Rockies Lynx Management Direction generally do not meet the “measurable and time specific” requirements of the 2012 Planning Rule, but rather are stated more like “desired conditions” or even “guidelines” under the 2012 Planning Rule. The Custer Gallatin plan includes by reference direction for managing Canada lynx habitat from the Northern Rockies Lynx Management Record of Decision (appendix E). This direction includes plan components for management of a variety of resources, including vegetation management, livestock grazing, recreation, and others. If habitat management requirements changes due to updates in the status of the Canada lynx, modifications made to the Northern Rockies Lynx Management Direction, development of a recovery plan, or other new developments in guidance, then forest plan components for lynx could change through amendment to this plan. Therefore, the current record of decision for the Northern Rockies Lynx Management Direction is included as appendix E.

Desired Conditions (FW-DC-WLLX)

- 01 Boreal forest habitats provide denning, foraging, resting, and travel habitat for Canada lynx at a scale that approximates the size of a reproductive female's home range; for example, within a lynx analysis unit. Matrix habitats that occur between patches of boreal forest provide adequate cover to facilitate lynx movement between denning and foraging habitats within lynx analysis units, as well as dispersal between lynx analysis units.

Greater Sage-grouse (WLSG)

Introduction

The greater sage-grouse is an upland game bird dependent upon the sagebrush steppe ecosystem. Due to habitat loss and other factors such as West Nile disease, greater sage-grouse have experienced rangewide population declines for several decades, and the species was consequently petitioned for listing under the Endangered Species Act. Due at least in part to collaborative conservation efforts between State, Federal, and private entities, in 2015, the U.S. Fish and Wildlife Service determined that the species is not warranted for listing. Sage-grouse habitat is categorized as either priority or general habitat. Priority habitat includes those areas surrounding locations with the largest number of displaying male sage grouse on leks. Priority habitat within the plan area is located at the periphery of the Ashland and Sioux Geographic Areas. General habitat is the area that provides sage grouse habitat, but is not considered priority habitat. General habitat is identified across the plan area, but varies in proportion by landscape area, with the largest amounts in the Ashland, Pryor Mountains, and Sioux Geographic Areas.

Desired Conditions (FW-DC-WLSG)

- 01 Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species composition, shrub cover, herbaceous cover and stand structure, to meet seasonal requirements for feeding, sheltering, breeding, nesting, and brood rearing. Habitat connectivity is maintained, and flight paths are unimpeded by man-made structures.

Goals (FW-GO-WLSG)

- 01 The Forest Service actively engages in interagency efforts to coordinate Greater sage-grouse habitat management across administrative boundaries, and works cooperatively with willing private land owners to conserve priority and general sage-grouse habitat and provide connectivity across landownership boundaries.

Standard (FW-STD-WLSG)

- 01 In greater sage-grouse priority and general habitat, vegetation management shall result in no net loss of habitat or be beneficial to greater sage-grouse.

Guidelines (FW-GDL-WLSG)

- 01 In greater sage-grouse habitat, fire management tactics and strategies should minimize loss of existing sagebrush habitat using the safest and most practical means as determined by fireline leadership and incident commanders.
- 02 Wildfire rehabilitation projects in greater sage-grouse habitat at high risk of annual grass invasions should seed with an appropriate mixture to reduce the probability of cheatgrass establishment

- 03** New power transmission corridor infrastructure development should not be located in priority habitat unless the infrastructure can be buried without permanent damage to or loss of established sagebrush communities. The intent is to minimize habitat loss, avoid disturbing sage-grouse on breeding grounds, and limit the risk of sage-grouse mortality from collisions with infrastructure or from predators using infrastructure for hunting perches.
- 04** To avoid adding disturbance and mortality risk of sage-grouse, new recreation facilities such as roads, fences, campgrounds, picnic areas, etc. should not be constructed in priority or general sage-grouse habitat unless the development results in a net conservation gain to the species and its habitat.
- 05** Vegetation management projects in general or priority sage-grouse habitat should be designed to remove or reduce invading conifers, control or stop the spread of invasive annual grasses, and reduce the extent of existing nonnative plants.
- 06** New range management structures (such as, fences, stock tanks, etc.) should be designed and located to be neutral or beneficial to greater sage-grouse.
- 07** New energy developments should not be located in priority sage-grouse habitat, subject to valid existing or statutory rights.

Grizzly Bear (WLGB)

Introduction

Grizzly bears on the Custer Gallatin National Forest are part of the Greater Yellowstone Ecosystem population that occurs in parts of Montana, Idaho, and Wyoming. In 1975, the grizzly bear was listed as a threatened species under the Endangered Species Act of 1973 (as amended) in the lower 48 states. The U.S. Fish and Wildlife Service identified Greater Yellowstone Ecosystem grizzlies as a distinct population segment (DPS), and delisted (removed from the endangered species list) the distinct population segment in July 2017 (USDI FR 80(82) 2017). However, a September 2018 district court ruling vacated the Fish and Wildlife Service delisting rule, restoring Endangered Species Act protection for the Yellowstone grizzly bear population. The Greater Yellowstone grizzly bear population met demographic recovery targets by 1998, and has generally met or exceeded most recovery targets since. As a result, Federal and State agencies developed a conservation strategy for managing Yellowstone grizzlies in 2003, which was updated in 2007, and again in 2016.

The conservation strategy was developed by an interagency team consisting of representatives from the U.S. Fish and Wildlife Service, Interagency Grizzly Bear Study Team, National Park Service, U.S. Forest Service, and wildlife management agencies from Montana, Idaho, and Wyoming. This team brought a wealth of knowledge and experience to the table, and developed the conservation strategy using this combined expertise, as well as drawing upon the best available scientific research and literature relative to grizzly bear management. The conservation strategy identifies secure habitat, developed sites, livestock grazing allotments, and key food sources as the habitat elements most likely to influence grizzly bear persistence in the Greater Yellowstone Ecosystem. The following plan components formally adopt habitat standards from the Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem into the Custer Gallatin Forest Plan. The plan components apply regardless of the legal status of the Greater Yellowstone Ecosystem grizzly population, and apply within the primary conservation area and recovery zone (see map, appendix B)

Desired Conditions (FW-DC-WLGB)

- 01** Inside the primary conservation area and recovery zone, grizzly bears, including reproductive females, are present with sufficient distribution to be resilient to stressors and adaptable to changing conditions. Habitat conditions associated with availability of secure areas, presence of developed sites, and the amount of livestock grazing, are commensurate with, or improved (for bears) relative to levels that existed in 1998, when the species first met recovery criteria.
- 02** Outside the primary conservation area and recovery zone, grizzly bears occur where habitat is biologically suitable and grizzly bear occurrence is socially acceptable. Availability of secure habitat contributes to habitat connectivity, which facilitates grizzly bear movement between the Greater Yellowstone Area and other grizzly bear ecosystems.
- 03** Bear awareness information is available to forest users and there are few bear-human conflicts.

Goal (FW-GO-WLGB)

- 01** The Forest Service works with State, Federal, Tribal, and other willing partners to address the issue of habitat connectivity between grizzly bear ecosystems, with the long-term goal of achieving successful dispersal of grizzly bears between ecosystems, and ultimately increasing the genetic diversity and long-term health of grizzly bears inhabiting the Custer Gallatin National Forest.

Objectives (FW-OBJ-WLGB)

- 01** Alternatives B and C: Identify at least five potential relocation sites for grizzly bears within the plan area by 2022. Relocation sites are evaluated for appropriateness, and updated if necessary, every 2 years.

Alternative D: Identify at least seven potential relocation sites for grizzly bears within the plan area by 2022. Relocation sites are evaluated for appropriateness, and updated if necessary, every 2 years.

Alternative E: Identify at least three potential relocation sites for grizzly bears within the plan area by 2022. Relocation sites are evaluated for appropriateness, and updated if necessary, every 2 years.

Standards (FW-STD-WLGB)

- 01** Inside the primary conservation area and recovery zone, management actions shall not reduce the percent of secure habitat in each bear management subunit below 1998 baseline levels (appendix A; table 2). For subunits identified in the 2007 Conservation Strategy as needing improvement above 1998 levels (Gallatin #3, Henrys Lake #2, and Madison #2), management actions shall not reduce the percent of secure habitat below levels attained from full implementation of the 2006 Gallatin National Forest Travel Management Plan (appendix A). Management actions that result in temporary or permanent reduction in secure habitat below the applicable baseline shall follow the application rules listed below.
- 02** *Permanent Changes in Secure Habitat.* Construction of new motorized routes (roads or trails), reconstruction of existing motorized routes, or opening of a previously decommissioned route in the primary conservation area shall meet the following conditions:
 - a. Replace any loss in secure habitat below baseline levels by restoring secure habitat of equivalent quality and quantity (such as, through decommissioning) in the same bear

management subunit. Habitat quality must be assessed based on the best collective scientific understanding of grizzly bear habitat ecology and the rationale for all mitigation measures must be fully documented.

- b. Replacement habitat must be in place before project implementation or concurrent with project development as an integral part of the project plan. Replacement habitat must remain in place for a minimum of 10 years before it can be subsequently replaced and mitigated for per the application rules (this duration is based on the approximate generation time of a female grizzly bear, or the time it takes to replace herself in the population).
- c. For activities based on statutory rights, such as the 1872 General Mining Law, where permanent reductions in secure habitat cannot be replaced within the affected subunit, then secure habitat must be compensated at a commensurate level at or above the baseline in the nearest possible subunit. Subsequent changes to secure habitat in the two affected subunits will then constitute permanent changes to the baseline.
- d. Proposed applications for permit to drill and operating plans within existing oil and gas leases or mine locations, shall meet the application rules for changes to secure habitat. New leases, applications for permit to drill, and operating plans shall meet the secure habitat standards.

03 Temporary Changes in Secure Habitat. Project activities shall meet the following conditions for temporary reductions in secure habitat below baseline:

- a. Only one project affecting secure habitat may be active within a given bear management subunit at any one time.
- b. Total acreage of secure habitat affected within a given bear management unit shall not exceed 1 percent of the acreage in the largest subunit within that bear management unit. The acreage of a project that counts against the 1 percent limit (for example, the amount of secure habitat affected) is measured as the acreage within the 500-meter buffer around any temporary motorized access route or low-level helicopter flight line that intrudes into existing secure habitat.
- c. New temporary roads shall be limited to administrative purposes associated with project activities. Project activities shall not reduce secure habitat below baseline levels for more than four consecutive years. The collective set of temporary roads that affect secure habitat below baseline levels shall be closed to all motorized use after three years. Temporary roads shall be decommissioned such that secure habitat is restored within one year after closure.

04 Developed Sites. Inside the primary conservation area and recovery zone, the number and capacity of developed sites must be maintained at or below 1998 baseline levels. Changes to existing, or construction of new developed sites, shall meet the following conditions:

- a. Construction of new sites or additions to existing sites must be mitigated for within the affected subunit to offset any increase in the number of developed sites and capacity for human use, habitat loss, and increased access to surrounding habitats.
- b. Mitigation for new sites or increased capacity must be in place before the project begins, or included as an integral part of project implementation.
- c. Consolidation and elimination of dispersed campsites provides adequate mitigation for increases in human capacity at developed campgrounds if the additional developed site

capacity is less than or equal to that of the previous dispersed campsites, and if future overnight use of the dispersed site(s) is definitively curtailed.

- d. Conversion of uncontrolled dispersed campsites to a minor day-use site shall result in a net benefit to both human and bear safety and shall modify the dispersed site(s) to definitely curtail future over-night use. Such modification of site-use would not contribute to an increase in baseline developed sites.
- e. Expansion (in capacity or acreage) of existing administrative sites is exempt from mitigation if such developments are deemed necessary for enhancement of public land management and other reasonable alternatives are not available.
- f. Food storage structures and management must be in place and all other factors resulting in potential detrimental impacts to grizzly bears will be mitigated as identified for developed sites other than temporary work camps.
- g. Modifications to existing developed sites shall reduce resource damage, detrimental environmental impacts, or the potential for grizzly bear conflicts (such as, installing a vaulted toilet to avoid damage to water resources, or installing bear-resistant storage structures to reduce conflict).
- h. Modifications to dispersed campsites shall reduce resource damage, detrimental environmental impacts, or the potential for grizzly bear conflicts (such as, installing bear-resistant storage structures and limiting parking expansion). Such modifications do not require mitigations as long as they are not permanent or irretrievable.
- i. For new activities based in statutory rights (such as, 1872 General Mining Law, Americans with Disabilities Act), if the number of developed sites exceeds the 1998 baseline the Forest Service shall, to the fullest extent of its regulatory authority, reduce developed sites to commensurate levels and mitigate to offset any increases in human capacity, habitat loss, and increased access to surrounding habitat within the affected subunit if possible. In cases where mitigation cannot be accomplished within the affected subunit, commensurate compensation will be accomplished in the nearest subunit and changes in the two affected subunits become permanent changes to the baseline.

05 Livestock Grazing Allotments. Inside the primary conservation area and recovery zone, there shall be no increase in the number or acreage of domestic livestock grazing allotments above that which existed in 1998 (appendix A, "Permitted Livestock Grazing" section for 1998 baseline allotment information). Changes in livestock allotments inside the Primary Conservation Area shall meet the following conditions:

- a. A vacant allotment may be issued a permit (for example, re-activated) resulting in an increase in the number of permitted cattle as long as the number and net acreage of active allotments inside the Primary Conservation Area does not exceed the 1998 baseline.
- b. Combining or dividing existing allotments is allowed as long as the number and net acreage of active allotments inside the primary conservation area and recovery zone does not exceed the 1998 baseline.

06 Alternatives B, C and E: Inside the primary conservation area and recovery zone, use of targeted grazing by domestic sheep or goats for weed control shall include written instructions in the permit, contract or agreement terms, to address timing, location, numbers of livestock, retrieval of strays, disposition of livestock carcasses, or any other mitigation measures deemed necessary to minimize

risk of conflict with grizzly bears. Instruction shall stipulate that if livestock are subject to depredation by grizzly bears, livestock will be removed from the area. Grizzly bears depredating on livestock used for weed management shall not be removed unless additional circumstances indicate removal is warranted.

Alternative D: Use of targeted grazing by domestic sheep or goats for weed control inside the recovery zone or primary conservation area shall not be allowed.

Guidelines (FW-GDL-WLGB)

- 01** *Temporary Changes in Secure Habitat.* To minimize human disturbance and associated displacement of grizzly bears, project activities should meet the following conditions for temporary reductions in secure habitat below baseline inside the primary conservation area and recovery zone:
 - a. Project activities should be concentrated in space and time to minimize disturbance.
- 02** *Developed Sites.* To minimize risk of disturbance, displacement, and human-caused mortality of grizzly bears inside the primary conservation area and recovery zone, changes to existing, or construction of new developed sites should meet the following conditions:
 - a. Temporary work camps associated with major projects or emergency response should be placed in low grizzly bear use areas to minimize disturbance and displacement of bears as well as to reduce risk of bear-human conflicts.
 - b. For proposed applications for permit to drill, and new or revised operating plans within existing oil and gas and other mineral leases, the Forest Service should, to the fullest extent of their regulatory authority, strive to meet the developed site standard. The Forest Service must meet the developed site standard when permitting new leases, applications for permit to drill, and operating plans.

Suitability (FW-SUIT-WLGB)

- 01** The primary conservation area and recovery zone is not suitable for increased number or acreage of active commercial livestock grazing allotments above that which existed in 1998, is not suitable for permitted grazing of domestic sheep, except for targeted use of domestic sheep or goats for purposes of weed control in alternatives B, C and E.
- 02** Where otherwise allowed (such as, outside of designated Wilderness), secure habitat inside the primary conservation area and recovery zone is suitable for the following activities:
 - a. Activities that do not require route construction or reconstruction, re-opening of a permanently closed road, or recurring low-level helicopter flight lines.
 - b. Helicopter use for short term (no more than 2 days in the duration of a project), or at higher elevations (at least 500 meters above ground level with no landing). Aircraft used in emergency firefighting are allowed.
 - c. Non-wheeled, over-the-snow use (such as, snowmobile) unless new research identifies a threat. Conflicts associated with winter-use activities that develop either during denning or after den emergence in the spring should be addressed with local area restrictions.

- d. Access to power lines or utility corridors for occasional and necessary maintenance service that does not require new route construction and is used only for administrative purposes related to power line and utility maintenance.
- e. Project activities (such as, temporary road construction and maintenance, or use of recurring low-level helicopter flights) that occurs entirely during the grizzly bear denning season.

Prairie Dogs (WLPD)

Introduction

Two species of prairie dogs are known to occur on the Custer Gallatin. Black-tailed prairie dogs are located in the Ashland Geographic Area, and adjacent to the Sioux Geographic Area, where they typically occur in small (generally less than 100 acres), but persistent colonies. Black-tailed prairie dogs were petitioned for listing under the Endangered Species Act, but in 2009 the U.S. Fish and Wildlife Service determined the species did not warrant listing. The Custer Gallatin is at the very northern tip of the range for white-tailed prairie dogs, and this species is limited to one known colony in the plan area, located at the eastern fringe of the Absaroka Beartooth Mountains Geographic Area. Like its black-tailed relative, the white-tailed prairie dog was petitioned for listing under the Endangered Species Act, but again in 2010 the U.S. Fish and Wildlife Service determined the species did not warrant listing. However, due to its limited distribution, and threats such as susceptibility to plague, predation, and habitat conversion, the long-term persistence of the white-tailed prairie dog in the plan area is of concern. The two species of prairie dogs have similar habitat requirements and management issues, so are addressed together in the following plan components.

Desired Conditions (FW-DC-WLPD)

- 01** Prairie dog colonies contribute unique habitat conditions for a variety of prairie-associated flora and fauna. Habitat for both white-tailed and black-tailed prairie dogs allows for colony expansion where desirable to promote biodiversity.
- 02** Black-tailed prairie dog colony expansion does not result in unwanted encroachment onto adjacent non-Federal lands.

Goals (FW-GO-WLPD)

- 01** The Forest Service engages with state (Montana and South Dakota) wildlife agencies to coordinate management of prairie dog towns and habitat in a manner consistent with statewide management plans.

Standards (FW-STD-WLPD)

- 01** Use of toxicants (such as, rodenticides) shall not be permitted to control the spread of white-tailed prairie dog colonies.
- 02** New roads, trails and other permanent facilities or structures, shall not be constructed within 100 feet of white-tailed prairie dog colonies.

Guidelines (FW-GDL-WLPD)

- 01** To maintain important ecological contributions of prairie dogs, non-lethal means should be implemented before lethal means to control the spread of black-tailed prairie dogs.

- 02 To limit disturbance to prairie dogs and other species associated with prairie dog colonies, new roads, trails and other permanent facilities or structures, should not be constructed within 100 feet of black-tailed prairie dog colonies, unless for the specific purpose of managing undesired colony expansion.

Wolverine (WLWV)

Introduction

The wolverine was petitioned for listing under the Endangered Species Act in 2000. As a result, in February 2013 the U.S. Fish and Wildlife Service published a proposed rule to list the North American wolverine as a threatened distinct population segment in the contiguous United States. The wolverine is the largest land-dwelling member of the weasel family, and is well adapted to live in cold, snowy conditions. Consequently, wolverines are typically found at higher elevations, in alpine and subalpine habitats in the plan area. Wolverine habitat is patchily distributed across the plan area, and the species has a large home range relative to other mammals of similar body size. As a result, they naturally occur at low densities in the plan area. Wolverines on the Custer Gallatin Forest are part of a meta-population, or a network of subpopulations occupying isolated patches of suitable habitat. Their persistence in the naturally fragmented habitat found at high elevations may be dependent on regular, or at least intermittent, dispersal of individuals amongst habitat islands to facilitate gene flow between subpopulations.

Desired Conditions (FW-DC-WLWV)

- 01 Forest and alpine habitat characterized by persistent snow cover and cooler temperatures provide high quality reproductive habitat, denning and foraging opportunities for wolverines. High elevation habitat and associated micro-climates provide refugia and habitat connectivity for wolverines in the face of changing climates.

Guidelines (FW-GDL-WLWV)

- 01 To provide secure habitat for reproductive wolverines, there should be no increase in special use authorizations or designation of winter routes in maternal habitat for wolverines during the reproductive denning season.

2.4 Benefits to People: Multiple Uses and Ecosystem Services

2.4.1 Introduction

Social, cultural, and economic resources on the Custer Gallatin National Forest contribute to the social and economic sustainability of local communities and the public. The 2012 Planning Rule calls those resources “ecosystem services” or, put more simply, the benefits people obtain from the national forest. Healthy forest, shrubland, grassland, and riparian ecosystems are life-supporting systems that provide a full suite of goods and services that are vital to human health, financial sustainability, and wellbeing. These ecosystem services or benefits include all the multiple uses that people traditionally have relied on, such as recreation, forage and timber, as well as less obvious or apparent benefits, such as clean air and carbon sequestration. Multiple use is defined by the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531). Other sections of this plan, such as water quality, air quality, and recreation also provide plan direction that contribute benefits to people.

The 2012 Planning Rule also requires that forests take an all-lands approach to ensure that ecological sustainability and contributions to social and economic sustainability are considered in the context of the larger landscape. This involves managing the plan area in partnership with both public and private land owners and stakeholders to ensure management efforts are coordinated whenever possible. Included in this section are plan components related to partnerships and coordination.

2.4.2 General Contributions to Society and Economic Sustainability (SUS)

Introduction

Social sustainability refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 Code of Federal Regulations 219.19).

Economic sustainability refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and markets and nonmarket benefits.

Executive Order No. 12898 on Environmental Justice (issued February 11, 1994), mandates Federal agencies to make achieving environmental justice part of their mission. This includes identification and response to disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Environmental justice communities are those identified as having significant minority or low-income demographics. Areas influenced by the Custer Gallatin that meet this definition include the Crow Indian Reservation and the Northern Cheyenne Indian Reservation, as well as high poverty areas located north of the Indian reservations in northwestern South Dakota.

Desired Conditions (FW-DC-SUS)

- 01** Key forest resources, products, services, and opportunities including clean air, clean water and aquatic ecosystems, terrestrial ecosystems, education and volunteer programs, flood control, infrastructure, forest products, mineral and energy resources, historic, cultural, tribal or archeological sites, geologic features, grazing, scenery, recreation, spiritual inspiration, opportunities to experience peace, quiet and solitude in nature, free roaming wildlife, and designated areas (including their intrinsic values), contribute to the well-being, quality of life, mental, physical and spiritual health, and safety of the public.
- 02** Sustainable levels of forest provided goods and services (such as, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities.
- 03** Ecosystems structures and functions provide for clean air and water; desirable recreation and tourism opportunities; forest products; livestock forage; plant and animal food supplies, carbon sequestration, water storage; and mineral and other energy resources.

- 04** High quality terrestrial and aquatic habitats and opportunities for fishing, trapping, and hunting exist on the Custer Gallatin and contribute to local economies as well as the well-being, quality of life, mental, physical, and spiritual health of the public.

Goals (FW-GO-SUS)

- 01** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.

2.4.3 Areas of Tribal Importance (American Indian Rights and Interests) (TRIBAL)

Introduction

Tribes are sovereign nations with whom the Forest Service maintains government-to-government relationships. Each Tribe has unique rights, interests, and governing processes, necessitating unique coordination and consultation in order to ensure the Forest Service meets its trust responsibilities to the Tribes. Trust responsibility is the US Government's permanent legal obligation to exercise statutory and other legal authorities to protect tribal lands, assets, resources, and treaty rights.

Some Tribes have reserved treaty-protected rights while others have rights established by Executive order or statute. Among the items reserved by Tribes in exchange for land, are the rights to hunt, gather, and fish in a manner that would allow them to maintain their traditional way of life on open and unclaimed lands. "Open and unclaimed lands" may include public lands outside of the Tribe's ceded territory and forest lands are generally held to be "open and unclaimed." It is the Forest Service responsibilities to accommodate these rights including maintaining and improving the wildlife, fish and plant habitats upon which the Tribes rely. Bison hunting occurs along the periphery of the Yellowstone National Park and Tribes currently engage in this traditional practice

Sacred sites and traditional cultural properties have religious or traditional importance to individuals or cultural groups. Traditional cultural properties are managed under the authority of the National Historic Preservation Act. They are, by definition, eligible for listing on the National Register and must be a tangible property, that is, a district, site, building, structure, or object as defined in 36 Code of Federal Regulations 64.4.

Sacred sites important to Native Americans are managed under the authority of Executive Order 13007: Indian Sacred Sites. Indian Sacred Sites and are identified by a Native American Tribe or Native American individual. It is the Forest Service responsibility to protect sacred sites, manage for sacred sites, and provide for tribal traditions and cultural practices. This includes protecting the physical integrity of these sites and access to them.

Desired Conditions (FW-DC-TRIBAL)

- 01** Culturally significant species and the habitat necessary to support healthy, sustainable, and harvestable plant and animal populations support rights reserved by Tribes in treaties.
- 02** Forest resources are available for collection by tribal members with treaty rights.

- 03 Tribal members have access to sacred sites and landscapes within the Custer Gallatin and for the exercise of reserved treaty rights and cultural uses.

Goals (FW-GO-TRIBAL)

- 01 Cultural landscapes, sacred sites, and other culturally significant areas identified by Tribes provide tangible links to historically rooted beliefs, customs, and practices and are maintained and managed through coordination with the appropriate Tribes.

Standards (FW-STD-TRIBAL)

- 01 Requests from Tribes with ties to the Custer Gallatin for temporary closures for cultural and traditional purposes shall be facilitated subject to valid existing or statutory rights and other ongoing or permitted activities.
- 02 New developments and land management activities shall avoid, minimize, or mitigate potential conflict with forest resources used for traditional cultural practices.

2.4.4 Cultural and Historic Resources (CR)

Introduction

Numerous laws, regulations, and policies govern the use and administration of cultural resources on national forest lands. Some are more commonly used regulations, such as the Archaeological Resource Protection Act, the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, and the American Religious Freedom Act. National laws and regulations are also interpreted in Forest Service manuals, handbooks, and regional guides.

Over 4,500 archaeological, traditional cultural properties, and historic sites are recorded on the Custer Gallatin. Of these recorded sites, 357 are considered priority assets. "Priority assets" is a special Forest Service category that demonstrates a distinct value to the Custer Gallatin and are, or should be actively maintained. The forest also has 48 historic properties, 5 individual, and 43 as multiple listings, listed on the National Register of Historic Places and one proposed archaeological and traditional use National Register District. The Nez Perce National Historic Trail, commemorating the flight of members of the Nez Perce Tribe in 1877, also crosses the Custer Gallatin on the west border. In addition to these historic properties, 541 sites are listed as eligible for nomination to the National Register of Historic Places, and 176 have been found not eligible for nomination to the National Register of Historic Properties.

Desired Conditions (FW-DC-CR)

- 01 Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices.
- 02 Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history.
- 03 Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.

Objectives (FW-OBJ-CR)

01 Alternatives B and C: Annually conduct ten or more public outreach or interpretive projects that enhances public understanding and awareness of cultural resources and history of the Custer Gallatin.

Alternatives D and E: Annually conduct five or more public outreach or interpretive projects that enhances public understanding and awareness of cultural resources and history of the Custer Gallatin.

02 Alternatives B, C and E: Annually manage to standard 20 percent of the priority assets, based on available budgets. As a result, every five years all priority assets will have updated condition assessments.

Alternative D: Annually manage to standard 25 percent of the priority assets, based on available budgets. As a result, every three to four years all priority assets will have updated condition assessments.

2.4.5 Permitted Livestock Grazing (GRAZ)

Introduction

Livestock grazing is a historical use of the national forests that still resonates today in the western culture of the area. It is Forest Service policy to continue contributions to the economic and social well-being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on rangeland resources for their livelihood (Forest Service Manual 2202.1). Livestock grazing in the plan area is an important contribution to the social and economic importance of rural communities and to the associated traditional cultural landscapes. In addition, the associated local ranching operations add value in retention of open space, fewer subdivisions, and resulting wildlife habitat values off the national forest. Livestock grazing is an important source of income along with other diverse agricultural enterprises in the nine county area associated with Custer National Forest allotments. In the plan area, there are typically close to 200 grazing permit holders (permittees). Local ranchers graze livestock typically during late spring, summer, and early fall. Forest grazing is often an integral component of overall ranch operations.

It is Forest Service policy (36 CFR 222.2 (c) and Forest Service Manual 2203.1) and congressional intent (*Multiple Use Sustained Yield Act of 1960, Wilderness Act of 1964, Forest and Rangeland Renewable Resources Planning Act of 1974, and National Forest Management Act of 1976*) to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans. National Forest System lands within the plan area are considered suitable for permitted livestock grazing except for those areas where livestock grazing is identified in the forest plan as not being an acceptable use (not suitable).

Forage for permitted livestock grazing is predominantly found in natural grasslands, shrublands, riparian, wetlands, deciduous woodlands, and pine savannas. Primary rangelands within current allotments occur on about 22 percent of the Custer Gallatin (approximately 6 percent of the Beartooth, Yellowstone, Gardiner, Bozeman, and Hebgen Lake Districts and 87 percent of the Sioux and Ashland Districts are considered primary rangelands, respectively). Approximately 36,200 head of cattle, 550 horses and 400

domestic bison are permitted to graze. Forage is often measured in terms of animal unit months (AUMs). About 213,802 AUMs are permitted in the plan area with the Sioux and Ashland Districts providing about 81 percent of the total permitted. Allotment infrastructure in the plan area includes over 1600 miles of fence and over 1800 water developments, with structures being most prevalent on the Sioux and Ashland Districts.

Grazing allotments are managed to be responsive to current federal and state environmental laws and regulations and to be consistent with the forest plan. Forest plan components are designed to accommodate the range of site-specific needs of individual allotments, species, and plant communities. Policy directs that allotment environmental analysis be scheduled for completion and subsequent periodic environmental analysis sufficiency reviews be conducted. As issues, opportunities, or changed conditions arise, priorities may need to be shifted to conduct National Environmental Policy Act (NEPA) sufficiency reviews or Allotment Management Plan revisions. Management practices used in allotment management include deferment and rest from grazing, vegetation treatments, infrastructure to control and distribute livestock, and conservation measures to meet or move toward desired conditions. Allotment management plans for livestock provide specific operational guidance and are the appropriate planning level to develop and implement management tools such as utilization guidelines or stream bank alteration limitations (Forest Service Handbook 1909.12 section 22.23e).

Animal unit months authorized by permit are allotment-specific, thus they can be highly variable and need to be evaluated at the allotment planning level and not the at the forest plan level. Key factors influencing animal unit months authorized on any given parcel of land include, but are not limited to: management effectiveness, topography, water availability, plant communities and their distribution, aspect, slope, forage palatability, current year's precipitation and seasonal distribution, fire (both wild and prescribed), drought, wildlife effects, recreational activities, livestock age and size, and so forth. For any given allotment, authorized animal unit months can and will vary significantly depending on these types of variables.

Forest Service policy direction for permitted livestock use is found in 36 CFR 222 and agency manuals (Forest Service Manual 2200) and handbooks. Existing grazing allotments in wilderness areas are to be managed in accordance with wilderness values. Wilderness area grazing direction is found in 36 CFR 293.7 and Forest Service Manual 2323.2 (which includes congressional direction from H.R. Report No. 96-1126, dated June 24, 1981).

Desired Conditions (FW-DC-GRAZ)

Desired conditions for forage producing vegetation (such as grasslands, shrublands, riparian, wetlands, deciduous woodlands) are outlined in the "terrestrial vegetation" section, "invasive species" section, and the "watershed, aquatic, and riparian" section of this plan and will not be repeated here.

- 01** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.
- 02** Forage reserve allotments (also known as grassbanks) are available across the Custer Gallatin to provide short term permitted livestock grazing opportunities when conditions on active allotments are limited by factors such as fire, drought, etc.

- 03** Non-grazed areas represent reference conditions (natural or near natural conditions) in locations where reference habitats do not currently exist or are locally underrepresented, such as riparian, woody draws, ecotonal habitats, and upland vegetation.

Goals (FW-GO-GRAZ)

- 01** As opportunities arise, the Forest Service works with permittees to remove or relocate existing allotment infrastructure that attract livestock use in or near aspen, woody draws, riparian areas, groundwater-dependent ecosystems and at-risk plant occurrences.
- 02** Alternatives B, C, and E: When evaluating vacant livestock allotments, they are assessed for designation as a forage reserve allotment (grassbanks), opportunities to enhance management or improve resources through combination with adjacent allotment(s), retention of vacant allotment status for potential use demands in the future or allotment closure based on resource conflicts, conservation opportunities, or economic considerations.

Alternative D: When evaluating vacant livestock allotments, the Forest Service may emphasize allotment closure for accelerated ecological enhancement in areas of greatest conservation concern. This includes, but not limited to proposed or established research natural areas or special areas, at-risk species habitat, under-represented reference areas, native species restoration areas, key linkage areas, conservation watershed networks, areas with opportunities for reduced risk of disease transmission between domestic and wild animals, or retention for forage reserves (grassbanks) or opportunities to enhance management or improve resources through combination with adjacent allotment(s). The Forest Service may de-emphasize use demand as a consideration in these types of conservation areas.

Objectives (FW-OBJ-GRAZ)

- 01** Alternatives B and C: Annually provide conditions which support approximately 219,300 animal unit months, recognizing that allotment site-specific conditions may require adjustments in permitted or annually authorized animal unit months (for example wildland fire, drought, vacant allotment conversions to forage reserve allotments [also known as grassbanks], or vacant allotment closures for other resource purposes).

Alternatives D and E: Annually provide conditions which support approximately 213,800 animal unit months, recognizing that allotment site-specific conditions may require adjustments in permitted or annually authorized animal unit months (for example wildland fire, drought, vacant allotment conversions to forage reserve allotments [also known as grassbanks], or vacant allotment closures for other resource purposes).

Standards (FW-STD-GRAZ)

- 01** New or revised allotment management plans shall design grazing practices (such as stocking levels, duration, timing), and physical structures (such as off-site water developments or hardened stream crossings) to avoid, minimize, or mitigate adverse livestock-related effects in order to maintain or improve resiliency of riparian and upland ecosystems, and associated flora and fauna.
- 02** Alternatives B and C: Stocking of allotments with domestic sheep or goat for livestock production and associated trailing routes shall not be permitted in the Madison, Gallatin, Henrys Lake; Absaroka-Beartooth; or Pryor Mountain Geographic Areas. Stocking of permitted grazing allotments

with domestic sheep or goats for livestock production may be permitted in the Bridger, Bangtail, Crazy Mountains; Ashland; and Sioux Geographic Areas only if a risk assessment indicates that spatial or temporal separation, or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep.

Alternative D: Stocking of allotments with domestic sheep or goat use and associated trailing routes, shall not be permitted.

Alternative E: Stocking of permitted grazing allotments with domestic sheep or goats for livestock production and associated trailing routes shall be permitted only if a risk assessment indicates that spatial or temporal separation or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep

- 03 Alternatives B, C and E:** Use of targeted grazing by domestic sheep or goats for weed control may occur only if a risk assessment indicates that mitigation can effectively prevent disease transmission between livestock and bighorn sheep.

Alternative D: Use of targeted grazing by domestic sheep or goats for weed control shall not be allowed.

- 04** Retrieval and disposition procedures shall be required terms and conditions of sheep or goat permits, trailing permits and in the permit, contract or agreement for weed control to address management of stray domestic sheep or goats left on National Forest System lands prior to or after grazing, trailing, permitted on- and off-dates.
- 05** Notification and emergency procedures shall be required terms and conditions of sheep and goat permits, trailing permits and in the permit, contract or agreement for weed control to address those situations when wandering bighorn sheep may come into contact with domestic sheep or goats.
- 06** The Forest Service shall require permittees to take appropriate measures to prevent turnout of sick or diseased domestic sheep and goats on grazing allotments, on trailing routes, or in weed control situations. Sick or diseased animals shall be removed as soon as possible after their recognition.

Guidelines (FW-GDL- GRAZ)

- 01** New or revised allotment management plans should be designed to maintain stream habitat and water quality by minimizing sediment delivered to watercourses and degradation to streambank stability from livestock grazing in riparian areas.
- 02** To maintain or improve riparian aquatic habitat and achieve riparian habitat desired conditions specific to an ecological site over time, low gradient, alluvial channels should have end of season stubble height of hydrophilic vegetation along the greenline be at least 10 to 15 centimeters (4 to 6 inches). Alternative use and disturbance indicators and values, including those in current Endangered Species Act (ESA) consultation documents, may be used if they are based on site capability, relevant science, monitoring data and meet the purpose of this guideline.
- 03** On big game winter range, new or revised allotment management plan prescriptions should be designed to meet big game forage needs in coordination with other uses.

- 04** To improve livestock distribution and reduce livestock attraction to special habitats, salt or supplement placement should not be within 0.25 mile of water developments, recreational developments, groundwater-dependent ecosystems, streams, aspen stands, woody draws, other special habitats or populations of at-risk plant species that are susceptible to livestock impacts.
- 05** New allotment infrastructure should be located to minimize livestock impacts on aspen, woody draws, riparian areas, groundwater-dependent ecosystems and at-risk plant species.
- 06** New and reconstructed gates should be designed and installed to be easily opened and closed by most users.
- 07** New fences and reconstruction of existing fences should be located and designed to minimize collision hazards for wildlife and to prevent barriers to wildlife movement.
- 08** New or reconstructed water developments should be designed to be wildlife friendly and to facilitate animal escape.
- 09** New locatable or leasable mineral development should use specific mitigation measures to reduce impacts on livestock distribution and forage values from surface-disturbance activities. Existing range improvements should be relocated as necessary to accommodate new mineral development.

2.4.6 Timber (TIM)

Introduction

Harvest of timber on national forest lands occurs for many different reasons, including ecological restoration, community protection in wildland-urban interfaces, public safety, habitat restoration, protection of municipal water supplies; and to contribute to economic sustainability through the production of timber, pulp for paper, specialty woods for furniture, or fuel as a renewable energy source. Timber harvest, whether for regularly scheduled wood production or for restoration and other reasons, supports local businesses and employment.

Suitability for Timber Production

Timber production is defined as the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. The 2012 Planning Rule requires identification of lands that are suited and not suited for timber production based on factors that include legal withdrawal (for example, timber production prohibited due to statute, executive order, etc.), technical factors (non-forested lands, geology or soil conditions, etc.), and compatibility with desired conditions and objectives stated in the plan (plan components). Therefore, in lands suitable for timber production, active vegetation management and some regular flow of timber products is expected to occur. Table 15 displays the acres of timber production suitability classification for the proposed action. Unless prohibited by other plan components, timber harvest may occur on lands unsuitable for timber production to meet other resource objectives.

Table 15. Timber production suitability classification (acres) by alternative

Land Classification Category	Alternative B	Alternative C	Alternative D	Alternative E
A. Total forest lands in the plan area	3,039,269	3,039,269	3,039,269	3,039,269
B. Lands not suited for timber production due to legal or technical reasons	2,358,561	2,358,561	2,358,561	2,358,561
C. Lands that may be suited for timber production (A–B)	680,708	680,708	680,708	680,708
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan; percent of forest	582,338	570,146	553,950	604,502
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)	98,372	110,564	126,758	76,206
F. Total lands not suited for timber production (B+E)	2,456,933	2,469,125	2,485,319	2,434,767

Sustained Yield Limit

Per the National Forest Management Act and planning rule regulations, the total quantity of saw timber that may be sold from all lands (excluding salvage or sanitation harvest volume) 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 at section 11, 16 United States Code 1611; 36 Code of Federal Regulations 219.11(d)(6)). The sustained yield limit is not a target but is a limitation on harvest. Calculation of the sustained yield limit is based on lands that may be suitable for timber production (line C from table 15) and is not limited by plan components or considerations of the anticipated fiscal capability or organizational capacity. The Sustained Yield Limit for the Custer Gallatin National Forest is 8.08 MMCF (38.25 MMBF).

Projected Wood and Timber Sale Quantities

To clearly display the intended timber program associated with achieving ecological, social, and economic desired conditions, the plan identifies the projected wood sale quantity and projected timber sale quantity. Table 16 displays the distinguishing characteristics of the metrics. 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 planning period for any purpose (except salvage harvest or sanitation harvest) on all lands on the Custer Gallatin. The projected timber sale quantity is the portion of the projected wood sale quantity that meets applicable utilization standards (the sawlog portion of offered timber sales). Both the projected wood sale quantity and the projected timber sale quantity are limited by the projected fiscal capability and organizational capacity of the Custer Gallatin. Projected wood sale quantity and the projected timber sale are displayed in objectives below.

Table 16. Characteristics of the timber volume metrics

Characteristics	Sustained Yield Limit (SYL)	Projected Wood Sale Quantity (PWSQ)	Projected Timber Sale Quantity (PTSQ)
Based on lands that may be suitable for timber production (line c; table 15)	Yes	No	No
Based on quantity sold from all lands in plan area	No	Yes	Yes
Based on the assumption that all lands that may be suitable for timber production are managed for timber production	Yes	No	No
Limited by plan components, fiscal capability, and organizational capacity	No	Yes	Yes
All volume meets utilization standards	Yes	No	Yes
Includes salvage or sanitation harvest volume	No	No	No
Varies by alternative in plan environmental impact statement	No	Yes	Yes

Neither the projected wood sale quantity nor the projected timber sale quantity serve as management targets or as limitations on harvest. Rather, both are based on reasonable expectations about the fiscal capability and organizational capacity to achieve the desired conditions and objectives in the revised plan for the planning period. As such, calculation of these volume estimates are sensitive to a number of important assumptions including future budget trends, future markets for timber products, efficiency in planning and implementation, and the timing and locations of large disturbance events. If additional support to achieve desired conditions was provided through opportunities such as increased congressional allocations, stewardship contracting, or work with partners through other authorities, the potential wood and timber sale quantity could be exceeded. Conversely, if available resources, markets, or other factors are less favorable than anticipated, the potential wood and timber sale quantities identified may not be met.

Desired Conditions (FW-DC-TIM)

- 01** Lands identified as suitable for timber production support a regularly scheduled timber harvest program that provides for jobs and income while also sustaining ecosystem health.
- 02** Lands suitable for timber production are resistant to natural disturbances, thereby minimizing the economic loss of the timber resource compared to lands designated as unsuitable for timber production.
- 03** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies.
- 04** Timber harvest supports maintaining regional timber harvesting and processing infrastructure.

Objectives (FW-OBJ-TIM)

- 01** Alternatives B and C: Annually offer timber (meeting timber product utilization standards) for sale at an average projected timber sale quantity of 1.9 million cubic feet (10 million board feet), measured on a decadal basis.

Alternative D: Annually offer timber (meeting timber product utilization standards) for sale at an average projected timber sale quantity of 1.21 million cubic feet (6 million board feet), measured on a decadal basis.

Alternative E: Annually offer timber (meeting timber product utilization standards) for sale at an average projected timber sale quantity of 2.9 million cubic feet (15 million board feet), measured on a decadal basis.

- 02 Alternatives B and C:** Annually offer wood products (including fuelwood, biomass, and other volumes that do not meet timber product utilization standards) for sale at an average annual projected wood sale quantity of 3.95 million cubic feet (18 million board feet), measured on a decadal basis.

Alternative D: Annually offer wood products (including fuelwood, biomass, and other volumes that do not meet timber product utilization standards) for sale at an average annual projected wood sale quantity of 2.95 million cubic feet (12.8 million board feet), measured on a decadal basis.

Alternative E: Annually offer wood products (including fuelwood, biomass, and other volumes that do not meet timber product utilization standards) for sale at an average annual projected wood sale quantity of 5.34 million cubic feet (24.5 million board feet), measured on a decadal basis.

- 03 Alternatives B and C:** Annually complete vegetation management treatments (such as, timber harvest, planned ignitions, thinning, planting) on an average of 6,000 to 7,500 acres of the Custer Gallatin, measured on a decadal basis, to maintain or move towards achieving desired conditions for forest, deciduous woodland, shrubland and grassland ecosystems (this objective includes the acres outlined in FW-OBJ-FIRE-01).

Alternative D: Annually complete vegetation management treatments (such as, timber harvest, planned ignitions, thinning, planting) on an average of 8,000 acres of the Custer Gallatin, measured on a decadal basis, to maintain or move towards achieving desired conditions for forest, deciduous woodland, shrubland and grassland ecosystems (this objective includes the acres outlined in FW-OBJ-FIRE-01).

Alternative E: Annually complete vegetation management treatments (such as, timber harvest, planned ignitions, thinning, planting) on an average of 5,000 acres of the Custer Gallatin, measured on a decadal basis, to maintain or move towards achieving desired conditions for forest, deciduous woodland, shrubland and grassland ecosystems (this objective includes the acres outlined in FW-OBJ-FIRE-01).

Standards (FW-STD-TIM)

- 01** Harvest for purposes of timber production shall occur only on those lands classified as suitable for timber production.
- 02** Timber shall not be harvested on lands where soil, slope or other watershed conditions may be irreversibly damaged by harvest activities, as identified in project specific findings.
- 03** Silvicultural treatments shall not be selected based solely on their ability to provide the greatest dollar return or output of timber.

- 04** Clearcutting shall be used as a harvest method only where it has been determined to be the method most appropriate to meet the purpose and need of the project outcome. Other types of even-aged harvest shall be used only where determined to be appropriate. Determinations shall be based on an interdisciplinary review of site-specific conditions and the desired conditions for vegetation, wildlife habitat, scenery, and other resources.
- 05** Timber harvest units shall be shaped and blended to the extent practicable with the natural terrain.
- 06** Even-aged stands shall generally reach a minimum of 95 percent of culmination of mean annual increment, as measured by cubic volume, prior to regeneration harvest, unless at least one of the following conditions have been identified during project development:
- a. When such harvesting would modify fire behavior to protect resource, social or economic values;
 - b. When harvesting of stands will trend landscapes toward vegetation desired conditions;
 - c. When harvest uses uneven-aged silvicultural systems, thinning, or other intermediate stand treatments that do not regenerate even-aged or two-aged stands;
 - d. When harvest is for sanitation or salvage of timber stands that have been substantially damaged by fire, windthrow, or other disturbance or which are in imminent danger from insect or disease attack;
 - e. When harvest is on lands not suited for timber production and the type and frequency of harvest is due to the need to protect or restore multiple use values other than timber production.
- 07** The quantity of timber that may be sold per decade from lands both suitable and not suitable for timber production shall not exceed the sustained yield limit 8.08 million cubic feet average annual volume (approximately 38 million board feet) with the exception of salvage or sanitation cutting of trees that are damaged by fire, windthrow, or other disturbance or to manage insect infestation or disease spread. Salvage harvest of such trees may be harvested above the sustained yield limit, where such harvest is consistent with desired conditions for terrestrial and aquatic ecosystems.
- 08** Openings created by clearcutting, seedtree cutting, shelterwood seed cutting, or other cuts designed to regenerate an even-aged stand of timber in one harvest operation shall not exceed 40 acres. This standard applies to new, individual harvest proposals on national forest lands only and need not consider existing openings on national forest land, adjacent private or other agency lands. Exceptions to the 40-acre maximum opening size may occur when determined necessary to achieve desired ecological conditions for the plan area, such as those associated with forest patterns, patch sizes, and forest resilience in the short and long term. Maximum opening size under this exception is show in table 17.
- 09** Harvest openings created as a result of a single harvest operation that exceed the exception to the maximum opening size shall require 60-day public review and regional forester approval.

Table 17. Maximum opening sizes for regenerating an even-aged stand of timber in a single harvest operation

Broad Potential Vegetation Type	Maximum Opening Size (acres) ¹
Warm Dry	75
Cool Moist	80
Cold	50

1. The maximum opening sizes are consistent with the natural range of variation for the average patch size of early successional forests, based on an analysis conducted with SIMPPLE.

- 10** The maximum opening size displayed in FW-STD-TIM-08 and the 60-day public review and regional approval process shall not apply to the size of areas harvested as a result of natural catastrophic disturbances, such as fire, windstorms, or insect and disease infestations.
- 11** To maintain forest cover, timber harvest shall only be used when there is reasonable assurance of restocking within 5 years after final regeneration harvest. Restocking level is prescribed in a site-specific silvicultural prescription for a treatment unit and is determined to be adequate depending on the objectives and desired conditions for the plan area. In some instances, such as when stands are treated to reduce fuel loadings, to create openings for scenic vistas, or to prevent encroaching trees to meet desired vegetation or wildlife habitat conditions, it is acceptable not to restock or restock at low tree densities.

Guidelines (FW-GDL-TIM)

- 01** Salvage harvest in areas burned by wildfire should retain some unburned patches and patches burned at low severity (less than 20 percent tree mortality) to contribute to ecosystem and wildlife habitat diversity.
- 02** Salvage harvest in areas burned by wildfire should retain clusters of burned trees of a variety of sizes, including large and very large sizes (greater than 15 inches DBH) to provide habitat for wildlife species associated with burned habitats.
- 03** On lands not classified as suitable for timber production, timber harvest should only be used as a tool to assist in achieving or maintaining one or more applicable desired conditions or objectives of the plan in order to protect other multiple-use values, and for salvage, sanitation, or public health or safety. Examples of using timber harvest to protect other multiple use values may include improving wildlife or fish habitat, thinning to reduce fire risk, or restoring meadow or savanna ecosystems where trees have invaded.

