



Forest Service
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Final Environmental Impact Statement for the Land Management Plan

Custer Gallatin National Forest

Volume 2: Chapter 3 (part 2), Chapter 4, and Glossary



Custer Gallatin National Forest Title Page: Photo Credit Top left to right – Custer Gallatin National Forest Title Page: Photo Credit – Mariah Leuschen-Lonergan. Top left, going clockwise – Coneflower, Echinacea, native wildflowers, Sioux Ranger District; American Flag and U.S. Forest Service Flag displayed in winter on the Hebgen Lake Ranger District; Packing trip in the Absaroka-Beartooth Wilderness, Yellowstone, Gardiner and Beartooth Ranger Districts, photo by Terry Jones; Elk grazing on the Gardiner Ranger District with sagebrush in background, foreground; Bison grazing in the Greater Yellowstone Ecosystem with Arrowleaf Balsamroot in background, Gardiner and Hebgen Lake Ranger Districts; Center - Close up of Indian Paintbrush, Bozeman Ranger District; View looking into the Rock Creek drainage and Absaroka-Beartooth Wilderness atop Beartooth Pass, Beartooth Ranger District; Rafting on the Gallatin Wild and Scenic River, Gallatin Canyon, Bozeman Ranger District, Calf nursing from Mother (Cow), Multiple use grazing allotments are a critical economic and social fabric of the Ashland and Sioux Ranger Districts; Holiday Christmas Tree gathering is a long-standing tradition for many Montana families, passed down from generation to generation, Bozeman Ranger District, Custer Gallatin National Forest.

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Chapter 3. Affected Environment and Environmental Consequences

3.11 General Contributions to Social and Economic Sustainability

3.11.1 Introduction

The mission of the Forest Service is to sustain the health, diversity, and productivity of the United States' forests and grasslands to meet the needs of present and future generations. The Custer Gallatin National Forest lands both influence and are influenced by local and national publics. Local communities, particularly those adjacent to national forest lands, benefit from a multitude of goods and services provided by the Custer Gallatin and the Forest Service. These social benefits are often referred to as ecosystem services, which are defined "as goods and services provided wholly or in part by ecosystems and that are of value to people" (Olander et al. 2015). The Custer Gallatin's ecosystem services, alongside infrastructure and operations, are the main ways that public lands contribute to social and economic sustainability. Many local communities were formed based on availability of roads and ecosystem goods and services such as timber, minerals, grazing lands, and other natural resources. Historically, individuals in these communities have benefited from a host of services such as recreation, scenery, employment, and opportunities to connect with nature. The general public across the United States also benefits from the Custer Gallatin National Forest. The key benefits the Custer Gallatin and the Forest Service provide include clean air, clean water and aquatic ecosystems, conservation of ecosystems (lands, rare plants, and species for fishing, hunting, and wildlife viewing), specially designated areas, educational and volunteer programs, employee service to communities, fire and fuels management, flood control, infrastructure, forest products (including timber, firewood, Christmas trees, berries, mushrooms), income (payments in lieu of taxes, secure rural schools, induced income, including recreation, timber, grazing, etc.), inspiration (including spiritual inspiration), jobs (and induced jobs, including recreation, timber, grazing, etc.), mineral and energy resources, preservation of historic, cultural, Tribal or archeological sites and caves, grazing, scenery and recreation.

The 2012 Planning Rule states that plans are to guide management so that forests and grasslands contribute to social and economic sustainability, providing communities with ecosystem services and multiple uses that deliver a range of social, economic, and ecological benefits in the present and into the future. Specifically, plan components must include standards or guidelines to guide the Custer Gallatin's contribution to social and economic sustainability. This considers ecosystem services as well as multiple uses that contribute to local, regional, and national economies and communities in a sustainable manner. Furthermore, reasonably foreseeable risks to social benefits shall be considered when developing the plan.

This section, therefore, describes the social and economic conditions of the affected environment using key indicators of social and economic sustainability; describes how key benefits of the Custer Gallatin currently contribute to social and economic sustainability of beneficiaries, both locally and at a broader scale; and evaluates the impacts of the revised plan and alternatives on the benefits the national forest provides to local beneficiaries and the general public.

Regulatory Framework

The following is a select set of statutory authorities that govern the evaluation of social and economic resources in the Custer Gallatin. They are briefly identified and described below to provide context to the management and evaluation of the resource. There are multiple other laws and regulations and policies not described below that also guide the management of this resource.

2012 National Forest System Land Management Planning Rule: makes evaluations of social and economic resources are framed within the context of sustainability because, in accordance with the 2012 National Forest System Land Management Planning Rule (36 CFR 219), land management plans are to guide management so that national forests and grasslands are ecologically sustainable and contribute to social and economic sustainability. The agency 2012 planning process leads to plans that contribute to ecological, social, and economic sustainability by protecting resources on the unit to maintain a flow of goods and services from National Forest System lands on the unit over time.

Portions of the 2012 Planning Rule that specifically relate to social and economic resources include: “contribute to ecological, social, and economic sustainability by ensuring that all plans will be responsive and can adapt to issues such as the challenges of climate change; the need for forest restoration and conservation, watershed protection, and species conservation; and the sustainable use of public lands to support vibrant communities.” “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. “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 (36 CFR 219.19) section 219.8. The plan must provide for social, economic, and ecological sustainability within Forest Service authority and consistent with the inherent capability of the national forest, as follows:

Social and economic sustainability (36 CFR 219.8(b)). The plan must include plan components, including standards or guidelines, to guide the forest’s contribution to social and economic sustainability, considering:

1. Social, cultural, and economic conditions relevant to the area influenced by the plan;
2. Sustainable recreation; including recreation settings, opportunities, and access; and scenic character;
3. Multiple uses that contribute to local, regional, and national economies in a sustainable manner;
4. Ecosystem services;
5. Cultural and historic resources and uses; and
6. Opportunities to connect people with nature (36 CFR 219.8).

Reasonably foreseeable risks to ecological, social, and economic sustainability (36 CFR 219.10 (a)).

The rule states that the plan must also be consistent with laws and executive orders including:

Multiple-Use Sustained Yield Act of 1960: identifies principles for managing the resources of the National Forest System. The direction to manage these resources for the greatest good over time includes the use of economic and social analysis to determine management of the National Forest System.

National Environmental Policy Act of 1969: mandates consideration of the consequences to the quality of the human environment from proposed management actions. The agency must examine the potential impacts to physical and biological resources as well as potential socioeconomic impacts (40 CFR 1508.14).

Forest and Rangeland Renewable Resources Planning Act of 1974 (as amended by the National Forest Management Act of 1976): requires consideration of potential economic consequences of land management planning.

Office of Management and Budget Circular A-116 (issued August 16, 1978): requires executive branch agencies to conduct long range planning and impact analysis associated with major initiatives.

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.

National Forest Revenue Act (amended 1908): requires 25 percent of revenues generated by National Forest System lands to be paid to the states for use by the counties in which the lands are situated for the benefit of public schools and roads.

Secure Rural Schools and Community Self-Determination Act of 2000: designed to stabilize annual payments to state and counties containing National Forest System lands and public domain lands managed by the Bureau of Land Management. Funds distributed under the provisions of this act are for the benefit of public schools, roads, and related purposes.

Key Indicators and Measures

Social Conditions

The social conditions of the area of influence are assessed using the following demographic indicators:

- population size
- population change (2000-2010) and projected change (2010-2030)
- urbanization trend (percent change in ratio of urban to rural households 2000-2010)
- elderly composition (percent of population aged 62 and older)
- low-income population (percent of population below poverty line) - environmental justice indicator
- minority population (percent of non-Hispanic white population) - environmental justice indicator.

Environmental Justice

Social conditions indicators are also used to identify environmental justice populations within the social area of analysis. These populations are defined as Census County Divisions (a proxy for communities) with a poverty rate over 20 percent or a minority population of 20 percent or greater (Periman and Grinspoon 2014). The process for identifying environmental justice communities within the social area of influence is described in detail in the Social and Economic Environment Assessment Report (Larson and Rasch 2017b).

Economic Conditions

The indicators used to assess economic sustainability are the contributions of direct, indirect, and induced jobs and income, as well as direct Federal land payments made to local governments. National Forest System administration and national forest assets, including natural resources as well as many other ecosystems goods and services, contribute to the economic sustainability within the area of influence.

Within the concept of quality of life are economic opportunities to obtain income and employment. For the purposes of this analysis, economic factors of quality of life will be discussed separately of others labeled as social benefits.

The key economic benefits of the Custer Gallatin include reliable contributions to jobs and income, directly and indirectly. These benefits, as well as other social benefits, were identified through interdisciplinary discussions with forest staff and comments from the public. Key economic benefits to society provided by the Custer Gallatin include:

- Income (direct, indirect, and induced income from multiple uses of national forest assets)
- Jobs (direct, indirect, and induced jobs, including those related to providing recreation experiences, harvesting and process timber into forest products, grazing and the raising of livestock, mineral, oil and gas resources for energy and raw material productions, administrative, agency operations related, and other types of jobs).

Social Benefits

The indicators used to assess contributions to social sustainability are the key social benefits the Custer Gallatin provides to beneficiaries, explored in the context of social conditions. These social benefits contribute to the social sustainability of the area of influence (that is, affected communities and beneficiaries) by enhancing the quality of life of the public. Quality of life is defined as the general level of wellbeing of individuals and society. The concept of quality of life encompasses all aspects of life including employment, safety, and health. For the purposes of this analysis, however, income, jobs, health, safety, and well-being are often discussed separately to emphasize the specific ways the Custer Gallatin enhances quality of life.

The key social benefits of the Custer Gallatin include ecosystem services, multiple uses, infrastructure and contributions from management operations such as educational programs and fire suppression. Key benefits were identified through interdisciplinary discussions with national forest staff and comments from the public. Key benefits to society provided by the Custer Gallatin include:

- Clean air
- Clean water, aquatic ecosystems, and flood control
- Conservation of wildlife and rare plants, including species for fishing, hunting, and wildlife viewing)
- Designated areas
- Educational and volunteer programs
- Employee service to communities
- Fire suppression and fuels management

- Forest products (including timber, firewood, Christmas trees, berries, mushrooms)
- Grazing
- Income (payments in lieu of taxes, secure rural schools, induced income, including recreation, timber, grazing, etc.)
- Infrastructure
- Inspiration (including spiritual inspiration)
- Jobs (and induced jobs, including recreation, timber, grazing, etc.)
- Mineral and energy resources
- Preservation of historic, cultural, Tribal, or archeological sites
- Recreation
- Scenery.

Methodology and Analysis Process

Social benefits of the Custer Gallatin are those ecosystem services (including multiple uses), infrastructure, and operations, which either directly or indirectly, contribute to social sustainability; that is, they are of value to people. Infrastructure and operations benefits include both physical elements, such as roads and facilities, as well as all the services the national forest staff provide such as fire suppression and educational programs.

Numerous approaches exist for measuring society's condition or progress towards achieving social sustainability. In the forest planning context, a broad ecosystem services framework, which catalogues social benefits of forests, is an ideal framework for identifying how the national forest contributes to social sustainability.

Social benefits of the Custer Gallatin are used and valued differently by different groups and communities. The Social and Economic Conditions Assessment Report (Larson and Rasch 2017b) provided a brief overview of social conditions and highlighted the benefits the national forest provides to the affected communities. In the affected environment section, the social conditions of affected communities are summarized alongside a discussion of the key social benefits the Custer Gallatin provides to beneficiaries.

A social area of analysis was identified during the assessment phase to analyze the potential effects of the proposed action and alternatives on the Custer Gallatin's contributions to social sustainability. The social area of analysis is defined as all census county subdivisions within 50 miles of the national forest boundaries. The social area of influence is different from the economic analysis area.

The social analysis is conducted in three steps. First, the relevant social conditions of the social area of analysis are summarized. Next, each social benefit is briefly described, and when relevant, discussed in the context of the social conditions of the area of influence. Some social benefits are easier to quantify than others. Indicators that do not easily lend themselves to quantification, such as employee service to communities, are discussed qualitatively. Lastly, the proposed action and alternatives are analyzed to determine how they might affect each social benefit; that is, contribution to social sustainability, taking relevant social conditions, risks and stressors into account. Social benefits addressed in detail in other

resource reports are only briefly addressed in this section. This section draws from other resource analysis sections.

The focus of this analysis is determining how the proposed action and alternatives may affect contributions to economic sustainability and to social sustainability or social benefits.

Economic benefits of the Custer Gallatin are those that directly result from economic opportunities provided by national forest assets including National Forest System administration.

Limited approaches exist for measuring conditions and progress towards achieving economic sustainability. In the forest planning context, an economic impact analysis is a useful method to estimate the contribution of jobs and income from agency administration, and the provision of measurable ecosystem goods and services.

The economic area of influence is comprised of 15 counties, an area identified with the most recently available data through methods detailed in the Forest Service Protocols for Delineation of Economic Impact Analysis Areas (METI Corp/Economic Insights of Colorado 2010), and further updated by the Washington Office Memorandum (Retzlaff 2009). The economic area of influence is different from the social analysis area.

Information Sources

Information sources for social conditions and social benefits include a mix of agency databases, public surveys, government planning documents, public meeting notes, public comments, and scientific information. Information sources include county growth policies (Harding County Planning Team 2012), American Community Survey, 2010 to 2014 dataset, United States Census, Economic Profile System–Human Dimensions Toolkit (EPS-HDT) (County Health Rankings & Roadmaps 2016), the Northern Region social survey, the public lands survey, public comments, and public meeting notes. Scientific literature related to environmental management values and preferences for public land management are also referenced, where relevant. The EPS-HDT data platform harmonizes data from the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the US Census Bureau (Headwaters Economics). Internal databases which contain administrative data on grazing permits, timber contracts, educational programs, partnerships, and volunteer program participants are used in the analysis. The data used in the analysis of the social environment are the best available.

The social analysis would benefit from a systematic collection of data on the values, attitudes, and beliefs of affected communities as they relate to forest management and planning decisions. Survey data on the values, attitude, and beliefs of the local population within the social area of influence are used in the analysis, which are appropriate for assessing values, attitudes, and beliefs at the plan area scale. However, data are not available at the community level. The public had opportunities to contribute their input throughout the assessment and planning process by attending public meetings and submitting public comments. There are no data available to measure what proportion of the affected public understood or engaged in these processes.

Economic existing conditions data are collected and monitored through the Economic Profile System – Human Dimensions Toolkit (EPS-HDT) ([Headwaters Economics: Getting the Economics Right](#)), a data repository that is updated monthly. The economic and population data accessed through Economic Profile System are sourced from various Federal sources including the U.S. Department of Commerce.

Additional economic data is collected from IMPLAN licensed software, an aggregator of regional economic research data for over 500 industries in the United States.

The economic analysis would benefit from economic data at subcounty levels, and from time periods that are more current than existing economic datasets typically are made available. However, these data are not readily available from a public source or consistent across communities.

The social and economic analysis draws upon the best available literature citations that were found to be relevant to the economic and social conditions on the Custer Gallatin. Literature sources that were the most recent, peer-reviewed, and local in scope or directly applicable to the local economic and social environment were selected. Uncertainty and conflicting literature were acknowledged and interpreted when applicable.

Analysis Area

The social area of analysis is defined by both geography and social ties. All Census county divisions within 50 miles of the Custer Gallatin are included. The 50-mile distance threshold is commonly used to approximate areas of social influence as it represents approximately a one-hour's drive to the national forest. This is a reasonable distance for one to travel on a weekly or even daily basis, either for recreation or for commuting purposes. Additionally, the bulk of national forest visits, over 2 million, (approximately 67 percent of total visits) to the Custer Gallatin, according to 2010-2014 National Visitor Use Monitoring Survey data, were from people living within 50 miles of the national forest.

The social area of influence contains 231 county subdivisions, spanning 46 counties, most Custer Gallatin lands fall within 11 counties: 10 counties in Montana (Meagher, Madison, Gallatin, Park, Sweet Grass, Stillwater, Carbon, Rosebud, Powder River, Carter) and Harding, South Dakota.

Contributions from the Custer Gallatin to the broader landscape, including national and global stakeholders, are also considered. The scale of the broader landscape is dependent on the given benefit in question. For example, those who benefit from the existence of wilderness, even if they never plan to visit (Kline and Mazzotta 2012), are considered when examining the inspirational benefits of wilderness areas in the Custer Gallatin. For a detailed explanation on the social area of analysis, please refer to the socioeconomic report in Social and Economic Conditions Assessment Report (Larson and Rasch 2017b).

There are multiple analysis areas to consider when measuring economic benefits. The broadest of these areas includes 52 counties and encompasses all counties within 50 miles of the national forest boundary. Within these 52 counties exists a more intimate analysis defined in the forest plan assessment. This area is made up of 15 counties, 11 of which receive Federal land payments for having the Custer Gallatin lands within them.

The temporal scope of the analysis is the anticipated life of the plan. The analysis area for indirect effects is the same as the analysis area for cumulative effects.

Notable Changes between the Draft and Final Environmental Impact Statements

Adjustments to explanatory language are incorporated to address public comments. These include clearer explanations of sources of inspiration from the national forests as well as more precise language around contributions to scenery. The final environmental impact statements also include the analysis of alternative F.

3.11.2 Affected Environment (Existing Condition)

The affected environment segment is subdivided into four sections: social conditions, environmental justice populations, economic conditions (including contribution to economic sustainability), and social benefits (that is, contributions to social sustainability).

Social Conditions

The key social conditions in the social area of influence are summarized in table 1 by geographic area. The western area are those communities within 50 miles of the Pryor Mountains; Absaroka Beartooth Mountains; Bridger, Bangtail and Crazy Mountains; and Madison, Henrys Lake and Gallatin Mountains geographic areas. The eastern area are those communities within 50 miles of the Sioux and Ashland geographic areas. Under elderly population, high or low indicates some communities in the social area have a higher proportion of elderly and some have a lower proportion of elderly, compared to the state of Montana.

Table 1. Summary of social conditions in the social area of influence

Social Condition	Total social area of analysis	Western communities	Eastern communities
Population size	590,000	Large	Small
Population change (2000-2010)	Increased	Mostly increased	Mostly decreased
Projected population change (2010-2030)	Increase	Increase	Increase
Urbanization (2000-2010)	No change	Increased	Decreased
Elderly population	High/low	High/low	High/low
Low-income population	Yes	Yes	Yes
Minority population	Yes	Yes	Yes

Many communities around the Custer Gallatin are growing rapidly, and are projected to continue to grow in the coming decades (Rasker and Hansen 2000, Hickenbottom 2001). Population growth in some communities can be largely attributed to the natural amenities in the area and the relatively easy access to forest benefits including a variety of recreation settings, opportunities for hiking, fishing, hunting, viewing scenery and wildlife (McGranahan 1999). There continues to be a high demand for both urban and rural lifestyles. Although populations are increasing in urban areas, they are also increasing in rural areas (Gude et al. 2006), suggesting that increasing demand for forest benefits such as water, productive soils, recreation and grazing will continue into the coming decades. While the social area of influence has a similar proportion of elderly communities, compared to the state averages, there are also higher concentrations of older populations in some communities close to forest boundaries. This suggests the enduring presence of populations that hold more traditional, utilitarian values around forest resources and more demand for developed recreation opportunities, which older populations can access more easily. There are also many younger, urban communities around the Custer Gallatin, which are more likely to hold distanced, preservationist values and prefer less developed recreation (Bowker et al. 2006, Bowker et al. 2012, Rasch 2018). Given the growth and diversity of communities in the social area of influence, forest managers need to balance a broad range of values and interests (Howe et al. 1997).

Environmental Justice Populations

Environmental justice populations exist in the social area of analysis and are defined as Census County Divisions (a proxy for communities) with a poverty rate over 20 percent or a minority population of 20 percent or greater. Figure 1 shows the distribution of environmental justice communities across the social area of influence.

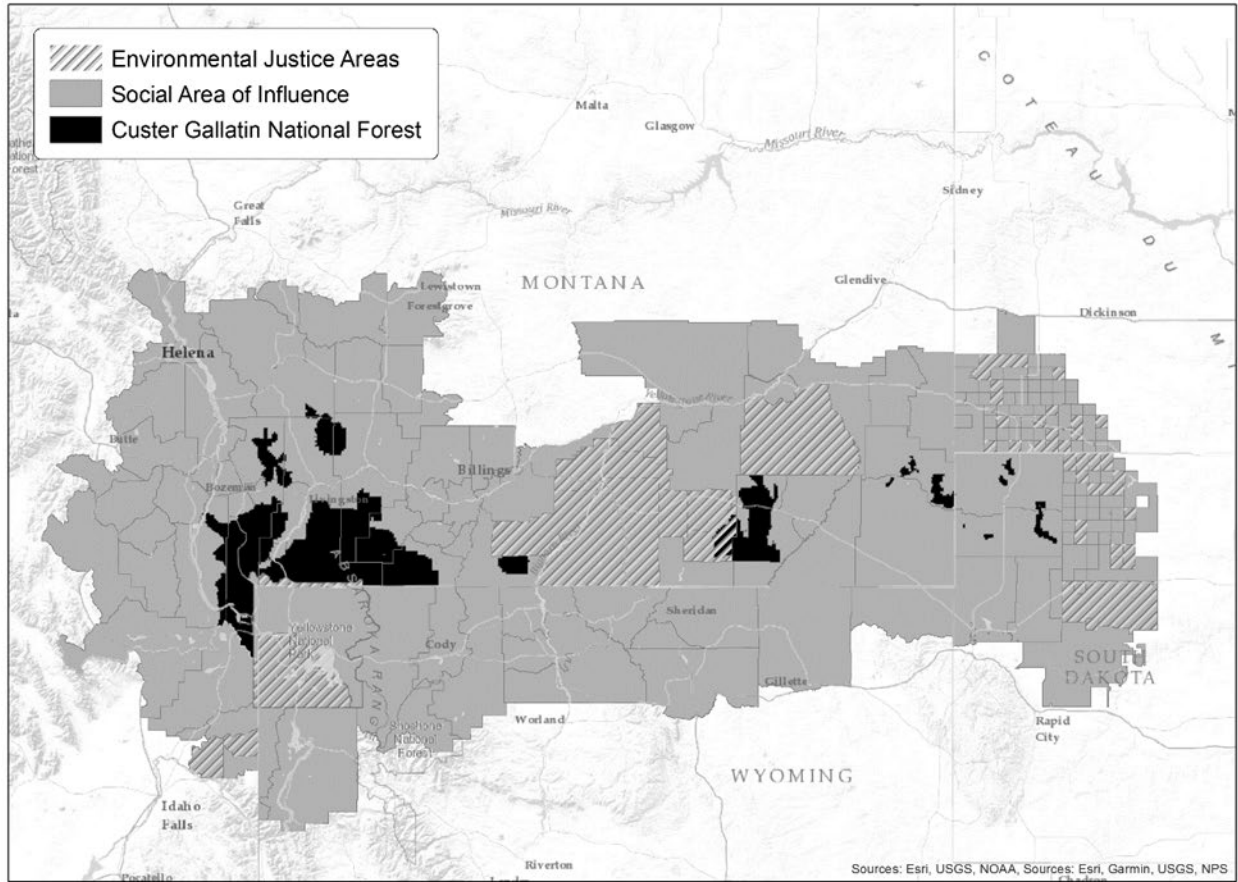


Figure 1. Environmental justice communities in the social area of influence. Data Source: U.S. Census 2015; Map source: U.S. Forest Service Northern Region 2016

The bulk of the environmental justice populations are located on the eastern side of the Custer Gallatin. Two exceptions are Tetonia and East Madison, located in Idaho southwest of the Custer Gallatin, which have high rates of minority and poverty population, respectively. The Crow Reservation and the Northern Cheyenne Reservation are of concern, given the high levels of both poor and minority populations in those communities.

Economic Conditions

The area of influence described in this section and displayed in figure 2 comprises 52 counties, an area identified with the most recently available data through methods detailed in the USDA Forest Service Protocols for Delineation of Economic Impact Analysis Areas (METI Corp/Economic Insights of Colorado 2010).

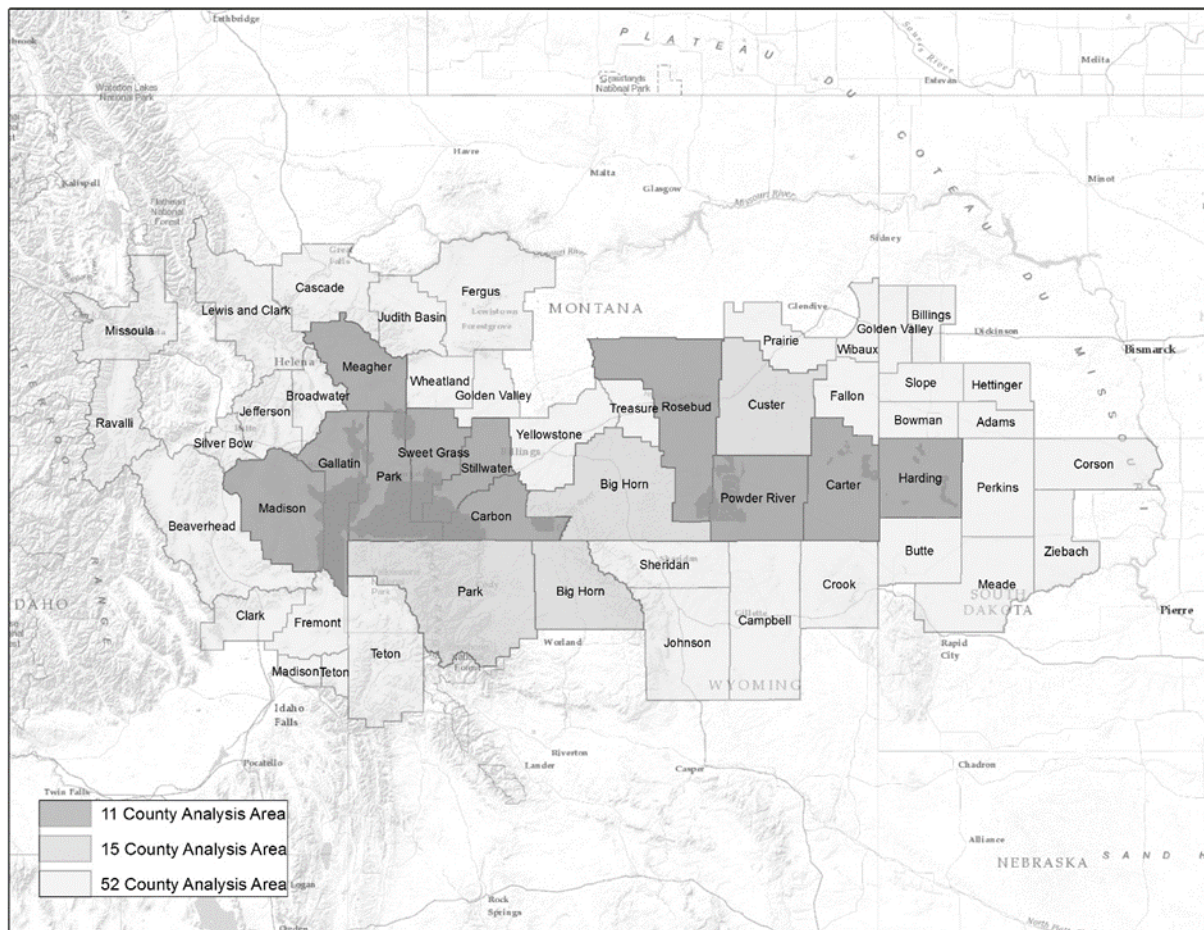


Figure 2. Economic area of influence. Map source: U.S. Forest Service Northern Region 2018

The Social and Economic Conditions Assessment Report (Larson and Rasch 2017a) provided details on the economic characteristics and trends of 15 of these counties including: sector and industry presence (jobs), employment (unemployment rate), income (labor and non-labor), and economic diversification (Shannon-Weaver index). The data in the assessment were reviewed to determine which economic conditions may be relevant for analyzing the effects of the alternatives on economic sustainability. With this lens in mind, the affected environment section provides a more focused summation of the economic conditions in the analysis area. Relevant economic conditions, specifically income, and subsequent jobs in industries closely tied to Federal lands, recreation, and natural resources are of key interest.

Total population, employment, and personal income trends since 1970 fluctuate widely across the area of influence counties. Table 2 shows the 52 counties ordered by largest population. Population change, since 1970, ranges from 375 percent to negative 48 percent, a measurement for Teton County, Wyoming and Slope County, North Dakota, respectively. Employment change since 1970 ranges from 820 percent to negative 24 percent, a measurement again for Teton and Slope counties, respectively. Lastly, personal income change, since 1970, ranges from 2,335 percent to 25 percent, a measurement for Teton County, Wyoming, and Clark County in Idaho, respectively.

Table 2. County population, employment, and personal income trends in multi-county area, 1970–2016

County	Population 2016	Population Rank	Population percentage change 1970–2016	Employment percentage change 1970–2016	Personal Income percentage change 1970–2016
Adams County, North Dakota	2,305	37	-39%	-2%	16%
Beaverhead County, Montana	9,401	24	15%	90%	118%
Big Horn County, MT	13,343	14	33%	55%	103%
Big Horn County, WY	12,005	16	17%	49%	99%
Billings County, ND	934	48	-21%	45%	190%
Bowman County, ND	3,241	32	-17%	44%	103%
Broadwater County, MT	5,747	29	126%	139%	318%
Butte County, SD	10,205	22	31%	50%	106%
Campbell County, SD	1,378	43	-52%	-21%	4%
Carbon County, MT*	10,460	21	48%	105%	198%
Carter County, MT*	1,203	45	-38%	-11%	29%
Cascade County, MT	81,755	4	-1%	35%	60%
Clark County, ID	860	49	14%	30%	-25%
Corson County, SD	4,132	30	-18%	-13%	24%
Crook County, WY	7,464	28	65%	118%	207%
Custer County, MT	11,924	17	-2%	41%	64%
Fallon County, MT	3,120	33	-23%	38%	63%
Fergus County, MT	11,413	19	-10%	32%	54%
Fremont County, ID	12,943	15	48%	61%	163%
Gallatin County, MT*	104,502	3	219%	511%	664%
Golden Valley County, MT	831	50	-8%	20%	95%
Golden Valley County, North Dakota	1,817	41	-31%	20%	64%
Harding County, SD*	1,278	44	-32%	9%	27%
Hettinger County, ND	2,629	36	-48%	-12%	24%
Jefferson County, MT	11,853	18	124%	177%	412%
Johnson County, WY	8,486	26	51%	131%	193%
Judith Basin County, MT	1,940	39	-27%	-3%	39%

Chapter 3. Affected Environment and Environmental Consequences

County	Population 2016	Population Rank	Population percentage change 1970–2016	Employment percentage change 1970–2016	Personal Income percentage change 1970–2016
Lewis and Clark County, MT	67,282	5	101%	179%	228%
Madison County, ID	39,048	7	187%	343%	344%
Madison County, MT*	7,924	27	57%	195%	315%
Meade County, SD	27,693	11	61%	160%	165%
Meagher County, MT*	1,827	40	-14%	23%	70%
Missoula County, MT	116,130	2	99%	226%	297%
Park County, MT*	16,114	13	42%	117%	210%
Park County, WY	29,353	10	65%	145%	245%
Perkins County, SD	2,983	34	-37%	-11%	9%
Powder River County, MT*	1,746	42	-38%	-7%	2%
Prairie County, MT	1,182	46	-33%	-18%	31%
Ravalli County, MT	42,088	6	189%	330%	472%
Rosebud County, MT*	9,287	25	54%	111%	193%
Sheridan County, WY	30,200	9	69%	145%	212%
Silver Bow County, MT	34,553	8	-18%	29%	75%
Slope County, ND	763	51	-48%	-24%	27%
Stillwater County, MT*	9,406	23	101%	177%	270%
Sweet Grass County, MT*	3,623	31	22%	105%	139%
Teton County, ID	10,960	20	365%	489%	681%
Teton County, WY	23,191	12	375%	820%	2335%
Treasure County, MT	692	52	-36%	-21%	16%
Wheatland County, MT	2,117	38	-15%	-11%	23%
Wibaux County, MT	1,093	47	-25%	11%	35%
Yellowstone County, MT	158,437	1	80%	172%	251%
Ziebach County, SD	2,801	35	27%	9%	51%
<i>County Region</i>	<i>977,662</i>	<i>N/A</i>	<i>61%</i>	<i>147%</i>	<i>226%</i>
<i>U.S.</i>	<i>323 Million</i>	<i>N/A</i>	<i>59%</i>	<i>112%</i>	<i>201%</i>

*Counties intersecting the Custer Gallatin National Forest Boundary and receiving Federal Land Payments.