2.4.7 Special Forest and Botanical Products (FP)

Introduction

Special forest and botanical products and associated plant materials are part of the overall ecosystem services provided. Special forest and botanical products are natural resources that are not the traditional timber and fiber products. They include, but are not limited to, mushrooms, medicinal plants, posts and poles, Christmas trees, boughs, and teepee poles.

Desired Condition (FW-DC-FP)

- 01 A variety of special forest products and plant materials are available for commercial, personal, tribal, educational, and scientific uses.

Standard (FW-STD-FP)

- 01 Permits for commercial use of special forest and botanical products shall not be allowed in designated wilderness, wilderness study areas, recommended wilderness, wild portions of designated and eligible wild and scenic rivers, backcountry areas, and special areas. Special forest and botanical products shall not be permitted for commercial or noncommercial personal use in research natural areas.

Guideline (FW-GDL-FP)

- 01 To support persistence and conservation of special forest product habitats, permits for special forest product and plant materials collection should require sustainable collection methods and levels.

2.4.8 Energy, Minerals, and Geologic Areas of Interest (EMIN)

Introduction

The Custer Gallatin National Forest has a long history of mineral exploration and extraction starting in the 1860s when precious and base minerals such as gold, silver, copper, and chromium were discovered in a variety of locations throughout the mountain portions of the Custer Gallatin. Similarly, the eastern portions of the national forest hosted turn of the century mineral extractions associated with discovery and production of energy minerals such as coal, oil, and natural gas. The forest also contains widespread deposits of saleable mineral materials suitable for use in construction and infrastructure maintenance projects. The Custer Gallatin National Forest hosts geologic hazards and geologic resources that are very unique and offer special considerations during their use and management.

There are three types of mineral and energy resources:

- **Locatable minerals:** include commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc., and some nonmetallic minerals such as asbestos, gypsum, and gemstones. Under the Mining Law of 1872 (as codified by 36 Code of Federal Regulations 228), U.S. citizens are guaranteed the right to prospect and explore lands reserved from the public domain and open to mineral entry. The disposal of these commodities is non-discretionary.
- **Saleable mineral materials:** include 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.
- **Leasable minerals:** include commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, and sulfur on public domain lands and solid leasable minerals on acquired lands. Areas of the Custer Gallatin are open to leasable minerals exploration, development, and production. Currently there are 68 suspended oil and gas leases covering approximately 100,531 acres on the national forest. No activity can take place on the leases until a site-specific environmental impact statement is completed. A leasing decision, for both the suspended leases and other lands, will not be a part of this proposed action. The disposal of these mineral resources is discretionary.

Mineral encumbrances for subsurface minerals estate include both reserved and outstanding private mineral rights on acquired lands on the Custer Gallatin, active and suspended oil and gas leases and mining claims under the 1872 Mining Law.

The reserved and outstanding mineral rights occur on acquired lands that are split estate, federal surface and private subsurface. Reserved mineral rights are those that a private landowner kept when they sold the property to the United States. Reserved minerals are managed based on the secretary of agriculture's rules and regulations. Outstanding minerals are those minerals that were separated from the surface estate sometime in the past. Outstanding minerals are subject to state law and conditions stated in the original deed conveying the minerals. In both of these cases, the Forest Service has little control over the access and mineral activities for these private mineral rights.

A part of the Forest Service's mission is to encourage, facilitate, and administer the orderly exploration, development, and production of mineral and energy resources on National Forest System lands to help meet the present and future needs of the nation. Existing Federal law, regulation, and legal decisions guide much of how or if particular minerals and energy management actions should take place. Plan components do not reiterate overarching Federal law, regulation, and policy that must be implemented. The energy and minerals plan components provide further clarity and specificity as to how or if particular minerals and energy management actions should take place. All mineral and energy management activities on national forest system lands are required to meet applicable environmental protection measures as required by law, regulation, and policy.

Specific location information of significant caves is exempt from disclosure to the public unless an approved cave management plan identifies that such disclosure furthers the purpose of Federal Cave Resources Protection Act of 1988 and that such disclosure would not create a substantial risk of harm, theft, or destruction of such cave. The cave standards apply to significant caves, and to caves not yet determined as non-significant; they do not apply to caves determined to be non-significant.

Desired Conditions (FW-DC-EMIN)

- 01** Energy and mineral resources are available in consideration of other resources values that may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability, and prior existing land use.
- 02** Renewable energy resources (geothermal, hydropower, solar and wind energy) is available in consideration of other resource values that may be present. Following renewable energy activity, impacted areas are in a productive capacity.
- 03** Abandoned mines lands and areas impacted by past mining activities are returned to a state of site condition comparable to pre-mineral activity and provide comparable form and function based on site potential.
- 04** Underground environments in abandoned mines remain unaltered, except where necessary to protect human health and safety.
- 05** Cave and karst resources, inclusive of significant caves, are available for the use, enjoyment, and provision of benefits associated with the cave or karst resources, while also providing wildlife habitat requirements of stress- and disease-free environments for vulnerable, cave-associated species

- 06** Opportunities for rock hounding and other types of noncommercial mineral collecting (such as, for recreational, scientific, research, or educational purposes) are available.
- 07** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia.
- 08** Geologic hazards (for example, erionite or offretite, naturally occurring radio-active materials, mass wasting, floods, sinkholes, etc.) do not pose associated risks to public health and safety, facilities, and infrastructure.

Goals (FW-GO-EMIN)

- 01** The Forest Service fosters cooperation and exchange of information between governmental authorities and those who utilize caves located on national forest system lands for scientific, ceremonial, traditional, education, or recreation purposes.
- 02** The Forest Service coordinates Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites with the Environmental Policy Act, Tribes, and State partners within the context of the superfund designation.

Standards (FW-STD-EMIN)

- 01** New mineral and energy management activities shall only be authorized when the associated reclamation plan includes provisions to return disturbed areas to stability and land use comparable to adjacent lands and pre-operational site conditions to the extent practicable.
- 02** The extent and mode of new access for mineral activity conducted under the General Mining Law of 1872 shall be commensurate with the stage of mineral activities (prospecting, exploration, site development, mineral production, or site reclamation and abandonment).
- 03** When closing underground mine features to public entry, pre-closure inspections shall be conducted to determine if at-risk species are present. Closures shall be designed and implemented to address needs of identified at-risk species, unless public safety is in jeopardy.
- 04** Potential effects to human health and safety and to infrastructure investment from geologic hazards such as abandoned mine lands, mass wasting, naturally occurring acid rock drainage, naturally occurring radioactive materials, and naturally occurring fibrous minerals such as erionite shall be mitigated, reduced, or eliminated during land management activities in areas where they are known to or may reasonably occur.
- 05** Logging, road construction, and other uses of heavy equipment above or in the vicinity of a cave with a thin roof or the course of such a cave shall be avoided if there is a potential for damage. Vegetation in the vicinity of a cave or cave course will be retained if it is required to protect the cave's microenvironment.
- 06** Tree cutting in the vicinity of a cave shall directionally fall trees away from the cave and its course.
- 07** Cave entrances shall not be used as disposal sites for slash, spoils, or other refuse.

- 08** Management activities shall not be permitted within the surface drainage area draining into a cave if such activities may affect the cave ecosystem with sedimentation, soil sterilization, or addition of nutrients or other chemicals (including pesticides, herbicides, fertilizers, dust suppressants and fire retardant) that could change the cave's natural hydrology, irrespective of whether the channels carry perennial, ephemeral, or intermittent flows.
- 09** Management activities shall not divert surface drainage into caves.

Guidelines (FW-GDL-EMIN)

- 01** To protect prior mine site reclamation work, new activities should not compromise the infrastructure and any remedy applied to mine reclamation sites, including mine waste repositories.
- 02** New mineral development operations should minimize adverse effects to aquatic and riparian resources in locations such as woody draws, wetlands, springs, and seeps. If the riparian management zone cannot be avoided, then operators should take all practicable measures to maintain, protect, and rehabilitate water quality and habitat for fish, wildlife and other riparian associated resources that may be affected by the operations. Required bonding must consider (in the estimation of bond amount) the cost of stabilizing, rehabilitating, and reclaiming the area of operations.

2.4.9 Infrastructure—Roads, Trails, Facilities, Airfields, and Dams

Introduction

The Infrastructure section direction does not apply to facilities specifically addressed as part of the livestock grazing program, such as allotment fences and water developments, which is found in the “permitted grazing” section. This section also does not include direction for Forest Service-owned communication infrastructure such as radio towers and communication equipment buildings, nor any privately owned infrastructure under special use authorization.

2.4.10 Roads and Trails (RT)

Introduction

The Custer Gallatin National Forest manages a 1,450-mile, open-road system, including 85 road bridges. These roads support land management activities, recreational users, access to private land in-holdings and commercial ventures, and Forest Service administrative needs. Roads include the roadway, any constructed feature such as bridges, ditches, culverts, signs, retaining walls, etc., that support the user and minimize the effects to other values. The road system is comprised of National Forest System roads and are part of the Road System Atlas.

The Custer Gallatin manages a 2,850-mile summer and winter trail system including 80 trail bridges. These trails are managed for a variety of recreational uses, including hiking, horseback riding, bicycling, running, skiing and snowshoeing, snowmobiling, motorcycle and all-terrain vehicle riding, and off-highway vehicle riding. In addition to recreation uses, the trail system also supports commercial ventures such as outfitter and guide services. Trails include the trail-way, any constructed feature such as bridges, ditches, culverts, signs, retaining walls, and other features that support the user and minimize the effects

to other values. The trail system is comprised of National Forest System trails and are part of the Trail System Atlas.

While airfields are considered part of the transportation system, there are no authorized airfields on the Custer Gallatin. Travel management on specific roads, trails, and motorized areas is addressed in the Custer National Forest and the Gallatin National Forest Travel Plans.

Desired Conditions (FW-DC-RT)

- 01** The transportation system provides safe and efficient public, private inholding, and administrative access to the Custer Gallatin for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.
- 02** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (such as, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).
- 03** Invasive species are infrequent or non-existent along forest roads, trails or around facilities.
- 04** Roads and bridges provide for the health and safety of each user, are cost effective, preserve the integrity of the road or trail, and reasonably protect the natural, cultural, and aesthetic values within the roadway or trail-way.
- 05** The trail system accommodates current and reasonably foreseeable recreational demands and ability of the Forest Service to provide sustainable maintenance through volunteer, partnership, or agency resources.

Goals (FW-GO-RT)

- 01** The road system is part of a broader public road system that is under the jurisdiction of multiple road agencies. Road agencies cooperate routinely to reduce conflicts, ensure cost effective partnering, and provide a seamless transportation system to the public and reduces the overall footprint of the entire transportation system.
- 02** Road maintenance is shared with users on a commensurate basis. Residential subdivisions, commercial enterprises, utility companies, etc., using a National Forest System road share in the cost of road maintenance based generally on type and timing of use.
- 03** The Custer Gallatin National Forest cooperates with highway managers, state agencies, Tribes and landowners to implement wildlife and aquatic organism crossings that reduces encounters.
- 04** The Custer Gallatin National Forest coordinates with nearby utilities to encourage co-location within the road prism and undergrounding of lines.

Objectives (FW-OBJ-RT)

01 Alternatives B and C: Annually maintain 20 percent of high clearance vehicle roads, based on available budgets.

Alternative D: Annually maintain 5 percent of high clearance vehicle roads, based on available budgets.

Alternative E: Annually maintain 10 percent of high clearance vehicle roads, with a priority for timber harvest access, based on available budgets.

02 Alternatives B, C, D and E: Annually maintain 75 percent of passenger vehicle clearance roads, based on available budgets.

03 Alternatives B, C and D: Remove 85 miles of planned unneeded system roads at an average rate of 10 miles per year, based on available budgets.

Alternative E: Remove 5 to 20 miles of planned unneeded system roads, based on available budgets.

04 Alternatives B, C and D: Annually maintain 30 percent of trails to standard, based on available budgets, emphasizing areas of higher use.

Alternative E: Annually maintain 30 percent of trails, based on available budgets, emphasizing areas of higher use in the front country.

05 Alternatives B and C: Provide maintenance annually on 80 percent of trails, based on available budgets.

Alternatives D and E: Provide maintenance annually on 30 percent of trails, based on available budgets.

Standards (FW-STD-RT)

01 During dust abatement applications on roads, chemicals shall not be applied directly to watercourses, water bodies (such as, ponds and lakes), nor wetlands.

02 Forest Service owned or authorized construction and maintenance equipment shall be free of invasive plant materials prior to mobilizing onto national forest land.

03 For new road construction and reconstruction of existing road segments within or adjacent to riparian management zones, do not side-cast fill material.

04 Newly constructed or reconstructed roads shall not encroach into streams and riparian areas in ways that impact channel and floodplain function, geometry, or sediment delivery in the long term.

05 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-RT)

- 01** Road and trail construction or reconstruction should utilize new technologies to enhance functionality, improve efficiency, reduce resource impacts and reduce costs.
- 02** Temporary roads should be located and constructed to facilitate removal and restoration following the needed use.
- 03** Roads, skid trails, temporary roads, and trails should have a water drainage system that is hydrologically disconnected from delivering water, sediment, and pollutants to water bodies (except at designated stream crossings) to maintain the hydrologic integrity of watersheds.
- 04** To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or putting roads into intermittent stored service, for example, storing roads for longer than 1 year, roads should be left in a hydrologically stable condition, for example, drainage off roads should be routed away from water resources and landslide-prone areas and towards stable areas of the forest floor to provide filtering and infiltration.
- 05** New physical barriers on travel routes (such as berms) should assure that drainage features are sufficient to avoid future risks to aquatic resources, such as, remove culverts from stream crossings. Travel routes include roads, skid trails, temporary roads, and trails.
- 06** To maintain or improve watershed ecosystem integrity and reduce road-related mass wasting and sediment delivery to watercourses, new and relocated road, trail, (including skid trails and temporary roads) and other linear features should not be constructed 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 constructed to prevent diversion of stream flow out of the channels in the event the crossing is plugged or has a flow greater than the crossing was designed.
- 08** During construction or reconstruction, trails, fords, and other stream crossings should be hardened to protect the streambed, banks and approaches in order to maintain channel stability and reduce sediment delivery to watercourses.
- 09** To reduce the likelihood of sediment input to streams, maintenance activities such as road blading and snow plowing on existing roads should minimize side-casting, particularly into or adjacent to water bodies. Care should be taken when plowing snow so as not to include road soil. Breaks should be designed in the snow berms to direct water off the road.
- 10** To protect wetlands and to protect the roadbed, wetlands and unstable areas should be avoided when reconstructing existing roads or constructing new roads and landings. Impacts should be minimized where avoidance is not practical.
- 11** To protect the roadbed and to minimize sediment delivery to streams, when constructing, reconstructing, or maintaining road, road drainage should be routed away from potentially unstable channels, fills, and hillslopes.

- 12** To maintain or improve watershed ecosystem integrity, transportation infrastructure should be designed to maintain natural hydrologic flow paths to the extent practical (for example, streams should have crossing structures and not be routed down ditches).
- 13** To protect and enhance aquatic organism connectivity, 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 should be created or maintained to prevent spread or invasion of nonnative species in alignment with fish management agencies. These crossings should also allow for passage for other riparian-dependent species through the establishment of banks inside and beneath the crossing structure.

2.4.11 Administrative Facilities (FAC)

Introduction

The Custer Gallatin National Forest manages a variety of administrative and recreational facilities. This includes 200 administrative buildings and 472 recreational buildings with all the accompanying utilities.

Administrative facilities include offices, warehouses, fire stations, helicopter landing pads, water and wastewater systems, fire lookouts, residences, bunkhouses, stock handling buildings and pastures, fueling stations, backcountry cabins, fire retardant filling stations, radio repeater sites, storage, dams, site fencing, and other minor developments. These are used primarily for administrative support to forest land management activities.

Recreational facilities include visitor centers, campgrounds, picnic areas, trailheads, river access sites, rental cabins, water and wastewater systems, interpretive sites, and support facilities such as toilets that support the Custer Gallatin’s recreational program, and are covered in the recreation section.

Facilities are needed support the agency’s mission. This mission is characterized in each of the facility master plans where the appropriate facilities are recommended. For instance, the master plan characterizes how the Forest Service determines the need and scale of its residential housing program (quarters) and proposes the needed facilities.

Desired Conditions (FW-DC-FAC)

- 01** Administrative facilities support the agency’s multiple use mission.
- 02** Administrative facilities not needed to support the agency’s mission are no longer existent.
- 03** Administrative facilities provide for the safety, health, and intruder security of the occupants.

Objectives (FW-OBJ-FAC)

- 01** Alternatives B and C: Annually maintain 60 percent of administrative facilities, based on available budgets.

Alternatives D and E: Annually maintain 40 percent of administrative facilities, based on available budgets.

Standard (FW-STD-FAC)

- 01 Extraction of saleable mineral materials shall not be allowed.

Guidelines (FW-GDL-FAC)

- 01 To maintain quality and quantity of water flows to, within, or between groundwater-dependent ecosystems, groundwater use developments (such as, recreation and administrative sites, drinking water wells, waste water facilities) should not: (a) be developed in riparian management zones (unless no alternatives exist); (b) measurably lower river flows, lake levels, or flows to wetlands or springs (such as, change springs from perennial to intermittent, or eliminate springs altogether); or (c) discharge pollutants directly to groundwater.
- 02 To protect resources, new and reconstructed solid and sanitary waste facilities should not be located within inner riparian management zones.
- 03 New facilities or infrastructure within expected long-term channel migration zone should be avoided to reduce potential impacts to water and fishery resources. Where new activities inherently must occur in riparian management zones (such as, road stream crossings, boat ramps, docks, interpretive trails), locate them to minimize impacts on riparian associated resource conditions.
- 04 New technologies in energy, building materials, and water management should be applied in all renovations to enhance functionality, improve efficiency, reduce needed space, and reduce costs.

Suitability (FW-SUT-FAC)

- 01 Forest Service administrative sites, such as ranger stations, barns, and corrals are not suitable for public camping. This does not include campgrounds or facilities managed under the rental program.

2.4.12 Airfields, Aircraft Landing Strips (AIRFIELDS)

Introduction

The Custer Gallatin National Forest does not manage any public or administrative airfields as part of the transportation system. The forest owns taxiways and tarmacs at the West Yellowstone Airport in support of the smokejumper and air tanker base. No public sites have been designated or authorized on the Custer Gallatin National Forest. Desired conditions under general recreation apply to public recreational motorized aircraft landing strips.

Standards (FW-STD-AIRFIELDS)

- 01 Public recreational motorized aircraft landing and take-off shall only be allowed at designated and authorized sites.
- 02 Any new landing and take-off locations shall be constructed, maintained, and operated by the holder of a special use authorization.

Suitability (FW-SUIT-AIRFIELDS)

- 01 Backcountry aircraft landing strips are not suitable in designated wilderness, the Hyalite Porcupine Buffalo Horn Wilderness Study Area, the Cabin Creek Recreation Wildlife Management Area, National Natural Landmarks, the Wild Horse Territory, research natural areas, special areas,

recommended wilderness areas, within ¼ mile each side of eligible wild rivers, within ½ mile each side of the Continental Divide Trail, riparian management zones, areas of primitive or semi-primitive nonmotorized recreation opportunity spectrum, or within the grizzly bear recovery zone. Backcountry aircraft landing strips are suitable in areas of rural, roaded natural and semi-primitive motorized recreation opportunity spectrum, outside of the designated areas listed in the preceding sentence.

Alternative D: Backcountry aircraft landing strips are not suitable anywhere on the Custer Gallatin National Forest.

2.4.13 Dams (DAM)

Introduction

The Custer Gallatin National Forest currently manages six Forest Service-operated jurisdictional dams. These do not include small, no-risk stock water impoundments that are addressed in the livestock grazing section.

Existing dams were likely constructed for one or two primary purposes that included water storage for stock watering and crop irrigation. Since that time, many impoundments have been maintained or enhanced for other benefits such as waterfowl habitat enhancement, recreational fisheries, and watersport or lakeside recreation.

Desired Conditions (FW-DC-DAM)

- 01 Dams further the agency's mission of water storage for livestock, wildlife and recreation.
- 02 Dams not needed for the agency's mission are no longer present and the land is in a no-hazard condition with a more natural hydrologic function.

Goals (FW-GO-DAM)

- 01 The Forest Service coordinates with other agencies and Tribes to enhance recreation, terrestrial, and aquatic habitat benefits.

2.4.14 Recreation Settings, Opportunities, and Access

Introduction

Outdoor recreation helps create balance in one's life. Users of the Custer Gallatin seek to reduce stress and regain physical or mental health. It provides fun, excitement, and adventure, the chance to get out and do something different. The Custer Gallatin also offers recreation with rewards—both tangible (such as for hunters) and intangible such as new knowledge, experiences, and a sense of self-worth.

Recreation niches are useful in conveying the special, unique, or highly valued recreation opportunities across a landscape. The Custer Gallatin niche statements, developed separately before the two forests joined, portray the role recreation plays across the combined forest. The west side of the Custer Gallatin is described as "world class wildland adventures" with river corridors and high mountain trails, and visitors enjoying year-round, world-class, recreation opportunities. The eastern side of the national forest focuses on the theme of "uncommon landscapes," where jagged peaks and striking buttes offer

expansive views of geologic and cultural changes. The diverse landscape, from peaks and alpine plateaus to rolling pine forests and prairies, provide wilderness, remote travel and vistas, wildlife viewing, and hunting.

2.4.15 General Recreation (REC)

Desired Conditions (FW-DC-REC)

- 01 Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area.
- 02 Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation.
- 03 Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the Custer Gallatin. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources.
- 04 Existing developed facilities, roads, and trails for both summer and winter recreation activities are adaptable for new recreation demands.
- 05 Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including ecological integrity and diversity, at-risk species, heritage and cultural sites, water quality, and aquatic species.

Objectives (FW-OBJ-REC)

- 01 **Alternatives B and C:** Remove or relocate five existing recreation facilities, including dispersed sites, outside of riparian management zones, or undertake other means practicable if they are degrading aquatic or riparian resources over the life of the plan.

Alternative D: Remove or relocate seven existing recreation facilities, including dispersed sites, outside of riparian management zones, or undertake other means practicable if they are degrading aquatic or riparian resources over the life of the plan.

Alternative E: Remove or relocate two existing recreation facilities, including dispersed sites, outside of riparian management zones, or undertake other means practicable if they are degrading aquatic or riparian resources over the life of the plan.

Suitability

- 01 **Alternatives B and C:** Recreational use of pack goats is not suitable in the Madison, Henrys Lake, and Gallatin Mountains; Absaroka-Beartooth; or Pryor Mountain Geographic Areas.

Alternative D: Recreational use of pack goats is not suitable forestwide.

Alternative E: Recreational use of pack goats is suitable forestwide.

2.4.16 Recreation Settings Recreation Opportunity Spectrum (ROS)

Introduction

The recreation opportunity spectrum (ROS) is a classification tool used by Forest Service managers to provide visitors with varying challenges and outdoor experiences. Recreation opportunity spectrum classifies national forest lands into six management class categories defined by setting and the probable recreation experiences and activities it affords including: urban; rural; roaded natural; semi-primitive motorized; semi-primitive nonmotorized; and primitive. The urban classification is not found on the Custer Gallatin National Forest.

Sustainable recreation is the set of recreation settings and opportunities on national forests that is ecologically, economically, and socially sustainable for present and future generations. The recreation opportunity spectrum in summer and winter is used in each phase of planning to assess, integrate, convey, and monitor the plan area's social, managerial, and physical settings, including seasonal variations and associated benefits.

Desired Conditions (FW-DC-ROS)

- 01 Recreation opportunity spectrum settings (All):** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.
- 02 Recreation opportunity spectrum settings (All):** The type and level of infrastructure, visitor services, and information are sustainable and consistent with the desired recreation opportunity spectrum settings.
- 03 Primitive recreation opportunity spectrum settings (summer)** encompass large, wild, remote, and predominately unmodified landscapes. Primitive settings often provide secure wildlife habitat, naturally appearing vegetation, clean water, may contain the unit's most intact ecosystems and often coincide with designated wilderness. Primitive recreation opportunity spectrum settings contain no motorized recreation. They provide quiet solitude away from roads and people, are generally free of human development, and facilitate self-reliance and discovery. Historic structures such as administrative ranger stations are occasionally present. Signing and other infrastructure are not prevalent and constructed of rustic, native materials.
- 04 Primitive recreation opportunity spectrum settings (winter)** are large, remote, wild, and predominately unmodified. Winter primitive recreation opportunity spectrum settings provide quiet solitude away from roads and people. There is no motorized activity and little probability of seeing other people. Constructed trails that are evident in the summer months are covered by snow, making these settings appear even more natural and untouched by human management.
- 05 Semi-primitive nonmotorized settings (summer)** provide opportunities for exploration, challenge, and self-reliance in a naturally appearing landscape. Rustic structures such as signs and footbridges are occasionally present to direct use and protect the setting's natural and cultural resources. These rustic constructed features are built from native materials or those that mimic native materials.

These settings are free of motorized recreation travel, but mechanized travel may be present on appropriately designed and constructed routes.

- 06 Semi-primitive nonmotorized settings (winter)** provide backcountry and Nordic skiing, snowboarding, and snowshoeing opportunities. Trails are generally un-groomed and not marked for winter travel. Some areas that have enough compaction may see fat tire bike use. Rustic facilities, such as historic cabins and yurts may exist but are rare.
- 07 Semi-primitive motorized recreation opportunity spectrum settings (summer)** provide motorized recreation opportunities in backcountry settings. Routes are designed for off-highway vehicles and high-clearance vehicles, including motorcycles, that connect to local communities, access key destinations and vantage points, provide short day trips on scenic loops or facilitate longer and even overnight, expeditions. Visitors challenge themselves as they explore vast, rugged landscapes. Mountain bikes and other mechanized equipment may also be present. Facilities are rustic and are used to protect the setting's natural and cultural resources. Bridges are sometimes present to accommodate foot, horse, and all-terrain vehicle traffic, but are built from native or natural appearing materials that blend with the surrounding landscape and maintain the semi-primitive character of the setting. There may also be nodes that function as portals for visitors to park their all-terrain vehicles and explore adjacent semi-primitive nonmotorized and primitive settings on foot. Vegetation management may be present, but does not dominate the landscape or detract from the experience of visitors traveling throughout the semi-primitive motorized setting
- 08 Semi-primitive motorized settings (winter)** provide backcountry skiing and snowmobiling opportunities. Routes are typically un-groomed, but are often signed and marked. There are vast areas to travel cross-country, offering visitors an opportunity for exploration and challenge. Occasionally, historic cabins or warming huts are available for short breaks or overnight use.
- 09 Roaded natural recreation opportunity spectrum settings (summer)** are often referred to as front-country recreation areas. This setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. Sanitation, potable water, interpretive signing, and other amenities are strategically placed to serve as destination points and 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.
- 10 Roaded natural recreation opportunity spectrum settings (winter)** support higher concentrations of use, user comfort, and social interaction. The road system is plowed and accommodates sedan travel. Winter trails are routinely groomed and may have ancillary facilities such as warming huts and restrooms. System roads and trails often provide staging to adjacent backcountry settings (primitive, semi-primitive nonmotorized and semi-primitive motorized). Examples include snowmobiling, fat tire bikes, dog sledding, skiing, and snowshoeing.
- 11 Rural recreation opportunity spectrum settings (summer)** often serve as a recreation destination and sometimes provide access to adjacent roaded natural and semi-primitive settings and opportunities. These areas are accessed from paved roads and are generally close to communities.

Developed recreation facilities are designed for large groups and provide opportunities to socialize in both day-use and overnight sites.

12 Rural recreation opportunity spectrum settings (winter) provide staging to adjacent winter settings and opportunities. These areas are accessed from paved and plowed roads and are generally close to population centers. Warming huts or other shelters, sanitation, and information and education are commonly present. Parking areas are large and plowed. Entry points and routes are signed and lead snowmobiles to adjacent roaded natural and semi-primitive motorized settings. Non-motorized trails are also typically groomed for skate skiing and cross-country skiing. Rural winter settings provide quick and convenient access for communities and families to celebrate holidays, conduct racing events, walk their dogs, or simply get some exercise. Table 18 displays the summer and winter recreation opportunity spectrum acreages.

Table 18. Forestwide recreation opportunity spectrum settings by alternative

Alternative B Recreation Opportunity Spectrum Class	Summer Acres	Summer Percent of Forest	Winter Acres	Winter Percent of Forest
Primitive	1,053,064	35	1,047,147	35
Semi-primitive Nonmotorized	698,606	23	608,495	20
Semi-primitive Motorized	871,358	29	1,002,854	33
Roaded Natural	321,867	11	292,250	9
Rural	94,269	3	88,416	3
Alternative C Recreation Opportunity Spectrum Class	Summer Acres	Summer Percent of Forest	Winter Acres	Winter Percent of Forest
Primitive	1,199,656	39	1,193,871	39
Semi-primitive Nonmotorized	589,157	19	498,148	16
Semi-primitive Motorized	840,452	28	969,953	32
Roaded Natural	317,887	10	291,222	10
Rural	92,011	3	85,970	3
Alternative D Recreation Opportunity Spectrum Class	Summer Acres	Summer Percent of Forest	Winter Acres	Winter Percent of Forest
Primitive	1,760,685	58	1,758,890	58
Semi-primitive Nonmotorized	121,988	4	143,504	5
Semi-primitive Motorized	750,104	25	772,860	25
Roaded Natural	315,680	10	278,159	9
Rural	90,706	3	85,750	3
Alternative E Recreation Opportunity Spectrum Class	Summer Acres	Summer Percent of Forest	Winter Acres	Winter Percent of Forest
Primitive	1,053,070	35	1,047,148	34
Semi-primitive Nonmotorized	681,116	22	595,617	20
Semi-primitive Motorized	883,331	29	1,011,032	33
Roaded Natural	323,595	11	294,057	10
Rural	98,051	3	91,310	3

Standards (FW-STD-ROS)

- 01 In rural, roaded natural, semi-primitive motorized recreation opportunity spectrum settings, new motorized routes and areas shall be located so the new route does not change the setting of an adjacent semi-primitive nonmotorized and primitive recreation opportunity spectrum class.

Guidelines (FW-GDL-ROS)

- 01 To maintain the setting appropriate to the assigned recreation opportunity spectrum class, new recreation facilities should be designed to meet required direction for materials, development scale, on-site regulation signage, and density of sites, as well as consistent with the principles of the Forest Service Built Environment Image Guide, in terms of architectural character. Exemptions may occur on a case-by-case basis to reflect environmental conditions such as meeting snow loads. Table 18 describes the desired recreation opportunity spectrum settings by alternative.

2.4.17 Primitive Recreation Opportunity Spectrum Settings (ROSP)

Objectives (FW-OBJ-ROSP)

- 01 **Alternatives B and C:** Sign five areas of wilderness or recommended wilderness boundaries near adjacent motorized settings per decade to better inform visitors of motorized restrictions within this primitive setting.

Alternative D: Sign twenty areas of wilderness and recommended wilderness boundaries near adjacent motorized settings per decade to better inform visitors of motorized restrictions within this primitive setting.

Alternative E: Sign two areas of wilderness boundaries near adjacent motorized settings per decade to better inform visitors of motorized restrictions within this primitive setting.

- 02 **Alternatives B, C and D:** Eliminate five existing unauthorized motorized travel incursions per decade.

Alternative E: Eliminate two existing unauthorized motorized travel incursions per decade.

Standard (FW-STD-ROSP)

- 01 No permanent or temporary motorized routes shall be constructed in primitive settings.

Guidelines (FW-GDL-ROSP)

- 01 No new permanent structures should be constructed in Primitive recreation opportunity spectrum settings to maintain the unmodified character of these landscapes.
- 02 To retain the desired primitive recreation opportunity spectrum settings, routes should be managed as a Trail class 1 or 2.

Suitability (FW-SUIT-ROSP)

- 01 Motorized and mechanized recreation travel is not suitable in primitive settings.
- 02 Plowed roads and groomed trails are not suitable in winter primitive settings.

- 03 Non-motorized trails and cross-country nonmotorized travel are suitable in winter primitive settings.

2.4.18 Semi-Primitive Non-Motorized Settings (ROSSPNM)

Objective (FW-OBJ-ROSSPNM)

- 01 Alternatives B, C and E: Eliminate five existing unauthorized motorized travel incursions per decade.

Alternative D: No objective to eliminate existing unauthorized motorized travel incursions per decade.

Standards (FW-STD-ROSSPNM)

- 01 No new permanent motorized routes shall be constructed and no routes or areas shall be designated for motorized used in semi-primitive nonmotorized settings. Temporary roads for vegetation management projects, where otherwise not prohibited, may occur.
- 02 No new developmental levels 2-5 recreation facilities, such as rental cabins, shall be constructed in semi-primitive nonmotorized settings, except as necessary for sanitation or resource protection.

Guidelines (FW-GDL-ROSSPNM)

- 01 To enhance the SPNM recreation opportunity spectrum setting, trails should be managed at trail classes 1 to 2.
- 02 The development scale of recreation facilities should be 0 to 1 to protect the undeveloped character of semi-primitive nonmotorized settings.

Suitability (FW-SUIT-ROSSPNM)

- 01 Motorized recreation travel is not suitable in semi-primitive nonmotorized settings.
- 02 Mechanized recreation travel (bicycles) is suitable on designated routes and areas in SPNM settings.
- 03 Plowed roads are not suitable in winter semi-primitive nonmotorized settings.
- 04 Development scale 0-1 recreation sites (dispersed sites with minimal infrastructure and to address resource concerns) are suitable in semi-primitive nonmotorized settings.

2.4.19 Semi-Primitive Motorized Recreation Opportunity Spectrum Settings (ROSSPM)

Standards (FW-STD-ROSSPM)

- 01 No new maintenance level 3-5 roads shall be constructed in semi-primitive motorized areas.

Guidelines (FW-GDL-ROSSPM)

- 01 To protect the semi-primitive character, the development scale of new recreation facilities should be 0 to 2.

- 02 To protect the semi-primitive character, no new developmental levels 3-5 recreation facilities, such as rental cabins, should be constructed in semi-primitive motorized settings, except as necessary for sanitation or resource protection.
- 03 To protect the semi-primitive character, should be managed as maintenance level 2 in semi-primitive motorized settings.
- 04 To protect the semi-primitive character, trail are managed as a class 2 routes in semi-primitive motorized settings.

Suitability (FW-SUIT-ROSSPM)

- 01 Motorized use is suitable on designated routes in semi-primitive motorized settings.
- 02 Motorized vehicles, other than those designed for over-snow use, are not suitable in winter semi-primitive motorized settings.

2.4.20 Roaded Natural Recreation Opportunity Spectrum Settings (ROSRN)

Objective (FW-OBD-ROSRN)

- 01 Alternatives B, C and E: Per decade, improve accessible design at three sites, such as toilets at trailheads or interpretive opportunities.

Alternative D: Per decade, improve accessible design at one site, such as toilets at trailheads or interpretive opportunities.

Goal (FW-GO-ROSRN)

- 01 The Forest Service seeks partnerships for winter recreation grooming and plowing.

Guidelines (FW-GDL-ROSRN)

- 01 To retain the recreation opportunity spectrum setting, roads should be managed as maintenance levels 2 to 5 in roaded natural settings.
- 02 To retain the recreation opportunity spectrum setting, trails should be managed as classes 3 to 4 in roaded natural settings.
- 03 To retain the recreation opportunity spectrum setting, recreation site development should be managed as scales 0 to 3 in roaded natural settings.

Suitability (FW-SUIT-ROSRN)

- 01 Motorized recreation travel is suitable on designated routes within roaded natural settings.
- 02 Motorized vehicles not designed for over-snow use are not suitable on groomed trails or areas designated for over-now vehicle use within winter roaded natural settings.

2.4.21 Rural Recreation Opportunity Spectrum Settings (ROSR)

Goal (FW-GO-ROSR)

- 01 The Forest Service seeks partnerships for winter recreation grooming and plowing.

Guidelines (FW-GDL-ROSR)

- 01 All newly constructed facilities should utilize alternative transportation and new technologies to improve efficiencies and reduce costs.
- 02 To retain the recreation opportunity spectrum setting, maintenance level 3 to 5 roads should be managed as in rural settings.
- 03 To retain the recreation opportunity spectrum setting, recreation sites should be managed as development scale 4 to 5 in rural settings.

Suitability (FW-SUIT-ROSR)

- 01 Motorized recreation travel is suitable on designated routes within rural settings.
- 02 Motorized vehicles that are not designed for over-snow use are not suitable on groomed trails or cross-country travel in winter rural settings.

2.4.22 Recreation Opportunities–Developed Recreation Sites (RECDEV)

Introduction

This direction applies to Forest Service owned developed recreation sites include, but are not limited to, developed campgrounds, picnic areas, interpretive sites, cabin and lookout rentals, trailheads, and visitor centers. This direction also applies to other Forest Service permitted privately owned developed recreation sites managed for public use and benefits on public lands, such as resorts, ski areas, organizational camps and shooting ranges.

Desired Conditions (FW-DC-RECDEV)

- 01 Developed recreation reflects the unified Custer Gallatin’s recreation niche.
- 02 Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor’s experience, provide for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities.
- 03 Developed recreation facilities are consistent with the recreation opportunity spectrum.
- 04 Additional recreational development is provided within the context of opportunities and facilities provided by off-forest private and public recreation providers.
- 05 Hazard trees are not present within developed recreation sites providing for the safety of the public.

- 06 Developed recreation corridors containing multiple facilities keep visitor use concentrated rather than shifting development to other areas.
- 07 New developed recreation sites provide sustainable recreation access in place of current dispersed uses such as dispersed camping, river access or other unconstrained recreation activities that degrade riparian or soil or other resources.
- 08 Existing developed recreation facilities are adapted to emerging goals for access, resource protection or changing visitor demands.
- 09 Developed recreation site locations and seasons of use respond to or anticipate potential climate changes that may affect the timing, quantity, and duration of water flows, snow levels and snow elevation changes, impacts to fish and wildlife habitats, changes in vegetative conditions, and the extension of seasonal recreation use.

Goals (FW-GO-RECDEV)

- 01 The Forest Service encourages private and public partnerships, such as, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands.

Standard (FW-STD-RECDEV)

- 01 Extraction of saleable mineral materials shall not be allowed within developed recreation sites.

Guidelines (FW-GDL-RECDEV)

- 01 To limit risks and provide pleasing surroundings in a developed recreation setting, vegetation management activities in developed recreating sites should protect public safety, scenic values, wildlife needs, and vegetation health.
- 02 To protect wildlife, hazard trees removal should not impact wildlife, as determined by a wildlife biologist.
- 03 To protect recreation experience, permitted livestock grazing should be timed to avoid the recreation operating season.

Suitability (FW-SUIT-RECDEV)

- 01 Developed recreation sites are not suitable for timber production, but timber harvest may be allowed for purposes such as public safety, fuels reduction, restoration.
- 02 Gathering of personal use firewood, post and poles, teepee poles, and biomass and wood fiber for solely commercial purposes is not suitable within developed recreation sites.

2.4.23 Recreation Opportunities–Dispersed Recreation (RECDISP)

Introduction

Dispersed activities generally occur outside of facilities provided by the Custer Gallatin, expressing a sense of freedom and unconfined recreation. Seven main activities (hiking, biking, hunting, general relaxing, fishing, skiing, and snowmobiling) account for over 80 percent of the Custer Gallatin’s total

visitation for dispersed recreation activities. Some dispersed recreation locations and activities are renowned destinations for national and international travelers, such as traveling the Beartooth Highway, fly fishing and rafting on rivers in the area, and ice climbing in the Hyalite corridor. Other activities and locations may predominantly be visited by residents from the local area. Dispersed recreation provides opportunities for self-directed exploration encompassing multiple activities from rock and ice climbing, fishing, camping, target shooting, and birding, etc. Much of the discussion and direction for dispersed recreation occurs in this plan under the recreation opportunity spectrum heading.

Desired Conditions (FW-DC-RECDISP)

- 01 Dispersed opportunities are available across the Custer Gallatin for a wide variety of users where compatible with environmental resources, cultural resources, recreation settings, and social interactions such as user conflicts and crowding.

Goal (FW-DC RECDISP)

- 01 The forest engages with the rock and ice climbing community to develop site-specific solutions to evolving issues with placement of permanent bolting route, designation of approach routes, and timing restrictions for wildlife protection.

2.4.24 Recreation Opportunities – Recreation Special Uses (RECSUP)

Introduction

The forest provides opportunities for a wide variety of recreation special uses that include commercial ski areas, outfitter and guiding services, resorts and lodging, recreational events, organizational camps, and recreation residences. Recreation facilities and opportunities are owned and provided by private individuals, businesses, institutions, and other organizations permitted to be located on the Custer Gallatin.

Desired Conditions (FW-DC-RECSUP)

- 01 Recreation special uses provide unique opportunities, services, and experiences for the recreating public on national forest lands and respond to a demonstrated demand for a specific recreation opportunity.
- 02 Services provided by recreation special uses enhance the recreation experiences of forest visitors, enhance public health and safety, and protect natural resources.
- 03 Recreation special uses contribute to economic sustainability and are compatible with ecological and social experience thresholds.
- 04 The vegetation within recreation special use facilities is healthy, resilient, and provides for the health and safety of the public.

Goals (FW-GO-RECSUP)

- 01 The Custer Gallatin National Forest works with special use permit holders to deliver interpretation and education messages that instill an appreciation for the natural and cultural resources of the Custer Gallatin, and promotes conservation and stewardship.

Guidelines (FW-GDL-RECSUP)

- 01 New recreation special use authorizations or reauthorization of existing uses should include conditions to avoid or minimize adverse effects to fish, water, and riparian resources. If adverse effects to inland native fish or desirable non-native species, at risk species, impaired water bodies, or stream habitat conditions are unavoidable, authorizations should require actions that result in re-establishment, restoration, mitigation, or improvement of conditions and processes to ensure that projects that degrade conditions also include measures to incrementally improve conditions.

2.4.25 Recreation Opportunities–Outfitter Guides (RECOG)

Introduction

Approximately 175 outfitter and guide permittees operate on the Custer Gallatin. The six operators on the Ashland and Sioux Districts exclusively provide hunting services. The remaining 169 operators provide a wide range of year-round services. Horseback trail rides, rafting, and boating are the activity types with the most authorized days and account for over of 60,000 user days. Environmental education, fishing, hunting, hiking, and backpacking are the next highest authorized activities and primarily occur in the summer and fall. In winter, snowmobile guiding and rental in West Yellowstone accounts for the largest number of service days. Many backcountry and river-based outfitters and guides and other recreation-based companies are dependent on the Custer Gallatin for their livelihood. Thousands of visitors experience the Custer Gallatin using outfitter and guide services.

Desired Conditions (FW-DC-RECOG)

- 01 Outfitters and guides offer services that the agency and public need, in order to offer opportunities that otherwise would not be obtainable therefore increasing the diversity of recreation opportunities available.
- 02 Outfitter and guide services promote the roles, contributions, and sense of the place, and are appropriate for the recreation opportunity spectrum class.

Goals (FW-GO-RECOG)

- 01 The Custer Gallatin National Forest works with outfitters and guides, partners, and other permittees to deliver interpretation and education messages that instill an appreciation for the natural and cultural resources of the Custer Gallatin, and promotes conservation and stewardship.

Standards (FW-STD-RECOG)

- 01 **Alternatives B and C:** Use of pack goats under new special use permits shall not be permitted in the Madison, Henrys Lake, and Gallatin Mountains; Absaroka-Beartooth; or Pryor Mountain Geographic Areas. Use of pack goats under new special use permits may be permitted in the Bridger, Bangtail, and Crazy Mountains; Ashland; and Sioux Geographic Areas only if a risk assessment indicates that spatial or temporal separation, or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep.

Alternative D: Use of pack goats under new special use permits shall not be permitted.

Alternative E: Use of pack goats under new special use permits shall be permitted only if a risk assessment indicates that spatial or temporal separation, or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep.

- 02** Written instructions shall be included in the permit to address management, retrieval and disposition of stray pack goats.
- 03** Notification procedures shall be included in the permit for situations when wandering bighorn sheep may come into contact with pack goats, prompt notification of interaction shall be required by permittees.
- 04** The Forest Service shall require permittees to take appropriate measures to prevent use of sick or diseased pack goats

2.4.26 Recreation Opportunities–Recreation Residences (RECRES)

Introduction

Recreation residences are privately owned cabins located on national forest land, authorized by special-use permits. Permit holders pay an annual fee for their use. On the Custer Gallatin, there are 293 recreation residences, which is the greatest number of all Northern Region forests. Recreation residences are administered to ensure compliance with direction in the special-use permit Forest Service Manual and Handbook. Permits are terminated only in those rare circumstances according to conditions and protocols specified in the permit, Forest Service Handbook and Manual, regulations, and law.

Desired Conditions (FW-DC-RECRES)

- 01** Existing recreation residences continue to provide rustic, vacation-style facilities that are visually appropriate in and subordinate to their natural-appearing forest settings, and allow cabin owners, their families and guests to be able to enjoy the Custer Gallatin and its recreation opportunities.

Standards (FW-STD- RECRES)

- 01** With the exception of in-lieu lots, which have limited application for existing cabin owners pursuant to national policy and the permit itself, no new recreation residence lots shall be made available or assigned.
- 02** Modification of existing recreation residence cabins shall not be authorized to exceed 1,500 square feet of roofed or enclosed space except to correct unusual health or safety problems where there are no other options, as determined by the authorized Forest Service officer.

Suitability (FW-SUIT-RECRES)

- 01** Recreation residence tracts are not suitable for livestock allotments.

2.4.27 Recreation Opportunities–Ski Resorts (RECSKI)

Introduction

Four ski resorts currently operate under permit on the Custer Gallatin, two alpine ski areas and two Nordic ski areas. Bridger Bowl is located about 15 miles north of Bozeman in the Bridger Mountains. The

base operations are on private property and access an array of ski terrain on the Custer Gallatin. Red Lodge Mountain Resort is located on the eastern front of the Beartooth Mountains about 6 miles west of Red Lodge.

Crosscut Mountain Sports Center is located approximately 18 miles north of Bozeman in the Bridger Mountains. Two trails and approximately 8 kilometers are located on the Custer Gallatin and the remaining operation and all of the base facilities are on private property. Lone Mountain Ranch Nordic area is located in Big Sky. Approximately 10 kilometers of Forest Service Roads 166B and 166D and Forest Service Trail #16 are operated as groomed routes under special-use permit. All of the base area and the remaining operation is on private property.

A fifth area, not operating under special use permit, is Rendezvous cross-country ski area. Located near West Yellowstone, the system offers trails and scenery for skiers of all abilities, as well as a biathlon course. This area is included within the Hebgen Winter Recreation Emphasis Area and is further described in that heading.

Desired Conditions (FW-DC-RECSKI)

- 01 Ski resorts provide a range of winter and summer activities to meet a range of public recreation desires.
- 02 Activities such as zip lines, alpine slides, and downhill mountain bike trails with infrastructure are available at existing downhill ski permit areas.

Standards (FW-STD-RECSKI)

- 01 New downhill ski areas shall be approved only when existing ski areas cannot be expanded to accommodate additional use.

Guidelines (FW-GDL-RECSKI)

- 01 To minimize the footprint of non-natural resource based intensive recreation development, new activities such as zip lines, alpine slides, and downhill mountain bike trails with infrastructure should be located at existing downhill ski areas unless existing ski areas cannot be expanded to accommodate additional use.

Suitability (FW-SUIT-RECSKI)

- 01 Ski resorts are not suitable for timber production, but timber harvest may be allowed for purposes such as public safety, fuels reduction and restoration.

2.4.28 Recreation Opportunities–Recreation Events (RECEVENTS)

Introduction

The Custer Gallatin has a large number of recreation special-use permittees including those hosting recreation events that help provide opportunity for the public to engage in group activities on the Custer Gallatin. These permits are issued for activities such as summer and winter races, organized rides, and winter festivals.

Desired Conditions (FW-DC-RECEVENT)

- 01 Recreation events provide opportunities to participate in competitions or highlight special occasions.

Guidelines (FW-GDL-RECEVENT)

- 01 To retain general public access to the Custer Gallatin's facilities and programs, the volume and number of recreation event permits should still allow for the use and enjoyment by the recreating public.
- 02 To minimize potential conflicts between grizzly bears and humans, special use permits should not be authorized for recreation events that involve people traveling by foot, horse or nonmotorized vehicle inside the recovery zone and primary conservation area, during the hours between sunset and sunrise. This guideline only applies during the grizzly bear non-denning season of March 1 through November 30.