Unemployment and industry presence also fluctuate greatly across analysis area counties. Table 3 shows the 52 counties ordered by unemployment rate. Unemployment rate ranges from 12.1 percent to 1.8 percent, a measurement for Big Horn County, Montana, and Bowman County, North Dakota, respectively. Timber industry presence in private employment is highest, at 17.5 percent in Broadwater County, Montana. Mining industry presence in private employment is highest, at 82.5 percent in Golden Valley County, Montana. Agriculture industry presence in private employment is highest, at 46.2 percent in Slope County, North Dakota. Lastly, travel and tourism industry presence in private employment is highest, at 50.6 percent in Clark County, Idaho.

For most area of influence counties, private timber industries do not represent a significant employer, or employment base, the exception being Broadwater and Crook Counties, where timber represents over 5 percent of all private employment. Despite also being a relatively small percentage of the total economic benefits contributed by the Custer Gallatin, jobs related to the timber, minerals and energy, and agriculture sectors are likely more sensitive to potential impacts from forest planning.

Table 3. Unemployment and industry presence in private employment in primary counties

County	Unemployment rate 2016	Timber percentage of total private employment	Mining percentage of total private employment	Agriculture percentage of total employment	Travel and Tourism percentage of total private employment
Adams County, North Dakota	2.4%	0.0%	0.0%	21.3%	11.6%
Beaverhead County, MT	3.0%	0.4%	1.3%	10.0%	25.1%
Big Horn County, MT	12.1%	0.0%	25.0%	9.8%	20.0%
Big Horn County, WY	4.1%	0.5%	12.5%	11.4%	14.9%
Billings County, ND	3.0%	0.0%	23.5%	20.8%	38.9%
Bowman County, ND	1.8%	0.0%	4.4%	13.2%	17.6%
Broadwater County, MT	4.6%	17.5%	0.5%	13.2%	26.8%
Butte County, SD	3.5%	2.6%	10.7%	11.3%	20.7%
Campbell County, SD	3.3%	0.0%	0.0%	26.7%	11.1%
Carbon County, MT*	3.6%	0.2%	1.6%	13.8%	45.7%
Carter County, MT*	2.4%	0.0%	0.0%	41.3%	26.5%
Cascade County, MT	3.7%	0.1%	0.1%	2.3%	20.4%
Clark County, ID	2.5%	0.0%	0.0%	21.2%	50.6%
Corson County, SD	3.9%	0.0%	0.0%	22.0%	22.3%
Crook County, WY	3.5%	8.4%	14.4%	12.4%	17.6%
Custer County, MT	3.2%	0.0%	4.1%	6.2%	20.7%
Fallon County, MT	2.7%	0.0%	19.7%	13.1%	9.8%

Chapter 3. Affected Environment and Environmental Consequences

County	Unemployment rate 2016	Timber percentage of total private employment	Mining percentage of total private employment	Agriculture percentage of total employment	Travel and Tourism percentage of total private employment
Fergus County, MT	3.9%	0.4%	0.1%	11.8%	16.8%
Fremont County, ID	2.7%	0.4%	0.2%	14.6%	15.1%
Gallatin County, MT*	2.7%	0.2%	0.4%	1.6%	25.0%
Golden Valley County, MT	4.8%	0.0%	82.4%	32.1%	15.3%
Golden Valley County, North Dakota	2.0%	0.0%	0.0%	17.7%	16.1%
Harding County, SD*	3.1%	0.0%	25.9%	25.0%	11.1%
Hettinger County, ND	1.9%	0.0%	0.0%	28.2%	14.2%
Jefferson County, MT	4.1%	2.1%	13.3%	8.2%	18.7%
Johnson County, WY	4.2%	0.3%	1.9%	7.6%	25.4%
Judith Basin County, MT	3.5%	0.0%	0.5%	32.2%	23.4%
Lewis and Clark County, MT	3.3%	0.2%	0.1%	1.6%	17.9%
Madison County, ID	1.9%	0.3%	0.0%	3.2%	8.2%
Madison County, MT*	3.7%	0.6%	6.2%	10.8%	23.4%
Meade County, SD	3.3%	0.8%	0.1%	7.0%	17.8%
Meagher County, MT*	4.3%	0.7%	2.0%	17.2%	38.9%
Missoula County, MT	3.5%	1.1%	0.1%	0.8%	20.7%
Park County, MT*	4.0%	1.9%	0.1%	6.4%	32.2%
Park County, WY	4.3%	0.6%	2.5%	5.0%	24.2%
Perkins County, SD	2.9%	0.0%	0.0%	19.1%	12.4%
Powder River County, MT*	2.4%	0.0%	14.6%	28.3%	23.0%
Prairie County, MT	3.3%	0.0%	0.0%	27.7%	13.0%
Ravalli County, MT	4.5%	1.7%	0.0%	6.6%	16.7%
Rosebud County, MT*	5.0%	0.0%	16.6%	9.6%	14.7%
Sheridan County, WY	3.9%	0.0%	0.8%	4.1%	25.4%
Silver Bow County, MT	4.1%	0.0%	3.1%	0.6%	23.5%
Slope County, ND	2.0%	0.0%	43.4%	46.2%	10.5%
Stillwater County, MT*	3.9%	0.5%	24.6%	11.6%	11.7%
Sweet Grass County, MT*	3.1%	0.0%	35.8%	13.7%	22.4%
Teton County, ID	2.7%	0.1%	0.0%	8.4%	17.9%

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County	Unemployment rate 2016	Timber percentage of total private employment	Mining percentage of total private employment	Agriculture percentage of total employment	Travel and Tourism percentage of total private employment
Teton County, WY	3.0%	0.0%	0.0%	0.6%	43.6%
Treasure County, MT	3.9%	0.0%	0.0%	35.8%	9.6%
Wheatland County, MT	4.2%	0.0%	1.5%	19.9%	16.9%
Wibaux County, MT	3.2%	0.0%	11.0%	26.5%	34.6%
Yellowstone County, MT	3.4%	0.2%	0.6%	1.3%	18.6%
Ziebach County, SD	4.8%	0.0%	0.0%	34.1%	45.1%
<i>County Region</i>	3.5%	0.5%	1.5%	4.2%	21.4%
<i>U.S.</i>	4.4%	0.6%	0.5%	1.4%	15.8%

*Counties intersecting the Custer Gallatin National Forest Boundary and receiving Federal land payments.

Collectively, across the full extent of the economic area of influence, private timber jobs were estimated at 1,748 in 2016. Figure 3 provides a 19-year trend on timber industry employment levels, as observed by the U.S. Census Bureau County Business Patterns (Headwaters Economics 2018b). Over this time period, private industry timber jobs in this multi-county region have more than halved, the greatest decline occurring in the saw and paper mill subsector.

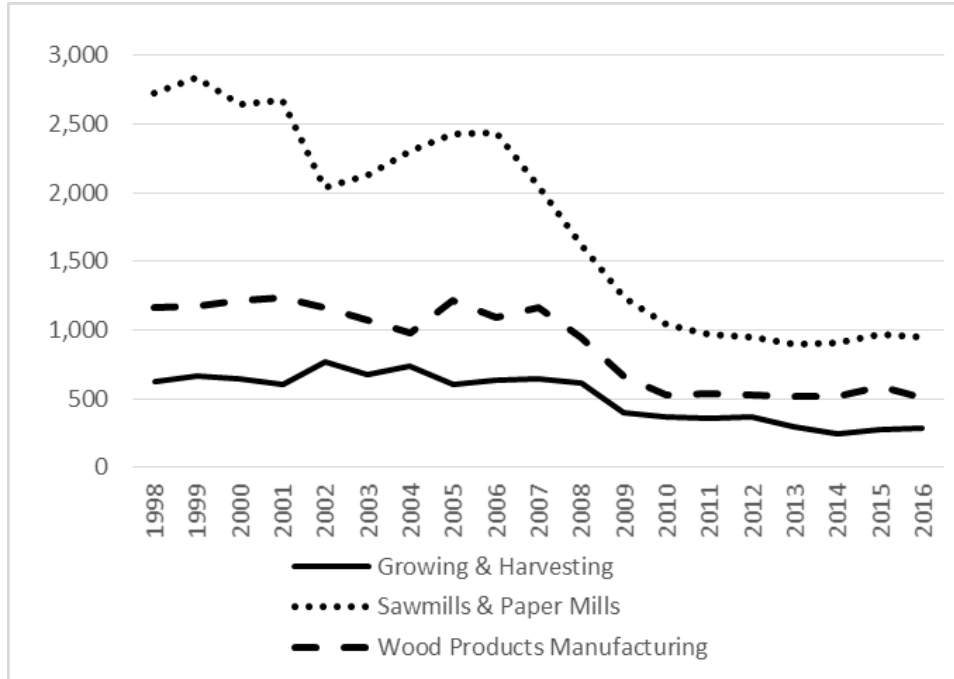


Figure 3. Jobs in timber sectors, 52 county area of influence, 1998 to 2016

The total economic value of the Custer Gallatin lands and operations, including the contribution of jobs and income to this economic area, involves a great deal more than just sustaining jobs and income in these timber sectors. Industries involving minerals and energy, agriculture and range, recreation, travel, and tourism, also directly benefit greatly from this national forest.

Across the full extent of the economic area of influence, private mineral and energy jobs were estimated at 5,514 in 2016. Figure 4 provides the same 19-year trend in mineral and energy industry employment levels, as observed by the U.S. Census Bureau County Business Patterns (Headwaters Economics 2018a).

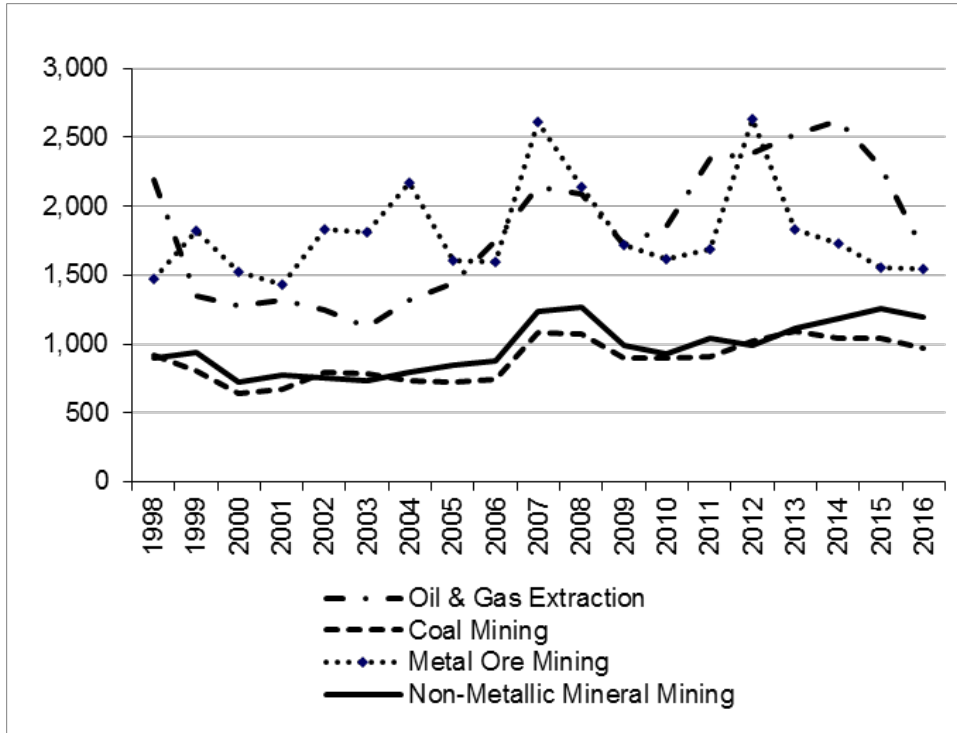


Figure 4. Jobs in mineral and energy sectors, 52 county area of influence, 1998 to 2016

During this time, private industry mineral and energy jobs in this multi-county region have fluctuated with the rise and fall of external market events, and resource discoveries. Levels of employment in this sector have been collectively more stable than in timber sectors across the same region.

In addition to mineral and energy industries, agriculture and grazing industries benefit from the availability of water and rangeland delivered or provided by national forests. Around the Custer Gallatin, total farm jobs in the area of influence have trended slightly down over a long period of time. From 1970, to 2016, farm jobs in this region have decreased from 33,759, to 27,383 (figure 5). A subset of this large sector includes livestock and range jobs. On a land percentage basis, rangeland is approximately 76 percent of all farmland acres in in this region.

Finally, recreation opportunities for local and non-local visitors to the Custer Gallatin influences travel and tourism activity across this multi-county region. Collectively, jobs in these subsectors are shifting and on the rise. Since 1998, jobs in retail, arts, and entertainment, and accommodations and food service have been on the rise, collectively, from 56,000 to 76,000 in 2016 (figure 6).