2.4.29 Recreation Opportunities—Organizational Camps (RECORGCAMP)

Introduction

Seven organizational camps currently operate on the Custer Gallatin under the most recent authority of the National Forest Organizational Camp Fee Improvement Act of 2003, which authorizes the use and occupancy of national forest lands.

Desired Conditions (FW-DC-RECORGCAMP)

- 01 Organizational camps, as authorized by the Organizational Camp Fee Improvement Act, provide valuable services to young people such as Boy Scouts, Girl Scouts, community-based organizations, youths-at-risk, individuals with disabilities, and their families by promoting physical, mental, and spiritual health through activities conducted in a natural environment.

Suitability (FW-SUIT-RECORGCAMP)

- 01 Organizational camps are not suitable for timber production, but timber harvest may be allowed for purposes such as public safety, fuels reduction, and restoration.

2.4.30 Recreation Opportunities—Commercial Filming and Still Photography (RECFILM)

Introduction

The Forest Service recognizes that the public and natural resources may benefit from commercial filming on national forest lands by increasing public awareness about the beauty of and opportunities offered by national forests. Commercial filming and still photography activities usually require prior authorization by the Forest Service to ensure that the land and resources are protected and to avoid conflicts with other forest uses. Generally, authorization is granted in the form of a special-use permit issued by the appropriate authorized Forest Service officer.

Desired Conditions (FW-DC-RECFILM)

- 01 Opportunities for companies, businesses, and individuals to do commercial filming and still photography activities are available to help support local economies as well as showcase the value of the Custer Gallatin.

2.4.31 Recreation Opportunities–Non Commercial Group Use (RECGROUP)

Introduction

The Forest Service issues permits to groups, per Forest Service direction, policy, and law, to use the Custer Gallatin for non-commercial organized group activities such as weddings, family reunions, special interest groups or clubs, where those activities would not unreasonably conflict or preclude other public uses, result in negative effects to forest resources or create unsafe situations.

Desired Conditions (FW-DC-RECGROUP)

- 01 Group use permits allow the Custer Gallatin to work with groups to address and mitigate possible impacts and to protect forest resources and improvements, address public health and safety problems, and avoid conflicting land uses.

Guideline (FW-GDL-RECGROUP)

- 01 To contain potential impacts from large parties to already established recreation areas, new permits for non-commercial group use over 75 people should be first referred to developed recreation sites designed to accommodate that use.

2.4.32 Visitor Education and Interpretation (RECED)

Introduction

Opportunities for connecting people to their environment and to the natural and cultural history of the area are offered by the Custer Gallatin. These connections provide opportunities for the development of strong stewardship ethics in the form of personally delivered talks and programs, brochures and booklets, and interpretive wayside exhibits using digital and other formats. These all contribute to offering an appreciation for the natural and cultural history across these landscapes. There are opportunities for other organizations and partners to join the Custer Gallatin in achieving mutual goals for education and interpretation. A variety of opportunities are also offered for the public to learn about how to enjoy the national forest safely and be good stewards, winter and summer, such as the programs offered by the Gallatin National Forest Avalanche Center since 1990, the Fishing Derbies and other programs offered about grizzly bear and fire safety.

Desired Conditions (FW-DC-RECED)

- 01 Interpretation and education products enhance visitors' understanding and appreciation for the rich natural and cultural resources of the Custer Gallatin, and builds support for public lands.
- 02 Visitor information is readily available for pre-visit information gathering in a variety of forums and kept up to date so that the public may be informed and educated through modern technology about current Forest Service related policies, activities, services, and issues.

- 03 The Earthquake Lake Visitor Center provides visitors on-site, experiential learning opportunities about the 1959 earthquake, seismicity of the area and the world.
- 04 As backcountry use increases, the services provided by the Gallatin National Forest Avalanche Center support public health and safety, and the development of future good winter stewards.
- 05 Education, in a variety of mediums about forest stewardship and responsible use leads to better visitor compliance with regulations.
- 06 The Main Boulder Station continues to interpret the history of the Custer Gallatin in the Boulder Valley as a living history museum.
- 07 The Gallatin Petrified Forest offers the structured opportunity to learn about and gather small pieces of petrified wood samples.

Goals (FW-GO-RECED)

- 01 The Custer Gallatin National Forest seek partners and volunteers to assist in the delivery of public information, natural and historic interpretation, conservation education, and stewardship services.
- 02 The Avalanche Center seeks partners to aid its successful operation for its full season.

2.4.33 Emerging Recreational Technologies (RECTECH)

Introduction

Recreational products are likely to emerge over the lifetime of the forest plan. Some will be prohibited under existing regulations, other new uses may be unspoken to by current direction.

Desired Conditions (FW-DC-RECTECH)

- 01 New recreational technologies contribute to visitor enjoyment and experiences, consistent with recreation settings.

Goal (FW-GO-RECTECH)

- 01 New recreational technologies are integrated into the Custer Gallatin with support and guidance through the involvement of a community of interests.

Guideline (FW-GDL RECTECH)

- 01 To blend new facilities with existing settings, use of new recreational technologies not currently authorized may be allowed when new facilities needed to accommodate these technologies are available per the development class of the associated recreation setting.

2.4.34 Scenery (SCENERY)

Introduction

Scenery is a resource that is valued and enjoyed by forest visitors as being integral to their recreation experience. In addition, the scenery of the national forest land provides an important sense-of-place backdrop, visual source of inspiration, setting, and character-defining element for adjacent communities

and travel ways. The spectacular scenery of the Custer Gallatin, especially in the Greater Yellowstone Area, is a national and regional driver for tourism, recreation, and the economy, as well as the growth of communities and residential areas that in many places extend up to and along the edges of forest land. Cultural features such as historic cabins and natural disturbances such as fire contribute to the scenic character. Across the wide variety of scenery character types represented, roughly half of the Custer Gallatin National Forest landscape is classified as “class a–distinctive” inherent scenic attractiveness (the highest of three levels, as defined by the Forest Service Scenery Management System), where the landforms, vegetation patterns, water characteristics, and cultural features combine to provide unusual and outstanding scenic qualities.

Scenic integrity objectives (SIO), along with scenic character descriptions, have been developed. See the Scenery Assessment Report for scenic character descriptions. Scenic integrity objectives are a measure of the degree to which a landscape is visually perceived to be complete when compared to the scenic character of an area. Scenic integrity objectives have been assigned to all Custer Gallatin National Forest land to guide the design and implementation of land management activities to meet desired thresholds of allowable visual dominance by landscape modifications. Projects are designed to meet the scenic integrity objectives of high, moderate, low, or very low, as viewed in the foreground, middleground, and background from the identified critical viewing platforms (travelways and viewpoints), or as viewed from anywhere to meet the scenic integrity objective of very high. Projects that are not visible from any identified critical viewing platforms, based upon land forms and not vegetation blocking, do not need design measures to meet the areas’ assigned scenic integrity objectives.

Desired Conditions (FW-DC-SCENERY)

- 01** The forest’s scenery provides for public enjoyment of the landscape’s varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills, and grasslands.
- 02** The forest’s scenery, as directed by the scenic integrity objectives (table 19), positively contributes to the quality of life of local residents and visitors while reflecting a relative range of allowable alterations that balances social and economic values, ecosystem health, landscape dynamics and sustainability.

Table 19. Scenic integrity objectives (lowest allowable scenic integrity levels)

Scenic Integrity Objective	Alternative B Percent of Forest	Alternative C Percent of Forest	Alternative D Percent of Forest	Alternative E Percent of Forest
Very High	38	39	57	34
High	2	2	1	2
Moderate	45	45	30	49
Low	14	14	12	15
Very Low	0	0	0	0

Percentages are rounded to nearest whole number

Guidelines (FW-GDL-SCENERY)

- 01** To recognize the value of the forest scenery for visitors and local communities, new projects should meet or create less visual impact than the assigned scenic integrity objectives of high, moderate, low, or very low, as viewed in the foreground, middleground, and background from the identified critical viewing platforms (based upon topography and not solely vegetation blocking) and as viewed from anywhere to meet the assigned scenic integrity objective of very high. For rivers identified as critical viewing platforms, the assigned scenic integrity objective should be met in the foreground (1/2 mile) as viewed from within the high water marks. For the Continental Divide National Scenic Trail, the assigned scenic integrity objectives should be met as viewed from the trail (more information is provided in the scenic integrity objective maps in appendix B).
- 02** To comply with National Forest management area requirements, regardless of visibility from any listed critical viewing platforms, timber harvest units should be shaped and blended with the natural terrain to the extent practicable (Timber Standard FW-STD-TIM-05).
- 03** To meet national direction for permitted livestock activities inside designated wilderness and to be consistent with that direction in recommended wilderness, livestock, and associated allotment infrastructure, as viewed from anywhere within those areas may be discernible and may deviate from an assigned scenic integrity objective of very high. Within those areas, allotment infrastructure should be designed and sited to blend as much as possible with the landscape character and sense of place.
- 04** To manage for appearance as well as safety and function, all new or reconstructed facilities (Forest Service and permitted privately-owned) should follow design principles related to location, scale, color, form, style, and materials as explained in the *“Forest Service Built Environment Image Guide.”* In addition, new recreation facilities should follow the principles in the National Forest Landscape Management *“Recreation”* Handbook No. 666 (Volume 2, Chapter 8) and also be consistent with the *“Physical: Infrastructure”* indicators and visual descriptors for the appropriate recreation opportunity spectrum class.
- 05** To provide an adequate time for germination of native seeds, uncertain precipitation, regrowth of native forbs and grasses, response of shrubs and other vegetation to increased sunlight or increased nitrogen from post-harvest broadcast burning, operational remnants of new vegetation management projects or components of new projects should achieve the assigned scenic integrity objective (as viewed from applicable critical viewing platforms, within five years after completion of all project activities). Project activities include regrading landings or temporary roads, revegetating cut and fill slopes or construction zones, scattering, chipping, or burning slash, broadcast-burning, reseeding or planting. Visible operational remnants of vegetation management projects include stumps, slash, drag corridors, rutted ground, project roads, tree markings, landings as well as edge shaping and edge transition treatments. Generally, long term visual remnants of prescribed fire, such as blackened boles or branches, clumps or individual black, dead shrubs or trees that do not dominate entire viewsheds and appear to be a natural occurrence when viewed by the casual observer are not considered operational remnants.
- 06** New mineral activities associated with valid existing or statutory rights may deviate from the assigned scenic integrity objective only after all reasonable mitigations have been applied, in

consideration of the economic or technical feasibility of the scenery mitigation measures. Design criteria or mitigations that are applied should be based upon project duration and potential impacts.

- 07** To meet research natural area designation direction to facilitate research, infrastructure or landscape alterations associated with research activities in areas with a scenic integrity objective of very high may deviate from that assigned scenic integrity objective and may be discernible as seen from anywhere, but should be designed and sited to blend as much as possible with the scenic character and sense of place. Research natural areas located within areas assigned scenic integrity objectives other than very high, research-related infrastructure or landscape alterations should meet the assigned scenic integrity objective as viewed from the listed critical viewing platforms.
- 08** To meet the public's expectation and enjoyment of the national forest scenery, effects to the scenery from management activities on national forest land should be analyzed within the larger contexts of entire viewsheds. Where activities on land outside the national forest reduce the scenic integrity of a project area viewshed, as viewed from the critical viewing platforms, management activities on national forest lands should not be allowed unless the project actions would result in an overall improvement of the viewshed or would not further degrade it.

2.4.35 Designated Areas and Forest Plan Allocations

Introduction

A designated area is defined as an area or feature identified and managed to maintain its unique special character or purpose. Some categories of designated areas may be designated by statute and some may be established administratively. Examples of statutorily designated areas include, but are not limited to, designated wilderness areas, designated wild and scenic rivers, inventoried roadless area, national scenic trails, and wilderness study areas. Examples of administratively designated areas include, but are not limited to, research natural areas, scenic byways, special areas with unique values, and wild horse territories.

Forest plan land allocations are essentially management areas developed in the forest planning process. In this plan, these include recommended wilderness areas, eligible wild and scenic rivers, recreation emphasis areas, backcountry areas, and the Stillwater Complex. More than one designation or allocation may be assigned to a particular place. For example, a backcountry area and inventoried roadless area may coincide. Where land allocations overlap, the more restrictive guidance applies.

2.4.36 Designated Wilderness (DWA)

Introduction

These vast, designated wilderness settings include portions of the Absaroka-Beartooth Wilderness and the Lee Metcalf Wilderness where humans learn their own capabilities in a primordial backcountry with some of the most awe-inspiring wildlife in North America—wolves, grizzly bears, and wolverines.

Approximately 950 miles of trail are located within one of the two designated wilderness areas, with the bulk of those miles in the Absaroka-Beartooth Wilderness. These designated wilderness areas comprise roughly 1,051,322 acres, which is nearly 35 percent of the Custer Gallatin.

Wilderness character is defined in terms of five qualities: natural, solitude, or primitive and unconfined recreation, undeveloped, untrammled, and other features. These qualities can be used to improve wilderness stewardship and foster consistent stewardship across the National Wilderness Preservation System. National objectives for wilderness management (WO amendment 2300-2007-1 effective date: 01/22/2007, 2320, page 8 of 55 Forest Service Manual 2300-Recreation, Wilderness, and Related Resource Management Chapter 2320-Wilderness Management) are as follows:

1. Maintain and perpetuate the enduring resource of wilderness as one of the multiple uses of National Forest System land.
2. Maintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces.
3. Minimize the impact of those kinds of uses and activities generally prohibited by the Wilderness Act, but specifically accepted by the act or subsequent legislation.
4. Protect and perpetuate wilderness character and public values including, but not limited to, opportunities for scientific study, education, solitude, physical and mental challenge and stimulation, inspiration, and primitive recreation experiences.
5. Gather information and carry out research in a manner compatible with preserving the wilderness environment to increase understanding of wilderness ecology, wilderness uses, management opportunities, and visitor behavior.

Management actions are required to meet minimum requirements for the administration of the areas as wilderness and to have the least impact to wilderness character. The use of a minimum requirement analysis is required for any action that includes a prohibited use as described in section 4(C) of the Wilderness Act, or for other actions that may impair wilderness character (see www.wilderness.net for most current minimum requirement analysis guidance). Ecosystems restoration projects will comply with a minimum requirement analysis in conjunction with the currently draft Framework for Evaluating Ecological Intervention when finalized, to determine the project is the minimum necessary for the administration of the area as wilderness.

Table 20 displays each of these wilderness areas, the geographic area(s) each is located within, and the approximate number of acres of each wilderness within the Custer Gallatin.

Table 20. Designated wilderness areas

Wilderness	Geographic Area	Wilderness Acres
Lee Metcalf	Madison, Henrys Lake, and Gallatin Mountains	133,848
Absaroka-Beartooth	Absaroka Beartooth Mountains	920,343
<i>Total Acres of Wilderness</i>	<i>No data</i>	<i>1,054,191</i>

Desired Conditions (FW-DC-DWA)

- 01** Key qualities of wilderness character for a given area including untrammled and undeveloped landscapes, natural processes, opportunities for solitude or primitive and unconfined recreation, and any other features of value to the wilderness contribute to the public purposes for which they were designated.

- 02** Wilderness areas embody the wilderness characteristics of naturalness and opportunities for solitude.
- 03** The untrammelled quality of wilderness is essentially unhindered and free from modern human control or manipulation.
- 04** Natural ecological processes and disturbances (such as, 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
- 05** Wilderness exhibits an undeveloped quality and is without nonconforming or unnecessary facilities, installations or human-caused surface disturbances.
- 06** Outstanding opportunities for solitude or primitive and unconfined recreation are available, where impacts to the wilderness character are not degraded.
- 07** Each wilderness area accommodates levels of recreation use that are ecologically sustainable and provides opportunities for solitude, primitive recreation, and wilderness character.
- 08** National Forest System trails contribute to a high-quality wilderness experience, meet national quality standards, with minimal deferred maintenance and adhere to the national trail classification system.
- 09** Human impacted areas and associated resource impacts are not expanding into nearby un-impacted areas.
- 10** User-created trails are not dominant on the landscape.
- 11** Wilderness areas are available for conducting, inventorying, monitoring, and research that is deemed wilderness dependent. Findings from research project will help improve the management of wilderness or preservation of wilderness character.
- 12** Invasive species are nonexistent or in low abundance and do not disrupt ecological functions. Weeds are not introduced through recreational use of stock.
- 13** Outfitter and guiding opportunities meet an identified public need, the agencies' wilderness objectives and provide benefits to the wilderness resource.
- 14** Lands degraded prior to wilderness designation, such old gravel quarries, mine exploratory sites, and weed invested areas, function naturally.

Goals (FW-GO-DWA)

- 01** The Custer Gallatin National Forest coordinates stewardship and management of the Lee Metcalf and Absaroka-Beartooth Wilderness with the Beaverhead-Deerlodge National Forest, Shoshone National Forest and the Bureau of Land Management Dillon Resource Area).
- 02** The Forest Service cooperates with private interest land owners regarding mineral management activities or private land inholdings which may affect surroundings designated wilderness.

- 03** The Forest Service coordinates with the State Historic Preservation Office to manage for the historic values of cabins retained for administration of wilderness.
- 04** The Forest Service coordinates with Montana Fish, Wildlife, and Parks on fish and wildlife restoration or re-introduction projects in wilderness in Montana, and continued provision of recreational fisheries at popular sites.

Objectives (FW-OBJ-DWA)

- 01** Per decade, remove three facilities, improvements or uses that are not suitable for wilderness.

Standards (FW-STD-DWA)

- 01** Areas as displayed on the map in appendix B “Recreational Livestock Closures” shall not allow recreational livestock grazing.
- 02** Areas and trails as displayed on the map in appendix B “Recreational Livestock Closures” shall not allow entry by recreational livestock.
- 03** Tethering and grazing of recreational livestock shall be 100 feet from streams and 200 feet from lakeshores.
- 04** Building a campfire shall not be authorized in areas displayed in appendix B map titled “Wilderness Campfire Restricted Areas.”
- 05** Livestock per party in excess of 15 head within the east unit and 25 head within the west unit of the Absaroka-Beartooth Wilderness shall not be authorized.
- 06** Livestock per party in excess of 15 in the Spanish Peaks and 20 in the Monument Mountain and Taylor Hilgard units of the Lee Metcalf Wilderness shall not be authorized.
- 07** Group sizes in excess of 15 people the Absaroka-Beartooth and Lee Metcalf Wilderness Areas shall not be authorized.
- 08** No new administrative facilities shall be constructed in designated wilderness.
- 09** New or reconstructed trails shall not be designed above trail class 3 within the wilderness.
- 10** Within wilderness zones 2 and 3, designation of campsites for public use or outfitter guide camps shall only occur for the purposes of preventing resource degradation.
- 11** Within wilderness zones 1 there shall be no new designated campsites for public use or assigned Outfitter Guide camps.
- 12** To protect wilderness character, new special use authorizations shall only be authorized as consistent with the wilderness act, and maintains the state of existing wilderness zones.
- 13** New range improvements associated with existing allotments shall be authorized only for the purpose of enhancing wilderness character or for resource protection.

- 14 Administrative authorizations for use of motor vehicles, motorized equipment, or mechanical transport shall be limited to the minimum necessary for the purposes of wilderness or human health and safety.

Guidelines (FW-GDL-DWA)

- 01 To maintain areas of undeveloped wilderness character, there should be no net increase in miles of system trails within wilderness. However, trail re-routes for resource protection or after natural occurrences such as fire, floods, windstorms, and avalanches should utilize the best long-term sustainable routes with minimal trail infrastructure.
- 02 To enhance wilderness character, new or reconstructed allotment infrastructure should use natural (native) materials unless costs are prohibitive or they do not complement wilderness character.
- 03 To preserve wilderness character, research proposals should contribute to the stewardship of the area as wilderness and share results with the agency. They should not be authorized if they can be accomplished outside of wilderness, or cannot be conducted in a manner compatible with wilderness character.
- 04 To minimize the impacts to the untrammeled quality of wilderness, treatment of nonnative invasive plant species should utilize pulling or hand tool use prior to herbicide treatments while effectively treating nonnative invasive plant species.
- 05 To protect social and ecological conditions, outfitter, and guide service days should not be increased beyond existing authorized use levels within wilderness.

Suitability (FW-SUIT DWA)

- 01 Designated wilderness areas are not suitable for timber production and timber harvest is not allowed.
- 02 Designated wilderness areas are not suitable for motorized or mechanized transport or for public motorized equipment (such as chainsaws).
- 03 Designated wilderness areas are not suitable for the removal of the following special products for personal use: firewood; Christmas trees; boughs; surface rock. Removal of other special products for personal use (such as mushrooms and botanical products) is suitable.
- 04 Permitted livestock use is suitable only in those portions of wilderness where grazing had been established prior to the area's wilderness designation.
- 05 Overnight camping is not suitable in areas where it is demonstrated to cause resource damage (such as riparian compaction, water quality degradation).

2.4.37 Absaroka-Beartooth and Lee Metcalf Wilderness by Zone

Introduction

The wilderness areas on the Custer Gallatin are further delineated into three zones with more refined management purposes. Zoning is the practice of delineating particular areas in a wilderness where

different biophysical or social resources call for the application of varying management policies, actions, or visitor management techniques. While zoning is not mentioned in the Wilderness Act, it is a concept that can be essential to managing the complex realities of wilderness in the 21st century. Biophysically and socially, wilderness areas are not homogeneous. Some ecological areas may be more sensitive, or particular areas may be more attractive or accessible to visitors. The three zones are a subset of the “primitive” recreation opportunity spectrum classification applied to all designated wilderness on Custer Gallatin National Forest. Table 21 illustrates the proportion of each wilderness by zone (appendix B provides a map of these zones).

Table 21. Percent of acres by wilderness zone

Wilderness Area	Zone I (Pristine)	Zone II (Primitive)	Zone III (Transition)
Lee Metcalf	68%	22%	10%
Absaroka-Beartooth	79%	14%	7%

A. Desired Condition: Zone Class I (PRISTINE)

- 01 Natural Quality:** The essentially unmodified natural environment exhibits the highest degree of natural integrity. Ecological conditions are minimally affected by the actions of users, and ecological processes operate naturally. Environmental impacts are minimal, restricted to very minor loss of soil and vegetation disturbance from human or livestock use. These impacts are subtle in nature and are not apparent to most visitors. Vegetation composition or soil damage affected by human disturbance is recovering naturally. Riparian, lakeshore, and stream channel conditions show no measurable degradation due to human uses. This trail-less zone includes areas where there is the least amount of human disturbance and the highest degree of natural integrity.
- 02 Opportunities for Solitude and Primitive or Unconfined Recreation:** This area provides the highest opportunity to experience solitude and isolation from others. Evidence of human activities is predominantly absent. Traveling in this area provides a high degree of challenge/risk and primitive recreation opportunities. Encounters with other visitors are very infrequent. Very few inter-party contacts occur while traveling and are nonexistent at the campsite. Campsites are at a very low density and show only very minor impacts that rarely persist year to year. The area is generally trail-less, with no system trails. User created routes do not dominate the landscape. Site-specific regulations may be in place in unusual cases where resources require higher levels of protection. Contact between visitors and management personnel during the normal use season is infrequent and mostly by invitation, or to correct apparent problems.
- 03 Undeveloped:** There are no administrative structures. There are no other permanent structures in this class, except those associated with valid existing uses and rights that pre-date designation. Visitor education located outside of wilderness contributes to the understanding of rules and regulations. Regulatory signs may be necessary to protect the resource or protect public safety, but signing is a rare exception and temporary in nature.
- 04 Untrammeled:** The wildness of the area contributes to natural integrity and the function of the natural ecosystem.

B. Desired Condition: Zone II (PRIMITIVE)

- 01 Natural Quality:** This zone is predominantly unmodified natural environments. Ecological processes operate naturally with limited to light evidence of human impact in areas where use is concentrated. Riparian, lakeshore, and stream channel conditions show only temporary change, which may persist from year to year. The area functions as a wild place and these are largely unmodified landscapes. Environmental impacts are minimal, restricted to minor loss of soil and vegetation where camping or livestock use occurs and along travel routes. These impacts are not typically apparent to most visitors.
- 02 Opportunities for Solitude and Primitive or Unconfined Recreation:** This area provides a high-to-moderate opportunity to experience solitude and isolation from others. Generally, encounters with others are low to moderate. Traveling in this area on existing trails provides a moderate degree of challenge and risk. Inter-party contacts while traveling are low to moderate and low at the campsite. Concentrations of campsites may exist at trail junctions and popular destinations. No new sites are forming over time. Barren core areas may exist on some sites and persist from year to year. Outside of these concentrated use areas, campsite density is low and impacts are light. Visitor education located inside of wilderness, where necessary, contributes to the understanding of rules and regulations. Contact between visitors by management personnel during the normal use season are minimal.
- 03 Undeveloped:** Generally, no administrative structures are present, except for a limited number of food storage poles within key occupied grizzly bear areas. No other permanent structures are present, except pre-existing permitted structures such as water improvements, and drift fence, etc.
- 04 Untrammeled:** The zone reflects the natural ecosystem, with natural processes unmanaged.

C. Desired Condition: Zone III (TRANSITION)

- 01 Natural Quality:** This zone is the most noticeably modified area in the wilderness yet is still characterized by a predominantly unmodified, natural environment. Ecological conditions in some areas are moderately to substantially affected by the actions of the users.
- 02 Opportunities for Solitude and Primitive or Unconfined Recreation:** Primitive and unconfined recreation opportunities are available in the zone. Opportunities for isolation and solitude are moderate to low during peak use seasons, and are more abundant other times of the year. Encounters with other visitors are moderate to high during the peak use season. Traveling on existing system trails provide a lower degree of challenge and risk. Inter-party contacts while traveling may be frequent and moderately frequent at campsites. Concentrations of campsites in heavily traveled areas and at destinations is moderately high. Moderate soil compaction and loss of vegetation, litter and duff occurs on many user created routes, campsites and livestock use areas. Impacts likely persist from year to year. Minimal erosion occurs on disturbed sites. Visitor education located inside of wilderness contributes to the understanding of rules and regulations. Users may find designated campsites and camping related regulations. Signs used for resource protection are present in these areas. Trails accommodate moderate to heavy use levels. Trail structures provide for resource protection. There may be moderate density of social trails within this zone, typically associated with camping areas or popular destinations.

03 Undeveloped: Administrative structures may be present in order to protect wilderness resource values (such as, hitch rails at heavy use stock destination, food storage poles, and corrals at assigned outfitter sites). No other permanent structures are present, except pre-existing permitted structures such as water features, corrals, fence, and existing administrative work sites. Administrative facilities in the Absaroka-Beartooth are present only at the currently existing administrative sites which pre-date designation (Hellroaring, Buffalo Fork, and Slough Creek Cabins). In the Lee Metcalf, the only administrative facility is the McAtee Cabin. Management presence, to minimize impacts from visitors, is more noticeable.

04 Untrammeled: The zone reflects the natural ecosystem. More actions are taken, such as weed treatment, although natural processes generally predominate.

2.4.38 Inventoried Roadless Areas (IRA)

Introduction

The 2001 Roadless Area Conservation Rule (roadless rule) established prohibitions and permissions on road construction, road reconstruction, and timber harvesting on 58.5 million acres of national forest lands across the United States. This includes approximately 848,091 acres of inventoried roadless areas on the Custer Gallatin National Forest. The intent of the roadless rule is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use management. Specifically, the roadless rule prohibits activities that have the greatest likelihood of altering and fragmenting landscapes, resulting in immediate, long-term loss of roadless area values and characteristics; eliminates permanent road construction and reconstruction, thereby reducing fiscal demands and responsibilities; and reduces controversy over management of roadless areas. Inventoried roadless areas are identified in a set of inventoried roadless area maps in Forest Service Roadless Area Conservation, Volume 2 (November 2000), which are held at the national headquarters office of the Forest Service, or any subsequent update or revisions of those maps (36 CFR 294 subpart B, published at 66 *Federal Register* 3244-3273). Maps of the inventoried roadless areas can be found in appendix B. Management activities follows direction found in the 2001 Roadless Rule (36 CFR 294 subpart B, published at 66 *Federal Register* 3244-3273).

The approximately 848,091 acres of lands within inventoried roadless areas constitute approximately 28 percent of the Custer Gallatin. Table 22 identifies acres of inventoried roadless area in each geographic area.

Table 22. Inventoried roadless areas on the Custer Gallatin

Geographic Area (GA)	Acres
Sioux	0
Ashland	39,236
Pryor Mountains	10,424
Absaroka Beartooth Mountains	273,727
Bridger, Bangtail Crazy Mountains	129,444
Madison, Gallatin and Henrys Lake Mountains	395,260
Total	848,091

Desired Conditions (FW-DC-IRA)

- 01 Inventoried roadless areas provide primitive and semi-primitive settings. A diversity of recreation opportunities are available, including both motorized and nonmotorized trail opportunities.

Suitability (FW-SUIT-IRA)

- 01 Inventoried roadless areas are not suitable for timber production. Timber harvest may be allowed for other resource benefits consistent with the 2001 Roadless Area Conservation Rule.
- 02 Inventoried roadless areas are not suitable for road reconstruction or new permanent road construction, except for the exceptions listed in the 2001 Roadless Area Conservation Rule.
- 03 Inventoried roadless areas are suitable for restoration activities that can be accomplished consistent with the 2001 Roadless Area Conservation Rule.

2.4.39 Research Natural Areas (RNA)

Introduction

The Custer Gallatin National Forest has ten existing research natural areas, which total approximately 29,650 acres (table 23). These research natural areas are part of a national network of ecological areas designated in perpetuity for research, education, and to maintain biological diversity of national forest lands. They serve as baseline areas for non-manipulative research, observation, and study.

Forest Service Manual 4063 and applicable National Environmental Policy Act decisions and research natural areas establishment records provide management guidance for these areas. Research natural areas are cooperatively managed with the Rocky Mountain Research Station. All proposals for research or management activities in research natural areas need to follow direction outlined in Forest Service Manual 4063 and must be approved by the Rocky Mountain Research Station Director (Forest Service Manual 4063.33). All proposals for research in research natural areas in wilderness areas need to also follow direction outlined in Forest Service Manual 2323 (Forest Service Manual 4063.32).

There are currently no proposed research natural areas. Other additions to the network may be identified in the future.

Desired Conditions (FW-DC-RNA)

- 01 Research natural areas provide opportunity for research, study, observation, and monitoring of natural-occurring ecological processes.
- 02 Ecological processes that drive the functional and structural patterns of research natural area ecosystems are present and functioning to support sustainability and resiliency.

Table 23. Currently designated research natural areas

Name	Geographic Area (Ranger District)	Purpose for Establishment	Acres
Palace Butte	Madison, Henrys Lake, and Gallatin Mountains (Bozeman Ranger District)	Subalpine wetlands, waterfalls, geologic features, subalpine forest and meadows	1,280
Wheeler Ridge	Madison, Henrys Lake, and Gallatin Mountains (Bozeman Ranger District)	Old-growth whitebark pine	640
Black Butte	Madison, Henrys Lake, and Gallatin Mountains (Hebgen Lake Ranger District)	Large, sometimes multiple-stemmed whitebark pine, dry subalpine forest habitat types	510
Obsidian Sands	Madison, Henrys Lake, and Gallatin Mountains (Hebgen Lake Ranger District)	Excellent example of the lodgepole pine/bitterbrush habitat type on obsidian sand benchland	390
East Fork of Mill Creek	Absaroka Beartooth Mountains (Yellowstone Ranger District)	Engelmann spruce and Douglas-fir with whitebark pine understory	882
Passage Creek	Absaroka-Beartooth (Yellowstone Ranger District)	Engelmann spruce, Douglas-fir, and subalpine fir upland and riparian forests	1,112
Sliding Mountain	Absaroka Beartooth Mountains (Yellowstone Ranger District)	Spruce, subalpine fir, lodgepole pine, and Douglas-fir occurs. A sizable shrubland and grassland is present. Dominant species include mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. Several avalanche chutes occur on the north face of Sliding Mountain.	1,459
Line Creek Plateau	Absaroka Beartooth Mountains (Beartooth Ranger District of the Custer Gallatin National Forest, Montana; and Clark's Fork Ranger District of the Shoshone National Forest, Wyoming)	Extensive areas of alpine tundra vegetation, a cirque basin with alpine lakes and ponds, and many unique plant species. Nine alpine, seven coniferous, and one shrubland vegetation types fulfill requirements for the Northern Region Research Natural Area network.	21,704 (19,369 Custer Gallatin National Forest; 2,335 National Forest)
Lost Water Canyon	Pryor Mountains (Beartooth Ranger District)	Encompasses nearly an entire watershed in pristine condition. Includes Douglas-fir near its eastern most extent and interrupted stream system in karst topography.	3,645
Poker Jim	Ashland (Ashland Ranger District)	Eastern ponderosa pine forest; native grassland and shrubland communities dominated by big sagebrush, silver sagebrush and wheatgrasses.	363

Goal (FW-GO-RNA)

- 01** The Forest Service will continue to coordinate and consult with Rocky Mountain Research Station to protect and manage the ecological features and values for which each research natural area was established in accordance with the establishment records.
- 02** The Forest Service will encourage compatible educational use of research natural areas and facilitate potential research and study by scientists and educators.

Standards (FW-STD- RNA)

- 01** New roads, trails, fences, or signs shall not be permitted unless they contribute to the objectives or to the protection of the area.
- 02** New energy or utility corridors shall not be allowed.
- 03** Recreational use shall be restricted (for example, to limit or control specific activities such as camping, seasons of use, or other uses) or prohibited through special order (36 CFR 261.53) if such use is not compatible with the objectives of the research natural area.
- 04** New developed recreation sites shall not be allowed.
- 05** New recreation events shall not be allowed.
- 06** Extraction of saleable mineral materials shall not be allowed.
- 07** New special uses shall not be permitted except those issued for approved research projects or that are educational in nature. An exception exists within the Line Creek Plateau Research Natural Area (“Absaroka Beartooth Mountains Geographic Area, Line Creek Plateau Research Natural Area” section provides information on the exception).
- 08** New special use occupancy that requires constructed facilities shall not be permitted. In rare instances, temporary gauging stations and instrument shelters may be allowed for approved research projects.
- 09** Special forest products and plant materials shall not be permitted for commercial or noncommercial personal use in research natural areas.
- 10** New wildlife or fish habitat improvement projects shall not be permitted in research natural areas, except to meet the needs of approved research projects associated with the management of the research natural area.
- 11** Where livestock grazing is not part of the research natural area management prescription, per the establishment record, only incidental livestock use may be tolerated if consistent with desired conditions for the research natural area.
- 12** New range improvement construction shall not be permitted. Boundary fencing is permitted for protection against livestock use that conflicts with purposes for which the research natural area was established.
- 13** Where integrated pest management activities are prescribed, they shall be as specific as possible against target organisms and induce minimal impact to other components of the ecosystem.
- 14** The release of biological control organisms for invasive species control shall avoid the introduction of other exotic species.
- 15** New insect and disease management measures shall not occur in research natural areas unless epidemic populations exist and adjacent lands are severely threatened.

Guidelines (FW-GDL- RNA)

- 01 Minimum impact fire suppression techniques should be used to reduce suppression impacts. Methods that employ ground-disturbing machinery should normally not be used.
- 02 Use of retardant within research natural areas should be avoided to minimize potential impacts to high valued resources for which the area was designated.

Suitability (FW-SUIT-RNA)

- 01 Timber production is not suitable in research natural areas. Timber harvest, firewood gathering, or other vegetation management activities (such as prescribed fire) may only be allowed for reasons specifically designed to maintain or achieve the desired conditions and purpose for the research natural area.
- 02 Recreational and commercial drone launching and landings are not suitable in research natural areas. Drone use may be allowed for administrative purposes or in approved research projects.

2.4.40 Special Areas (SA)

Introduction

Designated special areas are those that have been formally established by a decision signed by the regional forester, after being vetted through the national forest, region, and forest planning (either in revision or by amendment). The Custer Gallatin National Forest has two designated special areas, which total approximately 3,773 acres. These special areas are designated for research and education of botanical and paleontological resources.

Proposed special areas are those that have been vetted through the national forest staff via forest planning (either in revision or by amendment), but they have not been vetted and established by a regional forester decision. There are currently no proposed special areas.

Candidate special areas are those that have not been fully vetted by the national forest staff and regional forester, and have not been included in a forest plan as proposed or established. There is one candidate botanical special area in the Pryor Mountains pending further review by the national forest and region staff (undetermined location and acreage). See related plan components for the Pryor Mountain Geographic Area section.

Other special areas may be identified in the future. Each designated special area is managed as an integral part of the National Forest System with emphasis on its unique values. Other values or resources in the area are managed to a level compatible with the area's primary values and overall national forest management objectives. Forest Service Manual 2370 and applicable National Environmental Policy Act (NEPA) decisions and designation orders provides management guidance for these areas. Table 24 displays administratively designated special areas.

Table 24. Designated special areas

Name	Geographic Area (Ranger District)	Purpose for Establishment	Acres
Bangtail Botanical and Paleontological Special Area	Bridger, Bangtail, and Crazy Mountains (Bozeman Ranger District)	Provides an excellent opportunity for research and interpretation of important botanical features and paleontological finds.	3,366
Black Sand Spring Botanical Special Area	Madison, Henrys Lake, and Gallatin Mountains (Hebgen Lake Ranger District)	Black Sand Spring Botanical Special Area is adjacent to the Madison Fork Ranch Conservation Easement (The Nature Conservancy) and provides added value to the overall conservation of the ecological integrity around the South Fork of the Madison River. This area features spring creek riparian vegetation.	407

Desired Conditions (FW-DC-SA)

- 01** Administratively designated special areas contribute identified unique values that are worthy of preserving.
- 02** Administratively designated special areas contributes opportunities for research, study, observation, and monitoring of natural features and unique values.

Guidelines (FW-GDL-SA)

- 01** New improvements should be allowed only when they are necessary to maintain, restore or enhance the values for which the special area was designated.
- 02** Activities such as prescribed fire, forest vegetation management, and invasive species treatment should be only allowed when they perpetuate the natural diversity of plant communities.

2.4.41 National Natural Landmarks (NNL)

Introduction

The National Natural Landmarks Program was established in 1962 to encourage the preservation of sites illustrating the geological and ecological character of the United States, to enhance the scientific and educational value of sites thus preserved, to strengthen public appreciation of natural history, and to foster a greater concern for the conservation of the nation's natural heritage.

Three national natural landmarks are located on the Custer Gallatin: Capital Rock and the Castles National Natural Landmarks in the Sioux Geographic Area, and Middle Fork Canyon National Natural Landmark in the Bridger Mountains. More detail about each national natural landmark is found in table 25.

Table 25. National natural landmarks

Name	Geographic Area	Purpose for Establishment	Acres
Middle Fork Canyon	Bridger, Bangtail, Crazy Mountains	Illustrates rocks deformed by the Earth's tectonic movement. Outstanding example of a canyon cut across the grain of the geologic structure by a superposed stream. Few places more clearly illustrate the effects of erosion and stream superposition. Eighty acres of the 960-acre landmark is national forest land.	80
Capital Rock	Sioux	Uniqueness of geologic formation due to uplift and erosion within the surrounding prairie environment. Remnant of the once continuous blanket of Tertiary deposits that covered much of the Great Plains. Late Cretaceous, Paleocene, Oligocene, and Miocene strata are well displayed.	244
The Castles	Sioux	Uniqueness of geologic formation due to uplift and erosion within the surrounding prairie environment. Steep-walled, flat-topped buttes standing 200 to 400 feet above the surrounding prairie, the Castles contains exposed rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene Ages. Cretaceous and Tertiary beds contain a variety of flora and fauna fossils.	940

Desired Conditions (FW-DC-NNL)

- 01** National natural landmarks contribute unique geological and scenic features and offer a recreation opportunity.

Goals (FW-GO-NNL)

- 01** The Custer Gallatin National Forest coordinates new development and management activities with the National Park Service.

Standard (FW-STD-NNL)

- 01** New energy and utility corridors shall not be located in national natural landmarks.
- 02** Extraction of saleable mineral materials shall not be allowed.

Suitability (FW-SUIT-NNL)

- 01** National natural landmarks are not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration or wildlife habitat enhancement.

2.4.42 Nez Perce National Historic Trail (NPNHT)

Introduction

The Nez Perce (Nimíipuu or Nee-Me-Poo) National Historic Trail stretches from Wallowa Lake, Oregon, to the Bear Paw Battlefield near Chinook, Montana. The trail commemorates the 1877 flight of the non-treaty Nez Perce from their homelands in eastern Oregon, Idaho, and Washington across what are now the states of Idaho, Montana, and Wyoming.

The Nez Perce National Historic Trail (NPNHT) Autotour Route passes through the Custer Gallatin National Forest. The Nez Perce Trail is interpreted along the Autotour route, but is not necessarily the physical location of the Nez Perce Trail. On the west end of the Custer Gallatin, the Autotour route is along Highway 20, east from Targhee Pass to the west boundary of Yellowstone National Park. A segment

of the Nez Perce National Historic Trail Autotour Route follows State Highway 212, from the northeast entrance of Yellowstone National Park, for approximately eight miles, through Cooke City, to the State line, where it leaves the national forest. This section of the actual trail leaves the east side of Yellowstone National Park further to the south and does not enter the Custer Gallatin.

Desired Conditions (MG-DC-NPNHT)

- 01 Interpretive materials and identification signage are available for the Nez Perce (Nee-Me-Poo) National Historic Trail.

Goals (MG-GO-NPNHT)

- 01 The Forest Service coordinates management, signage and interpretive materials of the Autotour route with the Montana Department of Transportation and the Nez Perce National Historic Trail Administration.

2.4.43 National Recreation Trails (NRT)

Introduction

The Custer Gallatin National Forest has twelve national recreation trails designated by the regional forester as part of the national system of trails authorized by the National Trails Systems Act. There are a total of 73 miles of existing national recreation trails on the Custer Gallatin National Forest (table 26).

Table 26. National Recreation Trails and mileage

Trail Name	Rounded Miles
Basin Lakes	4
Big Sky Snowmobile Trail	55
Boulder River Natural Bridge	0.25
Gallatin Riverside	2.50
Garnet Mountain	4
Palisade Falls	0.60
Parkside Ski Touring	2.5
Refuge Point X-C Ski	5
Silver Run Ski Touring	5
Two Top Snowmobile	28
Wild Bill's Lake	0.50
Drinking Horse trail across Custer Gallatin National Forest	< 100 feet
Bridger Foothills Trail	20
Grand Total	73

Desired Conditions (FW-DC-NRT)

- 01 National recreation trails provide for public opportunities such as interpretation and education, which do not impair the feature(s) or values for which the individual trail was established.

2.4.44 Eligible Wild and Scenic Rivers (EWSR)

As a required step in any forest plan revision, a study is conducted to determine if any of the “named rivers on the 7.5 min U.S. Geological Survey maps” are found “eligible” as a wild and scenic river. If so, those rivers will be managed within the forest plan to retain their eligible status. A tentative classification (wild, scenic, or recreational) will be determined. For eligible rivers, national forest lands in a 0.25-mile-wide (on either bank) corridor will be managed to protect the identified river-related outstandingly remarkable values, tentative classification, along with retaining the free-flowing nature of the waterway. Table 27 summarizes the potential eligible wild and scenic rivers, and detailed information about the eligibility study, including maps, is found in appendix E of the proposed action, available at the following website: https://www.fs.usda.gov/Internet/Forest_ServiceE_DOCUMENTS/fseprd567793.pdf

Desired Conditions (FW-DC-EWSR)

- 01** Eligible wild, scenic, or recreational rivers retain their free-flowing condition, preliminary classification, and the outstandingly remarkable values that provide the basis for their inclusion in the system.
- 02** Public information contributes to the understanding and appreciation of the Custer Gallatin’s eligible wild and scenic rivers.

Goals (FW-GO-EWSR)

- 01** Through partnerships with other agencies, organizations, and volunteers, eligible wild and scenic rivers maintain and enhance their outstandingly remarkable values.

Standard (FW-STD-EWSR)

- 01** Extraction of saleable mineral materials shall not be allowed.

Guidelines (FW-GDL-EWSR)

- 01** To protect the preliminary classification of an eligible river, fish barriers may be constructed on eligible rivers only if access and shoreline development of the barrier would not lower the classification, and the free-flowing status is maintained.

Suitability (FW-SUIT-EWSR)

- 01** Eligible wild rivers corridors are not suitable for timber production. Timber harvest may be allowed in eligible scenic and recreational river segments for purposes such as fuels reduction, restoration, or wildlife habitat enhancement if the current preliminary classification and the outstandingly remarkable values of the river segment are protected.

Table 27. Potential eligible wild and scenic rivers

River Name	River No.	Location	ORVs	Preliminary Classifications
Bark Cabin Creek	19	Gallatin Mountains	F	Wild
Bear Creek	32	Pryor Mountains	W	Scenic
Big Creek	46	Gallatin Mountains	F	Wild
Big Timber Creek	50	Crazy Mountains	R, S	Recreational
Boulder River	68	Absaroka Beartooth Mountains	R, S, G, H	Recreational
Cabin Creek	100	Madison Mountains	F	Scenic
Cave Creek	123	Pryor Mountains	G	Wild
Clarks Fork Yellowstone River	137	Absaroka Beartooth Mountains	S	Wild, Recreational
Crooked Creek	182	Pryor Mountains	G, S, H, F	Wild, Scenic
Gallatin River	323	Gallatin/Madison Mountains	R, S, H	Recreational
Hyalite Creek	395	Gallatin Mountains	R, S	Scenic
Lake Abundance Creek	419	Absaroka Beartooth Mountains	F	Wild
Lake Fork of Rock Creek	421	Absaroka Beartooth Mountains	R, S	Wild, Recreational
Lost Water Creek	471	Pryor Mountains	S, G, H	Wild
Madison River	475	Madison Mountains	R, G, S, H, W	Recreational
Maid of the Mist Creek	477	Gallatin Mountains	R, S	Scenic
Middle Fork Cabin Creek	502	Madison Mountains	F	Scenic
Pine Creek	626	Absaroka Beartooth Mountains	R, S	Wild, Recreational
Rock Creek	668	Absaroka Beartooth Mountains	R, H, S	Recreational
Rock Creek	665	Absaroka Beartooth Mountains	F	Wild
Shower Creek	719	Gallatin Mountains	R, S	Scenic
Slough Creek & unnamed tributaries	737	Absaroka Beartooth Mountains	F	Wild, Scenic
Stillwater River	818	Absaroka Beartooth Mountains	R, S	Wild, Recreational
West Boulder River	889	Absaroka Beartooth Mountains	R	Wild
West Fork Rock Creek	908	Absaroka Beartooth Mountains	H, S	Wild, Recreational
West Fork Stillwater River	909	Absaroka Beartooth Mountains	S	Wild
West Rosebud Creek	916	Absaroka Beartooth Mountains	S, R	Wild
Woodbine Creek	931	Absaroka Beartooth Mountains	R, S	Wild, Recreational
Wounded Man Creek	933	Absaroka Beartooth Mountains	F	Wild
Yellowstone River	940	Absaroka Beartooth Mountains/Gallatin Mountains	R, S, H	Recreational

ORV = Outstandingly remarkable values: F = Fisheries, R = Recreation, S = Scenery, G = Geology, H = Heritage; W = Wildlife.

2.4.45 Recommended Wilderness Areas (RWA)

Introduction

Recommended wilderness areas are lands that have the potential to become designated as official wilderness through future legislation. 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. Table 28 displays recommended wilderness area acres by alternative.