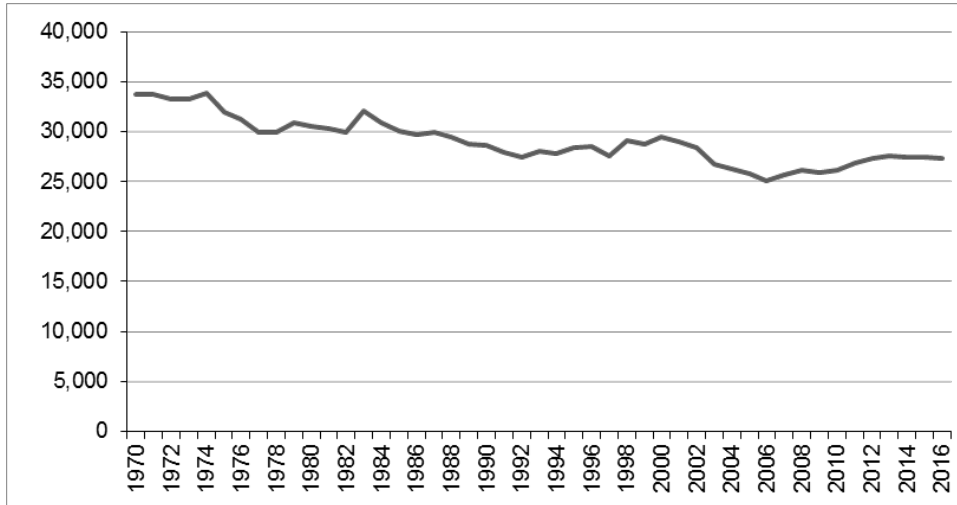


Figure 5. Jobs in farm sectors, 52 county area of influence, 1998 to 2016

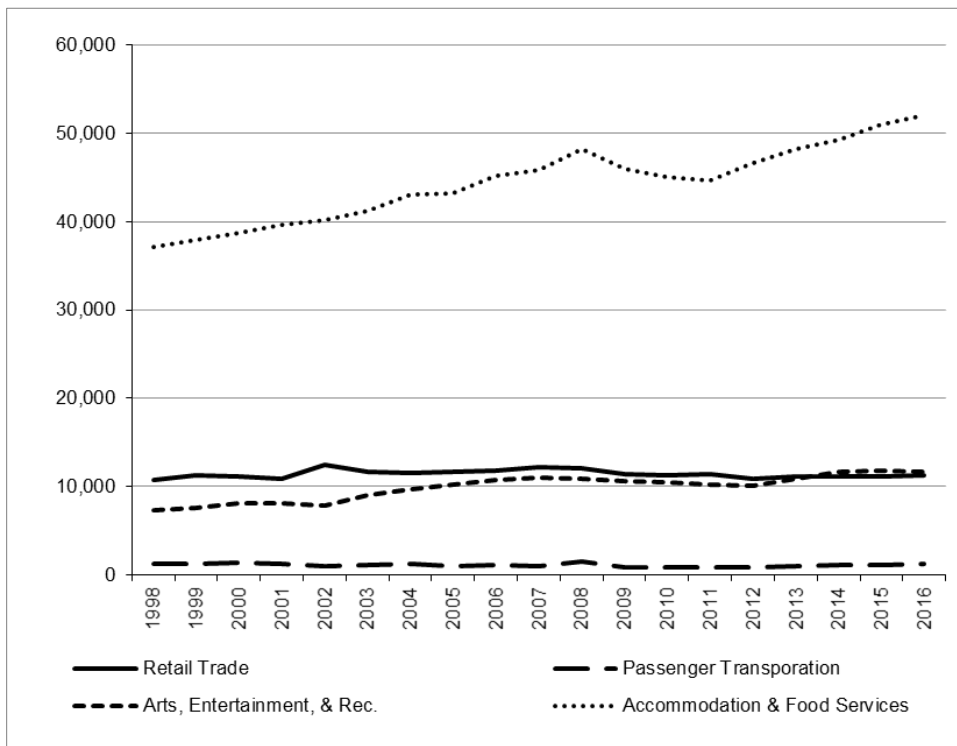


Figure 6. Jobs in travel and tourism related sectors, 52 county area of Influence, 1998 to 2016

Social Benefits

The key benefits of the Custer Gallatin that contribute to social sustainability by enhancing quality of life are described in detail in the Social and Economic Conditions Assessment Report (Larson and Rasch 2017b). These include relevant benefits of multiple uses, ecosystem services, infrastructure, and operations. Below is a brief summary of the social benefits. The discussion of each benefit includes (where applicable and where data allow) a brief description of the benefit, relevant social conditions, local stakeholder values, attitudes and beliefs that relate to the given benefit, and risks and stressors

(broader landscape, climate change, conflicting benefits, etc.) that may affect how the benefit is contributing to social sustainability. Only key benefits that have the potential to impact social conditions and have the potential to be influenced by Custer Gallatin management actions are addressed in detail. Local stakeholder values, attitudes and beliefs are largely identified from the results of the Northern Region Social Survey, public comments, and public meeting notes. Percentages of survey data displayed are weighted responses and representative of the local social area of influence, within plus or minus five percentage points Bureau of Business and Economic Research (2018). Stakeholders across the social landscape hold diverse values and preferences for management. A majority of local survey respondents share a common vision for the most important purposes of their local, Federal public lands. These include protecting air and water quality, providing wildlife habitat, scenery, preserved wildlands, and recreational opportunities. Figure 7 shows the level of importance local survey respondents assigned to various purposes of local, Federal public lands. The percentages noted in the chart are weighted percentages of local stakeholder survey respondents who feel the given purpose is very or extremely important. It is important to note that grazing was not listed as an answer choice, but was added in as a very important purpose by approximately 12 percent of survey respondents.

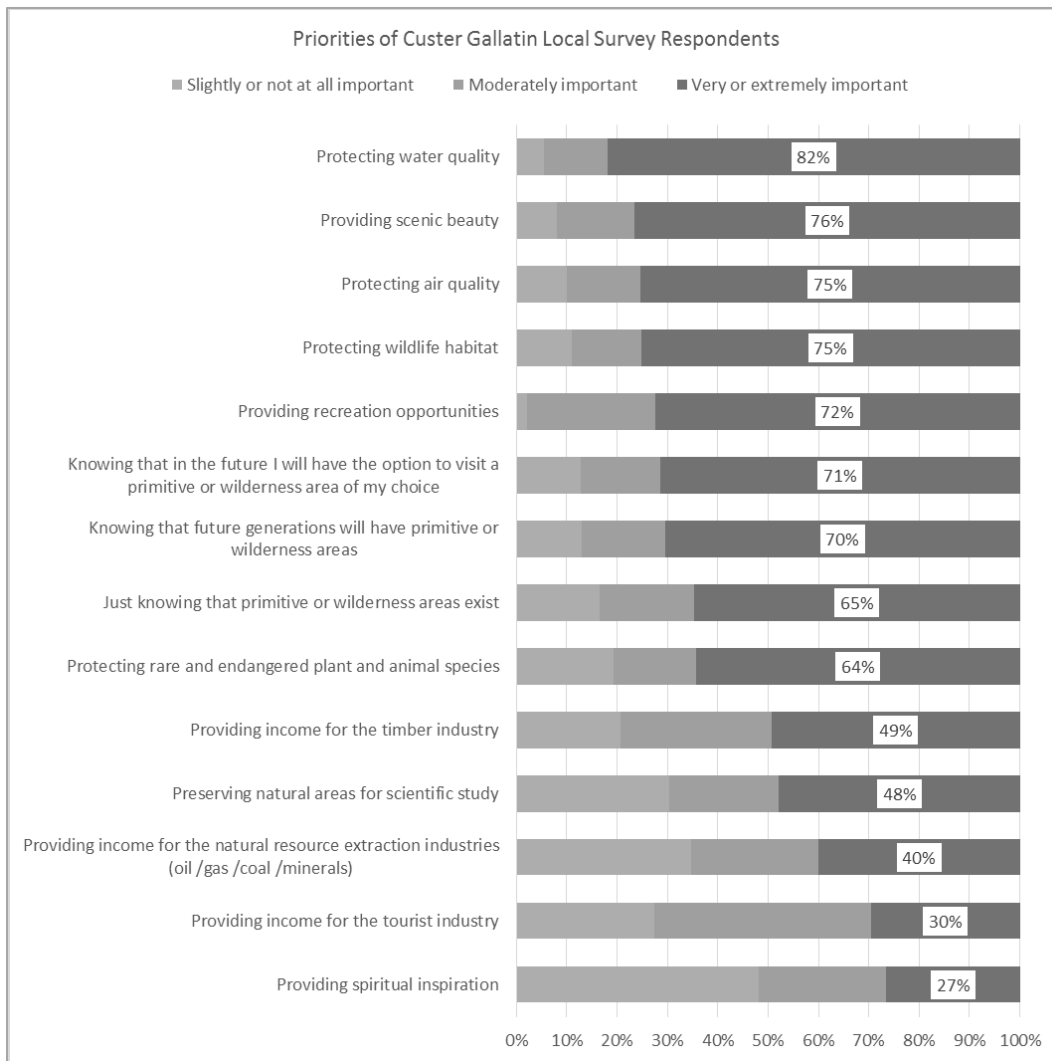


Figure 7. Local stakeholder survey respondent perspectives on the purpose of local Federal public lands

A review of comments from public meetings by location shows that, across the landscape, community participants have differing concerns. Public meetings varied in number of participants. Smaller communities such as Colstrip and Broadus had fewer participants, compared to larger communities, such as Bozeman. Figure 8 highlights this variation by mapping the level of similarity of topics discussed across community meetings and during the Custer Gallatin Working Group (CGWG) meetings. It is important to note that the Custer Gallatin Working Group meeting agenda topics are identified beforehand. Communities with dots of the same color and closer together on the diagram had more similar discussions. Interestingly, while there was some clustering by geography, that is, communities closer together in space had similar discussions (for example, Buffalo and Ekalaka), there was also a fair amount of diversity across eastern and western communities. For example, discussions and concerns brought forth in the Big Sky meetings were more similar to those at meetings in Columbus, rather than Bozeman, a closer geographic neighbor. Key concerns expressed by Colstrip community members were unique and did not overlap much with other communities. These findings suggest that there are likely diverse concerns and preferences for management of local landscapes.



Figure 8. Correlation of word similarity of discussions at public meetings across the social area of influence

Clean Air

Air quality promotes and nurtures human health. Clean air is also important for maintaining healthy plants, animals, soils, and water bodies (which are sources of drinking water). Air quality, in the short term, impacts from wildland fire smoke can have immediate negative consequences for recreation and tourism. Impacting smoke can be local or long-distance in nature. Duration of poor air quality in the long term can negatively affect water bodies which can lead to degradation of drinking water, increase algal blooms, and decrease in native fisheries. Poor air quality can also negatively impact terrestrial

ecosystems leading to the extirpation of rare, sensitive, and native plants and the increase in invasive plants. Decrease in fisheries and increase in algal blooms negatively affect tourism and cost substantial amounts of money and resources to restore.

A large majority (75 percent) of local stakeholder survey respondents identified protecting air quality as a very or extremely important purpose of their local Federal public lands. As populations in counties including Gallatin, Yellowstone, Park (MT), and Madison (MT) continue to grow, existing and new sources of air pollution will flow into surrounding airsheds. In the more rural landscapes of the Custer Gallatin, this will not likely become as much of an issue. Increasing point and mobile sourced air pollution has the potential triple effect of increasing the value of clean air provided by the Custer Gallatin, offsetting the appeal of lifestyle and health benefits received from living in the area, and may potentially combine with and increase negative health effects from wildfire smoke. For a detailed analysis of air quality on the Custer Gallatin, refer to the air quality analysis.

Clean Water, Aquatic Ecosystems, and Flood Control

Aquatic ecosystems on the Custer Gallatin support a variety of direct human uses. Among these are angling, municipal and residential water supply, and agricultural uses (stock water, irrigation). In addition, these ecosystems provide a variety of additional benefits, such as flow modulation (buffering both flood and base flows) and scenery. In addition to the nationally and internationally known fisheries, the Custer Gallatin supports diverse locally and regionally important angling opportunities. Among these are high mountain lakes, where species such as golden trout, lake trout, and Arctic grayling are targeted species for some anglers and prairie reservoirs, where largemouth and smallmouth bass, panfish, and put-and-take rainbow trout are targeted species. Additionally, the Custer Gallatin directly provides municipal water to the cities of Red Lodge, West Yellowstone, and Bozeman. Indirectly, streams emanating from the Custer Gallatin assist in supplying water to cities such as Billings and Laurel and are the groundwater recharge zone for residential supplies in many places. A less commonly considered benefit of Custer Gallatin watersheds is flow modulation — essentially, moderating both high and low flows through the function of floodplains and wetlands. Water storage and retention in Custer Gallatin floodplains can both reduce the rate and duration of peak flow response, but also assist in retaining base flows.

Carter, Gallatin, Harding, Madison (MT), Park (MT), and Sweet Grass county growth policies all cited maintaining a clean water supply as a priority to ensure the health and safety of county residents. Gallatin, Madison, Park, and Powder River County growth policies all cited flood control as a priority to ensure the health and safety of county residents. The vast majority (87 percent) of local stakeholder respondents identified protecting water quality and ecosystems as a very or extremely important purpose of their local, Federal public lands. Increasing urban populations, particularly in west area communities, are expected to increase demand for clean drinking water from the Custer Gallatin in the coming decades. During public meetings, stakeholders from eastern communities expressed concern over current water supply for livestock. Increasing rural populations in the east area communities are expected to increase demand for water. Climate change will likely lead to increased frequency of wildfire and floods (Halofsky et al. 2018b). These more frequent occurrences may adversely affect flood control and water quality benefits due to increased soil erosion and sediment in rivers and reservoirs. For a detailed analysis of water and aquatic ecosystems, refer to the watershed, aquatic, and riparian ecosystems analysis.

Conservation of Wildlife and Rare Plants (including species for fishing, hunting, and wildlife viewing)

Wildlife, and wildlife habitat are highly valued resources on the Custer Gallatin. The majority (75 percent) of local stakeholder survey respondents identified protecting wildlife habitat as a very or extremely important purpose of their local, Federal public lands. At public meetings, conservation of rare species and wildlife were the most common topics of discussion, after recreation. Carbon, Carter, Gallatin, Madison (MT), Park (MT), and Sweet Grass county growth policies all cite conservation of soils as important to residents and their local economies. Park and Sweet Grass counties policies mention managing invasive species as a priority. Carter, Gallatin, Meagher, Harding, Madison, Park, and Sweet Grass county growth policies all cite fishing as important to residents and their local economies. Carter, Madison, Meagher, Park, Powder River, and Sweet Grass county growth policies all cite hunting as important to residents and their local economies.

For detailed analyses of wildlife habitat and species available for fishing, hunting and wildlife viewing, refer to the wildlife, watershed, aquatic, and riparian ecosystems analyses.

Designated Areas and Plan Land Allocations

Designated areas of the Custer Gallatin include designated wildlands and rivers such as wilderness areas and wild and scenic rivers, research natural areas for scientific study, and scenic and historic trails and byways. The revised plan proposes plan land allocations for recommended wilderness areas, eligible wild and scenic rivers, backcountry areas, recreation emphasis areas and the Stillwater Complex. While each type of designation is unique and has a different management goal or philosophy, the overarching themes for designated areas are to: protect ecological integrity and biodiversity, provide a range of recreation opportunities, provide the public with opportunities to connect with, be inspired by, and learn from nature and history, and provide scientists with opportunities to study natural processes and impacts of management actions, and recognize the importance of rare palladium and platinum minerals. A majority (70 percent) of local stakeholder survey respondents identified the nonuse values (that is, just knowing they exists or will exist for future generations) of preserved wildlands (such as, designated wilderness areas) as a very or extremely important purpose of their local, Federal public lands. A majority (72 percent) of local stakeholder survey respondents identified recreation opportunities as a very or extremely important purpose of their local, Federal public lands. The majority (76 percent) of local stakeholder survey respondents identified providing scenic beauty as a very or extremely important purpose of their local, Federal public lands. Close to half (48 percent) of local stakeholder survey respondents identified preserving areas for scientific study as a very or extremely important purpose of their local, Federal public lands.

Designated areas on the Custer Gallatin may enhance the quality of life of both visitors and non-visitors in specific ways that are related to the purpose of that designation. For example, designated historic trails provide opportunities to learn about historic and cultural traditions. Wilderness areas offer challenging recreational pursuits and opportunities for solitude. Research natural areas offer scientists the opportunity to contribute to the body of scientific knowledge. Extensive literatures from the fields of public health, environmental sociology, and environmental psychology document the health benefits, (physical, mental, and emotional) of connecting with nature and exposure to pristine landscapes (American Public Health Association 2013, Zelenski and Nisbet 2014). During public meetings, some local stakeholders expressed frustration with the limits placed on motorized and mechanized transport, and economic activities in wilderness areas.

Those who never visit a designated area may also obtain benefits from the area. For example, Cordell, Bergstrom, and Bowker (Bowker et al. 2006) find that most Americans are inspired by just knowing a wilderness or primitive area exists, even if they never visit. Cole (2005) highlights the symbolic value of wilderness areas, which serve as demonstrations of human restraint and humility. Designated areas also enhance quality of life through science. Designated areas, and particularly research natural areas, provide opportunities for scientific discoveries that advance knowledge for the benefit of society. Stakeholders mentioned designated areas as key benefits that enhance quality of life by supporting income and jobs through tourism and supporting community health by providing opportunities to connect with nature and be inspired by wild landscapes (which enhances both physical and emotional health).