Table 28. Recommended wilderness areas by alternative

Name	Geographic Area	Alternative B	Alternative C	Alternative D
Cook Mountain	Ashland	0	0	9,794
King Mountain	Ashland	0	0	10,502
Tongue River Breaks	Ashland	0	0	16,883
Big Pryor	Pryor Mountains	0	0	12,737
Bear Canyon	Pryor Mountains	0	0	10,366
Lost Water Canyon	Pryor Mountains	6,804	6,804	12,992
Punch Bowl	Pryor Mountains	0	0	7,766
Burnt Mountain	Absaroka Beartooth Mountains	0	0	0
Chico Peak	Absaroka Beartooth Mountains	0	0	7,036
Deckard Flats	Absaroka Beartooth Mountains	0	0	935
Deer Creek	Absaroka Beartooth Mountains	0	0	85,444
Dome Mountain	Absaroka Beartooth Mountains	0	0	9,540
East Rosebud to Stillwater	Absaroka Beartooth Mountains	0	0	17,422
Emigrant Peak	Absaroka Beartooth Mountains	0	0	15,829
Knowles Peak	Absaroka Beartooth Mountains	0	0	1,223
Line Creek Plateau	Absaroka Beartooth Mountains	801	801	26,605
Mount Rae	Absaroka Beartooth Mountains	0	0	2,839
Mystic	Absaroka Beartooth Mountains	247	247	136
North Fork	Absaroka Beartooth Mountains	0	0	36
Phelps Creek	Absaroka Beartooth Mountains	0	0	3,177
Red Lodge Creek	Absaroka Beartooth Mountains	0	0	12,039
Red Lodge Creek or Hell Roaring	Absaroka Beartooth Mountains	802	802	0
Republic	Absaroka Beartooth Mountains	388	388	388
Sheep Creek	Absaroka Beartooth Mountains	0	0	557
Strawberry Creek	Absaroka Beartooth Mountains	0	0	11,597
Tie Creek	Absaroka Beartooth Mountains	0	0	5,886
West Fork Rock Creek	Absaroka Beartooth Mountains	0	0	12,470
West Woodbine	Absaroka Beartooth Mountains	0	0	1,091
Blacktail Peak	Bridger, Bangtail, Crazy Mountains	0	0	6,147
Crazy Mountains	Bridger, Bangtail, Crazy Mountains	0	0	59,636
West Bridger	Bridger, Bangtail, Crazy Mountains	0	0	26,106
Buck Creek	Madison, Henrys, Gallatin Mountains	0	0	28,966
Cabin Creek North	Madison, Henrys, Gallatin Mountains	0	0	17,092
Cabin Creek South	Madison, Henrys, Gallatin Mountains	0	0	19,272
Cowboy Heaven	Madison, Henrys, Gallatin Mountains	0	15,536	14,357
Gallatin	Madison, Henrys, Gallatin Mountains	0	99,415	193,709
Gallatin Crest	Madison, Henrys, Gallatin Mountains	67,633	0	0
Lionhead	Madison, Henrys, Gallatin Mountains	17,983	15,738	31,389
Sawtooth Mountain	Madison, Henrys, Gallatin Mountains	14,828	0	0
Spanish Peaks East	Madison, Henrys, Gallatin Mountains	0	0	5,861

Name	Geographic Area	Alternative B	Alternative C	Alternative D
Spanish Peaks South	Madison, Henrys, Gallatin Mountains	0	0	2,845
Taylor Hilgard	Madison, Henrys, Gallatin Mountains	4,466	6,824	4,466
Yankee Jim Lake	Madison, Henrys, Gallatin Mountains	0	0	6,292
Total Acres	No data	113,952	146,555	711,425

Desired Conditions (FW-DC-RWA)

- 01** Recommended wilderness areas maintain their existing wilderness characteristics, to preserve opportunities for inclusion in the National Wilderness Preservation System.
- 02** Recommended wilderness areas provide outstanding opportunities for solitude or primitive and unconfined recreation. Impacts from visitor use do not detract from the natural setting.
- 03** Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.
- 04** System trails support wilderness experiences and preserve wilderness characteristics.
- 05** Outfitter and guide recreation special uses support identified public need and provide service for realizing the recreational purposes of the recommended wilderness areas.

Standards (FW-STD-RWA)

- 01** New roads shall not be constructed.
- 02** New energy or utility corridors shall not be allowed.
- 03** New commercial communication sites shall not be allowed.
- 04** New developed recreation sites shall not be allowed.
- 05** New recreation events shall not be allowed.
- 06** Extraction of saleable mineral materials shall not be allowed.

Guidelines (FW-GDL-RWA)

- 01** To maintain limits on structures in recommended wilderness, new range improvements associated with existing allotments should be authorized only for the purpose of enhancing wilderness characteristics or for resource protection.
- 02** To protect the ecological and social characteristics that provide the basis for wilderness recommendations, new commercial filming and still photography are only authorized for the purpose of promoting wilderness values.

Suitability (FW-SUIT-RWA)

- 01** Recommended wilderness areas are not suitable for timber production and timber harvest is not allowed.

02 **Alternative B:** Recommended wilderness areas are suitable for motorized or mechanized recreation on existing routes and areas.

Alternatives C and D: Recommended wilderness areas are not suitable for motorized or mechanized recreation.

03 Recommended wilderness areas are suitable for low impact restoration activities that move toward desired conditions (such as prescribed fires, active weed management, planting) and that protect and enhance the wilderness characteristics of these areas.

04 Recommended wilderness areas are suitable for use of motorized tools (such as use of chain saws to clear trails) and mechanized transport to accomplish restoration activities.

05 Permitted livestock use is suitable in those portions of recommended wilderness areas where grazing is authorized by permit prior to the area being identified as recommended wilderness.

06 **Alternatives B and D:** Recommended wilderness areas are not suitable for developed recreation sites, such as recreation rental cabins.

Alternative C: Recommended wilderness areas are not suitable for developed recreation sites, except for the continued use of the Windy Pass Cabin as a recreation rental cabin.

07 Administrative facilities are suitable only for the purposes of administration of the recommended wilderness areas.

08 **Alternative B:** Recommended wilderness areas are suitable for the continued use of existing commercial communication facilities.

Alternatives C and D: Recommended wilderness areas are not suitable for commercial communication facilities.

09 Recommended wilderness areas are not suitable for recreational and commercial drone launching and landings. Drone use may be allowed for administrative purposes or in approved research projects.

2.4.46 Backcountry Areas (BCA)

Introduction

Backcountry areas are generally undeveloped or lightly developed. They are either are unroaded, or have few, primitive roads. Some have no roads or trails. Backcountry areas provide for more remote, semi-primitive recreation opportunities, both motorized and nonmotorized, depending on the area.

Backcountry areas are listed in table 29 and are depicted in appendix B.

Desired Conditions (FW-DC-BCA)

01 Natural processes play their role and human use leaves little permanent or long-lasting evidence.

Standards (FW-STD-BCA)

01 New permanent roads shall not be constructed; temporary roads may be constructed.

- 02 New energy or utility corridors shall not be allowed.
- 03 New commercial communication sites shall not be allowed.
- 04 New developed recreation sites shall not be allowed.
- 05 Extraction of saleable mineral materials shall not be allowed.
- 06 New special uses shall be compatible with management of the backcountry area character.
- 07 New access to and development of minerals shall minimize impacts to backcountry areas.

Table 29. Backcountry areas acres by alternative

Backcountry Area	Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Chalk Buttes	Sioux	0	0	5,937	0
Cook Mountain	Ashland	9,794	9,794	0	0
King Mountain	Ashland	12,189	12,189	0	0
Tongue River Breaks	Ashland	16,431	16,431	0	0
Big Pryor	Pryor Mountains	12,610	12,610	0	0
Bear Canyon	Pryor Mountains	10,682	10,682	0	0
Punch Bowl	Pryor Mountains	6,097	6,097	0	0
Bad Canyon	Absaroka Beartooth Mountains	18,722	18,722	0	0
Crazy Mountains	Bridger, Bangtail, Crazy Mountains	0	83,368	0	0
Blacktail Peak	Bridger, Bangtail, Crazy Mountains	0	6,151	0	0
West Bridgers	Bridger, Bangtail, Crazy Mountains	0	26,106	0	0
West Pine	Madison, Henrys Lake, Gallatin	0	22,619	0	0
Buffalo Horn	Madison, Henrys Lake, Gallatin	21,539	28,126	0	144,060
Cowboy Heaven	Madison, Henrys Lake, Gallatin	17,026	0	0	0
Lionhead	Madison, Henrys Lake, Gallatin	0	0	0	29,206
Total Acres	No data	125,090	252,896	5,397	173,266

Guidelines (FW-GDL-BCA)

- 01 To maintain the predominantly unroaded and nonmotorized character, motorized access to maintain new structural range improvements should not be authorized except when practical necessity indicates a need for periodic access and use of motorized equipment.

Suitability (FW-SUIT-BCA)

- 01 The backcountry areas are not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration, or wildlife habitat enhancement.

2.4.47 Recreation Emphasis Areas (REA)

Introduction

Recreation emphasis areas typically offer a variety of quality recreation opportunities, including motorized and nonmotorized uses. The recreation opportunities are accessible to a wide range of users, in several seasons, and typically offer challenges to a wide range of skills. The areas may be regional, national, or international destinations, or may be close to higher population centers. Recreation emphasis areas close to population centers may offer opportunities for trail connections to communities.

Recreation emphasis areas may have a high density of human activities and associated structures. There may be roads, utilities, and trails as well as signs of past and ongoing activities of managed forest vegetation. Opportunities for solitude and a primitive experience may be limited near roads or trails due to frequent contact with other users. Recreation emphasis areas are listed in table 30 and are depicted in appendix B.

Table 30. Recreation emphasis areas acres by alternative

Recreation Emphasis Area	Geographic Area	B	C	D	E
Main Fork Rock Creek	Absaroka Beartooth Mountains	6,750	6,750	6,681	6,883
West Fork Rock Creek	Absaroka Beartooth Mountains	0	0	0	9,559
Cooke City Winter	Absaroka Beartooth Mountains	23,742	23,742	0	24,130
Boulder River	Absaroka Beartooth Mountains	7,448	7,448	0	7,448
Yellowstone River Corridor	Absaroka Beartooth and Madison, Henrys Lake, Gallatin Mountains	2,522	2,522	2,409	2,522
Bridger Winter	Bridger, Bangtail, Crazy Mountains	0	0	0	5,354
M Trail	Bridger, Bangtail, Crazy Mountains	0	0	0	148
Hyalite	Madison, Henrys Lake, Gallatin Mountains	33,799	65,638	8,530	21,491
Storm Castle	Madison, Henrys Lake, Gallatin Mountains	0	0	0	34,620
Gallatin River	Madison, Henrys Lake, Gallatin Mountains	17,368	16,150	17,038	17,074
Hebgen Winter	Madison, Henrys Lk, Gallatin Mountains	72,490	72,491	0	70,052
Hebgen Lakeshore	Madison, Henrys Lk, Gallatin Mountains	13,976	13,978	0	13,977
Total Acres	<i>No data</i>	178,094	208,718	34,659	213,258

Desired Conditions (FW-DC-REA)

- 01** Recreation emphasis areas provide sustainable recreational opportunities and settings that respond to changing recreation desires. Local communities can readily access these areas for a variety of motorized and nonmotorized experiences.
- 02** Trail systems connect communities to recreation emphasis areas.
- 03** Loop trail opportunities are available.

- 04 Educational programs are available for recreation users to learn about topics such as the prevention of spread of invasive species, wildlife-human conflicts, safe fire use, and sharing trails.
- 05 Vegetation management complements the recreational setting over the long term.
- 06 Developed recreation sites in recreation emphasis areas are accessible to all forest users

Guidelines (FW-GDL-REA)

- 01 To reduce the likelihood of establishing unplanned new visitor use patterns, temporary roads, skid trails, and landings should be constructed and rehabilitated to discourage new visitor use of that structure.
- 02 To accommodate under-represented communities, youths, seniors, and veterans, approval of new outfitting and guiding permits should emphasize proposals focused on experiential education.

Suitability (FW-SUIT-REA)

- 01 Recreation emphasis areas are suitable for a high density of recreation development.

2.4.48 Land Status and Ownership, Access, and Land Uses

Introduction

Land ownership is the basic pattern of public and private ownership of surface and subsurface estates. It refers to the ownership of land and interests in land. Land status is defined as the ownership record of title to lands, including withdrawals, rights, and privileges affecting or influencing the use and management of National Forest System lands. Land ownership status on National Forest System lands can change over time through land adjustments.

Land adjustment methods include exchange, purchase, donation, right-of-way acquisition and conservation easements. Under land adjustment programs, the Forest Service acquires and consolidates key tracts of non-Federal land to conserve valuable natural habitat, reduce the risk of permanent development in sensitive areas, and enhance public recreational opportunities.

In this section, access refers to easements held by the United States and administered by the Forest Service across non-National Forest System land. This includes access by the public across these lands. Land adjustments are used to secure permanent road and trail rights-of-way (easements) to assure the protection, administration and use of National Forest System lands and resources. With the increasing demands for use of national forest lands, population growth and increased residential development, there will likely be more challenges to historic access and a greater need to perfect access to National Forest System lands.

2.4.49 Land Status and Ownership, Access (LAND)

Desired Conditions (FW-DC-LAND)

- 01 Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands.

- 02** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management.
- 03** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands.
- 04** Existing access rights are protected and historical rights are perfected.
- 05** Posted boundaries of National Forest System lands and interests in lands (including roads, trailheads, and trails) reduces the potential for trespass and encroachment.
- 06** All Forest Service interests in lands, including conservation easements and water rights, are not devalued or lost, subject to valid existing or statutory rights.

Objectives (FW-OBJ-LAND)

- 01** Alternatives B, C and D: Every decade, acquire between one and five new roads or trail rights-of-way that are needed as high-priority access or would fill a gap in existing access to public lands.

Alternative E: Every decade, acquire between one and five new roads or trail rights-of-way that are needed as high-priority timber harvest access.

2.4.50 Land Uses (LAND USE)

Introduction

Special use authorizations allow for the occupancy and use of National Forest System lands by private individuals, companies, or government agencies for a wide variety of uses such as roads, utility corridors, communications sites, research, and other private or commercial uses that cannot reasonably be accommodated on private lands.

All authorized uses on public lands are required, by law, to meet applicable environmental protection measures. For proposed activities that have the potential for disturbance to lands and resources, a project design is required and is subject to public environmental analysis, review, and monitoring.

Desired Conditions (FW-DC-LAND USE)

- 01** Opportunities are available for a variety of land (non-recreation) special uses that include energy transmission rights of way, communication uses, roads, research activities, and other public services, on lands that are suitable for these activities.
- 02** Energy corridors throughout the planning area improve the delivery of electricity, oil, and gas, and enhance the western electric transmission grid by improving reliability, reducing congestion, and contributing to the national electrical grid.

Goal (FW-GO-LAND USE)

- 01** The Forest Service works with local county road authorities to grant public road easements (under the Forest Road and Trails Act) for routes that serve predominantly non-National Forest System purposes.

- 02** The Forest Service coordinates with project proponents to co-locate emerging technology, communication sites, energy corridors, and other permitted infrastructure to minimize environmental and visual impacts.

Standard (FW-STD-LAND USE)

- 01** Vegetation treatment within utility corridors and along linear transmission facilities shall meet facility safety requirements, control invasive species, and provide for revegetation to reduce scenic impacts.

Guidelines (FW-GDL-LAND USE)

- 01** To provide public and administrative access to national forest lands, the Forest Service should grant qualified applicants reasonable access across national forest lands, contingent upon receiving reciprocal access across the private land when the Forest Service determines access is needed.
- 02** To reduce long-term surface disturbance and impacts to scenic resources, new energy distribution lines and communication lines should be located underground. They should be co-located within or adjacent to existing road corridors. Exceptions may be made where it is not technically feasible or where installing the line overhead would reduce resource impacts.
- 03** New land special use authorizations or reauthorization of existing uses, should include conditions to avoid or minimize adverse effects to fish, water, and riparian resources. If adverse effects to inland native fish or desirable non-native species, species of conservation concern, impaired water bodies, or stream habitat conditions are unavoidable, authorizations should require actions that result in re-establishment, restoration, mitigation, or improvement of conditions and processes to ensure that projects that degrade conditions also include measures to incrementally improve conditions.
- 04** New hydropower support facilities should be located outside of riparian management zones to reduce effects to fish, water, and riparian resources. Support facilities include any facilities or improvements (such as, staging areas, transmission lines) not directly integral to its operation or necessary for the implementation of prescribed protection, mitigation, or enhancement measures.

Chapter 3. Proposed Geographic Area Direction

3.1 Introduction

Individual places across the Custer Gallatin National Forest have their own unique characteristics and conditions. These places, referred to as “geographic areas” (GAs), define a landscape that people associate with on the national forest. The Custer Gallatin National Forest geographic areas were determined using the distinct land masses of the national forest coupled with a sense of place meaningful to the public. While Ashland and the Pryor Mountains are separate geographic areas, the eight individual land units of the Sioux District are grouped into one geographic area. Because the Bridger, Bangtail, and Crazy Mountains are in close proximity, they are grouped into one geographic area. The remaining lands were divided into two geographic areas at the Yellowstone River, because one geographic area would be such a large area it begins to lose a distinctive sense of place. Identifying direction for geographic areas provides a means for describing conditions and trends at a more local scale than forestwide, if appropriate. Six geographic areas have been identified and are arranged from east to west (figure 2 and table 31) and are as follows:

- Sioux (SX)
- Ashland (AL)
- Pryor Mountains (PR)
- Absaroka Beartooth Mountains (AB)
- Bridger, Bangtail, and Crazy Mountains (BC)
- Madison, Henrys Lake, and Gallatin Mountains (MG)

Table 31. Acres within the six geographic areas (GA) on the Custer Gallatin National Forest

Geographic Area	Total Acres (All Ownerships)	National Forest System Acres within GA	% of GA in National Forest System Lands
Sioux	177,636	164,460	92
Ashland	501,798	436,124	87
Pryor Mountains	77,944	75,067	96
Absaroka Beartooth Mountains	1,387,824	1,353,295	93
Bridger, Bangtail, and Crazy Mountains	314,598	205,025	64
Madison, Henrys Lake, and Gallatin Mountains	952,813	805,299	85

Each geographic area section provides an overview of the area, including distinctive roles and contributions. Geographic area-specific desired conditions, and in some cases, standards and guidelines, not covered by forestwide direction, are also included. In all cases, please refer to the forestwide direction first, followed by any specific geographic area direction that may apply. Each geographic area has a set of associated maps in appendix B.

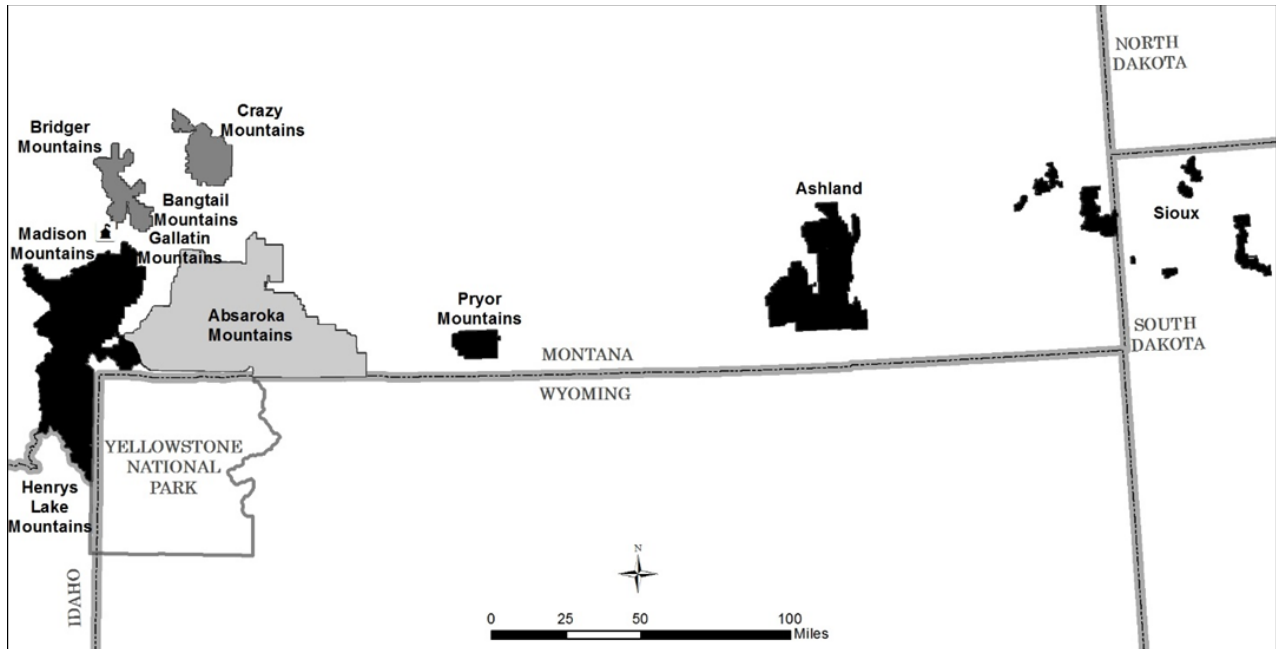


Figure 2. Custer Gallatin National Forest geographic areas

3.2 Sioux Geographic Area

3.2.1 General Overview

The Sioux District is comprised of eight geographically distinct land units in eastern Montana and western South Dakota. The national forest land in this area is surrounded by sparsely populated rangelands in Carter County, Montana, and Harding County, South Dakota. These units are separated by a mixture of State, private, and Bureau of Land Management-managed lands intersected by highways and county roads. Nearby towns include Ekalaka, Montana, and Camp Crook, and Buffalo, South Dakota. Maps found in appendix B provide detailed information.

3.2.2 Distinctive Roles and Contributions

Ecological Characteristics

The Sioux Geographic Area stands out from the surrounding pine savanna because of the elevation and the ponderosa pines. Tree-covered “terrestrial islands” rise above the surrounding prairie. Most of the Sioux District drains to the Little Missouri, Grand, or Moreau Rivers.

Vegetation in this pine savanna ecosystem includes ponderosa pine, woody draws dominated by green ash, and open, grassy uplands. Sandstone cliffs provide dramatic scenery. About 550 plant species can be found here.

Minor populations of paper birch (*Betula papyrifera*), a boreal species, are found on the Sioux Ranger District. These isolated, southern populations are a relic from the last ice age. The geographic area contains the eastern extent of Idaho fescue (predominantly a montane species) in Montana and northwest South Dakota and part of the western extent of big and little bluestems (predominantly tall grass prairie species). Unlike the montane units where cool season grasses dominate, there is a mix of

cool season and warm season grasses found in this area. A transition zone occurs between the eastern edge of the sagebrush distribution and the western edge of the prairie. These sagebrush communities are on the periphery of their distribution, which can be an important consideration for sage-grouse habitat management.

Several wide-ranging species that have been rare or absent from the Sioux landscape for decades have moved back into the area in recent years, including elk and mountain lion.

National Natural Landmarks identify and recognize the country's best examples of ecological and geological features. The two National Natural Landmarks in this geographic area, Capital Rock and the Castles, each feature a unique geologic formation due to uplift and erosion within the surrounding prairie environment.

The 244-acre Capital Rock National Natural Landmark in the Long Pines is a remnant of the once continuous blanket of Tertiary deposits that covered much of the Great Plains. Late Cretaceous, Paleocene, Oligocene, and Miocene strata are well displayed.

The 940-acre Castles National Natural Landmark in the Slim Buttes contains steep-walled, flat-topped buttes standing 200 to 400 feet above the surrounding prairie. The Castles expose rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene Ages. Cretaceous and Tertiary beds contain a variety of flora and fauna fossils.

Social and Economic Characteristics

Rising out of the surrounding prairie, the higher elevation pine savanna of the national forest lands provides unique scenery in eastern Montana and northwestern South Dakota. The scenery of this geographic area is markedly different from the western part of the Custer Gallatin. The two national natural landmarks, Capital Rock and the Castles, contribute particularly unique scenery.

Livestock grazing in the Sioux Geographic Area is an important contribution to the social and economic importance of surrounding rural communities and to the associated traditional cultural landscapes. Livestock grazing is an important source of income in the two county area associated with Sioux District allotments. Local ranchers graze livestock typically during late spring, summer, and early fall. National forest grazing is generally an integral component of overall ranch operations for over 50 permittees.

The Sioux District manages a large national forest livestock grazing program. Primary rangelands within current allotments occur on about 90 percent of the Sioux District. Typically the district provides forage (~50,850 AUMs) for about 8000 head of livestock (cattle, horses, and domestic bison) on over 60 active grazing allotments. Some water developments (particularly constructed ponds that now have riparian characteristics) established for livestock, provide habitat for fish and wildlife populations.

Timber harvested on the district contributes to sawmill, log home, and post and pole production companies located within the supply-reach of the Custer Gallatin. Two oil wells provide energy for the nation and contribute to local economies. Twelve large uranium mines from the 1950s and 1960s are currently being cleaned up under Comprehensive Environmental Response, Compensation and Liability Act authority. In addition, there are more than 350 smaller uranium exploration pits across the district. The geographic area has campgrounds and opportunities for hunting, angling, along with opportunities for bird and wildlife watching, photography, and nature study.

Cultural and Historical Characteristics

The Sioux Geographic Area contains the highest concentration and most varied of precontact sites in the Northern Great Plains. This is due in part to the environmental diversity, excellent natural site preservation, and complexity of the many plains cultures that occupied the area for thousands of years. The North Cave Hills in particular have a number of national register sites, including Lightning Springs Prehistoric Site and 43 petroglyph sites.

The proposed North Cave Hills Archaeological and Traditional Use District is considered a sacred landscape to the Tribes and their use of the unit showed that it qualified as a traditional cultural landscape. The proposed district contains 365 recorded archaeological sites of which 232 are either already listed or are considered contributing resources. Cultural material within the district range in age from Late Paleoindian period through the Historic Period. Traditional cultural use of the district is represented at Ludlow Cave, the petroglyph sites, and by least two cairns. The district nomination is currently under review by the South Dakota State Historic Preservation Office.

Forty-three petroglyph sites are included in the Prehistoric Rock Art of South Dakota Multiple Listing Nomination. Within the traditional culture of the Lakota (Sioux) Indians, rock art is considered sacred; thus, rock art sites can be considered traditional cultural properties for many of the Native Americans now living in South Dakota.

The North Cave Hills, South Cave Hills, and the Slim Butte units have been formally identified as lands with religious and cultural significance under all applicable historic preservation laws and Executive Order 113007, as sacred sites by tribal resolutions from the Lower Brule Sioux Tribes, Standing Rock Sioux Tribes, Cheyenne River Sioux Tribe, and Rosebud Sioux Tribes.

The Slim Buttes is the location of one of the last battles associated with the Great Sioux War, the 1876 Battle of the Slim Buttes where General Crook destroyed the winter camp of American Horse. Although the actual battle site is not on Forest Service administered lands, it is adjacent to the boundary and no doubt utilized before and after the battle.

The Chalk Buttes is under study as a traditional cultural landscape. The 1994 Chalk Buttes assessment was to document the cultural and continuing significance of the Chalk Buttes area for the Tribes and for the Custer Gallatin that has stewardship responsibilities for the unit. Connections were made to the Medicine Rocks State Park to the north of the Chalk Buttes, and a recommendation to nominate the two locations as a discontinuous traditional cultural property district significant to the maintenance of ongoing traditional cultural practices of the Sioux and Northern Cheyenne. The traditional cultural practices were found to be grounded in the sacred past due to the spiritual characteristics of the area, and the historic past due to the historical cultural use of the area in the 1800s.

3.2.3 Vision for the Sioux Geographic Area

The higher elevation, forested areas of national forest land offers distinct ecological conditions, wildlife habitat, and recreation settings from the surrounding plains. The land supports people economically through grazing, timber, hunting, and oil and gas production. The North Cave Hills and the Chalk Buttes are places of spiritual, ceremonial and traditional cultural importance to Tribes.

3.2.4 Designated Areas

Designated areas are specific areas or features within the Custer Gallatin that have been given a permanent designation to maintain its unique character, purpose or management emphasis. See chapter 2 for forestwide direction of designated areas. Table 32 and associated map(s) (appendix B) display the designated areas in this geographic area.

Table 32. Designated areas in the Sioux Geographic Area (GA)

Designated Area	Acres	Percent of GA ¹	Percent Forestwide Total ²
National Natural Landmarks	1,184	0.7	94

1. Percentage of total National Forest System lands in the geographic area, rounded to the nearest whole number. Not applicable to linear features
2. Percentage of total National Forest System lands of the same designation on the Custer Gallatin, rounded to the nearest whole number. Not applicable to linear features

3.2.5 Forest Plan Land Allocations

Forest plan land allocations are areas developed in the forest planning process. See chapter 2 for forestwide direction of designated areas. Table 33 and associated map(s) (appendix B) display the forest plan allocations in this geographic area.

Table 33. Forest plan land allocations in the Sioux Geographic Area

Backcountry Area	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Chalk Buttes	0	0	0	5,937	0

3.2.6 Other Resource Emphasis Areas

Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. Please see chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 34 displays the acreage of each recreation opportunity spectrum class by alternative for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum class categories in this geographic area.

Table 34. Summer and winter recreation opportunity spectrum classes for the Sioux Geographic Area

Sioux Summer and Winter Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	0	0	121,323	41,766	1,371
Alternative C	0	0	121,323	41,766	1,371
Alternative D	0	2,235	119,322	41,532	1,371
Alternative E	0	0	121,323	41,766	1,371

Scenic Integrity Objectives

Table 35 displays the acreages; the locations of scenic integrity objectives for the Sioux Geographic Area are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

Table 35. Scenic integrity objectives for the Sioux Geographic Area

Scenic Integrity Objectives	Very High	High	Moderate	Low	Very Low
Alternative B	0 acres 0 percent	6,276 acres 4 percent	79,893 acres 49 percent	78,290 acres 48 percent	0 acres 0 percent
Alternative C	0 acres 0 percent	6,276 acres 4 percent	79,893 acres 49 percent	78,290 acres 48 percent	0 acres 0 percent
Alternative D	0 acres 0 percent	6,276 acres 4 percent	79,893 acres 49 percent	78,290 acres 48 percent	0 acres 0 percent
Alternative E	0 acres 0 percent	6,276 acres 4 percent	79,893 acres 49 percent	78,290 acres 48 percent	0 acres 0 percent

Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. Please see chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. The Sioux Geographic Area contributes a small proportion of the forestwide total area of lands suitable for timber production as displayed in table 36.

Table 36. Lands suitable for timber production in the Sioux Geographic Area

Sioux Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Forested acres suitable for timber production	59,859	59,859	57,519	59,859
Percent of geographic area	36	36	35	36

3.2.7 Plan Components—Areas of Tribal Interest (TRIBAL)

Desired Conditions (SX-DC-TRIBAL)

- 01 The North Cave Hills retains the characteristics, physical integrity, and values that qualify it as a traditional use area and sacred site.

Guidelines (SX-GDL-TRIBAL)

- 01 New spring development in the Chalk Buttes should avoid springs used for traditional cultural purposes to minimize conflicts with traditional cultural practices.

3.2.8 Plan Components—Chalk Buttes Backcountry Area (CBBCA)

Desired Conditions (SX-DC-CBBCA)

- 01 The area provides for less developed, semi-primitive recreation opportunities, both motorized and nonmotorized in both summer and winter.

Suitability (SX-SUIT-CBBCA)

- 01 The backcountry area is suitable for mechanized recreation use and for motorized recreation use on existing motorized routes and areas.

3.3 Ashland Geographic Area

3.3.1 General Overview

The Ashland Geographic Area is located in Rosebud and Powder River Counties, Montana. The national forest is largely bordered by private land. The Northern Cheyenne Indian Reservation is to the west of the national forest. Nearby towns include Ashland, Lame Deer, Broadus and Colstrip, Montana (maps in appendix B provide detailed information).

3.3.2 Distinctive Roles and Contributions

Ecological Characteristics

The Ashland Geographic Area stands out from the surrounding prairie because of its higher elevation and the ponderosa pines. The Ashland Ranger District is bordered to the east by the Powder River and to the west by the Tongue River. It is dissected by Otter Creek, a tributary to the Tongue River.

The geographic area is one of the largest unbroken blocks of forested public land in eastern Montana. Vegetation varies from dense stands of ponderosa pine, woody draws, and sagebrush to open, grassy uplands. Sandstone cliffs, ponderosa pines, grasslands, all interspersed by draws and ridges, are typical. About 50 percent of the area has the potential to be forested, but because of recent fires, forest cover is only 27 percent. The rest is a mix of shrubs, grasses, forbs and sparsely covered or non-vegetated areas. More than 470 plant species can be found here.

The geographic area contains a portion of the eastern extent of Idaho fescue (predominantly a montane species) in Montana and the western extent of big and little bluestems (predominantly tall grass prairie species). Unlike the montane units where cool season grasses dominate, there is a mix of cool season and warm season grasses found in this area.

The Ashland Ranger District has been significantly impacted by wildfires in recent years. Nearly 60 percent of the Ashland landscape has been affected by large fires since 1995. In 2012 alone, about one-third of this landscape area burned in the Ash Creek and Taylor Creek Fires. These large, recent fires have changed the amount and distribution of forest cover across the landscape, reducing the percent of land covered by forest from about 50 percent in 1995 to about 25 percent today. This change has probably changed the mix of wildlife in the area. For example, elk and woodpecker populations have increased dramatically in recent years.

Social and Economic Characteristics

Rising out of the surrounding prairie, the higher elevation pine savanna of the national forest lands provides unique scenery in eastern Montana. The scenery of this geographic area is markedly different from the western part of the Custer Gallatin National Forest.

Livestock grazing in the Ashland geographic area is an important contribution to the social and economic importance of surrounding rural communities and to the associated traditional cultural landscapes.

Livestock grazing is an important source of income in the two county area associated with Ashland District allotments. Local ranchers graze livestock typically during late spring, summer, and early fall. National forest grazing is generally an integral component of overall ranch operations for about 60 permittees.

The Ashland District manages one of the largest national forest livestock grazing programs. Primary rangelands within current allotments occur on about 86 percent of the Ashland District. Typically the district provides forage (about 120,300 AUMs) for about 18,300 head of livestock (cattle and horses) on about 44 active grazing allotments. The water developments established for livestock provide habitat for some fish and wildlife populations.

Timber harvested on the district contributes to sawmill, log home, and post and pole production companies located within the supply-reach of the Custer Gallatin.

The elk herd has increased dramatically in the past 30 years, providing outstanding hunting opportunities. While hunting is one of the biggest recreational activities, this geographic area also has campgrounds, motorized trails, angling, wildlife watching, and opportunities for trapping.

Cultural and Historical Characteristics

The Ashland Geographic Area lies between the northern and southern Northwestern Plains with its own unique subsistence strategies based on the environment. More than 400 sites are recorded within the geographic area, spanning at least the last 10,000 years.

The Tongue River Breaks is currently under study as a traditional cultural landscape. The 2010 Northern Cheyenne Ethnogeography of the Tongue River and Powder River Plateau studied this area to understand the nature of the Northern Cheyenne connection to and use of the national forest, and to identify culturally sensitive locations that may require special preservation and protective measures. The study confirmed the importance of the landscape to the Tribe as well as a better understanding of the Northern Cheyenne “settlement” of the breaks through Cheyenne homesteading. Along with the Northern Cheyenne Reservation, the national forest is central to the Northern Cheyenne aboriginal territory, the “heart” of their original territory, and the place that the Northern Cheyenne chose for their final stronghold.

A number of Civilian Conservation Corps sites including roads, campgrounds, administrative sites, and trails were constructed by the Civilian Conservation Corps from 1933 through 1942 and due to their association, construction, and integrity qualify for nomination to the national register.

3.3.3 Vision for the Ashland Geographic Area

The higher elevation, forested areas of national forest land offers distinct ecological conditions, wildlife habitat and recreation setting from the surrounding plains. The land supports people economically through grazing, timber production, and hunting. The Cook Mountain, King Mountain, and Tongue River Breaks areas offer a unique opportunity for nonmotorized recreation. The Tongue River Breaks area contains important spiritual, traditional use and ceremonial sites for to the Northern Cheyenne Tribe.

3.3.4 Designated Areas

Designated areas are specific areas or features within the Custer Gallatin that have been given a permanent designation to maintain its unique character, purpose, or management emphasis. See chapter 2 for forestwide direction of designated areas. Table 37 and associated map(s) (appendix B) display the designated areas in this geographic area.

Table 37. Designated areas in the Ashland Geographic Area

Designated Area	Acres	Percent of GA ¹	Percent Forestwide Total ²
Inventoried Roadless Areas	39,234	9	5
Research Natural Areas	363	0.1	1

1. Percentage of total National Forest System lands in the geographic area, rounded to the nearest whole number. Not applicable to linear features

3.3.5 Forest Plan Land Allocations

Forest plan land allocations are areas developed in the forest planning process. See chapter 2 for forestwide direction of designated areas. Table 38 and associated map(s) (appendix B) display the forest plan allocations in this geographic area.

Table 38. Forest plan land allocations in the Ashland Geographic Area

Recommended Wilderness Area	Alternative B	Alternative C	Alternative D	Alternative E
Cook Mountain	0	0	9,794	0
King Mountain	0	0	10,502	0
Tongue River Breaks	0	0	16,883	0
Backcountry Area	Alternative B	Alternative C	Alternative D	Alternative E
Cook Mountain	9,794	9,794	0	0
King Mountain	12,189	12,189	0	0
Tongue River Breaks	16,431	16,431	0	0

3.3.6 Other Resource Emphasis Areas

Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 39 displays the acreage of each recreation opportunity spectrum class by alternative for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this geographic area.

Table 39. Summer and winter recreation opportunity spectrum classes for the Ashland Geographic Area

Ashland Summer and Winter Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	0	33,577	319,663	82,883	0
Alternative C	0	47,040	307,583	81,501	0
Alternative D	37,245	8,078	308,772	82,079	0
Alternative E	0	33,578	319,663	82,883	0

Scenic Integrity Objectives

Table 40 displays the acreages; the locations of scenic integrity objectives for the Ashland Geographic Area are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

Table 40. Scenic integrity objectives for the Ashland Geographic Area

Alternative	Very High	High	Moderate	Low	Very Low
Alternative B	0 acres 0 percent	0 acres 0 percent	291,696 acres 67 percent	144,428 acres 33 percent	0 acres 0 percent
Alternative C	0 acres 0 percent	0 acres 0 percent	291,696 acres 67 percent	144,428 acres 33 percent	0 acres 0 percent
Alternative D	38,882 acres 9 percent	0 acres 0 percent	255,607 acres 59 percent	141,635 acres 32 percent	0 acres 0 percent
Alternative E	0 acres 0 percent	0 acres 0 percent	291,696 acres 67 percent	144,428 acres 33 percent	0 acres 0 percent

Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in table 41, roughly a third of this geographic area is identified as suitable for timber production, and this contributes a quarter of the forestwide total area of lands suitable for timber production.

Table 41. Lands suitable for timber production in the Ashland Geographic Area

Ashland Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Forested acres suitable for timber production	189,379	189,379	189,385	189,529
Percent of geographic area	43	43	43	43

3.3.7 Plan Components–Ashland Backcountry Areas (ABCA) - Cook Mountain, King Mountain and Tongue River Breaks BCAs

Desired Conditions (AL-DC-ABCA)

- 01 Quiet, nonmotorized recreation opportunities predominate.
- 02 The physical environment and visual setting of the Tongue River Breaks provide the qualities of spiritual reflection, renewal, and sanctuary.

Standards (AL-STD-ABCA)

- 01 New spring development in the Tongue River Breaks should avoid springs used for traditional cultural purposes, to minimize conflicts with traditional cultural practices.

Suitability (AL-SUIT-ABCA)

- 01 The backcountry areas are not suitable for motorized and for mechanized recreation use.

3.4 Pryor Mountains Geographic Area

3.4.1 General Overview

The Pryor Mountains is an island mountain range south of Billings, Montana. The national forest lands in the Pryor Mountains are located in Carbon County, Montana. A number of jurisdictions are associated with this relatively small landscape. The national forest lands are bordered to the north by the Crow Indian Reservation. To the west, south and east, the national forest is bordered primarily by Bureau of Land Management lands, and some private land. Administration of the Pryor Mountains Wild Horse Range is shared between the Bureau of Land Management, the Custer Gallatin National Forest, and the Bighorn Canyon National Recreation Area (National Park Service). Closest towns include Bridger, Warren, and Pryor, Montana, and Lovell, Wyoming (maps in appendix B provide more detailed information).

3.4.2 Distinctive Roles and Contributions

Ecological Characteristics

The Pryor Mountains are a place of climatic, physiographic, and geologic diversity resulting in exceptional biological diversity. Three floristic provinces converge here; the Northwestern Great Plains Province to the north and east, the Wyoming Basin Province to the south, and the Middle Rockies Province to the west. Each of these provinces possesses a unique climate and resulting floristic expression. The vegetation changes from the drier southern portion of Wyoming Basin desert shrubs, the drier eastern portions of the Northwestern Great Plains mid- and short-grass pine savannas, to the higher elevations of the Middle Rockies montane settings.

Pryor Mountain vegetation is largely influenced by sedimentary and limestone parent material. The setting is composed of subalpine meadows and ridges, montane coniferous forests, meadows, foothill shrublands and grasslands, and semi-desert vegetation. The area is about 60 percent forested, with the rest a mix of shrubs, grasses, forbs and sparsely vegetated areas. Within a relatively short distance of about 20 miles, one can find dramatically different vegetation types from semi-desert to subalpine areas.

The Pryor Mountains contain the eastern most extent of Douglas-fir in Montana and the northern most extent of Utah juniper (predominantly known from the Great Basin to the south). Found at the lower elevations of the national forest portion of the Pryor area, some species of desert plants reach the northern limit of their range. Many plant communities common in the Great Basin deserts reach their northern limit here.

The national forest portion of the Pryor Mountains contains a unique and diverse assemblage of botanical resources and plant associations within a relatively small area. The Pryor Mountains are important for scientific study and education. Due to the exceptional diversity in a small area, many researchers and educators in earth sciences have recognized its scientific value. Because of a unique convergence of three floristic provinces (Northern Great Basin, Middle Rocky Mountains, and Northern Great Plains), the Pryor Mountains are considered a “botanical hotspot,” rich in species and community diversity. More than 400 plant species can be found here. Many rare plant species in the Pryor Mountains are associated with the Madison limestone geology of the area.

Black bears, bighorn sheep, and mule deer are abundant. The Pryor landscape represents a transition from the montane to the pine savanna ecosystem and contains a few notable Pine Savanna species such as eastern red bat, greater sage-grouse, and prairie vole.

The Pryor Mountains drain primarily to the Bighorn River; major waterways include the Crooked Creek, Sage Creek, and Bear Creek drainages. Sage Creek and Crooked Creek contain Yellowstone cutthroat trout. Bear Creek supports a great diversity of migratory and resident bird species. Crooked Creek and its tributaries, Cave Creek and Lost Water Creek, are dominated by karst topography.

The Pryor Mountains have the highest density of significant caves on the Custer Gallatin and within the Forest Service's Northern Region. Four known significant caves contain ice.

Social and Economic Characteristics

Road access is limited in the Pryor Mountains, and recreation use is relatively light compared to other parts of the Custer Gallatin. Recreation facilities include one developed campground, trails, and the Big Ice Cave and associated picnic area. The land contributes to permitted grazing. No timber harvest has occurred since the 1980s. Caves in the Pryor Mountains were mined for uranium in the past; no mineral development currently occurs in this geographic area. Visitors may view wild horses on the Pryor Mountain Wild Horse Territory.

The Pryor Mountains are important for scientific research and education. Due to the exceptional diversity in a small area, many researchers and educators in earth sciences have recognized its scientific value.

Cultural and Historical Characteristics

The Pryor Mountains contain significant spiritual, traditional use, and ceremonial use sites for many Tribes including the Northern Cheyenne, Crow, Shoshone-Bannock, and Eastern Shoshone Tribes. It is considered a traditional cultural landscape integral to the maintenance of on-going traditional cultural practices of the Crow. The Pryor Mountains are used by the Crow Tribe on a regular basis for fasting, plant collection (medicinal), subsistence (teepee poles, fuel), and ceremonial (center pole for the sundance). Pryor Gap, just outside of Custer Gallatin lands, is significant not only in Crow history as a major travel route, but also having great spiritual significance since they believe it is the home of the Little People. Other areas of the Pryor Mountains are associated with fasting sites of individuals important to Crow history such as Plenty Coups.

Dryhead Overlook is a traditional cultural property with a series of vision quest and fasting beds, rock cairns, stone circles, and rock alignments located along the eastern scarp of East Pryor Mountain. Known to the Crow as the "Place Where They Saw the Rope" it is considered a sacred landscape to the Tribe, and is honored as a place where a number of Crow leaders and chiefs fasted in the difficult transition to reservation life. Recent offerings observed indicate the practice continues today.

3.4.3 Vision for the Pryor Mountains Geographic Area

At the crossroads of three distinct ecological provinces, the Pryor Mountains offer exceptional biodiversity, unique geology, and opportunities for research and education. Limited road access to high elevation areas and limestone-rimmed canyons offers visitors a sense of remoteness and discovery in backcountry areas. The Pryor Mountain wild horse herd is valued and observed by many people.

Livestock grazing supports local ranches. Tribal members continue to have access to the Pryor Mountains for the exercise of reserved treaty rights, and the practice of spiritual, ceremonial and traditional cultural activities.

3.4.4 Designated Areas

Designated areas are specific areas or features within the Custer Gallatin that have been given a permanent designation to maintain its unique character, purpose or management emphasis (see chapter 2 for forestwide direction of designated areas).

Table 42 and associated map(s) (appendix B) display the designated areas in this geographic area. Acreages overlap for some designated areas.

Table 42. Designated areas in the Pryor Mountains Geographic Area

Designated Area	Acres	Percent of GA ¹	Percent Forestwide Total ²
Inventoried Roadless Areas	10,421	14	1
Research Natural Areas	3,645	5	12
Wild Horse Territory	4,386	6	100

1. Percentage of total National Forest System lands in the geographic area, rounded to the nearest whole number. Not applicable to linear features.
2. Percentage of total National Forest System lands of the same designation on the Custer Gallatin, rounded to the nearest whole number. Not applicable to linear features.

3.4.5 Forest Plan Land Allocations

Forest plan land allocations are areas developed in the forest planning process. See chapter 2 for forestwide direction of designated areas. Table 43 and associated map(s) (appendix B) display the forest plan allocations in this geographic area.

Table 43. Forest plan land allocations in the Pryor Mountain Geographic Area

Recommended Wilderness Area	Alternative B	Alternative C	Alternative D	Alternative E
Big Pryor Mountain	0	0	12,737	0
Bear Canyon	0	0	10,366	0
Lost Water Canyon	6,804	6,804	12,992	0
Punch Bowl	0	0	7,766	
Backcountry Area	Alternative B	Alternative C	Alternative D	Alternative E
Big Pryor Mountain	12,610	12,610	0	0
Bear Canyon	10,682	10,682	0	0
Punch Bowl	6,097	6,097	0	0

Eligible Wild and Scenic Rivers

Table 44 and associated map(s) (see appendix E of the Proposed Action) display the eligible wild and scenic rivers in this geographic area.

Table 44. Eligible wild and scenic rivers in the Pryor Mountains Geographic Area

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s) ¹
Bear Creek	1.8	Scenic	W
Cave Creek	7.2	Wild	G
Crooked Creek	7.9	Wild, Scenic	G, S, H, F
Lost Water Creek	6.9	Wild	S, G, H

3.4.6 Other Resource Emphasis Areas

Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 45 displays the acreage of each recreation opportunity spectrum class by alternative for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this geographic area.

Table 45. Summer and winter recreation opportunity spectrum classes for the Pryor Mountains Geographic Area

Pryors Summer and Winter Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	0	22,126	42,510	10,430	0
Alternative C	6,838	31,116	28,249	8,884	0
Alternative D	43,883	0	23,688	7,496	0
Alternative E	0	21,510	42,786	10,770	0

Scenic Integrity Objectives

Table 46 displays the acreages, and the locations of scenic integrity objectives for the Pryor Mountains Geographic Area are displayed in the scenic integrity objectives maps (appendix B). Please refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

Table 46. Scenic integrity objectives for the Pryor Mountains Geographic Area

Scenic Integrity Objectives	Very High	High	Moderate	Low	Very Low
Alternative B	6,804 acres 9 percent	11,928 acres 16 percent	52,198 acres 70 percent	4,136 acres 6 percent	0 acres 0 percent
Alternative C	6,804 acres 9 percent	11,928 acres 16 percent	52,198 acres 70 percent	4,134 acres 6 percent	0 acres 0 percent
Alternative D	44,043 acres 59 percent	992 acres 1 percent	27,131 acres 36 percent	2,901 acres 4 percent	0 acres 0 percent
Alternative E	0 acres 0 percent	13,527 acres 18 percent	57,403 acres 76 percent	4,136 acres 6 percent	0 acres 0 percent

Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. Please see chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in table 47 the Pryor Mountains Geographic Area contributes a small proportion of the forestwide total area of lands suitable for timber production.

Table 47. Lands suitable for timber production in the Pryor Mountains Geographic Area

Pryor Mountains Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Forested acres suitable for timber production	13,240	13,240	11,931	28,635
Percentage of geographic area	18%	18%	16%	38%

3.4.7 Plan Components– Terrestrial Vegetation (VEGNF)

Introduction

The Pryor Mountain region is ecologically diverse and a concentrated area of high plant endemism. On National Forest System lands are 42 occurrences of 12 regional endemics only found in south-central Montana, in and near the Pryor Mountains, and adjacent Bighorn Basin in Wyoming. These globally rare species are: *Pedicularis pulchella* (mountain lousewort), *Musineon vaginatum* (Rydberg’s Parsley), *Penstemon laricifolius ssp. laricifolius* (Larch-leaf Beardtongue), *Pyrrocoma carthamoides var. subsquarrosa* (Beartooth goldenweed), *Symphotrichum molle* (soft aster), *Astragalus aretioides* (Sweetwater milkvetch), *Penstemon caryi* (Cary’s beardtongue), *Erigeron allocotus* (Big Horn fleabane), *Erigeron parryi* (Parry’s fleabane), *Shoshonea pulvinata* (shoshonea), *Stanleya tomentosa* (woolly prince’s plume), and *Sullivantia hapemanii var. hapemanii* (Wyoming sullivantia). Although none of these species are currently considered threatened or endangered, areas of high endemism, such as the Pryor Mountains, are often important targets for conservation to prevent trends to future extinctions. Of these regional endemics, *Shoshonea pulvinata* and *Pyrrocoma carthamoides var. subsquarrosa* are identified as Regional Forester’s species of conservation concern in the plan area.

The Pryor Mountains is also an area of concentrated occurrences of peripheral plant species found at the margin or edge of the species’ distribution range. Occurring on National Forest System lands are 47 occurrences of 16 peripheral plant species. These peripheral species are: *Juniperus osteosperma* (*Utah juniper*), *Kobresia simpliciuscula* (simple kobresia), *Asplenium trichomanes-ramosum* (limestone maidenhair spleenwort), *Cirsium pulcherrimum* (Wyoming thistle), *Tetaneuris torreyana* (Torrey bitterweed), *Pedicularis pulchella* (mountain lousewort), *Penstemon laricifolius ssp. laricifolius* (Larch-leaf Beardtongue), *Pyrrocoma carthamoides var. subsquarrosa* (Beartooth goldenweed), *Symphotrichum molle* (soft aster), *Astragalus aretioides* (Sweetwater milkvetch), *Penstemon caryi* (Cary’s beardtongue), *Erigeron allocotus* (Big Horn fleabane), *Erigeron parryi* (Parry’s fleabane), *Shoshonea pulvinata* (shoshonea), *Stanleya tomentosa* (woolly prince’s plume), and *Sullivantia hapemanii var. hapemanii* (Wyoming sullivantia). Peripheral species are geographic outliers likely to occur in ecologically marginal or stressful conditions. Many species at the edge of their range occur in unusual or atypical habitats. Distinct traits found in peripheral populations may be critical to the species, allowing adaptation in the face of environmental change. Peripheral populations can be genetically distinct because of divergent natural selection. Environments continually change; to survive, organisms must have genetic variability that allows them to evolve. Many consider the species periphery one the most active regions of

speciation. Conservation of peripheral populations may be beneficial to the protection of the evolutionary process and the environmental systems that are likely to generate future evolutionary diversity.

In recognition of the botanically rich area, the Montana Native Plant Society designated close to 115,000 acres of National Forest System lands, Bureau of Land Management lands, and other lands as an Important Plant Area in the southern Pryor Mountain area. The Important Plant Area program has no regulatory authority, but important plant area recognition is a means of making land managers aware of the special value of the land they manage. The Forest Service considers the National Forest System portion of this area, along with the remaining National Forest System lands in the Pryor Mountains as a candidate Special Botanical Area (undetermined location and acreage) which will require future evaluation and collaboration with adjacent Bureau of Land Management and National Park Service prior to any designation as a proposed or established special botanical area. Existing land allocations between the Forest Service and Bureau of Land Management currently provide protection for the botanical resources in much of this important plant area. Forest Service's Lost Water Canyon Research Natural Area and Bureau of Land Management's nearby East Pryor Area of Critical Environmental Concern also recognize and highlight the importance and protection of botanical resources in the area. Similarly, the Bureau of Land Management's nearby Burnt Timber Canyon, East Pryor, and Bighorn Tack-On Wilderness Study Areas provide protection to unique plant assemblages that also offers more protection of botanical resources of the overall Pryor Mountain area.

To help maintain or restore resilient ecosystems for the biological diversity and conservation values of the Pryor Mountains into the future and not to foreclose options for future special area designation, an emphasis on weed prevention, detection, and control is recognized in the Pryor Mountains. Aggressive invasive plants that potentially pose a threat to these species and ecosystems include, but are not limited to, spotted knapweed, houndstongue, Dalmatian toadflax, leafy spurge, cheatgrass, and Canada thistle. These invasive species are currently more prevalent along Forest Service system roads and motorized trails, in burned areas, and in recently acquired lands.

Desired Conditions (PR-DC-VEGNF)

Forestwide desired conditions found in terrestrial ecosystems, invasive species, and watershed, aquatic, and riparian ecosystems contribute to the following desired condition.

- 01** The Pryor Mountains provide resilient ecosystems and conservation values that retain the values associated with future potential designation as a proposed or established botanical special area.
- 02** The Pryor Mountains provide resilient habitat conditions for the area's regional endemic and peripheral plant species' occurrences.
- 03** Public use, education, and enjoyment of the area supports conservation of the special botanical values.

Goals (PR-GO- VEGNF)

Forest-wide goals for invasive plant species, found in invasive species section, pertaining to integrated pest management contribute to the following goals.

- 01** Coordination and cooperation with federal, state, and county agencies; Tribes; non-government organizations; permittees; and adjacent landowners support landscape ecological diversity and conservation of recognized values.
- 02** Coordination and cooperation with researchers and educators in earth sciences support important scientific research, monitoring, and education in the Pryor Mountains.
- 03** To retain conservation values of regional endemic and peripheral plant occurrences in the Pryor Mountains, emphasis should be made for integrated pest management on aggressive invasive plant species (prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities) in and near known endemic and peripheral plant occurrences.

Standards (PR-STD- VEGNF)

- 01** Management actions in locations of regional endemic and peripheral plant occurrences shall implement the protective measures outlined for sensitive plant species in weed management National Environmental Policy Act decisions (Custer National Forest Noxious Weed Management Environmental Impact Statement and Record of Decision, 2006) or for at-risk plant species in subsequent weed management National Environmental Policy Act decisions.
- 02** Extraction of saleable mineral materials shall not be allowed within regional endemic and peripheral plant occurrences.

Guidelines (PR-GDL-VEGNF)

- 01** To retain conservation values, mineral exploration, and development, activities should be managed to minimize impacts to regional endemic and peripheral plant occurrences.
- 02** To retain their conservation values, new allotment infrastructure should be located to minimize livestock impacts on regional endemic and peripheral plant occurrences that are susceptible to livestock impacts.
- 03** To maintain Utah juniper habitats, live Utah juniper trees should not be cut except for purposes of human safety or research.

3.4.8 Plan Components—Areas of Tribal Interest (TRIBAL)

Desired Conditions (PR-DC-TRIBAL)

- 01** The Pryor Mountains maintain the characteristics and values that qualify it as a traditional use area.

3.4.9 Plan Components—Pryor Mountain Wild Horse Territory (PMWHT)

Introduction

The Wild Free-Roaming Horse and Burro Act of 1971 (P.L. 92-195), as amended by the Federal Land Policy and Management Act of 1976 and the Public Rangelands Improvement Act of 1978, established wild free-roaming horses as a part of the natural system and are to be managed along with other multiple uses.

The Pryor Mountain Wild Horse Territory is a designated area on National Forest System lands that adjoins other portions of the overall Pryor Mountain Wild Horse Range, which is jointly managed with the Bureau of Land Management as lead agency and National Park Service (Bighorn Canyon National Recreation Area). Of the approximate 42,000-acre range, about 10 percent is comprised of National Forest System lands. The Bureau of Land Management, Forest Service, and National Park Service work cooperatively in the long-term management of the wild horse range. Each agency has certain management and decision making authorities related to their respective roles and jurisdictions in the management of the range.

Wild horse viewing is a primary recreation activity that most often occurs during the warmer months of the year, especially during foaling season. Requests for special-use permits are becoming more common as more people wish to provide wild horse photography tours and viewing tours.

The Wild Free-Roaming Horse and Burro Act of 1971 (P.L. 92-195), as amended, 36 CFR 222, Forest Service Manual 2260, and the jointly developed Bureau of Land Management, Forest Service, National Park Service Wild Horse Range, and the Territory Herd Management Area Plan guides management of the wild horse territory.

Desired Conditions (PR-DC-WHT)

- 01 Pryor Mountain Wild Horse Territory maintains a thriving ecological balance with other resources and activities.

Goals (PR-GO-WHT)

- 01 Efficient and successful management of the entire Pryor Mountain wild horse range is conducted through interagency coordination and cooperation, with Bureau of Land Management as the lead agency.
- 02 The Forest Service coordination with the Bureau of Land Management, and other Federal and State agencies will continue to maintain or enhance wild horse habitat and appropriate management level in a manner which is compatible with wildlife habitat and population numbers

Standards (PR-STD- WHT)

- 01 New roads or trails shall not be constructed.
- 02 New energy or utility corridors shall not be allowed.
- 03 New developed recreation sites shall not be allowed.
- 04 Extraction of saleable mineral materials shall not be allowed.
- 05 New range improvements shall not attract horses into the Lost Water Canyon Research Natural Area or Lost Water Canyon Recommended Wilderness Area.

Suitability (PR-SUIT-WHT)

- 01 Pryor Mountain Wild Horse Territory is not suitable for timber production. Timber harvest or fuels management may be used to achieve desired conditions such as for public safety, wild horse habitat enhancement, or ecological restoration.

02 Pryor Mountain Wild Horse Territory is not suitable for permitted livestock grazing.

Plan Components—Pryor Mountains Backcountry Areas (PBCA)-Big Pryor, Bear Canyon and Punch Bowl Backcountry Areas

Desired Conditions (PR-DC-PBCA)

01 **Alternative B:** The backcountry areas provide for less developed, semi-primitive recreation opportunities, both motorized and nonmotorized in both summer and winter.

Alternative C: Quiet, nonmotorized recreation opportunities predominate.

02 Traditional Tribal uses are available in a largely undeveloped setting.

Suitability (PR-SUIT-PBCA)

01 **Alternative C:** The backcountry areas are not suitable for timber production and timber harvest is not allowed.

02 **Alternative B:** The backcountry areas are suitable for mechanized recreation use and for motorized recreation use on existing motorized routes.

Alternative C: The backcountry areas are not suitable for motorized and for mechanized recreation use.

3.5 Absaroka Beartooth Mountains Geographic Area

3.5.1 General Overview

The Absaroka Beartooth Mountains are located in Park, Sweet Grass, Stillwater, and Carbon Counties, Montana. This geographic area is bordered by private land to the north, east, and west, and to the south by Yellowstone National Park and the Shoshone National Forest in Wyoming. Nearby towns include Gardiner, Cooke City, Livingston, Big Timber, Columbus, and Red Lodge. The geographic area is part of the Greater Yellowstone Area.

This landscape area is characterized by distinct mountain ranges dissected by large rivers and streams. The highlands are composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests, meadows, and foothill shrublands and grasslands. The Beartooth Mountains contain the highest peaks in Montana and the largest expanse of alpine plateaus in the lower 48 states. Through the valleys flow the Gallatin, Yellowstone, Boulder, and Stillwater Rivers, and creeks such as East Rosebud, West Rosebud, and Rock Creek. The Absaroka-Beartooth designated wilderness area is found here.

Public access, numerous recreation facilities, and relative proximity to some of Montana's biggest towns (Bozeman and Billings) mean this area is highly visited. The only palladium and platinum mines in the country are located here (maps in appendix B provide detailed information).

3.5.2 Distinctive Roles and Contributions

Ecological Characteristics

The montane vegetation in the Absaroka and Beartooth Mountains is underlain by granitic, volcanic, and some sedimentary parent material. The setting is composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests (mainly cone-bearing trees), meadows, and foothill shrublands and grasslands. Overall, the landscape is about 70 percent forested; the rest is a mix of shrubs, grasses, forbs, and sparsely covered or non-vegetated areas. Montana Natural Heritage Program cites 188 vegetation types around the mountainous areas. The alpine areas alone contain over 400 plant species.

The Beartooth Mountains are home to the highest peaks in Montana, with over 20 peaks exceeding 12,000 feet. Some 15 percent of the glaciers in the Northern Rockies are in the Beartooth Mountains. The Beartooth Mountains feature expansive alpine plateaus with unique plant communities and one of the largest number of tundra species occurring in the lower 48 states. Roughly 50 percent of the Beartooth Mountain flora is also found in the arctic, while the flanks of Line Creek Plateau provide habitat for some of the Bighorn Basin endemic and globally rare species.

The Absaroka Mountains range about 150 miles from their northern end near Livingston, Montana, south to form the eastern boundary of Yellowstone National Park, and finally meeting the Wind River Range in Wyoming. The Absaroka Mountains are more highly dissected than the neighboring Beartooth Plateau.

The land drains to the Yellowstone River, through many large drainages including the Clark's Fork of the Yellowstone, Slough Creek, the Stillwater and Boulder Rivers, and East Rosebud, West Rosebud, and Rock Creeks. Many streams contain native Yellowstone cutthroat trout; some with particularly important conservation populations.

The area is home to grizzly bears, wolverines, bison, bald eagles, gray wolves, and bighorn sheep and most of the geographic area is wilderness or inventoried roadless area. When coupled with nearby Yellowstone National Park and wilderness on the Shoshone National Forest, the area provides a large expanse of largely undeveloped wildlife habitat.

Social and Economic Characteristics

The Absaroka Beartooth Geographic Area has a history of timber, grazing, mining, and recreation. Locatable mineral activities that take place on the Custer Gallatin contribute significant economic, social, and recreational benefits to local and regional interests. The Stillwater Complex contains the only palladium and platinum mine in the country, and one of three such mines in the world. The Stillwater Complex likely houses sufficient platinum and palladium resources necessary to support mining of these minerals for the next 30 to 50 years.

The high elevations are headwaters to the Yellowstone River and tributaries such as the Boulder and Stillwater Rivers. Vast snowpack contributes to downstream water use, including West Fork Rock Creek, the municipal water source for Red Lodge.

The spectacular landscape, public access, numerous recreation facilities and proximity to Yellowstone National Park make this geographic area an international destination. Coupled with relative proximity to

some of Montana's biggest towns (Bozeman and Billings) means this area is highly visited in all seasons. Spectacular scenery is easily accessed, particularly from the Beartooth Highway, one of the most scenic drives in the country. Camping, motorized and nonmotorized trail use, hunting, fishing, rafting, skiing, snowshoeing, and snowmobiling are all popular activities. Red Lodge Mountain provides downhill skiing, and the Cooke City area is renowned for snowmobiling.

Over 900,000 acres are within the Absaroka-Beartooth Wilderness, offering exceptional opportunities for solitude and for primitive and unconfined recreation.

Cultural and Historical Characteristics

This geographic area was once within the boundaries of the Crow reservation and a number of precontact and contact sites are recorded along the Front Range and along the river and creek corridors, which provided travel routes from the high plateaus and mountains to the plains. These trails were used by a number of western Tribes now known as the Nez Perce, Shoshone-Bannock, Confederated Salish Kootenai, Eastern Shoshone, and Arapahoe as they ventured onto the plains for bison hunts. Crow occupation and use of this geographic area is reflected in many of the place names.

National register sites in the geographic area include the OTO Homestead and Dude Ranch, the Camp Senia Historic District, the Rock Creek Ranger Station, Red Lodge-Cooke City Approach Road, and Civilian Conservation Corps sites. The Main Boulder Ranger Station represents one of the earliest facilities in the Forest Service serving as a district headquarters and home to Ranger Harry S. Kaufman and family for almost forty years. It has been restored to its original character and now houses a museum that depicts the living and working conditions at what was once remote ranger station.

The OTO Homestead and Dude Ranch, located north of Gardiner, Montana, represents one of the first dude ranches in the west (perhaps the first in Montana) and was an important early Dude Ranch in the Yellowstone Park area. The evolving dude ranch began humbly about 1898 at the homestead and grew into a business opportunity. Its hey-day was in the 1920s, and entertained America's wealthy, especially eastern bankers and businessmen, and European aristocrats. Acquired under the Northern Yellowstone Winter Range acquisition project in 1991, 31 acres of the OTO property encompassing the guest ranch complex, the lower residence and caretaker residence, and trailhead were classified as administrative sites, and the remaining 3,232 acres of OTO lands acquired were classified as grizzly habitat/big game winter range. Accordingly, management strategies are to be applied to the OTO acquired lands as appropriate to their classified use. Since acquisition, the ranch complex has undergone a number of restoration and stabilization projects through the dedicated efforts of volunteers under the Passports in Time and other public stewardship programs.

The Camp Senia Historic District, located near Red Lodge, Montana, consists of 20 buildings and structures associated with the operation of the dude ranch from 1919 until 1929 and 10 historic buildings constructed under Forest Service special-use permits between circa 1922 and 1930. All the historic buildings represent the western rustic architectural style. The Rock Creek Ranger Station Historic District is also near Red Lodge, Montana, and is significant for its role as an administrative facility for the Rock Creek Ranger District of the Beartooth, and subsequent Custer National Forest, from 1908 to 1962.

The Red Lodge-Cooke City Approach Road (includes segment of the Beartooth National Forest Scenic Byway) was the first and most substantial road to be constructed under the Park Approaches Act, passed in 1931. Its completion in 1936, linking the town of Red lodge, Cooke City, and Yellowstone Park, opened

new territory for purposes of recreational development and substantially increased tourism in Yellowstone National Park and the region. Its presence facilitated the development of outdoor recreational facilities such as campgrounds, cabin lease sites, and trailheads on adjacent Forest Service lands, and furthered the use of these areas by private individuals traveling in their own vehicles. The Beartooth National Forest Scenic Byway segment has been dubbed by Charles Kuralt as “the most beautiful roadway in America.”

A number of developments including roads, campgrounds, administrative sites, and trails were constructed by the Civilian Conservation Corps from 1933 through 1942. Due to their association, construction, and integrity, many qualify for nomination to the national register.

3.5.3 Vision for the Absaroka Beartooth Mountains Geographic Area

Largely wilderness and part of the greater Yellowstone ecosystem, the Absaroka Beartooth landscape provides outstanding opportunities for solitude, primitive recreation, and a diversity of wildlife species. Front country areas are actively managed transitioning to private land beyond the national forest boundary. Visitors find varied recreation opportunities, especially along rivers and streams. One of the world’s few platinum and palladium mines co-exists on this landscape. Designated Areas

Designated areas are specific areas or features within the Custer Gallatin that have been given a permanent designation to maintain its unique character, purpose or management emphasis. See chapter 2 for forestwide direction of designated areas. Table 48 and associated map(s) (appendix B) display the designated areas in this geographic area.

Table 48. Designated areas in the Absaroka Beartooth Mountains Geographic Area (GA)

Designated Area	Acres/Miles	Percent of GA ¹	Percent Forestwide Total ²
Designated Wilderness - acres	920,343	68	87
Inventoried Roadless Areas - acres	271,930	20	32
Research Natural Areas - acres	19,369	2	77
National Recreation Trails - miles	12.5	n/a	10
National Historic Trails -miles	8	n/a	50
National Forest Scenic Byway-All American Road - miles	67	n/a	100
West Fork Rock Creek Municipal Watershed - acres	17,975	1	26

1. Percentage of total National Forest System lands in the geographic area, rounded to the nearest whole number. Not applicable to linear features.

2. Percentage of total National Forest System lands of the same designation on the Custer Gallatin, rounded to the nearest whole number. Not applicable to linear features.

3.5.4 Forest Plan Land Allocations

Forest plan land allocations are areas developed in the forest planning process. See chapter 2 for forestwide direction of designated areas. Table 49 and associated map(s) (appendix B) display the designated areas in this geographic area.

Table 49. Forest plan land allocations in the Absaroka Beartooth Mountains Geographic Area

Recommended Wilderness Area	Alternative B	Alternative C	Alternative D	Alternative E
Chico Peak	0	0	7,036	0
Deckard Flats	0	0	935	0
Deer Creek	0	0	85,444	0
Dome Mountain	0	0	9,540	0
East Rosebud to Stillwater	0	0	17,422	0
Emigrant Peak	0	0	15,829	0
Knowles Peak	0	0	1,223	0
Line Creek Plateau	801	801	26,605	0
Mount Rae	0	0	2,839	0
Mystic	247	247	136	0
North Fork	0	0	36	0
Phelps Creek	0	0	3,177	0
Red Lodge Creek	0	0	12,039	0
Red Lodge Creek/Hell Roaring	802	802	0	0
Republic	388	388	388	0
Sheep Creek	0	0	557	0
Strawberry Creek	0	0	11,597	0
Tie Creek	0	0	5,886	0
West Fork Rock Creek	0	0	12,470	0
West Woodbine	0	0	1,091	0
Backcountry Area	Alternative B	Alternative C	Alternative D	Alternative E
Bad Canyon	18,722	18,722	0	0
Recreation Emphasis Area	Alternative B	Alternative C	Alternative D	Alternative E
Main Fork Rock Creek	6,750	6,750	6,681	6,883
West Fork Rock Creek	0	0	0	9,559
Cooke City Winter	23,742	23,742	0	24,130
Main Boulder River	7,448	7,448	0	7,448
Yellowstone River Corridor	2,522	2,522	2,409	2,522

Eligible Wild and Scenic Rivers

Table 50 and associated map(s) (see appendix E of the proposed action) display the eligible wild and scenic rivers in this geographic area.

Table 50. Eligible wild and scenic rivers in the Absaroka Beartooth Mountains Geographic Area

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s) ¹
Boulder River	15.5	Recreational	R, S, G, H
Clarks Fork Yellowstone River	2.6	Wild, Recreational	S
Lake Abundance Creek	7.4	Wild	F
Lake Fork of Rock Creek	13.3	Wild, Recreational	R, S
Pine Creek	4.4	Wild, Recreational	R, S
Rock Creek #668	11.4	Recreational	R, H, S
Rock Creek #665	4.8	Wild	F
Slough Creek & unnamed tributaries	16.3	Wild, Scenic	F
Stillwater River	23.3	Wild, Recreational	R, S
West Boulder River	12.3	Wild	R
West Fork Rock Creek	18.2	Wild, Recreational	H, S
West Fork Stillwater River	14.0	Wild	S
West Rosebud Creek	9.0	Wild	S, R
Woodbine Creek	1.3	Wild, Recreational	R, S
Wounded Man Creek	4.5	Wild	F
Yellowstone River	9.0	Recreational	R, S, H

1. F = Fisheries, R = Recreation, S = Scenery, G = Geology, H = Heritage, W = Wildlife

3.5.5 Other Resource Emphasis Areas

Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 51 and table 52 display the acreage of each recreation opportunity spectrum class by alternative for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this geographic area.

Table 51. Summer recreation opportunity spectrum classes for the Absaroka Beartooth Mountains Geographic Area

Absaroka-Beartooth Summer Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	918,843	215,113	116,669	56,977	45,676
Alternative C	921,061	212,873	116,669	56,976	45,699
Alternative D	1,128,904	37,262	87,966	55,757	43,388
Alternative E	918,849	213,890	116,668	58,189	45,681

Table 52. Winter recreation opportunity spectrum classes for the Absaroka Beartooth Mountains Geographic Area

Absaroka-Beartooth Winter Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	913,323	149,308	215,837	33,651	41,158
Alternative C	915,535	147,101	215,833	33,651	41,158
Alternative D	1,127,686	33,897	118,958	32,906	39,831
Alternative E	913,324	148,117	216,639	33,651	41,546

Scenic Integrity Objectives

Table 53 displays the acreages, and the locations of scenic integrity objectives for the Absaroka Beartooth Mountains Geographic Area are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

Table 53. Scenic integrity objectives for the Absaroka Beartooth Mountains Geographic Area

Scenic Integrity Objectives	Very High	High	Moderate	Low	Very Low
Alternative B	915,658 acres 68 percent	34,200 acres 3 percent	351,652 acres 26 percent	51,770 acres 4 percent	0 acres 0 percent
Alternative C	915,658 acres 68 percent	33,529 acres 2 percent	351,875 acres 26 percent	52,218 acres 4 percent	0 acres 0 percent
Alternative D	1,126,388 acres 83 percent	17,229 acres 1 percent	178,763 acres 13 percent	30,900 acres 2 percent	0 acres 0 percent
Alternative E	914,056 acres 68 percent	35,001 acres 3 percent	350,023 acres 26 percent	54,200 acres 4 percent	0 acres 0 percent

Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in table 54, the Absaroka Beartooth Mountains Geographic Area contributes a relatively small proportion of the forestwide total area of lands suitable for timber production.

Table 54. Lands suitable for timber production in the Absaroka Beartooth Mountains Geographic Area

Absaroka Beartooth Mountains Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Forested acres suitable for timber production	79,817	79,817	71,241	85,737
Percent of geographic area	6	6	5	6

3.5.6 Plan Components—East Rosebud Designated Wild and Scenic River (DWSR)

Introduction

On August 2, 2018 Act HR4645 was signed by the President designating 20 miles of East Rosebud Creek as part of the National Wild and Scenic River System. This creek became the first designated wild and scenic river in the state of Montana since 1976 and is the only designated river on the Custer Gallatin National Forest. Located in Carbon County, Montana, East Rosebud Creek flows through the Absaroka-Beartooth Wilderness into Stillwater River and eventually into the Yellowstone River. The designated reach is described as: East Rosebud Creek, Montana. The portions of East Rosebud Creek in the State of Montana, consisting of

(A) the 13-mile segment exclusively on public land within the Custer National Forest from the source in the Absaroka-Beartooth Wilderness downstream to the point at which the Creek enters East Rosebud Lake, including the stream reach between Twin Outlets Lake and Fossil Lake, to be administered by the Secretary of Agriculture as a wild river; and (B) the 7-mile segment exclusively on public land within the Custer National Forest from immediately below, but not including, the outlet of East Rosebud Lake downstream to the point at which the Creek enters private property for the first time, to be administered by the Secretary of Agriculture as a recreational river.

The creek is classified as wild for 13 miles in the Absaroka-Beartooth Wilderness Area and as recreational for seven miles downstream of the wilderness. The outstandingly remarkable values for both segments are for scenery, recreational, and geologic resources.

Desired Conditions (AB-DC-DWSR)

- 01 Designated wild or recreational rivers retain their free-flowing condition, preliminary classification, and the outstandingly remarkable values, which provide the basis for their inclusion in the system.
- 02 Public information contributes to the understanding and appreciation of the Custer Gallatin's designated wild and scenic rivers.

Goal (AB-GO-DWSR)

- 01 Through partnerships with other agencies, organizations, and volunteers, designated wild and scenic rivers maintain and enhance their outstandingly remarkable values.

Standard (AB-STD-DWSR)

- 01 Extraction of saleable mineral materials shall not be allowed.

Guidelines (AB-GDL-DWSR)

- 01 To protect the classification of a designated river, fish barriers may be constructed on rivers only if access and shoreline development of the barrier would not lower the classification and the free-flowing status is maintained.

Suitability (FW-SUIT-DWSR)

- 01 Designated wild rivers corridors are not suitable for timber production. Timber harvest may be allowed in designated recreational river segments for purposes such as fuels reduction, restoration,

or wildlife habitat enhancement if the classification and the outstandingly remarkable values of the river segment are protected.

3.5.7 Plan Components—Stillwater Complex (SWC)

The Stillwater Complex hosts significant base, precious, and strategic minerals and has been mined since the later portions of the 19th century. Currently, the area hosts two large underground platinum and palladium mines. Both of these mines are operated by the Sibanye Stillwater Mining Company. The Nye Mine was commissioned in 1986 and the East Boulder Mine was commissioned in 2003. Both operations produce platinum and palladium minerals used primarily in air pollution abatement technologies. Other uses include high speed electronic and investment metals.

The Stillwater Complex is unique in its geology and geographic exposure, its continuity of ore grade, and scale of the mineral deposits. Given the most recent geologic and mineralogical assessments, it is likely that both of these large underground mines could be in operation throughout the lifespan of this forest plan. In recognition of the above information and the fact that mining produces specific surface and sub-surface types of disturbance inherent to the production of minerals, the Custer Gallatin has determined that additional desired conditions are warranted for this area (see map, appendix B).

Desired Conditions (AB-DC-SWC)

- 01** Exploration, development, and production of palladium and platinum contributes unique and globally rare minerals for a variety of societal needs, including air pollution control technology.
- 02** Palladium and platinum mineral resources provide commodities for current and future generations commensurate with conservation of other resources.

3.5.8 Plan Components—Line Creek Plateau Research Natural Area

Management and protection of the Line Creek Plateau Research Natural Area is to be directed toward maintaining natural ecological processes. The Custer Gallatin National Forest portion of the Line Creek Plateau Research Natural Area predominantly exhibits a Rocky Mountain Alpine Tundra vegetation type with examples of alpine turf, alpine wetland, alpine snowbed, krumholtz, whitebark pine forest, and subalpine fir forest.

Because of the landscape scale of this research natural area, the establishment record and National Environmental Policy Act decision notice and order allows for the existing day use outfitter-guide special use permit to continue. In addition, the Ski Camp special use area is outside of the research natural area; however, over the snow access through a small portion of the research natural area to the base facilities of the Ski Camp Special Use Permit area will continued to be allowed. This Ski Camp access coincides with the open area where snowmobiles are allowed through Twin Lakes Basin.

In addition to the forestwide direction for research natural areas, the following direction pertains to the Custer Gallatin National Forest portion of the Line Creek Plateau Research Natural Area.

Standards (AB-STD-RNA)

- 01** New special uses shall not be permitted except those issued for approved research projects or that are educational in nature.

- 02** Executive Order 5949 (November 1932) established a state easement extending 250 feet from either side of the centerline on U.S. Highway 212 within the Line Creek Plateau Research Natural Area. Staging areas for material stockpiles and equipment within the 250-foot centerline easement for future highway maintenance projects on Highway 212 shall only be allowed with mitigation for at-risk plant species.

Suitability (AB-SUIT-RNA)

- 01** Hitching, tethering, or picketing horses or other livestock is not suitable within 200 feet of a stream or other free-flowing water.
- 02** Camping (including building a fire, other than fires confined to liquid fuel stoves) is not suitable within 200 feet of any lakeshore or 100 feet of any live stream or free-flowing water.
- 03** Mountain biking is only suitable on system trails.
- 04** Motorized vehicle use is only suitable on Highway 212 and to Line Creek Trailhead (Road #2124) parking area.
- 05** Snowmobiles use is only suitable within the Highway 212, 250-foot centerline easement.
- 06** Fish stocking by Montana Fish, Wildlife, and Parks is only suitable in Line Lake, which was stocked prior to research natural area designation.

3.5.9 Plan Components—Beartooth National Forest Scenic Byway (NSB)

Introduction

The 67-mile Beartooth Highway passes through a spectacular landscape rich in scenic, natural, cultural, historic, and recreational opportunities. A 1989 designation of National Forest Scenic Byway covers 60 of those miles. About 53 miles of this route, from Colter Pass on the west end to the national forest boundary on the east end, are also recognized by the high distinction of All American Road. The drive is heralded as one of the most scenic drives in the United States and features breathtaking views of the Absaroka and Beartooth Mountains. Approximately 8 miles on the west end and 19 miles on the east end are within the Custer Gallatin.

The Beartooth All-American Road traverses the Custer Gallatin and Shoshone National Forests. It accesses Yellowstone National Park's northeast entrance and crosses the rugged Beartooth Mountains in Wyoming and Montana. The Highway possesses scenic, natural, historical, cultural, archaeological, and recreational qualities. It is the highest elevation highway in the Northern Rockies and provides dramatic views, extensive recreation opportunities, and supreme wildlife watching.

The Beartooth Highway is protected from by a 250-foot from centerline withdrawal on each side of the road. Under Executive Order 5949, the corridor was withdrawn from settlement, location, sale, entry or other disposal and was reserved for park approach road purposes.

Desired Condition (AB-DC-NSB)

- 01** The intrinsic scenic, natural, historical, cultural, archaeological, and recreational qualities for which the Beartooth National Forest Scenic Byway was designated are present on the scenic byway.

3.5.10 Plan Components—Bad Canyon Backcountry Areas (BCBCA)

Desired Conditions (AB-DC-BCBCA)

01 Quiet, nonmotorized recreation opportunities predominate.

Suitability (PR-SUIT-BCBCA)

01 **Alternative B:** The backcountry areas are not suitable for motorized and for mechanized recreation use.

Alternative C: The backcountry area is suitable for nonmotorized and for mechanized recreation use.

3.6 Bridger, Bangtail, and Crazy Mountains Geographic Area

3.6.1 General Overview

The Bridger, Bangtail, and Crazy Mountains are characterized by island mountain ranges in Gallatin, Park, and Meagher Counties, Montana. The national forest is largely bordered by private land. Land ownership in the Crazy Mountains is a checkerboard pattern of national forest and private sections. The northern portion of the Crazy Mountains is administered by the Helena-Lewis and Clark National Forest. Nearby towns include Bozeman, Belgrade, Livingston, and Big Timber, Montana. The geographic area is part of the Greater Yellowstone Area (maps in appendix B provides detailed information).

3.6.2 Distinctive Roles and Contributions

Ecological Characteristics

This geographic area consists of three mountain ranges located north and northwest of Interstate Highway 90. The mountains are composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests, meadows, and foothill grasslands. The Shields River separates the Bridger and Bangtail Mountains from the Crazy Mountains.

The Bridger Mountains rise from about 5,000 feet at their western base in the Gallatin Valley to just over 9,600 feet on Sacagawea Peak. The Bridger Mountains are capped by Mesozoic sedimentary rocks, which lie on top of Paleozoic and Precambrian formations. Madison limestone is exposed extensively in the range. The spectacular cirque above Fairy Lake is evidence of glaciation in the range. Vegetation types in the Bridger Mountains include riparian woodlands and thickets, sagebrush-steppe, mountain grasslands, montane to alpine meadows, coniferous forests, and rock outcrops. Habitat on the west side of the range is somewhat warmer and drier and the higher elevation slopes are mostly unforested; the patchy coniferous forests are dominated by Douglas-fir. On the east side at upper elevations, Engelmann spruce and subalpine fir forests are common. The tree line in the Bridger Mountains is generally around 9,000 feet and is somewhat lower on the east side of the crest. The highest elevations in the range support an alpine flora. Plants restricted to limestone substrates constitute another conspicuous element.

The Bangtail Mountains are adjacent to and east of the Bridger Mountains. Bangtail Mountains are lower in elevation and do not have the alpine ridges, mountain peaks, or cirques of the Bridgers and Crazy Mountains.

The Crazy Mountains are geologically unique in Montana, composed of resistant igneous intrusions and "hard baked sedimentary rocks." The igneous rocks in the northern part of the range are rich in sodium and potassium, but alkali metals are less abundant in the southern part of the range. The Crazy Mountains, like the Bridger Mountains, were shaped by isolated mountain glaciers during the Pleistocene, and some small glaciers persist today. The Crazy Mountains are higher than the Bridger Mountains, rising to over 11,000 feet on Crazy Peak. The vegetation is mainly coniferous forests, meadows, and foothill shrublands and grasslands. The patchy coniferous forests are dominated by Douglas-fir and lodgepole pine. On the east side at higher elevations, Engelmann spruce and subalpine fir forests are common, while the highest elevations in the range support alpine vegetation. The area is about 70 percent forested, with the rest a mix of shrubs, grasses, forbs and sparsely covered or non-vegetated areas. Land management is complicated by a checkerboard pattern of national forest and privately owned land.

Vegetation types include coniferous forests, montane to alpine meadows, seep areas, and most common of all, sparsely vegetated rock faces, slides, and boulder fields. Highly developed alpine flora occurs in the basin of Sunlight Lake, where patches of tundra occur within the otherwise continuous rocky landscape.

These three mountain ranges include most native species and is a potential wildlife corridor between the Greater Yellowstone Ecosystem and other large blocks of wildlife habitat to the north, such as the Northern Continental Divide Ecosystem in northwest Montana.

The Bridger Mountains are a relatively narrow, isolated mountain range with a primarily north-south orientation. Prevailing westerly winds collide with the Bridger Range to create updrafts, producing a consistent lift that facilitates flight and attracts migrating raptors as they head south in autumn. The Bridger Mountain flyway is particularly noted for large concentrations of golden eagles, but as many as 18 different species of raptors have been observed migrating along the range. The concentration of migrating raptors along the Bridger ridgeline was first documented in the early 1990s. The Forest Service has partnered with HawkWatch International, Montana Audubon, and Bridger Bowl Ski Area to operate an annual raptor migration count along the Bridger ridge since 1991. Raptors are important biological indicators of ecosystem health in that they occupy a wide range of habitat conditions. The Bridger Range count is part of an ongoing effort to monitor long-term population trends of raptors in this northern portion of the Rocky Mountain Flyway.

National natural landmarks identify and recognize the country's best examples of ecological and geological features. The 960-acre Middle Fork Canyon National Natural Landmark, located on the north end of the Bridger Mountains, features rocks that were deformed by tectonic movement. It is an outstanding example of a canyon cut across the grain of the geologic structure by a superposed stream. Few places more clearly illustrate the effects of erosion and stream superposition. Eighty acres of the Landmark are on national forest lands.

This geographic area also contains the Bangtail Botanical and Paleontological Special Interest Area, which was designated for the area's Eocene-aged mammalian fossils and botanical values.

Social and Economic Characteristics

With the proximity to growing towns such as Bozeman, Belgrade, and Livingston, recreation is use is heavy, particularly in the Bridger and Bangtail Mountains. The most visited national forest trail in

Montana, the “M” trail is located in this geographic area. Both the popular Bridger Bowl Ski Hill and Crosscut Mountain sports Center are located in the Bridger Mountains. Campgrounds and motorized and nonmotorized trails offer recreation access.

Land ownership in the Crazy Mountains is a checkerboard pattern of national forest and private sections. Consequently, public access and public facilities such as trails are fewer in the Crazy Mountains than the nearby Bridger and Bangtail Mountains.

Lyman Creek in the Bridger Mountains contributes to Bozeman’s municipal water supply.

Cultural and Historical Characteristics

The Crow Tribe call the Crazy Mountains Awaxaippia meaning “high landscape that is jagged or rough and have a bad reputation or omen.” At least four prominent chiefs of the Crow Tribe fasted on the Crazy Mountains, and the prophetic “dreams “received affected Crow National policies towards “American” government. Vision quest and fasting bed structures have been located on three prominent peaks within the Crazies and other sites have been found along the flanks of these high peaks that may be related to this traditional cultural practice. These practices continue today. The Crazy Mountains are considered a traditional cultural landscape and has been proposed by the Crow Tribe for nomination to the National Register of Historic Places.

3.6.3 Vision for the Bridger, Bangtail, and Crazy Mountains Geographic Area

The southern portion of the Crazy Mountains managed by the Custer Gallatin offers motorized and nonmotorized recreation opportunities in a largely unroaded and undeveloped setting. The roaded northern Crazy Mountains is actively managed. The higher elevations of the Crazy Mountains provide for the exercise of reserved treaty rights, and the practice of spiritual, ceremonial and traditional cultural activities Crow Tribes. The Bridger and Bangtail Mountains offer a variety of motorized and nonmotorized, summer and winter recreation opportunities close to one of the largest towns in Montana.

3.6.4 Designated Areas

Designated areas are specific areas or features within the Custer Gallatin that have been given a designation to maintain its unique character, purpose or management emphasis. See chapter 2 for forestwide direction of designated areas. Table 55 and associated map(s) (appendix B) display the designated areas in this geographic area.

Table 55. Designated areas in the Bridger, Bangtail, and Crazy Mountains Geographic Area

Designated Area	Acres/Miles	Percent of GA ¹	Percent Forestwide Total ²
Inventoried Roadless Areas - acres	129,343	63	15
Special Interest Area - acres	3,366	2	89
National Natural Landmark - acres	80	0.4	6
National Recreation Trail - miles	20	n/a	16
Lyman Creek Municipal Watershed- acres	5,895	3	8

1. Percentage of total National Forest System lands in the geographic area, rounded to the nearest whole number

2. Percentage of total National Forest System lands of the same designation on the Custer Gallatin, rounded to the nearest whole number

3.6.5 Forest Plan Land Allocations

Forest plan land allocations are areas developed in the forest planning process. See chapter 2 for forestwide direction of designated areas. Table 56 and associated map(s) (appendix B) display the forest plan allocations in this geographic area.

Table 56. . Forest plan land allocations in the Bridger, Bangtail, and Crazy Mountains Geographic Area

Recommended Wilderness Area	Alternative B	Alternative C	Alternative D	Alternative E
Blacktail Peak	0	0	6,151	0
West Bridgers	0	0	26,106	0
Crazy Mountain	0	0	59,636	0
Backcountry Area	Alternative B	Alternative C	Alternative D	Alternative E
Blacktail Peak	0	6,147	0	0
West Bridgers	0	26,106	0	0
Crazy Mountain	0	83,368	0	0
Recreation Emphasis Area	Alternative B	Alternative C	Alternative D	Alternative E
Bridger Winter	0	0	0	5,354
The "M"	0	0	0	148

Eligible Wild and Scenic Rivers

Table 57 and associated map(s) (see appendix E of the proposed action) display the eligible wild and scenic rivers in this geographic area.

Table 57. Eligible wild and scenic rivers in the Bridger, Bangtail and Crazy Mountains Geographic Area

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s)
Big Timber Creek	1.1	Recreational	Recreation, Scenery

3.6.6 Other Resource Emphasis Areas

Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity and its associated plan components. Table 58 and table 59 display the acreage of each recreation opportunity spectrum class by alternative for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this geographic area.

Table 58. Summer recreation opportunity spectrum classes for the Bridger, Bangtail, and Crazy Mountains Geographic Area

Bridger, Bangtail, Crazy Summer Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	0	103,529	77,172	21,566	2,758
Alternative C	0	103,529	77,172	21,566	2,758
Alternative D	91,934	24,636	64,177	21,520	2,758
Alternative E	0	103,345	74,722	20,774	6,184

Table 59. Winter recreation opportunity spectrum classes for the Bridger, Bangtail, and Crazy Mountains Geographic Area

Bridger, Bangtail, Crazy Winter Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	0	81,489	99,186	21,587	2,763
Alternative C	0	81,489	99,186	21,587	2,763
Alternative D	91,983	28,474	60,573	21,237	2,758
Alternative E	0	78,391	99,186	21,336	6,112

Scenic Integrity Objectives

Table 60 displays the acreages; the locations of scenic integrity objectives for the Bridger, Bangtail and Crazy Mountain Geographic Area are displayed in the scenic integrity objectives maps (appendix B). Please refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

Table 60. Scenic integrity objectives for the Bridger, Bangtail, and Crazy Mountains Geographic Area

Scenic Integrity Objectives	Very High	High	Moderate	Low	Very Low
Alternative B	0 acres 0 percent	0 acres 0 percent	163,968 acres 80 percent	41,056 acres 20 percent	0 acres 0 percent
Alternative C	0 acres 0 percent	0 acres 0 percent	163,968 acres 80 percent	41,056 acres 20 percent	0 acres 0 percent
Alternative D	92,415 acres 45 percent	0 acres 0 percent	82,163 acres 40 percent	30,446 acres 15 percent	0 acres 0 percent
Alternative E	0 acres 0 percent	0 acres 0 percent	163,968 acres 80 percent	41,056 acres 20 percent	0 acres 0 percent

Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in table 61 while nearly a quarter of this geographic area is identified as suitable for timber production, this contributes a small proportion of the forestwide total area of lands suitable for timber production.

Table 61. Lands suitable for timber production in the Bridger, Bangtail, and Crazy Mountains Geographic Area

Bridger, Bangtail, and Crazy Mountains Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Forested acres suitable for timber production	51,808	44,118	50,963	51,806
Percent of geographic area	25	22	25	25

3.6.7 Plan Components—Wildlife (WL)

Desired Conditions (BC-DC-WL)

- 01** The Bridger migratory flyway provides conditions that facilitate raptor migration southward each fall.

Guideline (BC-GDL-WL)

- 01** Except for emergency purposes (such as, fire suppression, search and rescue, etc.), Forest Service-authorized aircraft should not fly less than 500 feet above the Bridger Mountain Range ridgeline, or land within 500 feet of the ridgeline, during the fall raptor migration (September 1 through October 31) in order to avoid aircraft collision with migrating raptors and minimize disturbance of raptors along this migratory route.

3.6.8 Plan Components—Land Status and Ownership (LAND)

Goal (BC-GO-LAND)

- 01** The Forest Service will work with willing landowners and partners to consolidate ownership and acquire access in the Crazy Mountains Geographic Area.

3.6.9 Plan Components—Bangtail Special Area (BSA)

Introduction

The Bangtail Special Area predominantly exhibits a mountain meadow and subalpine vegetation type and research sites for paleontological resources. Forest Service Manual 2370 and the 2007 Bangtail Botanical and Paleontological Special Area applicable National Environmental Policy Act decision and designation order provide management guidance for this area. In addition to the forestwide direction for special areas, the following direction pertains to the Bangtail Special Area.

Desired Conditions (BC-DC-BSA)

- 01** The Bangtail Special Area provides conditions that supports long-term protection to an area for scientific research opportunities on mountain meadow and subalpine ecosystems, and to provide research sites for important paleontological resources.

Standards (BC-STD-BSA)

- 01** Light machinery for paleontological excavation, and some prescribed fire and removal of timber to implement scientific studies of vegetation shall be allowed.
- 02** Disturbances related to paleontological research may be up to approximately 40 feet long, one foot wide and two feet deep. The number of trenches authorized is restricted to five per year although it is anticipated that trenches will not be needed each year but only on an occasional basis to map the limestone formations. Areas up to ten feet in diameter shall be allowed for fossil excavations and excavated by hand.
- 03** Removal of fossils and rock for research purposes shall be permitted subject to authorization protocols.

- 04 Activities related to scientific studies of vegetation shall allow for prescribed burning of up to three acres over a three-year period and the manipulation of forest vegetation of up to three acres over a three-year period. Exceeding these levels requires further public involvement, appropriate level of environmental analysis and documentation.
- 05 General forest management activities shall be scheduled and designed to not conflict with scientific studies in the Bangtail Special Area.
- 06 Scientific studies shall typically be designed to not disturb more than one acre in any one year. There may be minor amounts of excavation associated with paleontological work of less than one acre per year. Excavations will occur over short time intervals of a few weeks to up to two months.
- 07 All activities associated with scientific studies will be reviewed by the authorized officer and only authorized under the appropriate type of permit. If the authorized officer determines that proposed activities related to the Bangtail Special Area is outside of the scope what is documented in the 2007 environmental assessment, then additional environmental analysis, documentation, and disclosure to the public will be required.

Suitability (BC-SUIT-BSA)

- 01 Bangtail Special Area is not suitable for timber production. Timber harvest or other vegetation management activities (such as prescribed fire) may be only allowed for reasons specifically designed to maintain or achieve the desired conditions and purpose for the special area.

3.6.10 Plan Components—Blacktail Peak Backcountry Area (BPBCA)

Desired Conditions (MG-DC-BPBCA)

- 01 The Blacktail Peak backcountry area provides for less developed, semi-primitive recreation opportunities; nonmotorized in summer and motorized in winter.

Suitability (MG-SUIT-BPBCA)

- 01 The backcountry area is not suitable for summer motorized use and for mechanized recreation use. It is suitable for winter motorized over-snow use.

3.6.11 Plan Components—West Bridgers Backcountry Area (WBBCA)

Desired Conditions (MG-DC-WBBCA)

- 01 The West Bridgers backcountry area provides for less developed, semi-primitive recreation opportunities, both motorized and nonmotorized, in both summer and winter.

Suitability (MG-SUIT-WBBCA)

- 01 The backcountry area is suitable for mechanized recreation use and for motorized recreation use on existing motorized routes and areas.

3.6.12 Plan Components—Crazy Mountain Backcountry Area (CMBCA)

Desired Conditions (MG-DC-CMBCA)

- 01 The Crazy Mountain Backcountry Area provides for less developed, semi-primitive recreation opportunities, both motorized and nonmotorized, in both summer and winter.

Suitability (MG-SUIT-CMBCA)

- 01 The backcountry area is suitable for mechanized recreation use and for motorized recreation use on existing motorized routes and areas.

3.7 Madison, Henrys Lake, and Gallatin Mountains Geographic Area

3.7.1 General Overview

The Madison, Henrys Lake, Gallatin Mountains Geographic Area is located in Madison, Gallatin, and Park Counties, Montana. The geographic area is bordered by the Beaverhead-Deerlodge National Forest to the west and private land to the north. This geographic area borders Idaho in the Henrys Lake Mountains, where the continental divide marks the boundary between the states. Yellowstone National Park borders this geographic area from the Idaho state line to the Yellowstone River. Nearby towns include West Yellowstone, Big Sky, Bozeman, Belgrade, Livingston, and Gardiner. The geographic area is part of the Greater Yellowstone Area (maps in appendix B provide detailed information).

3.7.2 Distinctive Roles and Contributions

Ecological Characteristics

The montane vegetation in the Madison, Henrys, and Gallatin Mountains is underlain by granitic, volcanic, and some sedimentary parent material. The setting is composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests, meadows, and foothill shrublands and grasslands. Montana Natural Heritage Program cites 188 vegetation types around the mountainous areas (Yellowstone Highland Ecological Setting). The alpine areas alone contain over 400 plant species.