In the past decade, visits to designated areas around the country have increased, particularly day visits. This increase in day use of designated areas is expected to continue as urban populations close to designated areas continue to grow (Rasch and Hahn 2018). Designated areas on the Custer Gallatin in close proximity to the growing urban areas of Bozeman and Billings will likely experience a significant increase in visits in the coming decades. The projected increase in visits to designated areas may compromise those areas' abilities to meet management goals such as maintaining opportunities for solitude, in the case of wilderness. Climate change may also impact the ecological integrity of ecosystems within designated areas. Increases in invasive species and decreases in native species populations may occur, affecting the pristine nature of some designated areas, and thus impacting the contributions of designated areas to the quality of life of the public.

Level of access and permitted uses vary by designated areas and plan land allocations, and are determined by the laws, regulations, goals, and management principles of the given area. Each area's level of access and the array of opportunities it offers to the public are described in detail in the designated areas and plan land allocations analyses.

Educational and Volunteer Programs

The Custer Gallatin provides a multitude of educational opportunities and volunteer programs which teach valuable lessons on land stewardship and how to stay safe while connecting with nature. Since 2001, the Custer Gallatin personnel provided at least 30 programs that reached approximately 50,000 members of the public (including forest visitors) (Nature Watch, Interpretation and Conservation Education, 2016). The most frequent programs were about fire, fire prevention and plant and animal conservation. Many of these programs were provided in partnerships with state or local government, schools, and non-profit organizations. The Custer Gallatin also offers a broad array of volunteer programs which provide volunteers with opportunities to connect with nature and learn about conservation. According to data provided in the volunteer database (USDA Forest Service Volunteers and Partners Accomplishment Report, No. FS-1800_AR), since 2011 volunteers have donated over 107,000 hours of service. This is equivalent to almost 60 person-years of service. Recreation management was the most popular volunteer service project, followed by heritage resources. During public meetings, local stakeholders expressed the need for increased educational programs and signs to reduce user conflicts, protect cultural resources and ensure ecological integrity is preserved or enhanced across the national forest.

As populations in the social area of influence increase, particularly in the Gallatin area, there may be increased demand for educational programming. Given the high levels of educational attainment in Bozeman, there may also be an increased supply of professionals willing to volunteer their knowledge

and experience to educational programs. The increasing population may also offer more willing volunteers able to participate in recreation management programs, which are already popular programs. Climate change is projected to impact the Custer Gallatin and surrounding areas. There may be an increasing need for new educational programs focused on climate change impacts and how the public might need to adapt their current behaviors and uses of forest lands. There are also several large landscape conservation initiatives in the Bozeman area. Opportunities to partner with these organizations to create more robust educational programs for the public may be available.

Employee Service to Communities

Employees of the Custer Gallatin play active roles in their communities, volunteering their time to enhancing well-being, health and safety, and cultural opportunities in local communities. In a short survey of forest leadership, employees listed a host of organizations and activities they, or their employees, volunteer their time to serve. These include (but are not limited to) youth mentoring, Eagle Mount, Montana Outdoor Science School, food banks, treating weeds on private lands, school volunteers, soup kitchens, firefighting, county search and rescue, blood drives, toastmasters, emergency medical technicians, hospital boards, boy and girl scouts, churches, coaches, music groups, community fundraising, stream clean-up, big brothers and big sisters, and speech and debate judging. Communities benefit from the service of Custer Gallatin employees. Small communities, with declining populations, such as those on the eastern side of the Custer Gallatin, may be particularly reliant on national forest employees to hold service roles in their communities.

Fire and Fuels Management

The Custer Gallatin fire management, prevention and fuels mitigation programs contribute to the safety and well-being of the public by reducing the risk of larger, catastrophic wildfire in the future and protecting communities at risk. Wildfires impact the public through risk to life and property. Even when fires do not directly impact communities, residents may still experience emotional distress from the stress associated with their perceived risk to life and property (González-Cabán et al. 2007). The health of the public is also affected when wildfire smoke reaches unhealthy levels.

At public meetings, some stakeholders mentioned the need to increase fire mitigation measures (for example, fuels management through prescribed fire and pre-commercial thinning) to keep people and property safe from the impacts of wildfire. Some were particularly concerned with fuels management in the wildland-urban interface and expressed interest in increased, active management in the wildland-urban interface to reduce the risk of wildfire damage to their communities. A majority of local stakeholder survey respondents (68 percent) support using prescribed fire to maintain forest health and reduce wildfire risk in wildland-urban interface communities. Approximately half (51 percent) of local stakeholder survey respondents support allowing natural wildfires to burn if they do not threaten people's lives and property. A slight majority (57 percent) of local stakeholder survey respondents support using forest thinning to maintain forest health and reduce wildfire risk in wildland-urban interface communities. Approximately half (51 percent) of local stakeholder survey respondents feel that the current level of wildfire mitigation activities conducted on the Custer Gallatin is insufficient, while 28 percent feel the current level of activities is sufficient. For more details, please refer to the fire and fuels analysis.

Forest Products (including timber, firewood, Christmas trees, berries, mushrooms)

Trends from past and potential future timber products shows a decrease in timber outputs. Timber harvest and construction of the needed roads to access harvest areas is challenged by segments of the public at both the local and national level, with concerns primarily focused on endangered species (such as grizzly bear and lynx) and other wildlife habitat needs. Timber harvest is a tool that is used to achieve other resource objectives, beyond providing a commercial forest product. Reduced opportunities to use timber harvest will limit the ability to change vegetation structure, species compositions, landscape patterns, and other conditions for the purpose of improving forest resilience, creating desired wildlife habitat conditions, reducing forest fuels, or other purposes. Carter, Harding, Madison, Meagher, Powder River, Park (MT), Rosebud, and Sweet Grass county growth polices all cited timber as important to their local economies. The growing populations around the west side of forest may increase demand for forest products such as firewood, Christmas trees, berries, and mushrooms. Approximately half (49 percent) of local stakeholder survey respondents cited income for the timber industry as a very or extremely important purpose of their local, Federal public lands. For more details, please see the timber and special forest products analyses.

Permitted Livestock Grazing

Grazing opportunities and forage for livestock are available across the Custer Gallatin. Stakeholders in east area communities expressed concern about grazing opportunities on the Custer Gallatin. Key concerns included management of weeds, conflicts with recreational users and hunters, and lack of available water supply for livestock. Carbon, Carter, Madison, Park (MT), Powder River, and Sweet Grass county growth polices in Montana and the Harding County, South Dakota County Comprehensive Plan all cited grazing as important to their local economies. Expected population growth across the social area of influence may lead to added pressure to develop open spaces, further limiting grazing opportunities on non-federal lands and increasing the importance of federal lands in maintaining a thriving agricultural industry. The 2016 Rural Montana survey (Muste 2016) data showed that 23.3 percent of respondents thought Federal lands should be managed to increase economic development from farming and ranching. For more information, refer to the permitted livestock grazing analysis.

Infrastructure

Communities and businesses in and near the Custer Gallatin rely on utility corridors (energy, fiber optic) and communication sites (cellular, radio, emergency response, etc.). These services contribute to quality of life and community sustainability, providing rural communities the ability to connect in a global or regional economy. Additionally, roads, trails, and forest infrastructure provide for safe and reliable access for recreation, resource management, and private inholdings which are tied to community, quality of life, self-identity, economy, and use patterns. Public use on National Forest System lands is increasing as is the population of Montana, specifically in Billings and Bozeman, two of the larger cities in Montana. There is a greater demand for services as well as greater degradation of the road and trail systems from the increased use. This trend is expected to continue. There will continue to be a need to provide access for multiple uses including mining, timber, grazing, and recreation. The infrastructure is important for the quality of life for those visiting the Custer Gallatin. Maintaining and expanding the infrastructure to meet the needs of the national forest users is important to the local economies and quality of life for those living in surrounding communities. Almost all county growth plans highlight the need for maintenance and improvement of existing infrastructure.

Inspiration

Visitors and the general public are inspired by the existence of wildlands, pristine ecosystems, iconic scenery, the wildlife, and rare and unique species that reside in the Custer Gallatin. These inspirational benefits of nature are well documented in the social science and public health literatures (Johnson Gaither et al. 2004). Inspiration benefits enhance quality of life by inducing awe, joy, and providing stress relief, even to those who never actually visit the national forest. Additionally, a segment of the public feels that spiritual inspiration is a very importance purpose of Federal public lands. Thirty-two percent of local stakeholder respondents noted spiritual inspiration as a very or extremely important purpose of their local, Federal public lands. For more detail on areas of the Custer Gallatin, and opportunities provided by the national forest, which provide inspirational benefits, please refer to the designated areas, plan land allocations, scenery, and recreation analyses.

Mineral and Energy Resources

Utilization of minerals produced on the Custer Gallatin serves to benefit the national clean air interest through the use of palladium in the automotive industry. Development of mineral material from quarries and pits located on the Custer Gallatin is used to maintain and construct new roads, develop recreation sites, trail heads, and other facilities.

Carbon, Carter, Harding, Madison (MT), Meagher, Park (MT), Powder River, and Sweet Grass county growth polices all cited mineral extraction as important to their local economies. Specifically, Big-Horn, Park, and Powder River cited coal extraction as important. Carbon, Carter, Harding, Powder River, Rosebud, and Sweet Grass cited oil extraction as important.

The 2016 Rural Montana survey (Muste 2016) data showed that 9.9 percent of respondents thought Federal lands should be managed to increase economic development from oil, gas, and mining. Eighty-one percent of respondents were concerned about the possibility of toxic mine waste or other waste leaking into Montana's water sources. Forty percent of local stakeholder survey respondents listed oil, gas, and mineral development as a very or extremely important purpose of their local, Federal public lands.

Mineral development provides high paying jobs, money to community businesses and infrastructure support such as roads, schools, hospitals, etc. Oil, gas, and mineral development also has the potential to create boom towns, which have been linked to increased crime, higher levels of income inequality, and decreases in social cohesion (Smith et al. 2001). Carbon, Park (MT), Powder River, and Rosebud counties may be particularly vulnerable to the negative impacts of boom towns as they already have elevated levels of income inequality and violent crime. Harding County (SD) is also vulnerable to social impacts due to its proximity to North Dakota shale boom towns.

Greenhouse gas emissions have been identified by the Environmental Protection Agency as a danger to human health. Emissions that result from oil, gas, and mineral development may impact human health. Global economic forces, commodity prices, and the changing needs or desires of society to produce and use these products may impact the mining of mineral resources located on the Custer Gallatin. For more information on this benefit, see the energy, minerals, and geologic areas of interest analysis.

Preservation of Historic, Cultural, Tribal, or Archeological Sites

Intact cultural landscapes on the Custer Gallatin provide a sense of place and continuity that can enhance the quality of life and well-being for the public, especially for those communities that rely on

the Custer Gallatin for their lifeway and income. Cultural resources have been found to provide inspiration, and personal, even spiritual, experiences. The tangible evidence of past activities such as fasting and eagle trapping, mining town locations, and historic inscriptions have provided awe-inspiring experiences. Cultural site touring and visitation are growing activities within the planning area. Tourists are attracted by the nature and significance of historic properties and by the character of traditional communities, a character maintained by resources and uses of the Custer Gallatin. Adaptive reuse of historic buildings into recreation cabin rentals and educational centers promote both tourism and preservation of these irreplaceable resources. Interpreted sites such as the Main Boulder Station afford an opportunity to educate the public about the history of the Custer Gallatin and the region. Furthermore, cultural resources on the Custer Gallatin can make scientific contributions to our society by expanding our knowledge and understanding of history and culture, and by connecting us to our collective heritage.

The Custer Gallatin is within the aboriginal territories of a number of present-day Tribes, including the Great Sioux Nation, the Three Affiliated Tribes, Fort Peck Tribes, Northern Cheyenne Tribe, the Crow Tribe, the Assiniboine, the Blackfeet, the Shoshoni Tribe, the Arapahoe Tribe, the Shoshone Bannock Tribe, the Nez Perce, the Confederated Salish Kootenai, and the Nez Perce band of the Umatilla. Many of the Tribes retain reserved treaty rights within the planning area to use these lands for traditional purposes. Activities such as the right to hunt and gather on unoccupied lands outside of the present-day reservation boundaries are examples of these reserved rights, including the collection of traditionally used plant materials such as teepee poles and medicines, and certain hunting rights (for example, bison hunting outside Yellowstone National Park). The Forest Service is charged with implementing programs and activities honoring Native American treaty rights and fulfilling legally mandated trust responsibilities to the extent that they are determined applicable to National Forest System lands (Forest Service Manual 1563). Carbon, Carter, Harding, Gallatin, Madison, Meagher, and Park county growth polices all cited preservation of one (or more) of the following as important to residents and their local economies: cultural landscapes, history, archeological and geological sites, sacred lands, and caves. Approximately half (50 percent) of local stakeholder respondents noted that they currently have access to areas of cultural or traditional significance on their local Federal public lands.

For more information on historic, cultural, Tribal, or archeological sites and caves on the Custer Gallatin, refer to the cultural and historic resources, areas of Tribal importance, energy, minerals, and geologic areas of interest, and the Nez Perce Trail discussions in the designated areas analyses.

Recreation

Outdoor recreation helps add meaning to life, to gain stories and memories. Outdoor recreation helps people achieve goals, to learn new skills or knowledge, to test oneself, to enhance personal growth. It also helps create balance in one's life, reducing stress, as a recuperative activity, and to help one regain physical or mental health (American Public Health Association 2013, Reuben 2019). Recreation provides stimulation: fun, excitement, adventure, the chance to do something different. Outdoor recreation helps underscore people's sense of belonging as they engage in recreation with family and friends. The Custer Gallatin serves as community backdrops and backyards for daily recreation opportunities. The vast majority (72 percent) of local stakeholder survey respondents listed recreational opportunities as a very or extremely important purpose of their local, Federal public lands. Carbon, Gallatin, Madison, and Park (MT) county growth polices all cited preservation of scenery as important to residents and their local economies. Carbon, Carter, Gallatin, Harding, and Powder River counties also cited access to recreation,

in general, as important. Other counties listed specific recreation activities as important. The growing populations around the Custer Gallatin are expected to create new and increasing demands for recreation access. The 2016 Rural Montana survey (Muste 2016) data showed that 13.9 percent of respondents thought Federal lands should be managed to increase recreation opportunities. Big Horn, Carbon, Madison, Rosebud, and Stillwater counties all rate in the bottom quartiles on access to exercise. Expanding opportunities for recreation could improve access to exercise in these counties. Timber harvest, oil, gas, and mineral development may impact or compete with recreation access and experiences.

For more information on recreation, refer to the recreation opportunities, settings, and access and designated areas analyses.

Scenery

Mountains, alpine landscapes, and prairie vistas contribute to the scenic nature of forest. Use of these unique landscapes through recreational activities has increased during the last decade and are expected to continue to increase in the future. The National Forest System lands within the Custer Gallatin represent extremely unique and thus valuable scenery when compared to surrounding landscape within each landscape character type that includes all land ownership. In the ecological section that includes the Madison, Henrys Lake, Gallatin; Absaroka Beartooth; and Bridger, Bangtail, and Crazy Mountain landscape areas of the Custer Gallatin, roughly 36 percent of that National Forest System land is “Class A distinctive” scenery. In the ecological section that includes the Pryor Mountains, Ashland, and Sioux landscape areas, roughly 89 percent of the National Forest System land is “Class A distinctive” scenery. The majority (76 percent) of local stakeholder survey respondents identified providing scenery as a very or extremely important purpose of their local Federal public lands. The fact that vacation homes are very prevalent in communities around the western areas of the Custer Gallatin highlights the importance of scenery to part-time residents in those communities.