The land is the headwaters of the Missouri River. Forest streams drain into the Madison, Gallatin, and Yellowstone Rivers; major Missouri River tributaries. Many streams contain native Yellowstone or westslope cutthroat or arctic grayling; some with particularly important conservation populations.

Much of the geographic area is wilderness, wilderness study area, or inventoried roadless area. When unroaded lands of the Custer Gallatin are coupled with nearby Yellowstone National Park and wilderness on the Beaverhead-Deerlodge National Forest, it results in a large expanse of largely undeveloped wildlife habitat. All of the native animals still roam free, including grizzly bears, gray wolves. The area is also home to wolverines, bald eagles, bison, and bighorn sheep.

The Custer Gallatin National Forest is the only national forest occupied by wild bison for a portion of the year. Wild bison spend most of the year in Yellowstone National Park. During most winters, when food is limited by deep snow, bison migrate north into the Gardiner Basin and west into the Hebgen Basin. These two basins include portions of the Custer Gallatin National Forest.

A whitebark pine seed orchard has been located on the Custer Gallatin. Whitebark pine seedlings are being grown that naturally exhibit resistance to white pine blister rust, an imported pathogen that can weaken and kill whitebark pine trees. The seedlings are grown from seeds collected in this region. The seedlings will eventually be planted throughout the Greater Yellowstone Area.

Social and Economic Characteristics

The Madison, Henrys Lake, and Gallatin Mountains Geographic Area helps support diverse economic opportunities related to timber, grazing, and recreation. The mountains are headwaters to the Yellowstone, Gallatin and Madison Rivers. Hyalite and Bozeman Creeks supply Bozeman with water, and Whiskey Spring is part of the West Yellowstone municipal water supply.

Proximity to growing towns such as Bozeman, Belgrade, Livingston and Big Sky coupled with two gateways to Yellowstone National Park (West Yellowstone and Gardiner), means this area is highly visited in all seasons. Hyalite Canyon offers easy access from Bozeman and has world-renowned ice climbing. Camping, rental cabins, motorized and nonmotorized trail use, hunting, trapping, fishing, boating, rafting, skiing, snowshoeing, and snowmobiling are all popular activities. West Yellowstone is a snowmobiling destination, for users of both Yellowstone National Park and national forests. Easily accessible from town the Rendezvous Ski Trails consist of over 35 kilometers of gently rolling, beautifully groomed trails that wind through tall stands of lodgepole pine and open meadows. The Gallatin Petrified Forest offers the public a rare opportunity to collect specimens of petrified wood. Spread across Gallatin Canyon, Hyalite, and the Hebgen Basin are a number of permitted recreation residence cabins, some of which are eligible for the National Historic Register.

Nationally designated trails include the Continental Divide National Scenic Trail, the Nez Perce National Historic Trail, and a number of National Recreation Trails, including the Two Top Loop Snowmobile Trail and the Big Sky Snowmobile Trail. The Custer Gallatin National Forest offers access to and camping near Hebgen Lake, one of the largest (created) lakes in southwest Montana. The Earthquake Lake Geologic Area, visitor center and interpretive corridor provide interpretation of the 1959 earthquake that formed Earthquake Lake, in an area of national and international geologic significance for studying geology and seismicity.

Wild lands offer opportunities for solitude and primitive recreation. About 133,000 acres are within the Lee Metcalf Wilderness, and another 155,000 acres are contained in the Hyalite Porcupine Buffalo Horn Wilderness Study Area.

Cultural and Historical Characteristics

A segment of the Nez Perce National Historic Trail Autotour route crosses the Custer Gallatin on Highway 20 from Targhee Pass towards Yellowstone National Park. The Nez Perce (Nimíipuu or Nee-Me-Poo) National Historic Trail stretches from Wallowa Lake, Oregon, to the Bear Paw Battlefield near Chinook, Montana. The trail commemorates the 1877 flight of the non-treaty Nez Perce from their homelands in eastern Oregon, Idaho, and Washington across what are now the states of Idaho, Montana, and Wyoming. The autotour route is not always located on the actual Nez Perce National Historic Trail.

While now identified as the Nez Perce trail, the trail itself was one of many aboriginal trails leading from the western mountains to the plains, followed by precontact and contact Tribes for annual bison hunts, a tradition integral to these cultures. Today, bison migrating out of Yellowstone Park are hunted within this

geographic area by a number of Tribes, a right reserved in their treaties, and maintain this traditional practice.

Two Civilian Conservation Corps (CCC) camps are located within this geographic area, Basin and Shenango (formerly Squaw Creek). Young Civilian Conservation Corps members, supervised by the Forest Service, built the Shenango Ranger Station and bridge that provides access to a number of campgrounds, roads and hiking trails along Storm Castle Creek. These facilities were also built by the Civilian Conservation Corps and are still in use today.

3.7.3 Vision for the Madison, Henrys Lake, and Gallatin Mountains Geographic Area

The land is part of the Greater Yellowstone Ecosystem, where grizzly bears, wolves, and bison roam. High elevations provide wilderness and non-wilderness type opportunities. Lower elevations are actively managed and provide a wide range of both summer and winter motorized and nonmotorized recreation opportunities, especially near the communities of Bozeman, Big Sky, and West Yellowstone.

3.7.4 Designated Areas

Designated areas are specific areas or features within the Custer Gallatin that have been given a designation to maintain its unique character, purpose, or management emphasis. See chapter 2 for forestwide direction of designated areas. Table 62 and associated map(s) (appendix B) display the designated areas in this geographic area. Some acreages overlap more than one designation.

Table 62. Designated areas in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area (GA)

Designated Area	Acres/Miles	Percent of GA ¹	Percent Forestwide Total ²
Designated Wilderness - acres	133,848	17	13
Wilderness Study Area - acres	143,965	18	100
Cabin Creek Wildlife and Recreation Area - acres	36,752	5	100
Earthquake Lake Geologic Area - acres	37,800	5	100
Inventoried Roadless Areas - acres	393,804	49	46
Research Natural Areas - acres	2,820	0.4	10
Special Interest Areas - acres	407	<1/10	11
National Recreation Trails - miles	95.1	n/a	75
National Scenic Trails - miles	28	n/a	100
National Historic Trails - miles	8	n/a	50
Bozeman Creek Municipal Watershed - acres	14,926	2	21
Hyalite Creek Municipal Watershed - acres	31,045	4	44
Whiskey Spring Municipal Water Source	Point source	n/a	n/a

1. Percentage of total National Forest System lands in the geographic area, rounded to the nearest whole number. Not applicable to linear features.

2. Percentage of total National Forest System lands of the same designation on the Custer Gallatin, rounded to the nearest whole number. Not applicable to linear features.

3.7.5 Forest Plan Land Allocations

Forest plan land allocations are areas developed in the forest planning process. See chapter 2 for forestwide direction of designated areas. Table 63 and associated map(s) (appendix B) display the forest plan allocations in this geographic area.

Table 63. Forest plan land allocations in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area

Recommended Wilderness Area	Alternative B	Alternative C	Alternative D	Alternative E
Buck Creek	0	0	28,966	0
Cabin Creek North	0	0	17,092	0
Cabin Creek South	0	0	19,272	0
Cowboy Heaven	0	15,536	14,357	0
Gallatin	0	99,415	193,709	0
Gallatin Crest	67,633	0	0	0
Lionhead	17,983	15,738	31,389	0
Sawtooth Mountain	14,828	n/a	n/a	0
Spanish Peaks East	0	0	5,861	0
Spanish Peaks South	0	0	2,845	0
Taylor Hilgard	4,466	6,824	4,466	0
Yankee Jim Lake	0	0	6,292	0
Backcountry Area	Alternative B	Alternative C	Alternative D	Alternative E
West Pine	0	22,619	0	0
Buffalo Horn	21,539	28,126	0	144,060
Cowboy Heaven	17,026	0	0	0
Lionhead	0	0	0	29,206
Recreation Emphasis Area	Alternative B	Alternative C	Alternative D	Alternative E
Hyalite	33,799	65,635	8,530	21,491
Storm Castle	0	0	0	34,620
Gallatin Canyon	17,368	16,150	17,038	17,074
Hebgen Winter	72,490	72,491	0	70,052
Hebgen Lakeshore	13,976	13,978	0	13,977
Yellowstone River Corridor	2,522	2,522	2,409	2,522

3.7.6 Other Resource Emphasis Areas

Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. Please see chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 64 and table 65 display the acreage of each recreation opportunity spectrum class by alternative for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this geographic area.

Table 64. Summer recreation opportunity spectrum classes for the Madison, Henrys Lake, and Gallatin Mountains Geographic Area

Madison, Gallatin, Henrys Lake Summer Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	134,221	324,261	194,021	108,245	44,463
Alternative C	271,758	194,580	189,457	107,233	42,182
Alternative D	458,718	49,778	146,230	107,296	43,189
Alternative E	134,221	308,793	208,169	109,211	44,816

Table 65. Winter recreation opportunity spectrum classes for the Madison, Henrys Lake, and Gallatin Mountains Geographic Area

Madison, Gallatin, Henrys Lake Winter Recreation Opportunity Spectrum	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
Alternative B	133,824	321,995	204,335	101,932	43,124
Alternative C	271,449	191,382	197,781	103,871	40,678
Alternative D	458,092	70,820	141,599	92,909	41,790
Alternative E	133,824	314,021	211,436	103,649	42,280

Scenic Integrity Objectives

Table 66 displays the acreages, and the locations of scenic integrity objectives for the Madison, Henrys Lake, and Gallatin Mountains Geographic Area are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

Table 66. Scenic integrity objectives for the Madison, Henrys Lake, and Gallatin Mountains Geographic Area

Scenic Integrity Objectives	Very High	High	Moderate	Low	Very Low
Alternative B	235,422 acres 29 percent	11,554 acres 1 percent	438,407 acres 54 percent	119,932 acres 15 percent	0 acres 0 percent
Alternative C	268,096 acres 33 percent	11,554 acres 1 percent	412,968 acres 51 percent	112,697 acres 14 percent	0 acres 0 percent
Alternative D	430,145 acres 53 percent	6,434 acres 1 percent	283,906 acres 35 percent	84,831 acres 11 percent	0 acres 0 percent
Alternative E	133,814 acres 17 percent	11,554 acres 1 percent	540,227 acres 67 percent	119,720 acres 15 percent	0 acres 0 percent

Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in table 67, a relatively large amount of this productive, forested geographic area is identified as suitable for timber production, and contributes a third of the forestwide total area of lands suitable for timber production.

Table 67. Lands suitable for timber production in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area

Madison, Henrys Lake, and Gallatin Mountains Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E
Forested acres suitable for timber production	188,237	183,732	172,911	188,937
Percent of geographic area	23	23	21	23

3.7.7 Plan Components—Black Sand Spring Special Area (BSSSA)

Introduction

Forest Service Manual 2370 and the 1998 Black Sand Spring Botanical Special Area applicable National Environmental Policy Act decision and designation order provides management guidance for this area and specifies that other values or resources in the area are managed to a level compatible with the area's primary values and overall national forest management objectives. In addition to the forestwide direction for special areas, the following direction pertains to the Bland Sand Spring Special Area.

Desired Conditions (MG-DC-BSSSA)

- 01** The Black Sand Spring Special Area provides conditions that support long-term protection to an area for scientific research opportunities on high quality wetlands, riparian, associated upland communities and aquatic ecosystems and its geologically unique spring source origin.

Goals (MG-GO- V BSSSA)

- 01** To retain the area's distinguishing natural features, invasive species control should be emphasized.
- 02** General recreation should be managed in such a way that ecological values are maintained.

Standards (MG-DC-BSSSA)

- 01** Motorized vehicle and over snow use shall be restricted to the existing road.
- 02** Fire suppression shall follow minimum impact suppression techniques (MIST). Use of heavy equipment to suppress fire shall be avoided and shall only be used as a last resort.
- 03** No measures for control of insects or diseases shall be undertaken unless the area and adjacent lands are endangered.
- 04** Wildlife and fisheries habitat management shall be compatible with maintaining the distinguishing natural features for which the Special Area has been designated.

Suitability (MG-SUIT-BSSSA)

- 01** Black Sand Spring Special Areas is not suitable for timber production or fuelwood collection. Timber harvest or other vegetation management activities (such as prescribed fire) may be only allowed for reasons specifically designed to maintain or achieve the desired conditions and purpose for the special area.
- 02** Black Sand Spring Special Area is not suitable for permitted or recreational livestock grazing.

- 03 Black Sand Spring Special Area is not suitable for collection and harvest of special forest and botanical products.

3.7.8 Plan Components—Cabin Creek Recreation and Wildlife Area (CCRW)

Introduction

The Cabin Creek Recreation and Wildlife Management Area was designated by the Lee Metcalf Wilderness Act in 1983. Public law 98-140, October 31, 1983, established the Cabin Creek area for the purpose of wildlife and recreation. The 36,752-acre area encompasses Upper Wapiti Creek, Carrot Basin, and Cabin Creek. It is entirely within the primary conservation area and recovery zone for grizzly bears and contains important big game habitat.

The legislation placed emphasis on the recreation and wildlife values of the area. At the same time, the bill recognized the historical uses of the area. It was decided that the travel direction for the area was key, especially the use of motorized vehicles. The 2006 Gallatin Travel Plan decision allows broad use of the Cabin Creek area by several different types of recreation users. It allows uses such as retrieving animals harvested during hunting season by motor bikes on designated routes or snowmobiles. Winter recreational use of snowmobiles and the Big Sky Snowmobile Trail continues as stated in the enabling legislation.

Desired Conditions (MG-DC-CCRW)

- 01 Big game and grizzly bear habitat provides foraging and security to allow wildlife to coexist with human use of the area.
- 02 Wilderness characteristics are present with the recreation opportunities provided for in the legislation.

Standards (MG-STD-CCRW)

- 01 New roads shall not be constructed
- 02 New utility or energy corridors shall not be allowed.
- 03 New commercial communication sites shall not be allowed.
- 04 New developed recreation sites shall not be allowed.
- 05 Extraction of saleable mineral materials shall not be allowed.
- 06 New permitted livestock grazing is not allowed.

Guidelines (MG-GDL-CCRW)

- 01 As stated in the enabling legislation, new recreation special uses should not detract from wildlife protection and wilderness characteristics.

Suitability (MG-SUIT-CR)

- 01** The Cabin Creek Recreation and Wildlife Area is not suitable for timber production. Vegetation management may be allowed for purposes such as fuels reduction, restoration or wildlife habitat enhancement.
- 02** The Cabin Creek Recreation and Wildlife Area is not suitable for recreational and commercial drone launching and landings.

3.7.9 Plan Components–Wilderness Study Area (WSA)

Introduction

The Custer Gallatin National Forest manages one congressionally designated wilderness study area, the 155,000-acre Hyalite-Porcupine-Buffalo Horn Wilderness Study Area in the core of the Gallatin Range. The entire wilderness study area is inventoried roadless area. The 1,280-acre Palace Butte Research Natural Area is located within the wilderness study area.

Direction for the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area states the need to manage the area consistent with the Montana Wilderness Study Act of 1977, which specified that, “subject to existing private rights, the wilderness study areas designated by this Act shall, until Congress determines otherwise, be administered by the Secretary of Agriculture so as to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System” (Public Law 95-150).

Per the Wilderness Study Act of 1977, the use of motor vehicles, aircraft and mechanical means of transport are allowed at levels in existence prior to the enactment of the act; as long as the uses maintain the presently existing wilderness characteristics and potential for inclusion into the National Wilderness Preservation System. Permitted livestock use is allowed in those portions of wilderness study area where grazing had been established prior to the area’s designation.

Until Congress makes a final decision on designation, the wilderness study area will be managed per the plan direction identified for wilderness study areas in this section. A range of land allocations is proposed should Congress act to release the wilderness study area from the act. Table 68 displays the primary forest plan allocation by alternative.

If the wilderness study area were to be released by Congress, the research natural area and inventoried roadless area designations would remain. Where these designations overlap forest plan allocations, statutory mandates must be met, and the most restrictive guidance would apply.

Table 68. Wilderness study area primary forest plan allocation by alternative

Alternative	Primary Forest Plan Allocation
Alternative B	recommended wilderness area, backcountry area, recreation emphasis area, and areas with no additional allocation
Alternative C	recommended wilderness area, backcountry area, recreation emphasis area
Alternative D	recommended wilderness area
Alternative E	backcountry area

Desired Conditions (MG-DC-WSA)

- 01 Wilderness study areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.

Goal (MG-GO-WSA)

- 01 The Forest Service will work with Montana Fish, Wildlife, and Parks to consolidate ownership at the southern end of the Gallatin Range.

Standards (MG-STD-WSA)

- 01 New roads shall not be constructed
- 02 New energy or utility corridors shall not be allowed.
- 03 New commercial communication sites shall not be allowed.
- 04 New developed recreation sites shall not be allowed.
- 05 New recreation events shall not be allowed.
- 06 Extraction of saleable mineral materials shall not be allowed.

Guidelines (MG-GDL-WSA)

- 01 To maintain the wilderness study area as when established, restoration activities (such as prescribed fire, active weed management) should protect or enhance the wilderness characteristics of these areas.
- 02 To allow efficient project implementation, motorized and mechanized equipment (such as use of chain saws to clear trails) may be used to accomplish restoration activities or to accomplish administrative work.

Suitability (MG-SUIT-WSA)

- 01 Wilderness study areas are not suitable for timber production and timber harvest is not allowed. The area is suitable for limited hazard tree removal.
- 02 Permitted livestock use and infrastructure maintenance is suitable in those portions of the wilderness study area only where grazing had been established immediately prior to the area's wilderness study area designation.
- 03 Wilderness study areas are not suitable for recreational and commercial drone launching and landings. Drone use may be allowed for administrative purposes.

3.7.10 Plan Components—Continental Divide National Scenic Trail (CDNST)

Introduction

The Continental Divide National Scenic Trail was designated by Congress in 1978. This 3,100-mile-long trail follows the Continental Divide and traverses nationally significant scenic terrain and areas rich in the heritage and life of the Rocky Mountain west. In entirety, the trail passes through portions of Montana, Idaho, Wyoming, Colorado, and New Mexico and is administered by the Forest Service in cooperation with the National Park Service, Bureau of Land Management, and Tribal, State, and local governments, and numerous partner groups. The vision for the Continental Divide National Scenic Trail is a primitive and challenging backcountry trail for the hiker and horseman on or near the Continental Divide to provide people with the opportunity to experience the unique and incredibly scenic qualities of the area. A small segment on the Custer Gallatin National Forest is also open to mountain bikes. Management for the Continental Divide National Scenic Trail is outlined in the 2009 Continental Divide National Scenic Trail Comprehensive Management Plan.

Approximately 29 miles of the Continental Divide National Scenic Trail are located on the Custer Gallatin National Forest, all in the Madison, Henrys Lake, and Gallatin Geographic Area. The plan components outlined below apply 0.5 mile each side of the trail.

Desired Conditions (MG-DC-CDNST)

- 01** The Continental Divide National Scenic Trail is a well-defined trail that provides for high-quality, primitive hiking and horseback riding opportunities, and other compatible trail activities, in a highly scenic setting along the Continental Divide. The significant scenic, natural, historic, and cultural resources along the trail's corridor are present. Where possible, the trail provides visitors with expansive views of the natural landscapes along the divide.
- 02** Viewsheds from the Continental Divide National Scenic Trail have high scenic values. The foreground as viewed from the trail is predominately naturally appearing. The potential to view wildlife is high, and evidence of ecological processes such as fire, insects, and diseases exist. Trail maintenance may include vista clearing consistent with a scenic integrity objective of high.
- 03** The trail is accessible from access points that provide various opportunities to select the type of terrain, scenery and trail length, ranging from long-distance to day use, that best provide for the compatible outdoor recreation experiences being sought. Wild and remote, backcountry segments of the route provide opportunities for solitude, immersion in natural landscapes and primitive outdoor recreation. Front-country and more easily accessible trail segments complement local community interests and needs and help contribute to their sense of place.
- 04** Use conflicts amongst trail users are infrequent.
- 05** The trail is well maintained, signed, and passable. Alternate routes provide access to the trail in the case of temporary closures resulting from natural events, such as fire or flood, or land management activities.
- 06** Short side trails to the Continental Divide National Scenic Trail that encompass adjacent attractions enhance the experience along the main trail.

- 07** Trailhead facilities support the uses of the trail (such as, stock use).

Standards (MG-STD-CDNST)

- 01** New motorized recreation events shall not be permitted on the Continental Divide National Scenic Trail.
- 02** New overnight shelters, constructed and permanent, shall not be allowed.
- 03** Extraction of saleable mineral materials shall not be allowed.

Guidelines (MG-GDL-CDNST)

- 01** To retain or promote the character for which the trail was designated, new or relocated trail segments should be located primarily within settings consistent with or complementing primitive or semi-primitive nonmotorized recreation opportunity spectrum classes. Road and motorized trail crossings and other signs of modern development should be avoided to the extent practicable.
- 02** To retain or promote the character for which the trail was designated, road and motorized trail crossings and other signs of modern development should be avoided to the extent possible.
- 03** To promote a nonmotorized setting, the Continental Divide National Scenic Trail should not be permanently relocated onto routes open to motor vehicle use.
- 04** To preserve or promote a naturally appearing setting, the minimum trail facilities necessary to accommodate the amount and types of use anticipated on any given segment should be provided in order to protect resource values and for health and safety, not for the purpose of promoting user comfort.
- 05** To retain the character for which the trail was designated, new linear utilities and rights-of-way should be limited to a single crossing of the trail unless additional crossings are documented as the only prudent and feasible alternative.
- 06** To provide for a naturally appearing setting and to avoid visual, aural, and resource impacts, use of the Continental Divide National Scenic Trail for landings or as a temporary road for any purpose should not be allowed.
- 07** To provide for a naturally appearing setting and to avoid visual, aural, and resource impacts, hauling or skidding along the Continental Divide National Scenic Trail itself should be allowed only (1) where the Continental Divide National Scenic Trail is currently located on an open road or to address hazard tree removal, or (2) no other haul route or skid trail options are practicable. Design criteria should minimize impacts to the trail infrastructure, and any necessary post-activity trail restoration should be a priority for the project's rehabilitation plan.
- 08** To provide for a naturally appearing setting and to avoid visual and resource impacts, unplanned fires in the foreground (up to 0.5 mile) of the Continental Divide National Scenic Trail should be managed using minimum impact suppression tactics or other tactics appropriate for the protection of trail values.

Suitability (MG-SUIT-CDNST)

- 01 The Continental Divide National Scenic Trail is not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration, or wildlife habitat enhancement.
- 02 The Continental Divide National Scenic Trail is suitable for summer motorized use only as necessary to meet emergencies, to provide for landowner access, or as allowed by administrative regulations at the time of designation, as long as such use does not substantially interfere with the nature and purpose of the trail. National Trail System Act (section 7c). Administrative trail maintenance equipment is authorized.
- 03 The Continental Divide National Scenic Trail is suitable for winter snowmobile use over and around the trail.
- 04 The Continental Divide National Scenic Trail is suitable for mountain biking.

Alternative D: The Continental Divide National Scenic Trail is not suitable for mountain biking where the trail is within recommend wilderness area.

3.7.11 Plan Components–Earthquake Lake Geologic Area (ELGA)

Introduction

The Earthquake Lake Visitor Center was constructed in 1967 after intense public interest that resulted from the 1959 earthquake, the landslide that dammed the Madison River and created Quake Lake. The center is operated through a partnership between the Forest Service and Yellowstone Forever. The interpretive corridor is offers drivers along Highway 287 a variety of perspectives of the historic events and the geologic and context of human drama.

Desired Condition (MG-DC-ELGA)

- 01 The Earthquake Lake Visitor Center, natural attractions, and the easily seen effects of the strongest earthquake in the Rocky Mountains provide unique geologic interpretive opportunities pertaining to the 1959 earthquake.
- 02 Earthquake Lake Visitor Center provides interpretation and education of the geologic and human story of the earthquake, surrounding geologic area, and its context in the Greater Yellowstone Area and plate tectonics of the world.

Goals (MG-GO-ELGA)

- 01 The Forest Service and partners operate the visitor center complex to hosts exhibits, films, presentations and interpretive trails focused on earthquakes, plate tectonics, and a working seismograph.

3.7.12 Plan Components–Municipal Watershed (WTR)

Desired Conditions (MG-DC-WTR)

- 01 Forest structure in the municipal watersheds does not support watershed scale high intensity, stand-replacing fire and is resilient to forest insect and disease through maintenance of age, size class diversity, and species diversity.

Goals (MG-GO-WTR)

- 01 The Forest Service cooperates with the city of Bozeman in sustainable land management of the Hyalite and Bozeman Creek municipal watersheds.

3.7.13 Plan Components–Hyalite Recreation Emphasis Area (HREA)

Desired Conditions (MG-DC-HREA)

- 01 The Hyalite Recreation Emphasis Area provides sustainable recreational opportunities and settings that respond to increasing recreation demand in concert with the demands on the municipal watershed.
- 02 Alternative transportation plays a role in providing convenient and sustainable public access.
- 03 Front country outfitter guides provide opportunities for underrepresented groups and serve nearby communities.
- 04 Highly valued recreation resources, such as lake access, are available for day use opportunities.

Objectives (MG-OB-HREA)

- 01 **Alternatives B and C:** Per decade, one additional shoreline access day use area will be developed or converted from other developed recreation sites, such as campsites on the lakeshore.

Alternative D: No objective for additional shoreline access day use areas.

Alternative E: Per decade, two additional shoreline access day use areas will be developed or converted from other developed recreation sites, such as campsites on the lakeshore.

Standards (MG-STD-HREA)

- 01 **Alternative C:** Construction of new motorized trails shall not be allowed.

Alternative C: No new trail construction shall be allowed to provide access to Flanders, Mt. Bole, Divide Peak, and Maid of the Mist peaks.

Alternative C: Extraction of saleable mineral materials shall not be allowed.

Suitability (MG-SUIT-HREA)

- 01 **Alternative C only:** The portion of the REA within the WSA boundary is not suitable for timber production and timber harvest is not allowed.

3.7.14 Plan Components–Hebgen Lakeshore REA (HLREA)

Desired Conditions (MG-DC-HLREA)

- 01 Alternative transportation plays a role in providing convenient and sustainable public access.
- 02 Water based guiding opportunities are available commensurate with the capacity of lake.
- 03 Outfitter and guiding opportunities are adaptable to new and changing uses in character with the lake setting.
- 04 Existing developed campgrounds and permitted summer resorts provide capacity for expanded use.
- 05 Highly valued recreation resources, such as lake access, is available for day use opportunities.

Goal (MGOB-HLREA)

- 01 The Forest Service continues the current partnerships with Northwest Energy to manage opportunities and impacts to fisheries, wildlife, and recreation.

Objectives (MG-OB-HLREA)

- 01 **Alternatives B and C:** Per decade, convert at least one unsustainable dispersed lakeshore camping areas or sites into higher development scale campgrounds in compliance with the grizzly bear plan components, creating sustainable opportunities on Hebgen Lake.

Alternative D: No objective for converting unsustainable dispersed lakeshore camping areas or sites into higher development scale campgrounds.

Alternative E: Per decade, convert at least two unsustainable dispersed lakeshore camping areas or sites into higher development scale campgrounds in compliance with the grizzly bear plan components, creating sustainable opportunities on Hebgen Lake.

3.7.15 Plan Components–Hebgen Winter REA (HWREA)

Desired Conditions (MG-DC-HWREA)

- 01 The integrity, character and quality of the groomed snowmobile and cross-country ski are provided at a high level with an engineered level of design.
- 02 Outfitter and guiding opportunities facilitate winter use and emphasize avalanche safety.
- 03 Infrastructure integral to the Rendezvous Ski Trail Area is present.

Goals (MG-OB-HWREA)

- 01 The Forest Service works with the community of West Yellowstone to achieve a national and international destination for winter recreation.
- 02 The Forest Service seeks partnerships for sustainable operation of the Rendezvous Ski Area and the groomed snowmobile trail system of this recreation emphasis area.

- 03 The Forest Service seeks partnerships and interagency cooperation to emphasize winter recreation safety.

Standard (MG-STD-HWREA)

- 01 Recreation uses shall not be authorized that are not compatible with the opportunities provided by a groomed surface of the Rendezvous Ski trail.

Guideline (MG-GDL-HWREA)

- 01 To retain the integrity of the groomed Rendezvous ski trail system in meeting United States Ski and Snowboard Association and International Federation of Skiing standards, management activities should not alter the groomer-ready native surface of the designated trails.

3.7.16 Plan Components–Buffalo Horn Backcountry Area (BHBCA)

Desired Conditions (MG-DC-BHBCA)

- 01 The area provides for less developed, semi-primitive recreation opportunities, both motorized and nonmotorized, in both summer and winter.

Standards (FW-STD-BHBCA)

- 01 **Alternative C:** New permanent or temporary roads shall not be constructed.
- 02 **Alternatives B and C:** New recreation events shall not be permitted within the Buffalo Horn Backcountry Area.

Suitability (MG-SUIT-BHBCA)

- 01 **Alternative C:** The backcountry area is not suitable for timber production and timber harvest is not allowed.
- 02 **Alternatives B and C:** The backcountry area is suitable for mechanized recreation use and for motorized recreation use on existing motorized routes and areas.
Alternative E: The backcountry area is suitable for mechanized recreation use and for motorized recreation use on existing motorized routes and for new motorized recreation use in semi-primitive motorized recreation corridors.

3.7.17 Plan Components–Cowboy Heaven Backcountry Area (CHBCA)

Desired Conditions (MG-DC-WPBCA)

- 01 Quiet, nonmotorized recreation opportunities predominate.

Suitability (MG-SUIT-CHBCA)

- 01 The backcountry area is suitable for nonmotorized and for mechanized recreation use.

3.7.18 Plan Components–West Pine Backcountry Area (WPBCA)

Desired Conditions (MG-DC-WPBCA)

01 Quiet, nonmotorized recreation opportunities predominate.

Standards (FW-STD-WPBCA)

01 New permanent or temporary roads shall not be constructed.

02 New recreation events shall not be permitted in the West Pine Backcountry Area.

Suitability (MG-SUIT-WPBCA)

01 The backcountry area is suitable for nonmotorized and for mechanized recreation use.

3.7.19 Plan Components–Lionhead Backcountry Area (LHBCA)

Desired Conditions (MG-DC-LHPBCA)

01 Quiet, nonmotorized recreation opportunities predominate.

Suitability (MG-SUIT-LHBCA)

01 The backcountry area is suitable for nonmotorized and for mechanized recreation use.

Chapter 4. Monitoring Plan

4.1 Introduction

The monitoring program includes monitoring, or the collection of data and information, followed by the evaluation of that information. Monitoring and evaluation are separate, sequential activities required by the National Forest Management Act to determine how well objectives have been met and how closely management standards and guidelines have been applied. Effective land management plan monitoring fosters adaptive management and more informed decisions.

Monitoring and evaluation are conducted at several scales and for many purposes, each of which has different objectives and requirements. Monitoring occurs at the scale of the national forest, the Region, and even larger areas. Monitoring may be the responsibility of the Forest Service, another agency, or may involve multiple agencies and organizations.

Monitoring provides the feedback for the forest planning cycle by testing assumptions, tracking relevant conditions over time, measuring management effectiveness, and evaluating effects of management practices. Monitoring information should enable the national forest staff to determine if a change in plan components or other plan management guidance may be needed, forming a basis for continual improvement and adaptive management. Direction for the monitoring and evaluation of forest plans is found under the 2012 planning rule at 36 Code of Federal Regulations 219.12 and in the directives at 1909.12 Chapter 30.

The plan monitoring program addresses the most critical components for informed management of the Custer Gallatin'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.

The monitoring program is not intended to depict all monitoring, inventorying, and data gathering activities undertaken on the Custer Gallatin. Consideration and coordination with broad-scale monitoring strategies, multi-party monitoring collaboration, and cooperation with state agencies where practicable will increase efficiencies and help track changing conditions beyond the national 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. Monitoring also provides feedback to prioritize and improve the plan monitoring program and broader-scale monitoring strategy.

The monitoring plan sets out the plan monitoring questions and associated indicators and measures. The forest used the best available scientific information in the development of the monitoring plan, giving consideration to expected budgets and agency protocols.

The monitoring program will include a monitoring guide and a biennial monitoring evaluation report. The monitoring guide will provide detailed information on the monitoring questions, indicators, frequency and reliability, priority, data sources and storage, and cost. 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 biennial monitoring evaluation report will summarize the results of monitoring, evaluate the data, consider relevant information from broad-scale or other monitoring efforts, and make recommendations to the responsible official. The monitoring evaluation report will indicate whether a change to the forest plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report is used to inform adaptive management of the plan area and will be made available to the public.

Some kinds of monitoring indicators will require longer time frames for thorough evaluation of results, but a biennial review of what information has been collected will ensure timely evaluation to inform planning. The biennial monitoring evaluation does not need to evaluate all questions or indicators on a biennial basis but must focus on new data and results that provide new information regarding management effectiveness, progress towards meeting desired conditions or objectives, changing conditions, or validation (or invalidation) of assumptions.

Modifying a plan's monitoring program does not require any other change to the plan; that is, a plan need not be amended nor revised simply to facilitate monitoring pursuant to the Rule.

A change to a monitoring question or an indicator may be made administratively, but only after the public has had an opportunity to comment. A change to a monitoring guide or annual monitoring work plan does not require public notification. In addition, because the broader-scale monitoring strategy is comprised of questions and indicators from plan monitoring programs, a change of the broader-scale monitoring strategy questions and indicators would require a change of the relevant plan monitoring programs.

4.2 Required 2012 Planning Rule Monitoring Items

The Forest Service has discretion to set the scope, scale, and priorities for plan monitoring within the financial and technical capabilities of the administrative unit. However, they are required to include one or more monitoring question(s) and associated indicator(s) for the eight items set out in the Planning Rule at 36 CFR 219.12(a)(5) as follows:

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 36 CFR 219.9.
4. The status of a select set of the ecological conditions required under 36 CFR 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 toward meeting recreation objectives.
6. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
7. Progress toward meeting the desired conditions and objectives in the plan, including providing for 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 (16 U.S.C. 1604(g)(3)(C)). (36 CFR 219.12(a)).

Social, economic, and cultural sustainability must also be addressed in the monitoring program (Forest Service Handbook 1909.12 Section 32.13f).

The Custer Gallatin National Forest reviewed each plan component to consider the above questions for inclusion into the monitoring program. The following was considered to help determine the need to track information related to the plan components.

1. **Required by law** - collection of information is required through Biological Opinion Terms and Conditions, court orders, settlement agreements, etc.
2. **Magnitude of departure** from desired condition (if of concern) - Is there a high degree of disparity between existing and desired conditions? Examples: (1) a particular habitat component is at a much lower level than desired; (2) the amount of use of a particular resource or use at a particular location is much higher than desired.
3. **Degree of uncertainty** regarding the available data or uncertainty due to lack of data (Forest Service Handbook 1909.12 Section 32.1, 32.11). Is available information incomplete or inconclusive?
4. Long standing **management assumptions** that need to be verified or re-verified? (Forest Service Handbook 1909.12 Section 32.1, 32.11). Is there a high degree of uncertainty associated with management assumptions? Examples: (1) a new way of doing something where there is limited experience with the new technique; (2) actions taken in response to an unprecedented situation; (3) a lack of information or out dated information on the effects of a management action on specific habitat needs
5. The **risk and consequences** to the resource for not having information to reduce the uncertainty and knowledge gap and assumption.
 - a. Risk of action or event occurring - Are management activities AND/OR other drivers and stressors (climate change, invasive species, insect diseases, flooding events, etc.) likely to occur that would have discernable outcomes to the resource? Is the parameter responsive to changed conditions (climate, insect and disease, invasive species, management activities, and other factors).
 - b. Consequences to resource – What are consequences to resource for not having this information (for example, collection of this information will make a difference in how we manage for sustainability of the resource)?
6. Distinctive roles and contributions within the broader landscape (Forest Service Handbook 1909.12 Sec. 32.1). Will monitoring respond to a key public issue? Key issues identified through scoping may warrant monitoring even if they are (1) well understood, (2) the existing condition is good and (3) management activities will have little impacts. Monitoring may be necessary for educations and accountability purposes.

4.3 Focal Species

The following focal species have been identified. Monitoring for these species is indicated in the applicable resource monitoring sections.

- Aquatic invertebrates
- Land bird species and assemblage

4.4 Monitoring Elements by Resource Area

The following is based on the 2012 Planning Rule required questions element 1-8 [36 CFR 219.12(a)(5)] or (Forest Service Handbook 1909.12 Section 32.13f). Acronyms used in this table include:

- DEQ: Department of Environmental Quality (Montana)
- FACTS: Forest Service Activity Tracking System
- FIA: Forest Inventory and Analysis
- FIRESTAT: Fire Statistics System
- FTEM: Fuels Treatment Effectiveness Monitoring System
- GIS: Geographic Information Systems
- GRYN: Greater Yellowstone Inventory and Monitoring Program
- GYE: Greater Yellowstone Ecosystem
- I&E: Implementation and Effectiveness
- IMBCR: Integrated Monitoring in Bird Conservation Regions
- INFRA: Infrastructure
- MNHP: Montana Natural Heritage Program
- MFISH: Montana Fisheries Information
- MT: Montana
- MTFWP: Montana Fish, Wildlife and Parks
- MTBS: Monitoring Trends in Burn Severity
- NRM: Natural Resource Manager
- NVUM: National Visitor Use Monitoring
- PIBO: PACFISH, INFISH Biological Opinion
- PILT: Payment in Lieu of Taxes
- RMRS: Rocky Mountain Research Station
- SD: South Dakota
- SDGFP: South Dakota Game Fish and Parks
- SUDS: Special Uses Data System
- TESP/IS: Threatened, Endangered, and Sensitive Plants, and Invasive Species
- TIM: Timber Information Manager
- USFWS: US Fish and Wildlife Service
- VMAP: Vegetation Mapping Program
- WCF: Watershed Condition Framework
- WFDSS: Wildland Fire Decision Support System

4.4.1 Ecosystems

Table 69. Ecosystems

Soils Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source / Storage (<i>Interval of data collection</i>)
FW-DC-SOIL-01 FW-STD-SOIL-01 FW-STD-SOIL-02	MON-SOIL-01 To what extent do vegetation management activity areas meet detrimental soil disturbance (DSD) standards? <i>* 36 CFR 219.12(a)(5) - viii</i>	<u>Outcome indicators</u> Detrimental Soil Disturbance (DSD) <u>Outside Riparian Management Zone</u> <ul style="list-style-type: none"> • <i>Project name and treatment units # (activity area?), with pre-implementation DSD of greater than 15% and vegetation management occurred (include pre-implementation survey year)</i> • <i>Post implementation % DSD of treatment units (activity area?) receiving vegetation treatments where % DSD exceeded 15% at pre-implementation surveys (include post-implementation survey year)</i> <u>Inside Riparian Management Zone</u> <ul style="list-style-type: none"> • <i>Project name and treatment units # (activity area?), with pre-implementation DSD of greater than 12% and vegetation management occurred (include pre-implementation survey year)</i> • <i>Post implementation % DSD of treatment units (activity area?) receiving vegetation treatments where % DSD exceeded 12% at pre-implementation surveys (include post-implementation survey year)</i> 	Project decisions <i>(2 year interval)</i>
FW-DC-SOIL-03 FW-DC-SOIL-04 FW-GDL-SOIL-07 FW-GDL-SOIL-08	MON-SOIL-02 To what extent do vegetation management activity areas meet coarse woody debris (CWD) guidelines? <i>* 36 CFR 219.12(a)(5) - viii</i>	<u>Outcome indicators</u> Coarse Woody Debris (CWD) <ul style="list-style-type: none"> • <i># and names of projects meeting minimum average levels of coarse woody debris in conifer stands after timber harvesting</i> • <i># and names of projects not meeting minimum average levels of coarse woody debris in conifer stands after timber harvesting</i> 	Project files <i>(2 year interval)</i>

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Watershed, Aquatic, Riparian Management Zone (RMZ), and Conservation Watershed Network (CWN) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
<p>FW-DC-WTR-01 FW-DC-WTR-02 FW-DC-WTR-03 FW-DC-WTR-04 FW-DC-WTR-05 FW-DC-WTR-11 FW-OBJ-WTR-01 FW-OBJ-WTR-02 FW-OBJ-WTR-03 FW-DC-CWN-01 FW-OBJ-CWN-01 FW-DC-RMZ-01 FW-DC-RMZ-02</p>	<p>MON-WTR-01 Are 1) management and 2) conditions of watersheds features demonstrating characteristics that contribute to physical and biological integrity of aquatic systems and riparian habitats and connectivity? * 36 CFR 219.12(a)(5) - i, ii, iv</p>	<p><u>Outcome indicators</u> Stream and habitat conditions (reported by managed vs. unmanaged sites)</p> <ul style="list-style-type: none"> • pools • woody debris • back angle • channel substrate • D50 • bank stability • aquatic invertebrates (focal species) • RMZ riparian vegetation composition and structure <p><u>Implementation indicators</u> Watershed improvement actions</p> <ul style="list-style-type: none"> • #, types, miles/acres of stream and headwater restoration (list actions) in lakes, pond, wetlands • # and locations of Aquatic Organism Passages (AOP) • # and locations of at-risk species project that restore habitat or population • # of road miles with enhanced roadway drainage erosion control mechanisms 	<p>PIBO (5 year intervals) FACTS, WIT, INFRA (2 year interval) DEQ</p>
<p>At-Risk Plant Species (PRISK) Selected Plan Components</p>	<p>Monitoring Question</p>	<p>Indicator(s) and Measure(s)</p>	<p>Data Source/ Storage (Interval of data collection)</p>
<p>FW-DC-PRISK-01 FW-OBJ-PRISK-01</p>	<p>MON-PRISK-01 At risk plants Are management actions and habitat conditions contributing to long-term persistence of at-risk plant species? * 36 CFR 219.12(a)(5) - ii, iv</p>	<p><u>Outcome indicators</u> Terrestrial invasive encroachment</p> <ul style="list-style-type: none"> • Change in % acres of terrestrial invasive species infestations near and at at-risk species occurrences. • Heritage risk status • MT Native Plant Society threat category <p><u>Implementation indicators</u> At risk plant species actions</p> <ul style="list-style-type: none"> • #, types, and locations of actions restoring habitat or populations of at risk plant species 	<p>TESP-IS FACTS Office Records Online Heritage and MT NPS Resources (2 year interval)</p>

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Forested Vegetation (VEGF) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (<i>Interval of data collection</i>)
<p>FW-DC-VEGF-01 FW-DC-VEGF-02 FW-DC-VEGF-03 FW-DC-VEGF-04 FW-DC-VEGF-05 FW-DC-VEGF-08</p>	<p>MON-VEGF-01 What is the status of key characteristics contributing to ecological integrity? * 36 CFR 219.12(a)(5) - ii, iv</p>	<p><u>Outcome indicators</u> Forested vegetation key characteristics (reported by forest and by Broad Potential Vegetation Type - PVT)</p> <ul style="list-style-type: none"> • Proportion of (percentage of total acres) • Dominance type (for example, cover type) • Species presence • Tree size class • Tree canopy cover (By density class: 0-39%; 40-59%; >60%) • Old-growth forest; proportion of area forestwide and by potential vegetation type • large tree structure/proportion of area • Snag density, snags per acre; for >15-inch d.b.h., inside/outside wilderness/roadless <p>Land bird species/assemblages associated with forested vegetation (focal species)</p> <ul style="list-style-type: none"> • presence, habitat affiliation, and population trend (status of) avian species associated with forested vegetation at a forest wide scale 	<p>FIA and/or VMAP (5 year intervals) IMBCR (5 year intervals)</p>
<p>FW-DC-VEGF-06 FW-DC-FIRE-01</p>	<p>MON-VEGF-02 Is the amount of fire and resulting fire regimes within desired ranges (see Forest Plan table 8)? * 36 CFR 219.12(a)(5) - ii, iv</p>	<p><u>Outcome indicators</u> Fire severity (reported by forest and by Broad Potential Vegetation Type - PVT)</p> <ul style="list-style-type: none"> • % area of wildland fires in high, med, low severity 	<p>MTBS -Monitoring Trends in Burn Severity (2 year interval)</p>
<p>FW-OBJ-VEGF-01 FW-OBJ-VEGF-02</p>	<p>MON-VEGF-04 To what extent have vegetation management projects occurred? * 36 CFR 219.12(a)(5) - ii, iv</p>	<p><u>Implementation indicators</u> Vegetation Actions</p> <ul style="list-style-type: none"> • # of total annual vegetation projects planned and accomplished benefiting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and/or general terrestrial ecosystem conditions • # of total annual vegetation acres planned and accomplished benefiting wildlife, whitebark pine and other at-risk species habitat, pollinator habitat, non-commercial vegetation, and/or general terrestrial ecosystem conditions 	<p>FACTS (2 year interval)</p>

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Grassland, Shrubland, Woodland, Riparian, and Alpine Vegetation (VEGNF) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (<i>Interval of data collection</i>)
<p>FW-DC-VEGNF-01 FW-DC-VEGNF-03</p>	<p>MON-VEGNF-01 What is the status of key ecological conditions of non-forested vegetation types? * 36 CFR 219.12(a)(5) - ii, iii, iv</p>	<p><u>Outcome indicators</u></p> <p>Non-forested vegetation key characteristics (reported by forest and by Broad Potential Vegetation Type - PVT)</p> <ul style="list-style-type: none"> • % bare ground • % ground cover • Abundance of key species (% cover) • Structural functional group • Acres of invasive species infestations • # of new locations of invaders of concern (acres and locations) • Absolute cover of key species • Acres of non-forested dominance type groups • # of Rx fire projects that reduced encroachment <p><u>Focal species indicators</u></p> <p>Land bird species/assemblage associated with non-forested vegetation (focal species)</p> <ul style="list-style-type: none"> • presence, habitat affiliation, and population trend (status of) avian species associated with non-forested vegetation at a forest wide scale 	<p>FIA (5 year intervals) IMBCR Program (5 year intervals)</p>
<p>Fire and Fuels (FIRE) Selected Plan Components</p>	<p>Monitoring Question</p>	<p>Indicator(s) and Measure(s)</p>	<p>Data Source/ Storage (<i>Interval of data collection</i>)</p>
<p>FW-OBJ-FIRE-01</p>	<p>MON-FIRE-01 To what extent have fuel treatments occurred? * 36 CFR 219.12(a)(5) - ii, iv</p>	<p><u>Implementation indicator</u></p> <p>Fuel treatment actions</p> <ul style="list-style-type: none"> • Project names, planned and accomplished acres of fuel treatment projects 	<p>FACTS (2 year intervals)</p>

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Fire and Fuels (FIRE) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
FW-DC-FIRE-02	MON-FIRE-02 To what extent are fuels treatments reducing threats to highly valued resource and assets (HVRA)? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> Fuel treatment effectiveness <ul style="list-style-type: none"> • # of wildland fires intersecting fuels treatments • # of fuel treatments helping control or manage fire • # of fuel treatments that changed fire behavior • # of treatments strategically located to facilitate control and/or management of the fire 	FTEM (2 year intervals)
FW-OBJ-FIRE-02 FW-GDL-FIRE-01	MON-FIRE-03 To what extent have natural unplanned wildfires occurred? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicator</u> Fire management actions <ul style="list-style-type: none"> • Acres of wildland fires managed for resource benefit. 	FIRESTAT (2 year intervals)
Invasive Species (INV) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
FW-DC-INV-01 FW-DC-INV-02 FW-OBJ-INV-01	MON-INV-01 What is the status of invasive species management? * 36 CFR 219.12(a)(5) - ii	<u>Implementation indicators</u> Invasive plants treatment actions <ul style="list-style-type: none"> • Acres treated <u>Outcome indicators</u> Invasive plants treatment effectiveness <ul style="list-style-type: none"> • Acres of invasive species infestations • Invasive Plant Treatment EfficAct % • # of new locations of invaders of concern (acres and locations) 	FACTS TESP-IS (2 year intervals)
FW-STD-INV-01	MON-INV-02 Are project mitigations effective in minimizing the spread of undesirable invasive species spread? * 36 CFR 219.12(a)(5) - ii	<u>Outcome indicators</u> Mitigation effectiveness <ul style="list-style-type: none"> • sample of projects monitored for mitigation effectiveness • outcome of those surveys 	Project Implementation Records (2 year intervals)