3.11.3 Environmental Consequences

The previous sections assessed the social conditions of the affected environment and the social benefits the Custer Gallatin provides. The affected environment section provides a baseline understanding of how the Custer Gallatin currently contributes to social sustainability, for local beneficiaries and the general public, where applicable. The key dimensions of social sustainability assessed are how the Custer Gallatin (and forest management) contribute to the quality of life of the public. The following section considers the potential impacts of alternative management scenarios on these contributions. This section provides a brief summary of the expected impacts to the social benefits the national forest provides, and explores how those impacts may affect contributions to social sustainability, considering the current and expected social conditions (for example, urbanization, projected population change, aging, etc.), where relevant. For more details and the complete analysis of effects to specific forest resources, refer to the relevant resource analysis.

Current Plans

Management Direction under the Current Plans

The 1986 Custer Forest Plan addressed “Rural Community and Human Services” in two ways.

First, Custer Gallatin will provide direct and indirect employment opportunities through personnel programs and through jobs created by user groups as they utilize national forest

resources. The forest will increase opportunities for minorities, senior citizens, the handicapped, and the disadvantaged to enjoy the national forest. The Custer Gallatin will work with job services and educational institutions in Montana, North Dakota, and South Dakota to utilize programs such as CETA, work study, and others. The forest will emphasize the volunteer program for the dual purpose of work accomplishment and the training and experience.

Second, the forest and ranger districts will continue contacts with Tribal governments to identify opportunities for lending assistance. As needs arise, the forests and districts will support Tribal government's efforts to develop and manage their natural resources.

The 1987 Gallatin Forest Plan provided no specific direction on community conditions. Instead, the plan is focused on providing a suite of benefits to forest users including recreation opportunities and access, scenery, clean water, cultural resources, timber, minerals, grazing, fish, wildlife, water quality, wilderness, wild and scenic river, and fire protection. There is no explicit mention of supporting communities directly. Instead, the focus of the plan is on those specific benefits the national forest provides to users. Under the management guidance, a summary of benefits the public is most concerned with are described:

Many people see the national forest as being very important in their lives. At public workshops people have said that activities such as hiking, camping, picnicking, hunting, and fishing, snowmobiling, trail biking, skiing, and firewood gathering are significant to them. Watersheds, big game, livestock, minerals, oil, gas, and timber are resources which people have identified as important to them (U.S. Department of Agriculture 2014).

Effects of the Current Plans

Under the current plans, the Custer Gallatin will continue to provide the full suite of social benefits that currently contribute to social sustainability, as described in the affected environment section. For more details on each benefit, please see the relevant specialist report.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

All revised plan alternatives contain the same overarching desired conditions for contributions to social sustainability. These desired conditions focus on providing key social benefits of the Custer Gallatin to enhance the quality of life of local stakeholders and the public at large. Additionally, plan components under the relevant resource areas are designed to provide social benefits, where applicable and feasible.

Effects of the Revised Plan Alternatives

Under alternatives B through F, the Custer Gallatin would continue to provide the full suite of social benefits which currently contribute to social sustainability, as described in the affected environment section. Under all revised plan alternatives, contributions to social sustainability are expected to be greater than under the existing plans. This is due to new management direction across resource areas focused on enhancing ecological integrity, wildlife habitat, preserving undeveloped areas, and providing opportunities to connect with nature through recreation, partnerships, volunteering, and educational programs. The relative level of expected social benefits from educational and volunteer programs and employee service to communities are not expected to vary across revised plan alternatives.

The level of clean air, clean water, aquatic ecosystem and flood control, conservation of ecosystems, designated areas, forest products, support for grazing and domestic livestock production, infrastructure,

inspiration, access to mineral and energy resources, preservation of historic, cultural, Tribal, or archeological sites and caves, recreation opportunities and access, and scenery provided by the Custer Gallatin is expected to vary by alternative. Thus, the relative contributions to social sustainability at local and national scales vary by alternative and by the preferences of local and national publics.

Clean Air

Contributions would be similar under the current plans, alternatives B, C, D, and F, and highest under alternative E. This is due to differences in anticipated levels of prescribed fires. Under alternative E, the Custer Gallatin is expected to conduct prescribed burning on fewer acres, compared to all other alternatives.

Clean Water, Aquatic Ecosystems and Flood Control

Human populations in areas dependent on the Custer Gallatin for clean water, such as Bozeman, are projected to continue to grow over the life of the plan. Therefore, demand for clean water is expected to increase. Contributions would be similar under alternatives B, C, and F, highest under alternative D, and lowest under alternative E. These differences are mainly a function of the variations across alternatives in resource enhancement objectives, acres allocated as recommended wilderness areas, and the protections the recommended wilderness area designation provides for soils and watersheds (for example, no road construction or motorized transport permitted). The higher levels of expected timber harvest and motorized transport under alternative E may reduce the magnitude of the Custer Gallatin's contributions. Revised plan alternatives propose wider riparian management zones than the current plans, with more detailed guidance. The current plans do not incorporate as much detail and clarity regarding the conditions and management of watersheds, and thus, contributions to the integrity and resilience of watersheds are expected to be less robust compared to the revised plan alternatives.

Conservation of Wildlife and Rare Plants (including species for fishing, hunting, and wildlife viewing)

Increases in local rural populations and tourism suggest an increase in demand for fishing, hunting, and wildlife viewing opportunities. Publics also have an increasing interest in conserving wildlife, diversity, and rare species, as evidenced by the thousands of general public comments received in support of more environmental protections overall (such as, general form letters in support of additional wilderness areas and considerations for wildlife connectivity). All revised plan alternatives have more detailed guidance for vegetation and aquatic community diversity and resilience than the current plans. Contributions would be similar under alternatives B, C, E, and F, highest under alternative D, and lowest under the current plans. These differences are a function of the variations across alternatives resource enhancement objectives, in acres allocated as recommended wilderness areas and backcountry areas, and the protections the recommended wilderness areas and backcountry areas plan land allocations provide for wildlife and rare species (for example, wildlife connectivity, lower likelihood of plant disturbance, and lower threats of invasive species spread). Notably, however, while benefiting many species and ecosystem functions, the protections in these plan land allocations are also associated with restrictions on management activities that could limit the potential for active restoration efforts that benefit other species and ecosystem types such as whitebark pine. The current plans do not incorporate as much detail and clarity regarding the desired extent, frequency, and severity of ecosystem processes which, in turn, drive ecological structure and composition. Contributions to conservation of wildlife and rare plants are expected to be less robust under the current plans compared to revised plan alternatives.

Designated Areas and Plan Land Allocations

All revised plan alternatives provide protections for currently designated areas and plan land allocations. Contributions from designated areas are expected to be similar across all alternatives as management of these areas do not shift by alternative. For benefits from plan land allocations, contributions would be larger under the revised plan alternatives, compared to the current plans, for new plan land allocations. This is because the revised plan alternatives provide new plan land allocations which benefit different stakeholder groups. For example, twenty-five percent of local stakeholder survey respondents and many public comments noted there is currently not enough designated wilderness. For those stakeholders most inspired and dedicated to the preservation of wilderness landscapes, contributions would be greatest under alternative D. Fifty-eight percent of local respondents and many public comments noted there is either enough or too much designated wilderness. For those stakeholders who are not in favor of more areas being managed as wilderness, contributions would be greatest under alternative E. The magnitude of the contribution of each revised plan alternative due to new plan land allocations varies by stakeholder preference.

Fire and Fuels Management

Local stakeholders are overall supportive of fuels treatments near communities and, particularly in the wildland-urban interface, to reduce wildfire risk. Survey respondents and participants at public meetings expressed the need to increase fire mitigation activities above current levels. Therefore, contributions would be largest under alternative D as it is expected to treat the most acres for hazardous fuels reduction, followed by the current plans, alternatives B, C, and F, which all contain the same objective for hazardous fuel reduction. Alternative E would be the least responsive in obtaining desired fuel conditions within the wildland-urban interface.

Forest Products (including timber, firewood, Christmas trees, berries, mushrooms)

Contributions are expected to be largest under the revised plan alternatives, compared to the current plans, due to more explicit plan direction designed to support sustainable levels of timber and special forest products. Timber volume outputs are expected to be largest under alternative E and smallest under alternative D. Forty-nine percent of local survey respondents noted that economic contributions to the timber industry is an important use of local, Federal public lands. For these respondents, representing approximately half of local stakeholders, contributions will be largest under alternative E and smallest under alternative D. New plan land allocations under the revised plan alternatives B, C, F, and D such as recommended wilderness and backcountry areas may affect ease of access to collect forest products, due to restrictions on motorized and mechanized transport in those areas. Impacts to ease of access via changes to current motorized and mechanized transport are expected to be largest under alternative D.

Permitted Livestock Grazing

All revised plan alternatives provide protections for forage and allow for continuation of current levels of grazing opportunities. Contributions to rangeland health would be larger under the revised plan alternatives, compared to the current plans, due to more explicit plan direction designed to promote rangeland health and reduce invasive species. Threats to native vegetation would be highest under alternative E, due to the lowest level of expected weed treatments and less focus on promoting ecosystem integrity. Local stakeholders expressed concern with invasive species and the impact weeds may have on grazing opportunities. Local stakeholders also expressed concern for conflicts between

bison and livestock. Some stakeholders favor protections for bison, while others favor protections for livestock. Alternative E includes plan components that favor livestock over bison, in the case of conflicts. Alternative E is expected to provide smaller contributions to those who favor bison and larger contributions to those who favor livestock, compared to all other revised plan alternatives. New plan land allocations under the revised plan alternatives such as recommended wilderness, backcountry areas and recreation emphasis areas may affect grazing permittees in terms of allotment access, operability, ease of management and increased user conflicts (for example, in cases where recreation areas overlap grazing allotments). Alternative D would affect the most permittees, followed by alternatives C, B, F, and E. The current plans are the least restrictive to allotment administration and thus least likely to impact contributions to grazing permittees.

Infrastructure

All revised plan alternatives provide protections for infrastructure. Contributions would be largest under the current plan's alternatives B, F, and C, compared to alternatives D and E, due to a higher expected level of road and trail maintenance for public use under these alternatives. For stakeholders interested in airfield access, alternative D provides the smallest contribution, as airfields are not permitted under alternative D.

Inspiration

Contributions would vary by stakeholder preferences under the revised plan alternatives. These differences are a function of the variations across alternatives in acres allocated to areas designated to protect awe-inspiring wildlife, rare species, scenery, inspirational cultural resources and provide visitors with opportunities to be inspired by nature and working landscapes. Some stakeholders may find more inspiration in areas available for grazing or recreation emphasis areas while others may find more inspiration in recommended wilderness areas or backcountry areas. Thus, contributions are expected to vary based on stakeholder preference across the revised plan alternatives, as each provides a slightly different mix of plan land allocations designed to suit different stakeholder preferences.

Mineral and Energy Resources

Forty percent of local survey respondents, several public comments, and a host of county growth policies noted that the economic contributions to minerals industries are important uses of local, Federal public lands. For these stakeholders, contributions are expected to be largest under the current plans, followed by alternatives E, then B, C, and F, and then D. Differential contributions are due to differences in plan land allocations (for example backcountry areas and recommended wilderness areas) across alternatives and the associated restrictions on extraction of salable mineral material, expected increases in the length of time to process a plan of operations, additional mitigation requirements and additional costs for the operations.

Preservation of Historic, Cultural, Tribal or Archeological Sites

All revised plan alternatives provide protections for historic, cultural, Tribal, or archeological sites and caves. Contributions would be larger under the current plans and plan alternatives B, C, D, and F, compared to alternative E, given higher objectives for cultural resource projects and more plan land allocations for backcountry areas and recommended wilderness areas, which provide added protections for sites of Tribal and cultural significance. Motorized and mechanized transport to sites of Tribal and

cultural significance may be more impacted under alternative D, but protections are greater, compared to alternatives B, C, F, and E.

Recreation

All alternatives provide a variety of recreation opportunity settings and access. Contributions vary by preferences of stakeholder groups. This is due to differences in plan land allocations for backcountry areas, recommended wilderness areas, and recreation emphasis areas, and the associated mix of different recreation opportunities available. The current plans do not include any recreation emphasis areas, and thus are expected to contribute the least, compared to the revised plan alternatives. Local survey respondents, public comments, and county growth policies all noted that providing recreation opportunities is a very important purpose of the Custer Gallatin. Stakeholders vary in their preferences for recreation opportunities. Many local stakeholders and visitors engage in non-motorized and non-mechanized transport and many local respondents are currently satisfied with the level of mechanized and motorized opportunities. However, some feel there are not enough motorized or mechanized opportunities. For those who feel there are currently not enough mechanized or motorized opportunities (five percent and thirty-two percent of local respondents, respectively), alternative E may provide the largest contribution and D the smallest, due to the differential in limitations placed on motorized and mechanized transport. Twenty-two percent of respondents and many public comments also noted experiencing conflict with users using different modes of transportation. Under all the revised plan alternatives, the added plan land allocations of backcountry areas, recommended wilderness areas, and recreation emphasis areas, may lead to the alleviation of user conflicts. Forty-nine percent of local respondents and some public comments also noted concern about road conditions. Under the current plans, alternatives B, C, and F, more miles of roads and trails for recreation would be maintained, compared to alternatives D and E. Some infrastructure and special events in recommended wilderness areas may no longer be available under alternative D and to a lesser extent under alternatives C and F, which may result in negative impacts to those user groups.

Scenery

All revised plan alternatives provide protections of scenery. The Custer Gallatin will continue to provide scenery, which currently contributes to social sustainability. Seventy-six percent of local survey respondents and public comments noted that providing scenery is a very or extremely important purpose of the Custer Gallatin. Contributions are expected to be largest under alternatives D, followed by C, F, B, the current plans, and then alternative E, given the associated plan land allocations for recommended wilderness which require the highest level of scenery to be maintained.

Environmental Justice

The social area of influence contains Native American and low-income populations classified as environmental justice communities. Contributions to the Native American communities would likely be greatest under alternatives B, C, and F due to the balance of protections and access to sites of traditional and cultural significance, and areas to collect forest products. Alternative E would likely contribute the least to these communities given that it offers the fewest protections to areas of traditional and cultural significance. Alternative D limits motorized transport to some areas of traditional and cultural significance and areas to collect forest products, which may in turn negatively impact environmental justice community members' ability to participate in cultural activities or forage for forest products.

Negative impacts to the economic sustainability of low-income communities are not expected under any alternative. Economic contributions to low-income, Native and non-Native communities with capacity to work in the timber industry may be greatest under alternative E, as this alternative places the greatest emphasis on employment in the timber industry. Alternative E places the fewest limitations on motorized and mechanized transport and thus may provide greater economic opportunities for low-income communities to develop a recreation economy based on motorized and mechanized transport. Conversely, alternative D recommends the most acres for wilderness designation, and thus may provide the greatest economic opportunities for low-income communities to develop a recreation economy based on wilderness recreation.

New plan land allocations under the revised plan alternatives such as recommended wilderness, backcountry and recreation emphasis areas, and plan components designed to prioritize bison over livestock, may affect grazing permittees located in environmental justice communities. These new plan land allocations and management objectives may increase costs to permittees in terms of allotment access, operability, and management. Alternative D would affect the most permittees, followed by alternatives C, F, B, and E. Due to data constraints, it is not possible to identify whether grazing permittees affected by revised plan alternatives are of low-income. However, there are current grazing permit holders residing in low-income communities located near affected grazing allotments, particularly in the eastern part of the Custer Gallatin. The current plans are the least restrictive to allotment administration and thus least likely to affect grazing permittees.