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Wildlife (WL) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
General Wildlife FW-DC-WL-03 FW-OBJ-WL-01 FW-OBJ-WL-02	MON-WL-01 Are 1) management and 2) habitat conditions demonstrating characteristics that contribute to desired wildlife life cycle needs? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> Vegetation Key characteristics <ul style="list-style-type: none"> • Use indicators from MON-VEGF-01 (forested vegetation) • Use indicators from MON-VEGNF-01 (non-forested vegetation) <u>Implementation indicators</u> Wildlife actions <ul style="list-style-type: none"> • #, types, and locations of actions contributing to maintenance or improvement of habitat or populations of at-risk wildlife species • #, types, and locations of actions contributing to maintenance or improvement of habitat or populations of any terrestrial wildlife species 	FACTS, WIT, INFRA (2 year intervals)
General Wildlife FW-DC-WL-05 FW-DC-WL-06 FW-GDL-WL-02 FW-GDL-WL-03 FW-GDL-WL-04 FW-GDL-WL-04	MON-WL-02 What management actions have contributed to changes in natural movement patterns in wildlife key linkage areas? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> Vegetation Key characteristics <ul style="list-style-type: none"> • Use indicators from MON-VEGF-01 (forested vegetation) • Use indicators from MON-VEGNF-01 (non-forested vegetation) <u>Implementation indicators</u> Wildlife key linkage areas management actions <ul style="list-style-type: none"> • #, types, and locations of new structures and sustained substantial disturbances in key linkage areas. 	FIA (5 year intervals) Project tracking within KLA (2 year intervals)
General Wildlife FW-DC-WL-07 FW-STD-WL-01 FW-DC-WLGB-03	MON-WL-03 What are the number of wildlife conflicts? * 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicators</u> Wildlife conflicts <ul style="list-style-type: none"> • # and locations of citations related to attractants for wildlife • # and locations of wildlife / human conflicts related to food attractants • # and locations of outreach contacts from Bear Aware program 	LEO Citation Reports IGBST Report Annual Bear Aware outreach reporting (2 year intervals)

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Wildlife (WL) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
General Wildlife FW-DC-WL-08	MON-WL-04 Is domestic sheep or goat use authorized in proximity to bighorn sheep herds? * 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicators</u> Domestic animal authorizations • # and locations of authorizations issued for domestic sheep or goats	NRM-Range FACTS - Invasives Office Records (2 year intervals)
Bats FW-DC-WLBAT-01	MON-WL-05 What is the status of detections of fungus harmful to bats? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> • # and locations of detection of fungus that are harmful to bats • Number of actions taken to minimize the spread of disease	Montana Natural Heritage Program (2 year intervals) FIA 5 year intervals)
Big Game FW-DC-WLBG- 01	MON-WL-06 1) What is the status of big game populations by hunting district that intersect the national forest? 2) What are the types of wildlife related use by visitors, researchers, etc.? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> Visitor use data • NVUM reports • SUP permit and database Vegetation Key characteristics • Use indicators from MON-VEGF-01 (forested vegetation) • Use indicators from MON-VEGNF-01 (non-forested vegetation) Elk, mule deer, moose, pronghorn populations • Big game population estimates by region	NVUM Special Use Permit database MTFWP annual herd status updates (2 year intervals) FIA (5 year intervals)
Bison FW-DC-WLBI-02 FW-DC-WLBI-03 FW-OBJ-WLBI-01	MON-WL-07 What management actions have occurred to improve / facilitate bison movements and avoidance of human/bison conflicts? * 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicators</u> Bison management actions • # and types, locations of actions that improve or facilitate opening corridors for bison movement • # bison/human conflicts • # and location of educational outreach materials distributed and/or posted	FACTS, WIT, INFRA (2 year intervals)
Canada lynx FW-WL-NRLMD plan components	MON-WL-8 Have there been changes to lynx habitat as a result of forest management? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> Alterations of lynx habitat • Acres changed from suitable to not currently suitable • Number of acres of exceptions used	Project decisions (2 year intervals)

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Wildlife (WL) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
Greater sage-grouse FW-DC-WLSG-01 FW-STD-WLSG-01	MON-WL-9 Are 1) management and 2) habitat conditions demonstrating characteristics that contribute to long term persistence of Greater Sage Grouse? * 36 CFR 219.12(a)(5) - ii, iv	<u>Outcome indicators</u> Greater Sage Grouse Populations <ul style="list-style-type: none"> • Number of occupied leks on Custer Gallatin National Forest <u>Implementation indicators</u> Greater Sage Grouse Habitat <ul style="list-style-type: none"> • # acres change in in greater sage grouse priority and general habitat 	MTFWP Lek attendance counts FACTS, WIT, INFRA (2 year intervals)
Grizzly Bear FW-DC-WLGB-01	MON-WL-10 To what extent are management actions changing grizzly bear habitat inside the recovery zone, relative to the 1998 baseline or 2006 baseline where applicable? * 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicators</u> Grizzly Bear actions inside the recovery zone (report by bear management unit inside the recovery zone) <ul style="list-style-type: none"> • Percent secure habitat • Proportion of open motorized access route density (OMARD) above 1 mi/mi² and proportion of total motorized access route density (TMARD) above 2 mi/mi² • # of new developed sites • Increased capacity in existing developed sites • # and capacity of closed developed sites • # and acreage of active or vacant livestock allotments • # and acreage of closed allotments 	IGBST Annual Report (2 year intervals)
Grizzly Bear FW-DC-WLGB-02	MON-WL-11 To what extent are management actions changing secure habitat and associated habitat connectivity outside the recovery zone? * 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicators</u> Grizzly Bear secure habitat outside the recovery zone actions <ul style="list-style-type: none"> • Proportion and location of secure habitat by bear analysis unit outside the recovery zone within the Demographic Monitoring Area (DMA) compared to 2008 baseline. 	IGBST Annual Report (2 year intervals)
Grizzly Bear FW-OBJ-WLGB-01	MON-WL-12 To what extent have grizzly bear relocations sites been identified? ?* 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicators</u> Grizzly Bear relocation sites <ul style="list-style-type: none"> • # and locations of potential grizzly bear relocation sites 	Forest supervisor's office records (2 year intervals)

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Wildlife (WL) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (<i>Interval of data collection</i>)
Prairie Dogs FW-DC-WLPD-01	MON-WL-13 What is status of the white tail prairie dog colony? <i>* 36 CFR 219.12(a)(5) - ii, iv</i>	<u>Outcome indicators</u> Prairie dog management actions <ul style="list-style-type: none"> • <i>Location and activity status of known white tail prairie dogs prairie dog colonies</i> • <i>Location a activity status of any newly found white tail prairie dogs colony</i> 	FACTS, WIT, INFRA MTFWP/MNHP colony location and activity and information FS prairie dog colony monitoring <i>(2 year intervals)</i>
Wolverine FW-DC-WLWV-01	MON-WL-15 What is the trend in persistent snow cover? <i>* 36 CFR 219.12(a)(5) - ii, iv</i>	<u>Outcome indicators</u> Persistent snow cover <ul style="list-style-type: none"> • <i>Snow residence time</i> 	NRCS Snowtel Sites <i>(5 year intervals)</i>

4.4.2 Benefits to People: Multiple Uses and Ecosystem Services

Table 70. Benefits to people

Social and Economic Sustainability (SUS) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (<i>Interval of data collection</i>)
<p>FW-DC-SUS-02</p>	<p>MON-SUS- 01 To what extent is the national forest providing goods and services for local communities and contributing to social and economic sustainability? * 36 CFR 219.12(a)(5) - ii (Forest Service Handbook 1909.12 Section 32.13f)- ix</p>	<p>Indicator(s) and Measure(s) <u>Implementation indicators</u> Levels of production of multiple uses, including:</p> <ul style="list-style-type: none"> • Timber products • Grazing (AUMs) • Recreational visits • Wilderness hunting and fishing opportunities • Downhill skiing (as measured through day visits, night visits, local and non-local, animal unit months, thousand cubic feet of harvest and sales) <p>Levels of jobs, income and land payments from Custer Gallatin National Forest management</p> <ul style="list-style-type: none"> • # of jobs • Thousands of dollars in labor income • Land payment revenues (such as, Secure Rural Schools Act, payment in lieu of taxes, etc.) to state and counties from National Forest System lands 	<p>NVUM INFRA FACTS SUDS TIM NRM-Range PILT (2 year intervals)</p>
<p>Cultural and Historic Resources (CR) Selected Plan Components</p>	<p>Monitoring Question</p>	<p>Indicator(s) and Measure(s)</p>	<p>Data Source/ Storage (<i>Interval of data collection</i>)</p>
<p>FW-OBJ-CR-01 FW-OBJ-CR-02</p>	<p>MON-CR-01 To what extent are management actions occurring to contribute to sustainability of cultural and historic resources? * 36 CFR 219.12(a)(5) - ii (Forest Service Handbook 1909.12 Section 32.13f)- ix</p>	<p><u>Implementation indicators</u> Cultural and historic resources</p> <ul style="list-style-type: none"> • # of outreach or interpretive actions • # of priority assets with condition assessments and actions taken 	<p>NRM - Heritage (2 year intervals)</p>

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Permitted Livestock Grazing (GRAZ) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
FW-OBJ-GRAZ-01	MON-GRAZ-03 Animal Unit Months (AUM) Are annual AUMs permitted at desired AUM objectives? * 36 CFR 219.12(a)(5) - vi	<u>Implementation indicators</u> Annual Unit Month <ul style="list-style-type: none"> • Annual AUM by allotment and by forest 	NRM-Range (2 year intervals)
Timber Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
FW-OBJ-TIM-01 FW-OBJ-TIM-02	MON-TIM-02 To what extent are timber and wood products offered for sale? * (Forest Service Handbook 1909.12 Section 32.13f) - ix	<u>Implementation indicators</u> Timber Sales <ul style="list-style-type: none"> • Annual Million Board Feet offered for sale compared to sustained yield limits (report by saw logs and not sawlogs) 	TIMS (2 year intervals)
FW-OBJ-TIM-03	MON-TIM-02 To what extent have vegetation treatments occurred? * 36 CFR 219.12(a)(5) - ii, iv	<u>Implementation indicator</u> Vegetation treatment actions <ul style="list-style-type: none"> • Project names, planned and accomplished acres of vegetation treatment projects 	FACTS (2 year intervals)
Infrastructure; Roads and Trails (RT), Facilities (FAC) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
FW-OBJ-RT-01 FW-OBJ-RT-02 FW-OBJ-RT-03 FW-OBJ-RT-04 FW-OBJ-RT-05 FW-OBJ-FAC-01	MON-Infrastructure-01 To what extent are roads, trails and facilities maintained or removed? * 36 CFR 219.12(a)(5) - v	<u>Implementation indicators</u> Roads, trails and facilities <ul style="list-style-type: none"> • Percent of high clearance vehicle roads maintained annually • Percent of passenger clearance vehicle roads maintained annually • # of road miles removed • # trail miles maintained to standard annually • # trail miles with maintenance provided annually • Percent of administrative facilities maintained annually 	INFRA (2 year intervals)

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Recreation Settings, Opportunities, and Access Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (Interval of data collection)
FW-OBJ-REC-01	<p>MON-REC-01 To what extent are recreation facilities currently in Riparian Management Zones being removed or modified to improve riparian conditions? * 36 CFR 219.12(a)(5) - v</p>	<p><u>Implementation indicators</u> RMZ - Recreation facilities • # of removed or modified recreation facilities to improve riparian conditions</p>	<p>INFRA (2 year intervals)</p>
FW-OBJ-ROSP-02 FW-OBJ-ROSSPNM-01	<p>MON-REC-02 What management actions have occurred to eliminate existing motorized travel incursions? * 36 CFR 219.12(a)(5) - v</p>	<p><u>Implementation indicators</u> Travel incursions • # and types of actions that eliminate motorized travel incursions in Primitive and Semi-Primitive Non-Motorized Recreation Opportunity Settings</p>	<p>INFRA (2 year intervals)</p>
FW-OBJ-ROSP-01	<p>MON-REC-03 To what extent have signs been placed near wilderness and recommended wilderness to inform of motorized restrictions? * 36 CFR 219.12(a)(5) - v</p>	<p><u>Implementation indicators</u> Travel incursions • # and placements of signs near wilderness and / or recommended wilderness to inform of motorized restrictions</p>	<p>INFRA (2 year intervals)</p>
FW-DC-RECDEV-02	<p>MON-REC-04 How satisfied are visitors with developed sites? * 36 CFR 219.12(a)(5) - v</p>	<p><u>Outcome indicators</u> Developed sites satisfaction • Satisfaction ratings</p>	<p>NVUM (2 year intervals)</p>
FW-DC-RECDEV-05 FW-DC-RECSUP-04	<p>MON-REC-05 To what extent have hazard trees been managed in developed recreation sites? * 36 CFR 219.12(a)(5) – v</p>	<p><u>Implementation indicators</u> Developed sites hazard trees • # of hazard tree survey conducted • results of hazard tree surveys • outcome of the survey (what they did)</p>	<p>Supervisor’s Office Records By Regional Forest Health and Disease (2 year intervals)</p>
FW-DC-RECDEV-07 FW-DC-RECDEV-08 MG-OBJ-HREA-01 MG-OBJ-HLREA-01	<p>MON-REC-06 To what extent have recreation sites been developed or modified for sustainable recreation? * 36 CFR 219.12(a)(5) – v</p>	<p><u>Implementation indicators</u> Developed sites actions responding to changed conditions • # decisions/actions where modifications occurred to adapt to changing conditions • # lake shore campground modified for sustainable recreation opportunities at Hebgen Lake • # of day use access areas modified within the Hyalite Recreation Emphasis Area</p>	<p>INFRA (2 year intervals)</p>

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Designated Wilderness (DWA) Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/ Storage (<i>Interval of data collection</i>)
<p>FW-DC-DWA-01</p>	<p>MON-WILD-01</p> <p>Is wilderness character in existing wilderness being maintained?</p> <p>* 36 CFR 219.12(a)(5) – v</p>	<p><u>Outcome indicators</u></p> <p>Wilderness Character</p> <ul style="list-style-type: none"> • <i>Naturalness, solitude, etc.</i> • <i>Based on the limits of acceptable change</i> • <i>Wilderness maintained to standard</i> 	<p>Wilderness limits of acceptable change inventory</p> <p>Wilderness character baseline inventory</p> <p>INFRA</p> <p><i>(2 year intervals)</i></p>

Glossary

The glossary defines terms used throughout the document. If a term's definition(s) is associated with a particular species, management direction, or originates from a specific source, the source is cited or applicable direction is referenced with the following bracketed abbreviations:

- [CFR] Code of Federal Regulations
- [ESA] Endangered Species Act
- [FSM] Forest Service Manual
- [Forest Service Handbook] Forest Service Handbook
- [GBCS] Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem (U.S. Fish and Wildlife Service 2016)
- [NRLMD] Northern Rockies Lynx Management Direction 2007
- [NWGC] National Wildfire Coordinating Group
- [LCAS] Lynx Conservation and Assessment Strategy 2013

activity area: A land area affected by a management activity to which soil quality standards are applied. An activity area must be feasible to monitor and includes harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within livestock allotments, riparian areas, recreation areas, and alpine areas. Temporary roads, skid trails, and landings are considered to be part of an activity area.

activity caused soil disturbance: Soil disturbance created by management activities such as: timber harvesting, temporary road construction, slash pile burning, livestock grazing, and/or recreational use of Forest Service lands.

adaptive management: The general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 Code of Federal Regulations 219.5). This framework supports decision-making that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

administrative site: A location or facility constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples on National Forest System lands include, but are not limited to, ranger stations, warehouses, and guard stations. [GBCS]

administrative pasture: A pasture for use primarily by government stock to facilitate the administration and management of public lands. Administrative pastures may also be used as a forage reserve for other administrative needs and resource management during times of drought, wildland fire, and so forth.

aircraft: A device that is used or intended to be used for flight in the air. Motorized aircraft include types of aircraft including: Airplane, an engine-driven fixed-wing aircraft heavier than air, that is supported in

flight by the dynamic reaction of the air against its wings; helicopter, a rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors; rotorcraft, a heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors (14 CFR 1.1).

air quality related value (AQRV): Any resource that is identified as sensitive to air pollution including vegetation, soils, water, fish, cultural resources, wildlife, visibility, etc., and can be used to provide information about the air quality within the landscapes where they exist.

airshed: Typically a geographic area where the air is subject to similar conditions of air pollution. Under the Clean Air Act amendments, all national parks larger than 6,000 acres, national wilderness areas larger than 5,000 acres which existed before August 7, 1977, and certain designated Tribal areas are considered class I airsheds and are provided the most protection through limitation of additional air pollution.

all American road: Designated by the Department of Transportation, the most scenic byways are designated all-American roads, which must meet two out of the six intrinsic qualities. The designation means they have features that do not exist elsewhere in the United States and are unique and important enough to be tourist destinations unto themselves.

allotment: A designated area of land available for permitted livestock grazing (36 CFR 222). A grazing allotment can include National Forest System and non-National Forest System lands. Permits are issued for the use of allotments or portions of allotments. Allotments are in active status when grazing permits have been issued; allotments are in vacant status when they do not have a grazing permit issued; and allotments are in closed status when they have been closed to livestock grazing by administrative decision or action (FSM 2205).

allotment infrastructure: Are structural improvements (for example, fences, water developments) that are necessary for grazing management.

allotment management plan: A document that specifies the program of action designated to reach a given set of objectives. It is prepared in consultation with the permittee(s) involved; prescribes the manner in and extent to which livestock operations will be conducted in order to meet the multiple-use, sustained yield, economic, and other needs and objectives as determined for the lands, involved; describes the type, location, ownership, and general specifications for the range improvements in place or to be installed and maintained on the lands to meet the livestock grazing and other objectives of land management; and contains such other provisions relating to livestock grazing and other objectives as may be prescribed by the Chief, Forest Service, consistent with applicable law (36 CFR 222).

animal unit month: The amount of dry forage required by one mature cow of approximately 1,000 pounds or its equivalent, for 1 month, based on a forage allowance of 26 pounds per day. Not synonymous with animal month.

appropriate management level: Means the maximum number of wild horses, excluding the current years foal crop, that can be maintained within an area without causing deterioration of rangeland resources.

at-risk species: Federally recognized threatened, endangered, proposed, and candidate species, and species of conservation concern that are relevant to the plan area and planning process (36 CFR 219.6(b)).

bare ground: All land surface not covered by vegetation, rock or litter.

barrier: A physical obstruction which precludes the movement of animals.

baseline: Levels for grizzly bears reflect the environmental conditions (such as, secure habitat, developed sites, and permitted livestock grazing allotments) at a specific point in time within the primary conservation area. The baseline is the year 1998 for most bear management subunits. Subunits identified in the 2003 GBCS as in need of improvement for secure habitat include Gallatin #3, Madison #2, and Henrys Lake #2. These subunits adopt a new baseline for secure habitat of the level achieved through full implementation of the Gallatin Forest Travel Management Plan (2007).

bear-human conflict: An interaction between a bear and human in which bears either do, or attempt to, injure people, or in which humans may or may not be present, but bears damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods or attractants or agricultural crops.

best management practice: The method(s), measure(s), or practice(s) selected by an agency to meet its nonpoint source control needs. Best management practices include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Best management practices can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 Code of Federal Regulations 219.19) or into the air. Best management practices is a term also used in other resource areas to describe methods or techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing impacts from grazing, invasive weed establishment and spread, etc.) while making use of the resources.

best available control technology: An emission limitation based on the maximum degree of reduction of each pollutant subject to regulation (under the Clean Air Act) emitted from or which results from any major emitting facility (169(3))

biodiversity: The variety and abundance of plants, animals, and other living organisms and the ecosystem processes, functions, and structures that sustain them. Biodiversity includes the relative complexity of species and communities across the landscape at a variety of scales, connected in a way that provides for the genetic diversity to sustain species over the long term.

biological weed control: Refers to any technique that involves the use of natural enemies of weed plants to control the germination of weed seeds or the spread of established plants. This is a rapidly expanding area of weed control with many examples. Examples of biological weed control include sheep to control tansy ragwort or leafy spurge, cinnabar moth and the tansy flea beetle to control tansy ragwort, the chrysolira beetle to control St. John's Wort, and the use of goats to control brush on rangeland.

biophysical settings: A grouping of potential vegetation types based on broad climatic and site conditions, such as temperature and moisture gradients. Also see "potential vegetation types."

boreal forest (lynx): A forest type with which lynx and snowshoe hares are strongly associated. The predominant vegetation of boreal forest is conifer trees, primarily species of spruce (*Picea* spp.) and fir (*Abies* spp.). At the landscape scale within each region, natural and human-caused disturbance processes (for example, fire, wind, insect infestations and forest management) influence the spatial and temporal distribution of lynx populations by affecting the distribution of good habitat for snowshoe hares (U.S. Fish and Wildlife Service Critical Habitat Final Rule 2009).

broadcast burn: A management treatment where a prescribed fire is allowed to burn over a designated area within well-defined boundaries. A broadcast burn is used for reduction of fuel hazard, as a resource management treatment, or both.

candidate species: A status for (1) U.S. Fish and Wildlife Service candidate species, a species for which the U.S. Fish and Wildlife Service possesses sufficient information on vulnerability and threats to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published by the U.S. Fish and Wildlife Service; for (2) National Marine Fisheries Service candidate species, a species that is: (i) the subject of a petition to list and for which the National Marine Fisheries Service has determined that listing may be warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 United States Code (U.S.C.) 1533(b)(3)(A)), or (ii) not the subject of a petition but for which the National Marine Fisheries Service has announced in the *Federal Register* the initiation of a status review.

capability and potential: Potential is the highest ecological status an area can attain given no political, social, or economical constraints. Capability is the highest ecological status an area can attain given political, social, or economical constraints. These constraints are often referred to as limiting factors. The capability of an area of land and/or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions (climate, slope, landform, soils, and geology), as well as the application of management practices (for example, silviculture systems, protection from fires, insects, and disease).

cave course: The area between lines projected from the outside walls of an underlying cave passage at a 45-degree angle to the surface.

CERCLA site: A location, managed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund) 42 U.S.C. §9601 et seq. (1980) in order to clean up or prevent a release of hazardous materials into the environment.

chemical weed control: Refers to any technique that involves the application of a chemical (herbicide) to weeds or soil to control the germination or growth of the weed species. Refer to applicable weed management National Environmental Policy Act decisions (“Custer National Forest Noxious Weed Management” Environmental Impact Statement and Record of Decision (2006) and the “Gallatin National Forest Noxious and Invasive Weed Treatment Project” Environmental Impact Statement and Record of Decision (2005)) or subsequent National Environmental Policy Act for approved herbicides for use on the Custer Gallatin National Forest.

coarse woody debris: Woody material derived from tree limbs, boles and roots in various stages of decay that is larger than three inches in diameter.

commercial use/activity: A use or activity on National Forest System lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity is intended to produce a profit (36 Code of Federal Regulations 251.51).

communication facility: A building, tower, or other physical improvement (buildings and towers do not have to be combined to be considered a facility) that is built or installed to house and/or support authorized communications equipment.

composition: The biological elements within the different levels of biological organization, from genes and species to communities and ecosystems.

connectivity: The ecological conditions that exist at several spatial and temporal scales that provides landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change (36 Code of Federal Regulations 219.19). Connectivity needs vary by species. For example, Yellowstone cutthroat trout are able to move upstream to spawn as long as there is not a barrier to connectivity, such as a dam.

conservation: The protection, preservation, management, or restoration of natural environments, ecological communities, and species.

control: With Respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), control is defined as any activity or action taken to reduce the population, contain, limit the spread, or reduce the effects of an invasive species. Control activities are generally directed at established free-living infestations, and may not necessarily be intended to eradicate the targeted infestation in all cases.

cool season grass: Cool season grasses (for example, various wheatgrass, needlegrass, brome grass, bluegrass species) start their growth early in spring and continue that growth while cool temperatures and rain prevails. They grow best when temperatures are 40 to 75 °F. They do not grow well during the hot periods in midsummer and often become semi-dormant. They may grow again in the fall as temperatures cool and late summer precipitation replenishes soil moisture. Thus, there may be two growing periods for these grasses: early spring and late summer or fall. Cool season species generally exhibit the C3 photosynthetic pathway; also known as a C3 plant.

cover: The elements of the environment used by an animal for hiding. Cover varies depending upon the species or the time of year and may include a variety of vegetation types as well as topography. The amount and quality of cover needed depends on the animal's size, mobility, and reluctance or willingness to venture into relatively open areas.

cover type: The existing vegetation of an area described by the dominant plant species. Also see "forest type."

critical habitat: (For a threatened or endangered species) (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 United States Code 1533), on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the

species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 USC 1533), upon a determination by the Secretary that such areas are essential for the conservation of the species. Endangered Species Act, sec. 3 (5)(A), (16 USC 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce. Endangered Species Act, sec. 4 (a)(3) and (b)(2) (16 United States Code 1533 (a)(3) and (b)(2)).

critical load: The level of atmospheric deposition below which significant harmful effects on specified sensitive elements of the environment are not expected to occur. Atmospheric deposition is the process by which particles, aerosols, dust, and gases move from the atmosphere to the earth's surface via rain, snow, fog, or dry deposition.

critical viewing platform: Popular or iconic travelways and viewpoints identified through a public review process from where people have a substantial interest in the appearance of the National Forest landscape.

crown fire: A fire that advances from top to top of trees or shrubs more or less independent of a surface fire.

culmination of mean annual increment of growth: See mean annual increment of growth.

cultural weed control: Refers to any technique that involves maintaining field conditions such that weeds are less likely to become established and/or increase in number. Examples of cultural weed control would be avoiding overgrazing of rangeland, using well-adapted competitive forage species, and maintaining good soil fertility.

culturally significant area: Areas that have spiritual, historic, scientific or social value for past, present or future generations including the significance of the natural elements of land, water and vegetation.

culturally significant species: Plant and animal species whose existence and symbolic value are essential to the stability of a cultural group through time. Sweet grass and buffalo are examples for Northern Plains Tribes.

dams (jurisdictional): Refer only to jurisdictional dams as defined in the Forest Service Handbook 7506. Jurisdictional dam is defined by statutes and rules as Forest Service operated dams and dams operated by the holder of a special use authorization that meet one or more of the following criteria:

1. Dams with a high hazard potential classification;
2. Dams with a significant hazard potential classification; and
3. Dams with a low or undetermined hazard potential classification that:
 - a. Equal or exceed 25 feet in height and exceed 15 acre-feet in storage, or
 - b. Exceed 6 feet in height and equal or exceed 50 acre-feet in storage.

deciduous (plant): Plant parts, particularly leaves, that are shed at regular intervals, or at a given stage of development, for example, a deciduous plant regularly loses or sheds its leaves.

decision document: A record of decision, decision notice, or decision memo (36 Code of Federal Regulations 220.3).

designated area: An area or feature identified and managed to maintain its unique special character or purpose; some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the Federal executive branch; examples of statutorily designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas; examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves (36 Code of Federal Regulations 219.19).

desired condition: A description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Also see chapter 1.

detrimental soil compaction: A specific type of detrimental soil disturbance most often caused by the use of ground based mechanical equipment where soil grains are rearranged so they are brought in closer contact with one another thereby reducing the volume of pore space and average pore size in the soil thereby increasing soil bulk density. Effects are severe enough to reduce soil productivity over an extended period of time.

detrimental soil disturbance: Management-caused soil disturbance in vegetation management areas that persists on the landscape for an extended period of time (minimum of 40 years) unless restoration actions are taken and is severe and extensive enough to reduce soil productivity and/or the ability of the land to provide desired goods and services.

detrimental soil displacement: A specific type of detrimental soil disturbance most often caused by mechanical removal of surface soil layers associated with land grading, temporary road construction, or land scarification. The physical removal of upper soil layers.

desired nonnative species: Species that contribute to conservation or management objectives such as, providing habitat or food resources providing desirable ecosystem functions.

developed recreation site: A recreation site that has a development scale of 3, 4, or 5 (FSM 2330.5–Definitions).

developed recreation site An area that has been improved or developed for recreation (36 CFR § 261.2). A recreation site on National Forest System lands that has a development scale of 3, 4, or 5:

- Development scale 3 (moderate site modification) is where facilities are about equal in terms of protection of the natural site and user comfort. The contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls are usually provided. Roads may be hard surfaced and trails formalized, with the primary access over high-standard roads. Development density is about three family units per acre. Interpretive services are informal if offered but generally direct.
- Development scale 4 (heavy site modification) is where some facilities are designed strictly for comfort and the convenience of users and facility design may incorporate synthetic materials. There may be extensive use of artificial surfacing of roads and trails. Vehicular traffic control usually is obvious, with the primary access usually over paved roads. Development density is

three to five family units per acre. Plant materials are usually native. Interpretive services, if offered, are often formal or structured.

- Development scale 5 (extensive site modification) is where facilities are mostly designed for the comfort and convenience of users and usually include flush toilets; may include showers, bathhouses, laundry facilities, and electrical hookups. Synthetic materials are commonly used. Walks may be formal and trails may be surfaced. Access is usually by high-speed highways. The development density is five or more family units per acre. Plant materials may be non-native. Formal interpretive services are usually available. Plant materials may be non-native, and mowed lawns and clipped shrubs are not unusual.

diameter breast height: The diameter of a tree measured 4.5-feet above the ground on the uphill side of the tree, or diameter of a log measured 4.5-feet from the large end of the log.

dispersed camping: The practice of camping outside of a developed campground, including designated dispersed camping, dispersed vehicular camping, or back-country camping.

dispersed recreation: General term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, climbing, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

distribution line: The facility in an electric power system used to carry electricity from the transmission system to individual consumers. Distribution lines typically operate in a voltage range of 4kV to 46kV.

disturbance: An event that alters the structure, composition, or function of terrestrial or aquatic habitats; any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and pathogens; human-caused disturbances include actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species (36 Code of Federal Regulations 219.19).

disturbance activities: Are activities which result in notable vegetation removal, soil disturbance, and/or altered behavior of wildlife. Examples include, but are not limited to road construction and timber harvest.

disturbance regime: A description of the characteristic types of disturbance on a given landscape; the frequency, severity, size, and distribution of these characteristic disturbance types, and their interactions. The natural pattern of periodic disturbances, such as fire or flooding (36 Code of Federal Regulations 219.19).

driver (ecology): See “ecosystem driver.”

early detection: The process of finding, identifying, and quantifying new, small, or previously unknown infestations of aquatic or terrestrial invasive species prior to (or in the initial stages of) its establishment as free-living expanding population. Early detection of an invasive species is typically coupled with integrated activities to rapidly assess and respond with quick and immediate actions to eradicate, control, or contain it.

ecological condition: The biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems; ecological conditions include habitat and other influences on species and the environment; examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species (36 Code of Federal Regulations 219.19).

ecological diversity: See “ecosystem diversity.”

ecological integrity: The quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence (36 Code of Federal Regulations 219.19).

ecological site: A conceptual division of the landscape that is defined as a distinctive kind of land based on recurring soil, landform, geological, and climate characteristics that differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its ability to respond similarly to management actions and natural disturbances (interagency definition).

ecological site descriptions (ESDs): A standard reference for natural resource information for all Federal agencies and other interested groups/organizations. ESDs are tools to assess lands for potential values or resource specific concerns, along with information on wildlife habitat, carbon pools, vulnerability to loss or degradation, and site restoration potential. ESDs include the known rangeland plant community types that may occur on a site as well as the single climax plant community. Ecological site descriptions should relate degree of soil development, hydrologic and ecosystem functions, and other ecological knowledge to the known plant communities. The ecological site description also outlines the processes of change that may occur on a site as well as showing change as a deviation from the climax or natural plant community.

ecological threshold: See threshold

ecological sustainability: See sustainability

ecosystem (36 Code of Federal Regulations 219.19): A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. The term ecosystem can be used at a variety of scales; for the forest plan, the ecosystem is referred to spatially at the forestwide and geographic area scales as well as within potential vegetation types. An ecosystem is commonly described in terms of its:

- *composition:* The biological elements within the different levels of biological organization, from genes and individual plant and animal species to communities (such as cover types).
- *structure:* The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical (size class and structure class) and horizontal (density) distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity.

- *function*: Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.
- *connectivity*: See connectivity.

ecosystem diversity: The variety and relative extent of ecosystems (36 Code of Federal Regulations 219.19).

ecosystem driver: A natural or human-induced factor that directly or indirectly causes a change in an ecosystem. Examples include climate change, fire events, invasive species and flooding.

ecosystem resilience: See “resilience.”

ecosystem services: The benefit(s) people obtain from an ecosystem, including: (1) provisioning services, such as clean air and fresh water, energy, fuel, forage, fiber, and minerals; (2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood control; and disease regulation; (3) supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and (4) cultural services, such as educational, aesthetic, spiritual and cultural heritage values, recreational experiences and tourism opportunities (36 Code of Federal Regulations 219.19).

ecosystem stressor: See stressors.

ecotone: Ecotones exist where there is a gradual blending of the two ecosystems across a broad area or they may be manifested as a sharp boundary line. Without periodic disturbance processes such as fire, plants in competition extend themselves on one side of the ecotone as far as their ability to maintain themselves allows. Beyond this competitors of the adjacent community can take over. As a result, the ecotone can represent a shift in dominance. This zone shifts in location and condition based on climate influences, successional processes, and disturbance processes. Examples include transition zones in riparian areas between terrestrial and aquatic ecosystems or between non-forested grass/shrub communities and forested communities.

effective separation: The spatial or temporal separation between wild sheep and domestic sheep or goats to minimize the potential for association and the probability of transmission of diseases between species (Wild Sheep Working Group 2012).

eligible river: Within the Wild and Scenic River act, eligibility is an evaluation of whether a candidate river is free-flowing and possesses one or more outstandingly remarkable values (ORVs). If found eligible, a candidate river is analyzed as to its current level of development (water resources projects, shoreline development, and accessibility) and a tentative classification is made that it be placed into one or more of three classes—wild, scenic or recreational. Eligibility and classification represent an inventory of existing conditions.

endangered species: A species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Endangered species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 224.101.

environmental document: A written analysis that provides sufficient information for a responsible official to undertake an environmental review. Examples include: a categorical exclusion, an environmental assessment, and an environmental impact statement (36 Code of Federal Regulations 219.19).

environmental justice community: A community with a meaningfully greater minority or low-income population, compared to the population as a whole. For the purposes of the Custer Gallatin plan, environmental justice communities are defined as those communities where either low-income or minority populations (or both) comprise at least 20 percent of the total community population.

ephemeral streams: A channel or draw reach that only carries surface flow in direct response to precipitation. An ephemeral channel may or may not have a defined bed and banks, depending on the physiographic setting, climate, and dominant weather patterns.

eradication: With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), eradication is defined as the removal or elimination of the last remaining individual invasive species in the target infestation on a given site. It is determined to be complete when the target species is absent from the site for a continuous time period (that is, several years after the last individual was observed). Eradication of an infestation of invasive species is relative to the time-frame provided for the treatment procedures. Considering the need for multiple treatments over time, certain populations can be eradicated using proper integrated management techniques.

facilities: Real property assets managed for the administration of the national forest. Examples are buildings, administrative pastures & fencing, water systems, wastewater systems, campgrounds, picnic areas, interpretive sites, etc. For the purpose of this document, it does not include roads, trails, dams, or airfields.

fire control: See “fire suppression.”

fire exclusion: The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

fire frequency: The number of times that fires occur within a defined area and time period.

fire intensity: The amount of energy released by a fire, however no single metric (including reaction intensity, fireline intensity, temperature, residence time, radiant energy and others) captures all of the relevant aspects of fire energy. Fireline intensity is most frequently used in forested ecosystems.

fire regime: A general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of prehistoric human burning. The five natural fire regimes are classified based on the average number of years between fires combined with the severity of the fire (the amount of vegetation replacement), and its effect on the dominant overstory vegetation. The five natural fire regimes on the Custer Gallatin National Forest are in table 71.

Table 71. The five natural fire regimes on the Custer Gallatin National Forest

Fire Regime Group	Frequency (Fire Return Interval)	Severity	Representative Vegetation Types/Habitats
I	0 to 35 years	Nonlethal, low intensity to mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Ponderosa pine, dry-site Douglas-fir Open forest, woodland, shrub and savanna structures maintained by frequent non-lethal fire; also includes mixed severity forest that create a mosaic of different age classes, post-fire open forests; mean fire return interval can be greater than 35 years in systems with high temporal variation.
II	0 to 35 years	Stand-replacing (greater than 75 percent of the dominant overstory vegetation replaced)	Drier grasslands; cool-site sagebrush (such as mountain big sagebrush) Shrub or grasslands maintained or cycled by frequent fire; fire typically remove non-sprouting shrubs, tops of sprouting shrubs and most tree regeneration.
III	35 to 100+ years	Nonlethal and mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Interior dry-site shrub communities (such as warm-site sagebrush-Wyoming big sagebrush, basin big sagebrush); moist-site Douglas-fir/lodgepole pine forests Mosaic of different age post fire open forest, early to mid-seral forest structure stages, and shrub and herb dominated patches, maintained by infrequent fire events.
IV	35 to 100+ years	Stand-replacing, high intensity (greater than 75 percent of the dominant overstory vegetation replaced)	Lodgepole pine Large patches of similar age, post-fire structures; early to mid-seral forests cycled by infrequent fire events.
V	200+ years	Generally stand-replacing, high intensity. Can include nonlethal and mixed severity	Boreal forest and high elevation conifer forest; lodgepole pine/subalpine fir; subalpine fir; whitebark pine Variable size patches of shrub and herb dominated structures, or early- to mid- to late-seral forest depending on the type of biophysical environment. Cycled by rare fire or other disturbance events. Often have complex structures influenced by small gap disturbances and understory regeneration.

fire risk: The probability or chance of fire starting determined by the presence and activities of causative agents.

fire severity: Describes the immediate effects of fire on vegetation, litter, or soils. Fire severity depends not only on the amount of heat generated by a fire (intensity) but also on the duration and residence time of the fire. While a fast-moving, wind-driven fire may be intense, a long-lasting fire that just creeps along in the forest underbrush could transfer more total heat to plant tissue or soil. In this way, a slow-moving, low intensity fire could have much more severe and complex effects on something like forest soil than a faster-moving, higher-intensity fire in the same vegetation. For this reason, the terms fire intensity and fire severity are not synonymous or interchangeable.

fire suppression: The work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

fire-adapted species: A plant or animal that has evolutionary adaptations to survive and thrive in an ecosystem where fire is a primary driver, including tree species that are termed fire-tolerant as well as

other plant and animal species that have a myriad of other types of adaptations. Some examples of adaptations are the serotinous cones of lodgepole pine, which open only when heated in a fire; rhizomatous (below ground) root systems, which are protected from heat and flame, and color adaptations such as the black-backed woodpecker, which is well-camouflaged against the burned trunk of a tree.

fireline intensity: The rate of energy release per unit length of the fire front expressed as BTU per foot of fireline per second or as kilowatts per meter of fireline. This is a physical parameter that is related to flame length. This expression is commonly used to describe the power of wildland fires, but it does not necessarily follow that the severity, defined as the vegetation mortality, will be correspondingly high.

flame length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity. [NWCG]

floodplain: Lowlands bordering a streams which are subject to recurrent flooding. Floodplains are composed of sediments carried by streams and deposited on land during flooding.

flow regime: The temporal patterns of high and low flows in a stream or river. The flow regime is key driver in the geomorphic process that shape river channels, floodplains; can influence shallow water aquifers (for example, hyporheic zone) that return flow to surface waters; and helps shape ecological processes influencing biodiversity of aquatic and riparian organisms.

focal species: A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 Code of Federal Regulations 219.19).

forage: Non-woody plants available to livestock or wildlife for feed.

forage reserve allotments, also known as grassbanks: A designation for allotments on which there is no current term permit obligation for some or all of the estimated livestock grazing capacity and where there has been a determination made to use the available forage on the allotment to enhance management flexibility for authorized livestock use. Forage reserve allotments may be authorized livestock use when there is a loss of forage availability or to resolve short-term resource concerns arising from a variety of factors including but not limited to drought, wildland fire, rangeland restoration activities, litigation or consultation needs, or short-term resolution of resource concerns on other National Forest System allotments (Forest Service Handbook 2209.13, 13.3).

foraging habitat: For Canada lynx includes areas that support the primary prey (snowshoe hare) of lynx and has the vegetation structure suitable for lynx to capture prey. These conditions may occur in early successional stands following some type of disturbance, or in older forests with a substantial understory of shrubs and young conifer trees. Coarse woody debris, especially in early successional stages (created by harvest regeneration units and large fires), provides important cover for snowshoe hares and other prey. [LCAS]

forb: A herbaceous (herb-like) plant, other than grass or grass-like plants.

foreground (immediate foreground, middleground and background): Distance from a viewer to the National Forest landscape being viewed. Immediate foreground usually refers to up to 300ft; foreground is up to ½ mile from the viewer; middleground is from ½ to 4 miles from a viewer; background is from 4 miles to the horizon.

forest land: An area at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest uses. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative sites, improved roads of any width and adjoining road clearing, and power line clearings of any width (36 Code of Federal Regulations 219.19).

forest plan: A document that guides sustainable, integrated resource management of the resources within a plan area and within the context of the broader landscape, giving due consideration to the relative values of the various resources in particular areas (36 Code of Federal Regulations 219.1(b)). Consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 528–531), the Forest Service manages National Forest System lands to sustain the multiple use of its renewable resources in perpetuity while maintaining the long-term health and productivity of the land.

free-flowing river: From the Wild and Scenic River Act, as applied to any river or section of a river means existing or flowing in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The existence, however, of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the [National System] shall not automatically bar its consideration for such inclusion: Provided, that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the [National System].

fuels management: An act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological or manual means, or by fire, in support of land management objectives. [NWCG]

fuels treatment: The manipulation or removal of dead or live plant materials to reduce the likelihood of ignition and/or lessen potential damage and resistance to fire control (example treatments include, lopping, chipping, crushing, piling and burning). [NWCG]

function: Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.

functioning at risk: Are wetland or riparian conditions that are in limited functioning condition; however, existing hydrologic, vegetative, or geomorphic attributes make them susceptible to degradation.

geographic area (GA): A spatially contiguous land area identified within the plan area. A geographic area may overlap with a management area (36 Code of Federal Regulations 219.19).

geographic information system (GIS): A computer process that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

goals (GO): Broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Also see chapter 1.

gradient (stream): The slope of a streambed.

grassbank: See forage reserve allotment

grazing authorizations and reauthorizations: Grazing permits with term status of 10 years or with temporary status of 1 year. Upon expiration of an existing grazing permit, they can be reauthorized provided eligibility and qualification requirements are met. Upon sale of base property or permitted livestock, a grazing permit with term status may be authorized to the purchaser of base property or permitted livestock as the preferred applicant, provided eligibility and qualifications requirements are met (36 CFR 222).

grazing permit: Authorizes livestock to use National Forest System or other lands under Forest Service control for the purpose of livestock production. Term permits are issued for up to 10 years with priority for renewal at the end of the term. On-and-off grazing permits are permits with specific provisions on rangelands only part of which is National Forest System lands or other lands under Forest Service control. Private land grazing permits are permits issued to persons who control grazing lands adjacent to or within national forest proclaimed boundary and who waive exclusive grazing use of these lands to the United States for the full period the permit is to be issued (36 CFR 222). Temporary permits are issued for up to 1 year. Examples include livestock use permits for transportation livestock to persons engaged in commercial packing or dude ranching.

greater sage-grouse general habitat: Includes habitat outside of priority sage grouse habitat (see definition below) that may be essential for summer brood rearing needs, wintering areas, and/or providing habitat connectivity between priority habitats.

greater sage-grouse priority habitat (also referred to as core habitat): Includes key habitats identified by state sage-grouse conservation plans or other sage-grouse conservation efforts as those areas of greatest biological importance for maintaining sage-grouse representation, redundancy and resilience across the landscape. Priority habitats are typically identified as those areas surrounding locations with the largest number of displaying male sage grouse on leks (for example, breeding grounds).

greater Yellowstone area (GYA): Generally high elevation mountainous public and private lands in northwestern Wyoming, southwestern Montana, and eastern Idaho surrounding Yellowstone National Park.

greater Yellowstone ecosystem (GYE): See greater Yellowstone area (GYA).

green ash draws: See woody draws.

greenline: The first line of perennial vegetation on or near the water's edge along a stream. The greenline is an important location for monitoring riparian areas because it is vulnerable to impacts from management that are related to streambank instability and channel widening and/or incision.

Grizzly Bear Conservation Strategy (GBCS): A document compiled by the U.S. Fish and Wildlife Service that describes the regulatory framework for management of the Greater Yellowstone Ecosystem grizzly bear population and its habitat (U.S. Fish and Wildlife Service 2016).

ground-disturbing activity: An activity that results in a change in the vegetation cover or topography and that may cause or contribute to sedimentation. Ground-disturbing activities include, but are not limited to, removing vegetation cover, excavating, filling, and grading.

groundwater-dependent ecosystem: A community of plants, animals, and other organisms whose extent and life processes depend on groundwater. Examples include riparian areas, wetlands, groundwater-fed lakes and streams, cave and karst systems, aquifer systems, fens, springs, and seeps.

guideline (GDL): A constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Also see chapter 1.

habitat type: A habitat type classification provides an ecologically based system of land stratification in terms of vegetation potential. As the habitat type is the basic unit in classifying land units or sites based on their biotic potential, it emphasizes similarities and differences in ecosystems that carry implications for a variety of land management objectives. Habitat types or habitat type groups can have similar biophysical characteristics, and similar function and response to disturbances. A habitat type will produce similar plant communities at natural or near natural conditions. Also see “potential vegetation type.”

hardened stream crossing: A trail or travelway constructed across a stream that allows livestock to cross or to drink with minimal disturbance to the streambank and channel.

hazard tree: a tree that has the potential to cause property damage, personal injury or fatality in the event of a failure, where failure is the mechanical breakage of a tree or tree part. Failures often result from the interaction of defects, weather factors, ice or snow loading or exposure to wind. Tree hazards may include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance of people or property (a target). Defects are flaws in a tree that reduce its structural strength. Trees may have single or multiple defects, which may or may not be detectable. Failures result in accidents only if they strike a target.

hazardous fuels mitigation: See fuels management and fuels treatment

high landslide potential: An area of land having a high potential for large and/or rapid landslides or flows to occur. Projecting the likelihood of such events is most often based on evidence of past land instability or mass failure events associated unstable geologic stratigraphy. In this instance, the term “landslide” is being used broadly sense to cover range of different of mass failure events.

high mass failure potential: See “high landslide potential.”

high severity fire/high severity fire regime: See “stand-replacing fire.”

high use areas: Areas that receive high levels of visitor use such as trailheads, developed campgrounds, etc.

highly erodible soils: Soils that are inherently susceptible to soil erosion (water or wind) due to physical properties of surface soil layers, such as soil texture or the amount of rock fragments in the soil and/or topographic factors such as steep slopes.

historic properties: 36 CFR 800.16 defines historic properties as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe or native Hawaiian organization and that meet the National Register criteria.”

hydric: Environment or habitat containing plenty of moisture, very wet.

hydric vegetation: See “hydrophilic vegetation.”

hydrophilic vegetation: Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Hydrophilic vegetation can be described as obligate wetland or facultative wetland species. Obligate wetland species are nearly always found in wetlands; its frequency of occurrence in wetlands is 99 percent or more. Facultative wetland species occurs more often than not in wetlands; its frequency of occurrence in wetlands is between 67 and 99 percent of the time.

independent identically distributed (IID): The underlying assumption made of the sample population for statistical inference using a completely random sampling design.

Indian Tribe: Any Indian or Alaska Native Tribe, band, nation, pueblo, village, or other community that is included on a list published by the Secretary of the Interior under section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a-1).

infrastructure: The collection of human-built improvements such as roads, trails, airfields, facilities, and dams that serve the mission of the national forest.

inherent capability of the plan area: The ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances (36 Code of Federal Regulations 219.19).

inherent scenic attractiveness: Classification of how visually unique, distinctive and valued specific scenery is. This refers to enduring visual qualities of the landscape, which may be enhanced by positive cultural features. Ratings, that compare landscapes within ecoregions, are based upon commonly-held perceptions of beauty related to land forms, rock features, vegetation patterns and water features, along with concepts such as uniqueness, variety (including seasonal), mystery and vividness of the line, form, color and texture of the scenery.

- *Class A-Distinctive:* Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes.
- *Class B-Typical/Common:* Areas where landform, vegetation patterns, water characteristics and cultural features combine to provide ordinary or common scenic quality. These landscapes have positive yet common visual attributes.
- *Class C-Indistinctive:* Areas where landform, vegetation patterns, water characteristics and cultural features have low scenic quality. Often, water and rock form of any consequence are missing. These landscapes have weak or very few visual attributes.

inherent (soil) productivity: The ability of the soil to produce a specific type and amount of native vegetation based on physical and chemical properties inherited from the unique combination of soil forming factors and processes that have occurred at a site and without the addition of soil amendments.

In-lieu lots: Are unoccupied lots in a designated recreation residence tract and are not available for new holders to build new recreation residences.

inner gorge: A geomorphic feature that consists of the steep side slope (typically greater than 35 percent) immediately adjacent to the stream channel, below the first break in slope above the stream channel, and above which the hillslope/topography is less steep. Debris sliding and avalanching are often associated with the inner gorge.

integrated pest management (IPM): A pest (in this context, an invasive species) control strategy based on the determination of an economic, human health, or environmental threshold that indicates when a pest population is approaching the level at which control measures are necessary to prevent a decline in the desired conditions (economic or environmental factors). In principle, IPM is an ecologically-based holistic strategy that relies on natural mortality factors, such as natural enemies, weather, and environmental management, and seeks control tactics that disrupt these factors as little as possible. Integrated pest management techniques are defined within four broad categories of weed control: (1) biological, (2) cultural, (3) mechanical/physical, and (4) chemical techniques. While each situation is different, the following major components are common to all IPM programs: prevention, early detection/rapid response, control and management, restoration, and collaboration.

integrated resource management: Multiple use management that recognizes the interdependence of ecological resources and is based on the need for integrated consideration of ecological, social, and economic factors (36 Code of Federal Regulations 219.19).

integrity (ecology): See “ecological integrity.”

intermittent stream: A stream that has perennial water in discontinuous manner during all or part of the year, often in pools, longitudinally. Intermittent streamflow can be the result of a discontinuous supply from springs or ground-water seepage, a discontinuous supply from surface sources, including runoff of rainfall and seasonal snowmelt, or both. Fish-bearing intermittent streams are distinguished from non-fish-bearing intermittent streams by the presence of any species of fish for any duration. Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams or travel routes for fish emigrating from lakes or as semi-permanent habitat in perennial pools of intermittent streams in the pine savanna region.

invasive species: An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that causes, or is likely to cause, harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens (Executive Order 13112).

invasive species treatment: Any activity or action taken to directly prevent, control, or eradicate a targeted invasive species. Treatment of an invasive species infestation may not necessarily result in the elimination of the infestation, and multiple treatments on the same site or population are sometimes required to affect a change in the status of the infestation. Treatment activities typically fall within any of

the four general categories of integrated management techniques: biological treatments, cultural treatments, mechanical treatments, or chemical treatments. For example, the use of domestic goats to control invasive plants would be considered a biological treatment; the use of a pesticide to control invasive fishes would be characterized as a chemical treatment; planting of native seeds used to prevent invasive species infestations and restore a degraded site would be considered a cultural treatment technique; developing an aquatic species barrier to prevent invasive species from spreading throughout a watershed would be considered a physical treatment; cleaning, scraping, or otherwise removing invasive species attached to equipment, structures, or vehicles would be considered a mechanical treatment designed to directly control and prevent the spread of those species.

key ecosystem characteristic: The dominant ecological characteristic(s) that describes the composition, structure, function and connectivity of terrestrial, aquatic and riparian ecosystems that are relevant to addressing important concerns about a land management plan. Key ecosystem characteristics are important to establishing or evaluating plan components that would support ecological conditions to maintain or restore the ecological integrity of ecosystems in the plan area.

land management plan: See “forest plan.”

landscape: A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 Code of Federal Regulations 219.19).

landtype: A unit shown on an inventory map with relatively uniform potential for a defined set of land uses. Properties of soils landform, natural vegetation, and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.

linkage areas: Support seasonal, exploratory, or dispersal movements of animals beyond the home range to facilitate demographic and genetic connectivity between geographically separate patches of habitat; key linkage areas are typically located near the Custer Gallatin National Forest boundary, where wildlife movement is desirable for genetic exchange between blocks of public lands, but may be restricted by permanent development such as highways, railroads, agricultural lands and residential areas.

livestock: A type of domestic animal raised for commercial production purposes (for example, cattle).

Livestock handling activities: Sorting, loading/unloading or bedding livestock.

Livestock trailing: The deliberate movement of livestock controlled by one or more herders, from one location to another. This usually occurs when moving between pastures or from private to public lands and vice versa.

locally adapted species: Local seed collections or genetically appropriate cultivated varieties from local or regional environments similar to conditions that existed at the project site prior to disturbance.

long-term persistence: means a species continues to exist in the plan area over a sufficiently long period that encompasses multiple generations of the species, the time interval between major disturbance events, the time interval to develop all successional stages of habitat types, or the time interval needed

for the overall ecosystem to respond to management (Forest Service Handbook 1909.12, chapter 20, section 23.13c. 1c.)

lotic ecosystems: Are running water habitat such as rivers, streams, and springs.

low gradient, alluvial channels: Are low-gradient stream channels made up of loose sediments called alluvium. They are able to change their shape or course over time. Low-gradient alluvial channels are often associated with Rosgen stream channel types C and E.

low severity fire/low severity fire regime: Fires that burn only the lowest vegetation layer, which may be composed of grasses, herbs, low shrubs, mosses, or lichens. In forests, woodlands, or savannas, low severity fires are generally surface fires and do not cause extensive mortality in the overstory vegetation.

maintain: In reference to an ecological condition: To keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure, and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both (36 Code of Federal Regulations 219.19).

management activity caused: See “activity caused.”

management area: A land area identified within the plan area that has the same set of applicable plan components. A management area does not have to be spatially contiguous (36 Code of Federal Regulations 219.19).

management system: A timber management system includes even-aged stand and uneven-aged management (36 Code of Federal Regulations 219.19).

matrix habitat: Within designated critical habitat for Canada lynx, includes non-boreal forest types such as hardwood forests, dry coniferous forest, grasslands, shrublands, rock, water, and other landscape conditions that do not support snowshoe hares, but which occur between patches of boreal forest such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.

mean annual increment of growth: The total increment of increase in volume of a stand (standing crop plus thinning removals) up to a given age divided by that age. Culmination of mean annual increment of growth is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum. In land management plans, mean annual increment is expressed in cubic measure and is based on the expected growth of stands, according to intensities and utilization guidelines in the plan (36 Code of Federal Regulations 219.19).

mechanical / physical weed control: Refers to any technique that involves the use of mechanical or physical means to control weeds, such as hand pulling/grubbing or mowing.

mesic: A type of habitat that is moderately moist.

minerals: The Forest Service defines three types of mineral (and energy) resources:

- *locatable minerals:* Commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc. and some nonmetallic minerals such as asbestos, gypsum, and gemstones.

- *saleable mineral materials*: Common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite.
- *leasable minerals*: Commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, and sulfur. On acquired lands solid minerals are leasable.

mineral encumbrances: Those outstanding mineral rights, including reserved and outstanding private mineral rights, existing oil and gas leases and locatable mineral rights.

minimum impact suppression tactics: Guidelines for fire suppression and post-fire activities that use procedures, tools and equipment that are commensurate with the fire's potential or existing behavior and produce the least impact to the environment without compromising safety or the effectiveness of suppression efforts.

mitigate: To avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

mixed severity fire/mixed severity fire regime: A combination of nonlethal, low intensity to stand-replacing fire effects within the perimeter of a single fire, or across consecutive events. Mixed-severity fire regimes give rise to unique patch dynamics and ecosystem responses.

monitoring: A systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships (36 Code of Federal Regulations 219.19).

montane: The Custer Gallatin has termed its mountainous Middle Rockies Ecoregion area as Montane and refers to the settings of the Beartooth, Yellowstone, Gardiner, Bozeman, and Hebgen Lake Ranger Districts. Montane ecosystems of the Custer Gallatin include the Madison, Henrys Lake, Gallatin, Bridger, Bangtail, Crazy, Absaroka, Beartooth, and Pryor mountain ranges. The montane ecosystem is characterized by altitudinal zonation of semi-desert and foothill vegetation, coniferous forests on the lower mountain slopes, and alpine tundra toward the upper. Due to aridity, forests are sometimes restricted to northern and eastern slopes. Although south- and west-facing slopes receive comparable precipitation, they are hotter and evaporation is higher. Consequently, they support fewer trees and are covered by shrubs and grasses. Lodgepole pine, Douglas-fir, subalpine fir, Engelmann spruce, limber pine, and whitebark pine are the predominant conifer vegetation. The lower slopes of the mountains are dominated by grasslands and shrublands.

motorized route: A National Forest System road or trail that is designated for motorized use on a motor vehicle use map pursuant to 36 Code of Federal Regulations 212.51

multiple use: The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528-531) (36 Code of Federal Regulations 219.19).

municipal watershed: 36 CFR 251.9 authorizes the Chief of the Forest Service to enter into agreements with municipalities to restrict the use of National Forest System lands from which water is derived to protect the municipal water supplies (FSM 2542) within a given watershed area.

national ambient air quality standards (NAAQS): Are national air quality standards established by the U.S. Environmental Protection Agency (EPA) under authority of the Clean Air Act (CAA; 40 C.F.R. 50) to protect public health and public and ecosystem welfare.

national forest scenic byway: The Chief of the Forest Service can designate routes traversing National Forest System lands as national forest scenic byways.

National Forest System: Includes national forests, national grasslands, and the National Tallgrass Prairie (36 Code of Federal Regulations 219.19 and 219.62).

National Forest System Road (National Forest SystemR): Part of a system of permanent roads determined to be needed for the use, protection, and enjoyment of the national forest.

National Forest System Trail (National Forest SystemT): Part of a system of permanent trails determined to be needed for the use, protection, and enjoyment of the National Forest.

National Wild and Scenic Rivers System was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 Code of Federal Regulations 219.19).

National Wilderness Preservation System: The Wilderness Act, signed into law in 1964, created the National Wilderness Preservation System and recognized wilderness as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.

native species: An organism that was historically or is present in a particular ecosystem as a result of natural migratory or evolutionary processes; and not as a result of an accidental or deliberate introduction into that ecosystem. An organism’s presence and evolution (adaptation) in an area are determined by climate, soil, and other biotic and abiotic factors (36 Code of Federal Regulations 219.19).

natural range of variation: The variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application. The natural range of variation is a tool for assessing the ecological integrity and does not necessarily constitute a management target or desired condition. The natural range of variation can help identify key structural, functional, compositional, and connectivity characteristics, for which plan components may be important for either maintenance or restoration of such ecological conditions.

nonconforming uses: When used in the context of Wilderness or Recommended Wilderness are uses or facilities within those areas that don’t conform to wilderness policy nor are allowed specifically as an exception in the wilderness act which designated the area.

nonfunctional condition: Are wetland or riparian conditions that clearly are not providing adequate vegetation, landform, or woody material to dissipate stream energy associated with moderately high flows, and thus are not reducing erosion, improving water quality, etc.

noxious weed: A regulatory term defined through Federal and individual State statutes. A noxious weed is defined by Montana Code Annotated (MCA 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.” A noxious weed is defined by South Dakota Code (chapter 38-22, article 12:62:02:01) as “a weed which the commission has designated as sufficiently detrimental to the state to warrant enforcement of control measures.” Noxious weeds are 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. Impacts can be exacerbated by fire, native pests, weather events, human actions, and environmental change.

nurse plant: A plant that creates an environment that is less severe for young seedlings growing underneath it or that promotes conditions for recovery.

objective (OBJ): A concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Also see chapter 1.

old growth forests: Are ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function. For the purposes of this document, old growth is defined specifically as forests that meet the minimum criteria established for the Northern Region of the Forest Service.

old growth habitat: A community of forest vegetation characterized by a diverse stand structure and composition along with a significant showing of decadence. The stand structure will typically have multi-storied crown heights and variable crown densities. There is a variety of tree sizes and ages ranging from small groups of seedlings and saplings to trees of large diameters exhibiting a wide range of defect and breakage both live and dead, standing and down. The time it takes for a forest stand to develop into an old-growth habitat condition depends on many local variables such as forest type, habitat type, and climate. Natural chance events involving forces of nature such as weather, insect, disease, fire, and the actions of man also affects the rate of development of old-growth stand conditions. Old-growth habitat may or may not meet the definition for old growth forest.

open and unclaimed or unoccupied lands: This term is trademark of the treaties negotiated in the 1850s. The term applied to public domain lands held by the United States that had not been fenced or claimed through a land settlement act. Today “open and unclaimed lands” applies to lands remaining in the public domain (for the purposes of hunting, gathering foods, and grazing livestock or trapping). The courts have ruled that National Forest System lands reserved from the public domain are open, unclaimed, or unoccupied land, and as such the term applies to reserved treaty rights on National Forest System land.

outfitting/outfitter guide: To rent on, or deliver to, National Forest System lands for pecuniary remuneration or other gain any saddle or pack animal, vehicle, boat, camping gear, or similar supplies or equipment (36 Code of Federal Regulations 251.51).

outstandingly remarkable values (ORVs): Within the Wild and Scenic Rivers Act, categories of scenery, recreation, geology, fisheries, wildlife, historic/ cultural, or other similar values.

perennial: A stream that flows continuously throughout most years and whose upper surface generally stands lower than the water table in the region adjoining the stream.

Peripherals: Are plant species whose occurrence are at the extreme edge of their present natural range.

permanent road: A National Forest System Road intended to remain in service to highway vehicles over the long-term. The prerequisite for design, construction, operation, and maintenance are for a sustained service life. For example, features such as bridges and culverts, are designed with a service life of 50 years or more. (Related: Temporary Road)

permit (special use): A use authorization which provides permission, without conveying an interest in land, to occupy and use National Forest System land or facilities for specified purposes, and which is both revocable and terminable (36 Code of Federal Regulations 251.51).

permitted grazing: Authorizes livestock use on National Forest system lands. Authorizing permits include grazing permits for commercial livestock production purposes, outfitter/guide special-use permits with associated pack animals, or other special-use permits.

persistence: Continued existence.

pine savanna: The Custer Gallatin has termed its intermixed rolling plains and ponderosa pine region of the Northwestern Great Plains Ecoregion area as Pine Savanna and refers to the settings of the Sioux and Ashland Ranger Districts. Vegetation includes ponderosa pine, hardwood trees, shrubs, forbs and graminoids, expressing all gradations of cover. On the driest sites ponderosa pine is short and generally open, grown with grass understories. Moist north-facing sites have dense stands of taller ponderosa pine, with shrub and herbaceous understories, including some species of the mountain forests to the west. Draws and ravines that support many hardwood trees (green ash, box elder, aspen) and shrubs also dissect the landscape. Grasses include needlegrass, wheatgrass, needle and thread grass, and blue grama. Shrubs include sagebrush, chokecherry, and snowberry.

plan: A document, or set of documents, that provides management direction for an administrative unit of the National Forest System developed under the requirements of the 2012 Planning Rule or a prior planning rule (36 Code of Federal Regulations 219.19). Also see “forest plan.”

plan area: The National Forest System lands covered by a forest plan (36 Code of Federal Regulations 219.19).

planned wildland fire: See prescribed burn or prescribed fire.

plant and animal community: A naturally occurring assemblage of plant and animal species living within a defined area or habitat (36 Code of Federal Regulations 219.19).

potential vegetation type/potential vegetation group: An assemblage of habitat types on the basis of similar biophysical environments, such as climate, hydrology, slope and soil characteristics. This biophysical environment influences the vegetation characteristics and ecosystem processes that occur. The vegetation communities and conditions that would develop over time given no major natural or human disturbances (the climax plant community) would be similar within a particular potential vegetation type classification. See “habitat type.”

prevention: With respect to invasive species management, prevention measures include a wide range of actions and activities to reduce or eliminate the chance of an invasive species entering or becoming established in a particular area. Preventative activities can include projects for education and awareness

as well as more traditional prevention activities such as vehicle/equipment cleaning, boat inspections, or native plant restoration plantings. Restoration activities typically prevent invasive species infestations by improving site resilience, and reducing or eliminating the conditions on a site that may facilitate or promote invasive species establishment.

prevention of significant deterioration (PSD): An Environmental Protection Agency (EPA) program that applies to new major sources or major modifications of existing sources of air pollutants in areas that meet the national ambient air quality standards (NAAQS). PSD does not prevent sources from increasing emission but is designed to protect public and ecosystem, health, and welfare, to preserve, protect, and enhance the air quality in class I areas such as National Parks and class I wilderness areas, to protect economic growth, and to ensure that any decision to permit an increase in air pollution undergoes careful evaluation and consideration which includes State and Federal air regulatory agencies, land management agencies, and the general public.

prescribed burn or prescribed fire: A fire ignited via management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and National Environmental Policy Act requirements (where applicable) must be met, prior to ignition. [NWCG]

primary conservation area: An area identified in the Greater Yellowstone Ecosystem GBCS to be managed as a source area for the grizzly bear population, where continuous occupancy by grizzly bears would be maintained. Habitat within the PCA receives the most stringent protection. The Primary Conservation Area is the same geographic area as the Greater Yellowstone Ecosystem Grizzly Bear Recovery Zone identified in the Grizzly Bear Recovery Plan (USDI 1993) prior to de-listing of the Yellowstone grizzly bear population in 2017.

primary rangelands: Are those areas that produce forage and that are near water sources where primary grazing activity occurs

productivity: The capacity of National Forest System lands and their ecological systems to provide the various renewable resources (such as timber) in certain amounts in perpetuity. In land management, productivity is an ecological term, not an economic term (36 Code of Federal Regulations 219.19).

project: An organized effort to achieve an outcome on National Forest System lands identified by location, tasks, outputs, effects, times, and responsibilities for execution (36 Code of Federal Regulations 219.19).

project road: A name coined during the Gallatin National Forest Travel Plan. These roads were determined to be no longer needed as a system road and would be removed from the system of roads. The roads were planned to be decommissioned and returned to the natural landscape. Reuse of the road corridor would be planned as part of a future project.

projected timber sale quantity (PTSQ): A subset of the projected wood sale quantity and is an estimate of the quantity of timber expected to be sold during the plan period. The volume in the projected timber sale quantity is the volume that meets utilization standards.

projected wood sale quantity (PWSQ): An estimate of the volume of all timber and other wood products that is expected to be sold during the plan period from expected harvests for any purpose (except salvage harvest or sanitation harvest) on all lands in the plan area. The projected wood sale

quantity includes all woody material likely to be sold from these harvests whether or not the woody material meets the utilization standards.

proper functioning condition: For riparian areas have adequate vegetation, landform, or woody material present to: dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality; capture sediment and aid floodplain development; improve floodwater retention and ground-water recharge; develop root masses that stabilize streambanks against erosion, and maintain channel characteristics. Proper functioning condition for groundwater dependent ecosystems (for example, seeps, springs, wetlands, shorelines) have adequate vegetation, landform, or debris present to: dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize islands and shoreline features against cutting action; restrict water percolation; develop diverse ponding characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; A wetland or riparian area in proper functioning condition will, in turn, provide associated values, such as fish and wildlife habitat, recreation opportunities; and support greater ecological diversity.

proposed action: A project, activity, or action that a Federal agency aims to implement or undertake, and which is the subject of an environmental analysis. Proposed action is a specific term defined under the National Environmental Policy Act.

proposed species: A type of animal or plant that is proposed by the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service, through the *Federal Register* to be listed for protection under Section 4 of the Endangered Species Act (36 Code of Federal Regulations 219.19).

Pryor Mountain Wild Horse Range: The combination of Pryor Mountain agency and private rangelands authorized for use by wild horses. Not to be confused with “wild horse range” (see definition below) which is a special designation pertaining to only the Bureau of Land Management portion of the Pryor Mountain Wild Horse Range.

Pryor Mountain Wild Horse Territory: Means the National Forest System lands identified as having been used by a wild horse herd as its habitat in 1971 at the time of the passage of the Wild Free Roaming Horse and Burro Act (P.L. 92-195) (December 15, 1971).

public involvement: A process designed to broaden the information base upon which agency decisions are made. The process involves informing the public about Forest Service activities, plans, and decisions, and participation in the planning processes which lead to final decision making.

rangelands: Are land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem. If plants are introduced, they are managed similarly. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundra, alpine communities, marshes, and meadows ([Society for Range Management, 2005](#)).

rangeland health: The degree to which the integrity of the soil, vegetation and ecological processes are sustained.

range improvements: Any activity or program on or relating to rangelands which is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, or provide habitat for livestock and wildlife.

rapid response: With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), rapid responses are defined as the quick and immediate actions taken to eradicate, control, or contain infestations that must be completed within a relatively short time to maximize the biological and economic effectiveness against the targeted invasive species. Depending on the risk of the targeted invasive species, rapid response actions may be supported by an emergency situation determination and emergency considerations would include the geographic extent of the infestation, distance from other known infestations, mobility and rate of spread of the invasive species, threat level and potential impacts, and available treatments.

reclamation: The restoration of a site or resource to a desired condition to achieve management objectives or stated goals (Society for Range Management 1999).

recommended wilderness: An area that has been determined to meet the criteria to be designated as wilderness and is proposed in this land management plan by the forest supervisor to be recommended to Congress for inclusion into the National Wilderness Preservation System.

recovery: As pertains to the Endangered Species Act, is the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate (36 Code of Federal Regulations 219.19). This definition is for the purposes of the land management planning regulation at 36 Code of Federal Regulations part 219 and Land Management Planning Handbook 1909.12, and with respect to threatened or endangered species (36 Code of Federal Regulations 219.19).

recreation: The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations. Also see “sustainable recreation” (36 Code of Federal Regulations 219.19).

recreation event: Any temporary event, such as race, run, ride, or tournament, which is organized, using national forest lands and facilities, and which an entrance fee is required to participate. Event proponents may be for-profit or not-for-profit, individuals, or organizations.

recreation opportunity spectrum: The system that the Forest Service describes an opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include nonmotorized, motorized, developed, and dispersed recreation on land, water, and in the air (36 Code of Federal Regulations 219.19). The six classes are the following:

- *Primitive:* The primitive recreational opportunity spectrum setting is large, remote, wild, and predominately unmodified landscapes. There is no motorized activity and little probability of seeing other people. Primitive recreational opportunity spectrum settings are managed for quiet solitude away from roads, people, and development. There few, if any facilities or developments. Most of the primitive recreation opportunity spectrum settings coincide with designated wilderness boundaries.
- *Semi-primitive nonmotorized:* The semi-primitive nonmotorized recreation opportunity spectrum settings include areas of the national forest managed for nonmotorized use. Mountain bikes and

other mechanized equipment are often present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area. These settings are not as vast or remote as the primitive recreational opportunity spectrum settings, but offer opportunities for exploration, challenge, and self-reliance.

- *Semi-primitive motorized*: The semi-primitive motorized recreation opportunity spectrum settings area(s) of the national forests are managed for backcountry motorized use on designated routes. Routes are designed for off highway vehicles and other high clearance vehicles. This setting offers visitors motorized opportunities for exploration, challenge, and self-reliance. Mountain bikes and other mechanized equipment are also sometimes present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area or providing portals to adjacent areas of primitive, or semi-primitive, nonmotorized areas.
- *Roaded natural*: The roaded natural setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. System roads also provide easy access to adjacent in semi-primitive motorize, semi-primitive nonmotorized and primitive areas.
- *Rural*: The rural settings represent the most developed recreation sites and modified natural settings. Facilities are designed primarily for user comfort and convenience.
- *Urban*: The urban setting is characterized by a substantially developed environment although the background may have natural appearing elements. Highly developed ski areas and resorts are examples of an urban setting on National Forest System lands.

recreation setting: The social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Also see “recreation opportunity” (36 Code of Federal Regulations 219.19).

recreational river: Within the Wild and Scenic River act, a tentative classification of those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and may have undergone some impoundments or diversion in the past.

recreational livestock: Includes animals used by recreation visitors to pack items while visiting the national forest. Typically includes equines, llamas, goats, sheep, and dogs.

refugia: Specific site locations and habitat conditions that support populations of organisms that are limited to small fragments of their geographic range. Climate change refugia refers to areas relatively buffered from contemporary climate change over time that enable persistence of valued physical, ecological, and socio-cultural resources.

regeneration: The renewal of a forest, whether by natural or artificial means. This term may also refer to a tree crop itself.

regional endemics: Are plant species that are unique to a specific geographic region which makes them unique and more vulnerable to extinction. Because they are only found in certain locations, they may require special conservation efforts.

research natural area: A physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention. However, under unusual circumstances, deliberate manipulation may be utilized to maintain the unique feature that the research natural area was established to protect (FSM 4063.05).

reserved treaty rights: The reserved rights doctrine holds that any rights that are not specifically addressed in a treaty are reserved to the Tribe. In other words, treaties outline the specific rights that the Tribes gave up, not those that they retained. The courts have consistently interpreted treaties in this fashion, beginning with *United States v. Winans*, 198 U.S. 371, 25 S. Ct. 662, 49 L. Ed. 1089 (1905), in which the U.S. Supreme Court ruled that a treaty is "not a grant of rights to the Indians, but a grant of rights from them." Any right not explicitly extinguished by a treaty or a Federal statute is considered to be "reserved" to the Tribe.

resilience (ecological): The capacity of a (plant or animal) community or ecosystem to maintain or regain normal function and development following disturbance.

resistance: The ability of a community to avoid alteration of its present state by a disturbance (Helms 1998)

responsible official: The official with the authority and responsibility to oversee the planning process and to approve a plan, plan amendment, and plan revision. (36 Code of Federal Regulations 219.19 and 219.62).

restore: To renew by the process of restoration (36 Code of Federal Regulations 219.19).

restoration: The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed; ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions (36 Code of Federal Regulations 219.19).

retardant: In terms of wildfire suppression, retardant is a substance intended to slow the rate of fire spread by cooling and coating fuels, depleting the fire of oxygen, and slowing the rate of fuel combustion as the retardant's inorganic salts change how fuels burn.

revegetation: Establishing or reestablishing desirable plants on areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation) (Society for Range Management 1999).

riparian area: A three-dimensional ecotone of interaction that include terrestrial and aquatic ecosystems that extend into the groundwater, above the canopy, and outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths (36 Code of Federal Regulations 219.19).

riparian ecosystem: A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. A riparian ecosystem is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

riparian management zone (RMZ): A portion, or portions, of the watershed where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines (36 Code of Federal Regulations 219.19). RMZ widths are defined as follows:

- *Category 1, fish-bearing streams:* riparian habitat conservation areas consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to a distance equal to the height of two site-potential trees, or 300-foot slope distance (600 feet, including both sides of the stream channel), whichever is greatest.
- *Category 2, permanently flowing nonfish bearing streams:* riparian habitat conservation areas consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 150-foot slope distance (300 feet, including both sides of the stream channel), whichever is greatest.
- *Category 3, ponds, lakes, reservoirs, and wetlands greater than 1 acre:* riparian habitat conservation areas consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the distance of the height of one site-potential tree, or 150-foot slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond, or lake, whichever is greatest.
- *Category 4, Seasonally flowing or intermittent streams, wetlands less than 1 acre, and lands identified as landslide prone:* This category includes features with high variability in size and site-specific characteristics. At a minimum, the riparian habitat conservation area must include: (1) the intermittent stream channel and the area to the top of the inner gorge; (2) the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation; (3) for priority watersheds as identified in appendix C, the area from the edges of the stream channel, wetland, or landslide prone terrain to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest; or (4) for watersheds not identified as priority watersheds, the area from the edges of the stream channel, wetland, or landslide prone terrain to a distance equal to the height of one-half site potential tree, or 50-foot slope distance, whichever is greater.

riparian wildlife habitat: An environment that occurs along lakes, rivers, streams, springs, and seeps where the vegetation and microclimate are influenced by year-round or seasonal water and associated high water tables. Plant and animal species in these areas are more productive and diverse than on nearby uplands, making these areas very important to many wildlife species.

risk: A combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences (36 Code of Federal Regulations 219.19).

road: A motor vehicle route more than 50-inches wide, unless identified and managed as a trail. (36 Code of Federal Regulations 212.1, FS Manual 7705):

- *Decommissioned:* the stabilization and restoration of an unneeded road to a more natural state (36 Code of Federal Regulations 212.1).
- *Forest road or trail:* a route wholly or partly within or adjacent to and serving the National Forest System that is necessary for the protection, administration, and utilization of the National Forest

System and the use and development of its resources (36 Code of Federal Regulations 212.1–Definitions)

- *Maintenance level*: a term for the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (Forest Service Handbook 7709.59, 62.32)
 - Level 1: These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.
 - Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.
 - Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.
 - Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.
 - Level 5: Assigned to roads that provide a high degree of user comfort and convenience.
- *National Forest System*: A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 Code of Federal Regulations 212.1)
- *Temporary*: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas (36 Code of Federal Regulations 212.1).

road decommissioning: Removal from the road system and taken out of service. The unneeded road corridor would be returned to the natural landscape.

road management objectives (RMO): Management intent for the design, construction, operation, and maintenance of a National Forest System Road. Examples of the criteria includes roadway width, surface type, maintenance levels, speed limits, drainage design, traffic service levels, etc. Each road has a collection of objectives housed in the corporate database.

roadless: The 2001 Roadless Rule establishes prohibitions on road construction, road reconstruction, and timber harvesting on 58.5 million acres of inventoried roadless areas on National Forest System lands. The intent of the 2001 Roadless Rule is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use management.

Rosgen channel type classification: A widely applied river classification system based on common patterns of channel morphology. The classification scheme assigns a channel type based on channel slope, width to depth ratio, bed material, entrenchment ratio and sinuosity. This method can be used to collect the raw data to assess mechanisms for predicting channel stability, erosion risk, aggradation, channel enlargement, sediment transport capacity, degradation, lateral or longitudinal migration, and hydraulic relations. As an example, Rosgen channel types C and E are low gradient streams that are very sensitive to disturbance and can be rapidly adjusted and converted to other stream types in relatively

short time periods. Rosgen C and E systems rely on well-developed floodplains with dense vegetation (often sedges and rushes) that helps stabilize the banks.

sacred site: Executive Order 13007 Indian Sacred Sites defines an Indian Sacred Site as “any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the Indian Tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.”

Sagebrush habitat: In relationship to greater sage grouse habitat in the plan area, this includes Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), mountain big sagebrush (*A. tridentata* var. *vaseyana*), and silver sagebrush (*A. cana*).

sage-grouse habitat—general habitat management areas: National Forest System lands that are occupied seasonally or year-round habitat outside of priority habitat management areas where some special management would apply to sustain the greater sage-grouse population. The boundaries and management strategies for general habitat management areas are derived from and generally follow the preliminary general habitat boundaries.

sage-grouse habitat—priority habitat management areas: National Forest System lands identified as having highest habitat value for maintaining sustainable greater sage-grouse populations. The boundaries and management strategies for priority habitat management areas are derived from and generally follow the preliminary priority habitat boundaries. Priority habitat management areas largely coincide with areas identified as priority areas for conservation in the Conservation Objectives Team report.

salvage harvest: A harvest of trees for the purpose of removing logs that would contribute to fuel loads, in a post-fire event.

sanitation harvest: A harvest of trees for the purpose of removing insects or diseases from a stand of trees. Sanitation harvesting is used to prevent the diseases or pests from spreading to other nearby trees.

scenery management system: A systematic approach to inventory, analyze, manage and monitor the scenic resources. This system provides a process to determine the relative value and importance of the national forest scenery and assist in establishing overall resource objectives.

scenic character: A combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place. Scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity. (2012 Planning Rule and 36 Code of Federal Regulations 219.19). The scenic character description incorporates the visible natural physical and biological features, as well the context and ways the scenery is viewed and experienced. A scenic character description also includes the viewing context and associations that viewers have with that scenery based upon visible historic and cultural elements and significant and broadly relevant special places.

scenic integrity objectives: Serve as thresholds of allowable visual dominance by landscape modifications and deviations from the valued scenic character, and describe the lowest allowable scenic integrity level for an area. They describe the degree to which a landscape is visually perceived to be complete when compared to the scenic character of that area.

- *Very high:* Landscapes where the valued scenic character is intact with minute if any deviations. The scenic character and sense of place is expressed at the highest possible level. These landscapes generally provide for ecological change only.
- *High:* Landscapes in which the valued scenic character appears intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the scenic character so completely and at such a scale that they are not evident.
- *Moderate:* Landscapes in which the valued scenic character appears slightly altered. Noticeable deviations must remain visually subordinate to the scenic character being viewed. Management activities are subordinate to the attributes described within the described scenic character of the area.
- *Low:* Landscapes in which the valued scenic character appears altered. Deviations begin to dominate the scenic character being viewed but borrow valued attributes such as size, shape, edge effect and pattern of natural openings vegetation type changes or architectural styles outside of the landscape being viewed. Management activities are visible and sometimes dominant features on the landscape.
- *Very low:* Landscape where the valued scenic character appears heavily altered. Deviations may strongly dominate the valued scenic character and do not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside of the landscape being viewed. Management activities are visible and dominate the views of the overall landscape.

scenic river: Within the Wild and Scenic River Act, a tentative classification of 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.

scion: A detached living portion of a plant, such as a bud or shoot, often a branch tip, that is grafted onto the root-bearing part of another plant.

secure habitat: An area with low levels of human disturbance or habitat that allows a wildlife species to remain in a defined area despite an increase in stress or disturbance. The components of security habitat can include vegetation, topography, the size of the patches of vegetation, road density, distance from roads, intensity of the disturbance, and seasonal timing of the disturbance. This general definition covers most uses of the term security habitat, except for elk and grizzly bear, which have specific definitions.

secure habitat (big game): Areas at least 0.5-mile away from motorized routes and at least 250 acres in size.

secure habitat (grizzly bear): Areas at least 0.31 mile (500 meters) away from motorized routes and at least 10 acres in size.

sediment delivery: The delivery of sediment to a water body via overland flow, mass wasting, human activity, or some other means.

sediment yield: The rate of transport of sediment by a stream, generally expressed in terms of tons/year, past a designated “accounting point” in a watershed.

seral: A biotic community that is developmental; a transitory stage in an ecologic succession.

seral/structural stage: A phase of development of an ecosystem in ecological succession from a disturbed, relatively unvegetated state to a complex, mature plant community.

shrub: Perennial, multi-stemmed woody plant that is usually less than 13 to 16 feet in height. Shrubs typically have several stems arising from or near the ground, but may be taller than 16 feet or single-stemmed under certain environmental conditions.

significant cave: A cave located on National Forest System lands, managed under authority of the Cave Resource Protection Act (CRPA), which has been determined to contain significant, biota, cultural, geologic, mineralogic or paleontologic, hydrologic, recreational, educational, scientific resources or opportunities.

silviculture: The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values.

site capability and potential: See “capability and potential.”

site preparation: A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

site productivity: The combined effect of physical and climate properties, soil depth, texture, nutrient load, precipitation, temperature, slope, elevation, and aspect, on tree growth of a specific area of land.

site potential tree: The average maximum height of the tallest dominant trees for a given site class.

ski area: A site and attendant facilities expressly developed to accommodate alpine or Nordic skiing and from which the preponderance of revenue is generated by the sale of lift tickets and fees for ski rentals, for skiing instruction and trail passes for the use of permittee-maintained ski trails. A ski area may also include ancillary facilities directly related to the operation and support of skiing activities (36 Code of Federal Regulations 251.51).

skid trails: A cleared corridor used in timber harvest to transport tress by dragging along the ground to the landing/processing area.

slash: The residue left on the ground after felling and other silvicultural operations, or that has accumulated there as a result of storms, fire, or natural pruning.

slash piles: Woody residue that has been moved, either mechanically or by hand, into piles for burning.

snag: A standing dead tree usually greater than 5 feet in height and 6 inches DBH.

social sustainability: See “sustainability” (36 Code of Federal Regulations 219.19).

social experience threshold: Based on indicators that define the social and resource conditions to be managed. Encounters are commonly used to indicate visitor experience to reveal levels of unacceptable impacts such as crowding and user conflicts.

special use authorization: A written permit, term permit, lease, or easement that authorizes use or occupancy of National Forest System lands and specifies the terms and conditions under which the use or occupancy may occur. (36 Code of Federal Regulations 251.51).

species of conservation concern: A species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area (36 Code of Federal Regulations 219.9(c)).

soil function: Various processes that occur in the soil or at the soil surface and enable the soil to sustain biological productivity, maintain environmental quality, and promote plant and animal health.

soil-landscape: An area of land that exhibits either a repeating or continuous pattern of landscape attributes that are apparent both on the ground and on remotely sensed imagery and reflect underlying patterns of specific soil-forming factors: geology, terrain, and native plant community types. Each soil-landscape can be expected to react in a specified manner to management actions at a land management scale.

soil productivity: The capacity of a soil to produce a certain yield of crops or other plants with a specified system of management. *Note:* Under extensive management inherent productivity equals soil productivity, unless the soil resource has been degraded.

soil quality: The capacity of the soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, and promote plant and animal health relative to inherent conditions prior to any activity caused soil disturbance.

soil restoration: Management actions taken specifically to restore soil physical, chemical, or biological properties that have been degraded due to either management caused or natural disturbances.

Source Water Protection Areas: The area delineated by a State or Tribe for a public water system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of a State or Tribal source water assessment and protection program (SWAP) approved by the Environmental Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)) (36 CFR §219.19) or any subsequent laws applicable to public water systems that provide water for human consumption.

special forest products and plant materials: Are products collected from National Forest System lands that include, but are not limited to, bark, berries, boughs, bryophytes, bulbs, burls, Christmas trees, cones, ferns, firewood, forbs, fungi (including mushrooms), grasses, mosses, nuts, pine straw, roots, sedges, seeds, transplants, tree sap, wildflowers, fence material, mine props, posts and poles, shingle and shake bolts, and rails. Special forest products do not include sawtimber, pulpwood, non-sawlog material removed in log form, cull logs, small roundwood, house logs, telephone poles, derrick poles, minerals, animals, animal parts, insects, worms, rocks, water, and soil (36 CFR 223.216).

spotting: Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

stand: A community of trees occupying a specific area and sufficiently uniform in canopy composition, age, and size class to be a distinguishable unit, forming a single management entity.

standard (STD): A mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. Also see chapter 1.

stand-replacing fire: A fire that is lethal to most of the dominant above ground vegetation and substantially changes the vegetation structure. Stand-replacement fires may occur in forests, woodlands and savannas, annual grasslands, and shrublands. They may be crown fires or high severity surface fires or ground fires.

state and transition models: State and transition model and concepts are typically captured in ecological site descriptions, provide decision-making tools for land managers, provide a means to represent the complex dynamics of rangeland ecosystems, and are effective communication tools. They provide extensive knowledge of existing and possible rangeland vegetation states, transitions, thresholds or other barriers to change, opportunities for management intervention, and what changes can occur through mismanagement. The vegetation types are called "states," and the processes that cause states to change from one to another are called "transitions." Where states are resistant to change, they are called "steady states." An example of a steady state is where long-lived or otherwise dominant plants occur on a site. These steady-state plant communities change only as a result of such transitions as long periods of above-average moisture or drought, fire, an insect or disease outbreak, or human action. The site factors that impose this high level of stability on a site are called "thresholds."

storm proofing: Treatments to roads and trails that increase the resistance to damage from frequent or infrequent weather events. Refer to Forest Service publication Storm Damage Risk Reduction Guide for Low-Volume Roads, October 2015.

streambank alteration/disturbance: Streambanks that show signs of sloughing, dislodged stones or logs, and/or trampling from animals (does not include road crossings). Current-year alteration is discernible from previous years' alteration because of weathering effects of freeze/thaw cycles, rain events, and erosion by stream flow or vegetative regrowth. Types of alteration include shearing, trampling, and trailing.

stressors: Factors that may directly or indirectly degrade or impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime (36 Code of Federal Regulations 219.19). Also see "ecosystem stressor."

structure: The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity. Also see "forest structure."

stubble height: The height of forage plants remaining after grazing has occurred; average stubble height includes both grazed and un-grazed plants (Forest Service Handbook 2209.13 Ch. 90).

succession/successional stage: A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as “seral,” or “successional” stages.

suitability of lands: A determination made regarding the appropriateness of various lands within a plan area for various uses or activities, based on the desired conditions applicable to those lands. The terms suitable and suited and not suitable and not suited can be considered the same.

sustainability: The capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For purposes of this part, “ecological sustainability” refers to the capability of ecosystems to maintain ecological integrity; “economic sustainability” refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and market and nonmarket benefits; and “social sustainability” refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 Code of Federal Regulations 219.19).

sustainable recreation: The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations (36 Code of Federal Regulations 219.19).

Sustained substantial disturbance: The use of heavy equipment or low-level helicopter flights for vegetation management actions for a total of more than 30 days throughout an entire key linkage area in a calendar year.

sustained yield limit: 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 at section 11, 16 United States Code 1611; 36 Code of Federal Regulations 219.11(d)(6)). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the sustained yield limit is not limited by land management plan desired condition, other plan components, or the planning unit’s fiscal capability and organizational capacity. Volume from salvage and sanitation timber harvest is not included in calculating the sustained yield limit. The sustained yield limit is not a target but is a limitation on harvest, except when the plan allows for a departure.

temporary road: A single-purpose road constructed, maintained, and operated for short term use, such as access to a short-lived vegetation or mining project. The road is designed and constructed to not only meet the projects’ immediate traffic objectives, but to be efficiently removed from service following the project. For example, temporary portable bridges would be used on crossings, slash would be stored on-site for restoration, or use of steep grades and narrow widths to minimize costs. (Related: Permanent Road)

threatened species: A species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Threatened species are identified by the Secretary of the Interior in

accordance with the 1973 Endangered Species Act. Threatened species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 223.102.

thresholds (ecological): Points in space and time at which one or more of the primary ecological processes responsible for maintaining the sustained equilibrium of the ecological state degrades beyond the point of self-repair. Examples of thresholds include: soil erosion and nutrient loss so severe that some plants cannot grow; invasion of a site by a plant that is so dominant that other plants cannot compete; and change in plant community structure—arrangement of plants on the site—so that fire, a naturally occurring event that directs ecosystem change, cannot occur or occurs in a more destructive way. In the plan area, there are some sites that have crossed a threshold where primary ecological processes have degraded beyond the point of self-repair where meeting desired conditions is unlikely since they are not easily reversed without significant inputs of resources. These areas largely originated from unmanaged activities in the late 1800s and early 1900s. Once an ecosystem crosses a threshold, it is generally very difficult to restore the original composition, structure and ecological processes by changes in management alone. Prohibitively expensive restoration measures (such as, dam removal, plowing or soil modifications) would generally be necessary to restore degraded ecosystems.

thriving natural ecological balance: The Wild and Free-Roaming Horses and Burros Act of 1971 requires the Forest Service/Bureau of Land Management to manage wild horses in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands in relationship to other multiple uses (16 USC § 1333(a)). To achieve a “thriving natural ecological balance” on National Forest System lands, wild horses should be managed in a manner that assures land management plan standards and guidelines for upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations, as well as other site-specific or landscape-level objectives are met. Wild horse herd health is promoted by achieving and maintaining “thriving natural ecological balance.”

timber harvest: The removal of trees for wood fiber use and other multiple-use purposes (36 Code of Federal Regulations 219.19).

timber production: The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 Code of Federal Regulations 219.19).

topsoil lift: A specified depth (usually 6-inch increments) of surface mineral soil to be excavated separately from underlying subsoil and substrate materials and replaced as the surface soil layer during backfilling.

total maximum daily load: A pollution budget and includes a calculation of the maximum amount of a pollutant that can occur in a waterbody and allocated the necessary reductions to one or more pollutant sources (metals, sediment, turbidity, etc.). A total maximum daily load serves as a planning tool and potential starting point for restoration or protection activities with the ultimate goal of attending or maintaining water quality standards.

Traditional Cultural Property: A cultural resource that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community. The entity evaluated for eligibility for inclusion in the National Register of

Historic Places must be a tangible property; that is, a district, site, building, structure, or object as defined in 36 CFR 64.4.

trail: A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 Code of Federal Regulations 212.1).

trail class: The prescribed scale of development for a trail, representing its intended design and management standards.

trail management objectives (TMO): Management intent for the design, construction, operation, and maintenance of a National Forest System Trail. Examples of the criteria includes trailway geometry, surface type, design considerations for allowed uses, maintenance frequencies, and other factors. Each trail has a collection of objectives housed in the corporate database.

transmission line: The facility in an electric power system used to move large amounts of power from one location to a distant location; distinguished from a distribution line by higher voltage, greater power capability, and greater length. Transmission system voltages are typically from 69kV up to 765kV.

treaty rights: Those rights or interests reserved in treaties for the use and benefit of Tribes. The nature and extent of treaty rights are defined in each treaty. Only Congress may abolish or modify treaties or treaty rights.

Unmanned Aircraft System (UAS): An aircraft used or intended to be used for flight in the air that has no onboard pilot. This includes all classes of airplanes, helicopters, airships and translational lift aircraft with control over 3 axes (FAA Interim Operational Approval Guidance 08-01-Unmanned Aircraft Systems Operations in the U.S. National Airspace System). In addition to the actual aircraft, a UAS also consists of the ground control station. Forest Service UAS operations will comply with FAA policy and/or regulations applicable to UAS flight operations (FSM 5705–Definitions).

unplanned wildland fire: See “wildfire.”

untrammelled: A term defined in the context of the Wilderness Act as an area where human influence does not impede the free play of natural forces or interfere with natural processes in the ecosystem.

values at risk: Ecological, social, and economic assets and resources that could be impacted by fire or fire management actions. Examples include life, property, structures, natural and cultural resources, community infrastructure, public support, economic opportunities such as tourism, and air quality.

vegetation management: A process that changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire, timber harvest, or thinning. For the purposes of this document, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, trails, or roads for example, and does not apply to unplanned wildland fire or permitted livestock grazing.

viable population: A population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments (36Code of Federal Regulations 219.19).

viewshed: The visible portion of the landscape seen from viewpoints. Viewpoints can include residences, recreational facilities, and travel ways.

visual absorption capability: A classification system used to denote the relative ability of a landscape to accept human alternations without loss of scenic quality.

visual magnitude: A project-specific tool for assessing and describing the relative visibility and potential effects of a landscape modification, such as a timber harvest unit or construction of a road or facility, on the scenery. It takes into account the distance, slope and aspect relative to an observer, as well as the number of times an area is seen from given observation platforms.

warm season grass: Warm-season grasses (for example, blue grama, buffalograss, bluestems) grow during warmer periods when temperatures are 70 to 95 °F. Warm-season grasses use soil moisture more efficiently than cool-season species and often can withstand drought conditions. These grasses have different leaf cellular structures that cause them to be more fibrous, contain more lignin, and be less digestible. Therefore, livestock normally prefer cool season grasses if they are at the same growth stage as warm season species. However, because cool season grasses often enter the reproductive period at about the time that warm season grasses begin growth, livestock normally seek out this new growth from warm-season species. A warm season species generally exhibit the C4 photosynthetic pathway; also known as a C4 plant.

watershed: A region or land area drained by a single stream, river, or drainage network; a drainage basin. (36 Code of Federal Regulations 219.19).

watershed condition: The state of a watershed based on physical and biogeochemical characteristics and processes (36 Code of Federal Regulations 219.19).

wetland: An area that under normal circumstances has hydrophilic vegetation, hydric soils, and wetland hydrology.

whole tree logging: A logging system where trees to be harvested are cut off at the base and the entire tree hauled to the landing to be processed into logs.

wild horse range: Means an area specifically designated from a Forest Service wild horse territory or Bureau of Land Management herd management area to be managed principally, but not necessarily exclusively, for wild horses (36 CFR 222.60 (b)(14) and 43 CFR 4710.3-2). Nationally, there are four specific “ranges” thus far, one of which is the Bureau of Land Management portion of the Pryor Mountain Wild Horse Range.

wild river: Within the Wild and Scenic River Act, a tentative classification of those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted. These represent vestiges of primitive America.

wild and scenic river: A river designated by Congress as part of the National Wild and Scenic Rivers System, which was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 Code of Federal Regulations 219.19).

wilderness: An area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 United States Code 1131–1136).

wildfire: A naturally-caused wildland fire (for example, lightning) or human-caused fire, and considered an emergency management situation.

wildland fire: Any nonstructure fire that occurs in the wildland. There are two types of wildland fire: unplanned (natural or human-caused wildfire) and planned (prescribed fire).

wildland-urban interface: A term as defined by the Healthy Forest Restoration Act § 101. It is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the wildland-urban interface is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA, for full text see HFRA § 101.)

winter range: The portion of the overall area a species inhabits where the majority of individuals are found from the first heavy snowfall to spring green-up, or during a site-specific period of winter. In the Rocky Mountains (generally including the montane portion of the plan area), winter range areas tend to have a relatively low amount of snow cover.

woody draws: Also known as green ash draws, are draws with an overstory of woody vegetation, predominantly of green ash, and an understory of grass, forbs, or shrubs. Other hardwoods such as box elder, paper, birch, or aspen may be a minor component. Woody draws must generally be approximately 500-feet long for purposes of application of plan components. These ecosystems are found on the Sioux and Ashland Ranger Districts and provide important habitat for many wildlife species, game and non-game, as well as an important component (shelter and forage) for livestock grazing. The vegetation is a result of higher moisture conditions than in the surrounding area but surface water if any, running through the area is generally short term.

xeric: Environment or habitat containing little moisture; very dry.