Economic Consequences

All alternatives provide similar economic contributions in relation to employment and labor income. Results of the economic contribution analysis appear in the two tables below. In table 4, employment refers to levels of average annual jobs in and industry, and includes full and part-time employment. In table 5, labor income refers specifically to earned wage or proprietor income and does not include Social Security, Medicaid, dividends, or capital gains (for example, government programs or investments).

Income and employment levels contributed by the Custer Gallatin land and operations do not fluctuate widely between alternatives. However, as shown in table 4 and table 5, income and employment are different across alternatives due to changing assumptions regarding forest management activities under the timber and range programs, especially. Between alternatives B through F, job contributions range between 5,515 and 5,799 jobs, and labor income between \$236 million and \$249 million.

Table 4 and table 5 include both a “current” column and an “alternative A” column; with alternative A representing the current Custer and Gallatin Forest Plans. For most resources, the current column and the alternative A column have the same values. A few resources report a difference between “current” and alternative A (most notably for timber). The difference is due to what the current plans permit (alternative A) and what actually occurs (“current”). Alternatives A through F estimate timber contributions based on the projected wood sale quantities for each alternative. The current column reports timber contribution estimates from recent, actual Custer Gallatin operations and wood sale quantities brought to market. Future market outcomes will ultimately depend on multiple external market factors, and some internal factors, including the future logistical scale in which the Custer Gallatin will be capable of operating.

Given current resource assumptions, all alternatives are estimated to produce more jobs and income over current levels, with alternative E producing the most. Variation in employment, across alternatives

stems mainly from estimated differences in wood quantities sold, and hence more or fewer jobs from timber resources. Conversely, the economic contribution model shows a recreation contribution, the single greatest categorical contribution on the Custer Gallatin, as unchanging across alternatives. Visitation to the national forest, which is fundamental to the measurement of the recreation contribution is not modeled to change across planning alternatives, but instead is generally anticipated to increase over time due to population, economic, social, and other external trends.

Other economic benefits not analyzed directly, including nonmonetary benefits for forest stakeholders and for various recreation user groups, would vary between alternatives in parallel with ecosystem and resource availability and recreation opportunities, respectively. For more information on ecosystems, resources, or recreation affects across alternatives see each respective specialist report.

The greatest contribution to employment and income from the Custer Gallatin comes through forest recreation opportunities, as well as mineral administration of the Sibayne Stillwater Mines, and other energy resource industries.

More information regarding the following two tables is found in the project document entitled “Details of the IMPLAN economic impact analysis for the Custer Gallatin Forest Plan Draft Environmental Impact Statement.”

Table 4. Employment in the analysis area by resource and by alternative (direct employment contribution, estimated number of jobs)

Resource	Current	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt F
Recreation: all	2,728	2,728	2,728	2,728	2,728	2,728	2,728
Wildlife and Fish Recreation: all	196	196	196	196	196	196	196
Grazing	377	387	387	387	377	377	384
Timber	191	410	410	410	292	575	410
Minerals	1,252	1,252	1,252	1,252	1,252	1,252	1,252
Payments to States/Countries	151	151	151	151	151	151	151
Forest Service Expenditures	520	520	520	520	520	520	520
Custer Gallatin Total	5,415	5,644	5,644	5,644	5,515	5,799	5,640
Percent Change		4.2%	4.2%	4.2%	1.9%	7.1%	4.1%

Table 5. Labor Income in the analysis area by resource and by alternative (average annual labor income, in thousands of 2016 U.S. dollars)

Resource	Current	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt F
Recreation: all	\$79,526	\$79,526	\$79,526	\$79,526	\$79,526	\$79,526	\$79,526
Wildlife and Fish Recreation: all	\$6,107	\$6,107	\$6,107	\$6,107	\$6,107	\$6,107	\$6,107
Grazing	\$12,342	\$12,688	\$12,688	\$12,688	\$12,362	\$12,362	\$12,569
Timber	\$8,860	\$19,016	\$19,016	\$19,016	\$13,556	\$26,717	\$19,016
Minerals	\$93,100	\$93,100	\$93,100	\$93,100	\$93,100	\$93,100	\$93,100
Payments to States/Countries	\$7,416	\$7,416	\$7,416	\$7,416	\$7,416	\$7,416	\$7,416

Resource	Current	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt F
Forest Service Expenditures	\$24,160	\$24,160	\$24,160	\$24,160	\$24,160	\$24,160	\$24,160
Custer Gallatin Total	\$231,511	\$242,013	\$242,013	\$242,013	\$236,227	\$249,387	\$241,894
Percent Change		4.5%	4.5%	4.5%	2.0%	7.7%	4.5%

Cumulative Effects

Societal trends of population growth, urbanization, and growth in travel and tourism may impact the Custer Gallatin’s ability to contribute to social sustainability over the next 10 to 15 years. Based on the review of county growth policies, as referenced in the affected environment section, cumulative effects to the Custer Gallatin’s ability to contribute to social sustainability over the next 10 to 15 years are not expected from the implementation of county growth plans. On the western side of the Custer Gallatin, substantial population growth is likely through 2030 (Gallatin County Office 2003). Managing people, their direct use of the Custer Gallatin, and their demand for a diverse array of benefits will remain a challenge for Custer Gallatin managers. On the eastern side of the Custer Gallatin, population growth is expected in smaller communities and may increase demands for social benefits as well, particularly those associated with a rural lifestyle such as grazing, hunting, and fishing. All revised plan alternatives considered population growth, urbanization, and increasing pressures from tourism, and are designed to mitigate resource impacts from these known stressors.

Conclusion

Under alternatives A through F, the Custer Gallatin would continue to provide the full suite of social benefits which currently contribute to social sustainability, as described in the affected environment section. The relative magnitude of contributions to social sustainability vary by alternative. In this analysis, contributions to social sustainability are operationalized as key social benefits which enhance the quality of life of local stakeholders and the public at large. Overall, the revised plan alternatives are expected to provide greater relative contributions to social sustainability, compared to the current plans. The current plans do not provide a unified plan for the administratively combined units and does not consider to the same degree the best available scientific information for ecosystem management. The relative differences in contributions to social sustainability among the revised plan alternatives vary by preferences of stakeholder groups as some stakeholders prioritize certain key forest benefits over others.

Given the diversity of management preferences across both local and national stakeholder groups, it is not possible to unequivocally identify which revised plan alternative provides the greatest overall contribution to social sustainability for all stakeholders. Alternative D is likely to provide the greatest contributions to those who prioritize scenery, non-motorized transport, wilderness, fish and wildlife, cultural, historic, and Tribal resource protections. Alternative E provides the greatest contributions to those who prioritize motorized transport, timber volume, timber industry jobs, livestock protections, and opportunities for energy and mineral extraction. Alternatives B, C, and F provide a mix of contributions to social sustainability across all stakeholder groups.

Table 6 itemizes the relative contributions of key forest benefits to social and economic sustainability by alternative. When relative contributions are expected to be similar, alternatives are listed in parenthesis in alphabetical order.

Table 6. Relative contributions to social and economic sustainability by alternative

Key Social Benefit from the National Forest	Relative Contributions Greatest to Smallest (left to right)
Clean air	E, (A/B/C/D/F)
Clean water, aquatic ecosystems, and flood control	D, (B/C/F), E, *A
Conservation of wildlife and rare plants, including species for fishing, hunting, and wildlife viewing)	D, (B/C/F), E, A
Designated areas	(A/B/C/D/E/F)
Plan land allocations (e.g., RWA, BCA)	(B/C/D/E/F), A
Educational and volunteer programs	(B/C/D/E/F), A
Fire suppression and fuels management	D (A/B/C/F), E
Forest products (including timber, firewood, Christmas trees, berries, mushrooms)	E, (B/C/F), D, A
Permitted livestock grazing	(A/B/C), F (D/E)
Income (payments in lieu of taxes, secure rural schools, labor income in various industries: recreation, timber, grazing, etc.)	E, (B/C/F), D, A
Infrastructure	(A/B/C/F), E, D
Inspiration (including spiritual inspiration)	(B/C/D/E/F), A
Jobs (and induced jobs, including recreation, timber, grazing, etc.)	E (B/C/F), D, A
Mineral and energy resources	A, E B, F, C, D
Preservation of historic, cultural, Tribal or archeological sites	D, C, F, B, A, E
Sustainable recreation	(B/C/D/E/F), A
Scenery	D, C, F, B, A, E

*Alternative A represents the current plans in this table.

Alternatives are ordered left to right, from greatest to smallest contribution to social sustainability.

Alternatives in parentheses and separated by a slash denote similar contributions.

3.12 Areas of Tribal Importance

3.12.1 Introduction

This section addresses Areas of Tribal Importance required by the Planning Rule to include plan components for the management of areas of Tribal importance. The Forest Service recognizes specific trust responsibilities with the Tribes and administers the Custer Gallatin with these responsibilities in mind. At least 19 Tribes have reserved treaty rights to resources on the national forest and they recognize the lands administered by the Custer Gallatin as part of their aboriginal or traditional use areas. Many Tribes still use these lands and resources for traditional, cultural, religious, and ceremonial activities.

Treaties

The Constitution of the United States of America includes several important provisions related to American Indian Tribes: Article I, Section 8 “To regulate commerce with foreign Nations, and among the several States, and with the Indian Tribe...” “Under Article VI, Clause 2, treaties are recognized as a supreme law of the land and States must recognize treaties even if they conflict with State constitutions or laws. This clause, known as the supremacy clause, states: “This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made,

under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding”” (FSM 1563.8a 3b).

Indian treaty rights are property rights held by the sovereign Indian Tribes who signed the treaties. Each treaty is unique but, generally speaking, Indian Tribes reserved separate, isolated reservation lands under the treaties and many retained certain rights to hunt, fish, graze, and gather on the lands ceded to the United States. These rights retained on ceded lands are known as “off-reservation treaty rights” or “other reserved rights.” Trust responsibility arises from the United States' unique legal and political relationship with Indian Tribes. It derives from the Federal Government's consistent promise, in the treaties that it signed, to protect the safety and well-being of the Indian Tribes and Tribal members. The Federal trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect Tribal treaty rights, lands, assets, and resources, as well as a duty to carry out the mandates of Federal law with respect to all federally recognized American Indian and Alaska Native Tribes and villages.

Modern Tribal groups associated with the Custer Gallatin today live primarily on reservations established between the late 1850s and 1880s through a number of treaties, land cessations, and executive orders. Of the 19 Tribes with interests on the Custer Gallatin, only the Crow share common boundaries with the national forest.

After the 1871 Federal statute eliminated treaty making, the United States continued to make agreements with the Indian Tribes through statutes and executive orders. These in essence carry the same weight as treaties (Cohen 1982). Treaty clauses referencing reserved treaties are listed in table 7.

Table 7. Treaty clauses referencing reserved treaty

Tribe*	Treaty	Reserved Rights
Sioux (Dahcotas), Cheyennes, Arapahoes, Crows, Assinaboines, Gros-Ventre Mandans, Arrickaras	“Ft Laramie Treaty with Sioux, Etc. 1851”	<i>It is, however, understood that, in making this recognition and acknowledgement, the aforesaid Indian nations do not hereby abandon or prejudice any rights or claims they may have to other lands; and further, that they do not surrender the privilege of hunting, fishing, or passing over any of the tracts of country heretofore described.</i>
Sioux—Brulé, Oglala, Miniconjou, Yanktonai, Hunkpapa, Blackfeet, Cuthead, Two Kettle, Sans Arcs, and Santee—and Arapaho”	“Treaty with the Sioux—Brulé, Oglala, Miniconjou, Yanktonai, Hunkpapa, Blackfeet, Cuthead, Two Kettle, Sans Arcs, and Santee—and Arapaho” (Ft Laramie Treaty 1868)	<i>reserve the right to hunt on any lands north of North Platte, and on the Republican Fork of the Smoky Hill River, so long as the buffalo may range thereon in such numbers as to justify the chase.</i>
Crow	Treaty with the Crows, 1868	<i>. . . they shall have the right to hunt on the unoccupied lands of the United States so long as game may be found thereon,</i>
Confederated Tribes of the Flathead, Kootenay, and Upper Pend d’ Oreilles	Treaty with the Flatheads, etc. “Hellgate Treaty” 1855	<i>The exclusive right of taking fish in all the streams running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places, in common with citizens of the Territory, and of erecting temporary buildings for curing; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.</i>

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Tribe*	Treaty	Reserved Rights
Blackfoot Nation, consisting of the Piegan, Blood, Blackfoot, and Gros Ventres Tribes of Indians. West of the Rocky Mountains, the Flathead Nation, consisting of the Flathead, Upper Pend d'Oreille, and Kootenay Tribes of Indians, and the Nez Percé Tribe	Treaty with the Blackfeet, 1855	exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians: as also the right of taking fish at all usual and accustomed places in common with citizens of the territory, and of erecting temporary buildings for curing, <i>together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.</i>
Nez Perce Tribe of Indians " <i>occupying lands lying partly in Oregon and partly in Washington Territories, between the Cascade and Bitter Root Mountains</i> "	Treaty with the Nez Perces, 1855	The exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians: as also the right of taking fish at all usual and accustomed places in common with citizens of the territory, and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.
Nez Perce	Treaty with the Nez Perce, 1863	agree to reserve all springs or fountains not adjacent to, or directly connected with, the streams or rivers within the lands hereby relinquished, and to keep back from settlement or entry so much of the surrounding land as may be necessary to prevent the said springs or fountains being enclosed; and, further, to preserve a perpetual right-of-way to and from the same, as watering places, for the use in common of both whites and Indians. <i>... all the provisions of said treaty which are not abrogated or specifically changed by any article herein contained, shall remain the same to all intents and purposes as formerly, --- the same obligations resting upon the United States, the same privileges continued to the Indians outside of the reservation,</i>
Northern Shoshone (Eastern and Western Bands) and Bannack	Treaty with the Shoshone (Eastern Band) and Bannack Tribes of Indians, 1868 Fort Bridger Treaty	<i>they shall have the right to hunt on the unoccupied lands of the United States so long as game may be found thereon,</i>
Cayuse, Umatilla and Walla Walla Tribes	Cayuse, Umatilla, Walla Walla Treaty, 1855	Provided, also, That the exclusive right of taking fish in the streams running through and bordering said reservation is hereby secured to said Indians, <i>... the privilege of hunting, gathering roots and berries and pasturing their stock on unclaimed lands in common with citizens, is also secured to them.</i>
Northern Cheyenne Tribe	Executive Order, 1884	Established the Northern Cheyenne Reservation
Fort Belknap Indian Reservation, Assiniboine (Nakota) and Gros Ventre (Aaniiih) Tribes	Act of Congress May 1, 1888	Ratifies and confirms agreement with said Indians by which they cede to U.S. all lands in the Gros Ventre, Piegan, Blood, Blackfeet, and River Crow reservations not reserved and set apart as separate reservations, as hereinafter specified.

*Tribe names displayed as spelled in the treaty

Regulatory Framework

The Custer Gallatin holds in public trust a great diversity of landscapes and sites, including many culturally important sites held sacred by Indian Tribes. The Forest Service's responsibility to protect Tribal cultural resources and sacred sites is codified in laws, executive orders, legislation, regulation, and other statutory authorities. Some authorities relate to cultural resources as sites of historical importance and other authorities relate to sacred sites as places of religious or spiritual importance.

Applicable laws, policy, direction, and regulation provide for the management direction for Tribal relations and issues, and are set forth in the revised and March 2016 update Forest Service Manual 1500, Chapter 1560 – Tribal, State, county, and local agencies; public and private organizations. A summary of laws, regulations, and policies are included below.

Federal Land Policy and Management Act (FLPMA), 43 U.S.C. 1701-1784 (1976): requires coordination of land use plans for lands in the National Forest System with the land use planning and management programs of and for Indian Tribes. Directs the Forest Service to manage National Forest System lands on the basis of multiple use, in a manner that “recognizes the Nation’s need for domestic sources of minerals, food, timber, and fiber from the public lands” and that will “protect the quality of ...historical... resources, and archeological values.”

National Environmental Policy Act (NEPA of 1969, 42 U.S.C. 4321 et seq.): requires forest agencies to invite Indian Tribes to participate in the scoping process for projects and activities that affect Indian Tribes and requires National Environmental Policy Act documentation.

American Indian Religious Freedom Act (AIRFA) (42 U.S.C. 1978): states “...it shall be the policy of the United States to protect and preserve for American Indians their inherent right for freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including, but not limited to access to site, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.”

Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470cc et seq.) as amended: Public Law 96-95 and Regulations 43 CFR Part 7 establishes a permit process for the management of cultural sites on Federal lands which provides for consultation with affected Tribal governments.

National Historic Preservation Act of 1966 (NHPA) (54 U.S.C. 300101 et seq.) as amended in 1992: requires Federal agency officials to consult with Indian Tribes concerning the effects of undertakings on historic properties of traditional and cultural importance to the Tribes.

Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), 25 U.S.C. 3001 et seq., amended in 1992: addresses the rights of lineal descendants and members of Indian Tribes and Alaska Native and native Hawaiian organizations to certain human remains and precisely defined cultural items. It covers items currently in Federal repositories as well as future discoveries. The law requires Federal agencies and museums to provide an inventory and summary of human remains and associative funerary objects. The law also provides for criminal penalties in the illegal trafficking in Native American human remains and cultural items.

Executive Order 12898 of 1994—environmental justice in minority populations and low-income populations: directs Federal agencies to focus on the human health and environmental conditions in minority and low-income communities, especially in instances where decisions may adversely impact these populations.

Executive Order 13175—Consultation and Coordination with Indian Tribes, November 6, 2000: directs Federal agencies to establish regular and meaningful consultation and collaboration with Tribal officials in the development of Federal policies that have Tribal implications, to strengthen the United States government-to-government relationships with Indian Tribes, and to reduce the imposition of unfunded mandates upon Indian Tribes. Public Law (P.L.) 108-199 and 108-477 added language that directed the Office of Management and Budget and all Federal agencies to consult with Alaska Natives and Alaska Native Corporations on the same basis as Indian Tribes under Executive Order 13175.

Executive Order 13007, Indian Sacred Sites of 1996: directs Federal land management agencies, to the extent permitted by law, and not clearly inconsistent with essential agency functions, to accommodate access to and use of Indian sacred sites, to avoid affecting the physical integrity of such sites wherever possible, and, where appropriate, to maintain the confidentiality of sacred sites. Federal agencies are required to establish a process to assure that affected Indian Tribes are provided reasonable notice of proposed Federal actions or policies that may affect Indian sacred sites.

Title VIII, Subtitle B of the Food, Conservation, and Energy Act of 2008 (Farm Bill): codified as the Cultural and Heritage Cooperation Authority (25 U.S.C. 32A). Includes provisions for reburial of human remains and cultural items, temporary closure for traditional and cultural purposes, forest products for traditional and cultural purposes, and prohibitions on disclosure of information.

Title 36, Code of Federal Regulations, Part 219 (Planning Rule): sets forth a process for developing, adopting, and revising land and resource management plans for the National Forest System and prescribe how land and resource management planning is to be conducted on National Forest System lands. The rule directs the Forest Service to consult with and coordinate forest planning with Indian Tribes.

Cultural and Heritage Cooperation Authority (25 U.S.C. 3055): states the secretary of agriculture may provide free of charge to Indian Tribes any trees, portions of trees, or forest products from National Forest System land for traditional and cultural purposes, notwithstanding section 472a of title 16. Tree, portions of trees, or forest products provided under subsection (a) may not be used for commercial purposes. This authority also authorizes the secretary of agriculture to protect the confidentiality of certain information, including information that is culturally sensitive to Indian Tribes, and requires the Forest Service to consult with affected Indian Tribes before releasing culturally sensitive information.

36 CFR 261 Prohibitions in Areas Designated by Order; Closure of National Forest System Lands to Protect Privacy of Tribal Activities (2011): “provides regulations regarding special closures to provide for closure of National Forest System lands to protect the privacy of Tribal activities for traditional and cultural purposes to ensure access to National Forest System land, to the maximum extent practicable, by Indian and Indian Tribes for traditional and cultural purposes.”

36 CFR 223.239 and .240 Sale and Disposal of National Forest System Timber, Special Forest Products, and Forest Botanical Products: Section 223.239 provides regulations for free use without a permit for members of Tribes with treaty or other reserved rights related to special forest products. Also, free use without a permit upon the request of the governing body of a Tribe. Section 223.240 provides regulations regarding harvest of special forest products by Tribes with treaty or other reserved rights.

Key Indicators and Measures

Plan components may affect the availability of resources and the use of traditional places important to American Indian rights and interests. A primary concern is the availability and protection of reserved treaty resources and cultural resources, including use and access to traditional places.

Key indicators from Tribal comment centered on honoring their treaty-reserved rights; protection for plants and wildlife, particularly bison, bighorn sheep, preservation and protection of sacred sites, religious, ceremonial, and cultural sites; culturally sensitive sites; traditional use locations; and continued access to these areas.

Key indicators used to qualitatively evaluate the effects of alternatives are:

- Protection of sacred sites, religious, ceremonial, and cultural sites; culturally sensitive sites; traditional use locations, and potential to alter the integrity or setting, physically damage sites, introduce, visual, audible, or atmospheric elements that are out of character with the site, as measured in relative amount of land in recommended wilderness and backcountry area plan land allocations.
- Potential increase or decrease in access to sacred sites, religious, ceremonial, and cultural sites; culturally sensitive sites; traditional use locations, measured in relative amount of land in recommended wilderness and backcountry area plan land allocations.
- Variations in bison and bighorn sheep plan components.

Methodology and Analysis Process

Effects to Tribal interests are known through past and current Tribal consultation between the Forest Service and affected Tribes as well as a number of ethnographic studies conducted with the Crow, Northern Cheyenne, Ft. Peck Tribes, the Three Affiliated Tribes, the Standing Rock, Cheyenne River, Lower Brule, Rosebud and Pine Ridge Sioux Tribes. Also considered in the analysis was the identification of the North Cave Hills, South Cave Hills, and Slim Buttes as lands with religious and cultural significance under all applicable historic preservation laws and Executive Order 113007 by Tribal resolutions from the Lower Brule Sioux Tribes, Standing Rock Sioux Tribes, Cheyenne River Sioux Tribe, and the Rosebud Sioux Tribes.

The Crow, Cheyenne, Hidatsa, and Sioux have expressed concern over proper treatment of traditional cultural properties and burials located on the Sioux District, specifically Ludlow Cave, the Slim Buttes battlefield, eagle trapping lodges, and the Slim Buttes as a whole. Ludlow Cave, located in the North Cave Hills, is particularly revered as a one of the places from which buffalo first emerged from the earth and surrounded by rock imagery, is a traditional cultural property.

Concerns raised by the Tribes through letters, emails, and meetings conducted during the initial phases of the revision effort were analyzed and addressed in the document. Six Tribes formally commented on the proposed action by letter. Their concerns include the protection of habitats on which the Tribe's reserved treaty rights rest; protection for bison and bighorn sheep; need for components addressing at-risk plant species, invasive species, species of conservation concern, general wildlife and Tribal reserved resources; opposition to land sales or transfers to non-Federal entities; climate change; use of traditional ecological knowledge (TEK) for various species; and protection, preservation, and enhancement of religious, sacred and ceremonial sites, archaeological sites, traditional use sites, and the opportunity to continue traditional cultural practices.

During informational meetings with the Crow, Northern Cheyenne, Ft. Peck Tribes, Eastern Shoshoni, Arapahoe, and the Mandan, Hidatsa, Arikara (MHA) additional concerns were expressed including concern about plants in the Tongue River Breaks and spring developments (Northern Cheyenne). Other concerns raised were regarding access in the Pryor Mountains, bison and bighorn sheep, and teepee pole availability (Crow); the need for interpretation that includes American Indian perspective (Arapahoe, Shoshone-Bannock Tribes); protection of North Cave Hills (MHA); Nez Perce Trail and Bannock Trail, land exchanges, campground fees, larger landscape for bison, and hunting season closures for treaty Tribes (Shoshone Bannock Tribes).

Email from the Rosebud and Cheyenne Sioux say they want to be included in the plan revision effort.

During the review by the Tribes of the proposed action, two additional Indian Nations voiced concerns about the management of the Custer Gallatin National Forest (the Crow Creek Sioux Tribe from Fort Thompson, South Dakota and the Piikani Nation representing the Blackfeet Confederacy in Alberta, Canada). Both Nations have concerns centered on the treatment of bison and the honoring of reserved treaty rights. The chairman of the Crow Creek Sioux Tribe has asked to be included in formal consultation on the plan revision.

The issues expressed by the Tribes are evaluated using the indicators expressed above including reserved treaty rights; protection for bison, bighorn sheep, and plant habitats; preservation and protection of sacred sites, cultural sites, and traditional use locations; and continued access to these areas.

Information Sources

Sources of information used include treaties for the Tribes surrounding the Custer Gallatin; cultural resource records; Tribal websites; past Tribal consultation meetings; oil and gas leasing environmental impact statements; a number of ethnographic studies and cultural histories; and comments from Tribes received through letters, email, and informational meetings during the initial phases of the plan revision efforts, including the proposed action.

The Custer Gallatin has worked with their Tribal neighbors on a number of ethnographic studies in the last 20 years and include an ethnographic overview of the McKenzie, Medora, Sioux, Ashland, and Beartooth Districts of the Custer National Forest (Deaver and Kooistra-Manning 1995). This was designed to give Forest Service personnel some of the background information needed to make informed decisions regarding the effects of land management decisions on traditional Indian communities.

Other ethnographic and ethnogeographic studies consulted for this assessment include the specific land based studies for the Pryor Mountain Unit (Nabokov and Loendorf 1994); South Dakota Units of the Sioux District (Sundstrom 1997, 2003, Lebeau 2006.); Tongue River and Powder River Plateau (Boggs et al. 2010) Chalk Buttes (Chalk Buttes Elders et al 1996); Crazy Mountains (Allen 2002); and Yellowstone Park (Nabokov and Loendorf 1994).

Analysis Area

The analysis area includes the entire Custer Gallatin. The cumulative effects analysis area extends to cultural landscapes not wholly administrated by the Custer Gallatin including all of the Crazy Mountains. The temporal scope of the analysis is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

Notable changes between the draft and final environmental impact statements include:

- Change in terminology – Tribal cultural landscapes, sacred places, and reserved treaty rights.
- The addition of new Tribes to the list of Tribes who requested consultation or have reserved treaty rights within the Custer Gallatin.
- Analysis of alternative F.
- The plan has added Tribal components in response to Tribal comments.

3.12.2 Affected Environment (Existing Condition)

The Custer Gallatin administers a vast landscape that covers a range of ecological conditions, from the Prairie Pinelands to the mountains and alpine plateaus. These tribal cultural landscapes were and are the homelands of a number of Native American Indian Tribes. This is further reflected in the great diversity of organizational structures of Tribal governments, roles of written and customary law, treaties, and cultural traditions and practices. Some Tribes have reserved treaty rights while others have rights established by executive order or statute.

Because the governments and cultures of indigenous peoples are distinctively different, the Custer Gallatin works with each Tribe individually and consults with 19 federally recognized Tribes located in North and South Dakota, Montana, Wyoming, Idaho, Oregon, and Washington. Those who have communicated interest in the natural and cultural resources and management of the Custer Gallatin as part of their aboriginal or traditional use areas include:

- MHA (Mandan, Hidatsa and Arikara) Nation (Sahnish)
- Standing Rock Sioux
- Cheyenne River Sioux Tribe
- Lower Brule Sioux Tribe
- Rosebud Sioux Tribe
- Pine Ridge Sioux Tribe
- Northern Cheyenne Tribe
- Ft. Peck Sioux and Assiniboine Tribes
- Confederated Salish Kootenai Tribes
- Fort Belknap Indian Community
- Nez Perce Tribe
- Umatilla Confederated Tribes
- Shoshone Bannock Tribe
- Eastern Shoshone Tribe
- Arapahoe Tribe
- Crow Tribe
- Crow Creek Sioux Tribe
- Confederated Bands and Tribes of the Yakama Nation
- Blackfeet Nation

The Forest Service makes decisions that may limit the use of lands over which it has trustee responsibilities. Lands currently administered by the Custer Gallatin contain areas and landmarks, which are part of complex mythologies and sacred landscapes developed within the homelands of the Tribal groups who occupied the lands prior to European arrival. Areas of known traditional use and identified tribal cultural landscapes include the North Cave Hills, South Cave Hills, Slim Buttes, Chalk Buttes (Sioux Geographic Area); Tongue River Breaks (Ashland Geographic Area); the Pryor Mountains (Pryor Mountains Geographic Area) and the Crazy Mountains (Bridger, Bangtail, and Crazy Mountains Geographic Area). The North Cave Hills,

South Cave Hills and Slim Buttes within the Sioux Geographic Area were formally recognized by four Tribes as sacred sites under Executive Order 13007, Indian Sacred Sites of 1996.

Traditional plant materials are widely gathered and used by Tribal members across the planning area. Lists of significant plants collected have been submitted to the Custer Gallatin from the Crow, Northern Cheyenne, Sioux, and Shoshone Bannock, many of which are integral in traditional ceremonies and cultural practices. A few of these many plants listed include camas, bitterroot, Lomatium, box elder trees, juniper, white sage, purple coneflower, golden aster, sumac, prairie turnip, yucca, buffalo berry, rose hips, green ash, wild licorice, prairie June grass, chokecherry, golden current, and horsemint.

Commissary Ridge in the Pryor Mountain Geographic Area has been identified as an important plant gathering location for the Crow. The foothills of the Pryor Mountains are known to the Northern Cheyenne as an important plant gathering area – the plants in this area are reported to be particularly hardy, producing stronger medicine. Plant collection areas are also located within the Chalk Buttes (Sioux Geographic Area), and the Tongue River Breaks (Ashland Geographic Area). The West Rosebud (Absaroka Beartooth Mountains Geographic Area) has been a plant collection location since precontact times.

Bison hold a sacred significance to all the Tribes in the planning area as they have been a principal means of subsistence and spirituality. Despite its near extinction in the late 1800s the bison continue to play an important role in Tribal traditional beliefs and cultural practices. Reconnection with the traditional hunting of bison that are now exiting Yellowstone National Park by Tribes exercising their reserved treaty rights has been occurring on the Gardiner and Hebgen Lake Districts.

Several minerals such as steatite, obsidian, soapstone, and pipestone are collected on the Custer Gallatin, along with clays, for paint. Certain fossils such as baculites, belemnites, and ammonites continue to be recognized by the Crow, Arapaho, Hidatsa, Northern Cheyenne and others as having spiritual power and are collected on the national forest.

Climate change has been expressed as a Tribal concern in plan revision comment letters. Projected changes in temperatures, precipitation, and hydrology threaten lands, resources, and economies of the Tribes; as well as Tribal aboriginal territories, ceremonial sites, burial sites, Tribal traditions, and cultural practices that rely on native plant, fish, and wildlife species and their habitat. Changes in the natural resources that comprise sacred places and setting, and traditional cultural practices may degrade as a result of climate-induced changes. Climate change may also affect the quality and availability of forest products used for traditional purposes upon which the Tribes depend for cultural continuity (Halofsky et al. 2018a;b).

3.12.3 Environmental Consequences

Effects Common to All Alternatives

Numerous laws, executive orders, and regulations govern the relationship and collaboration between American Indian Tribes and the Federal government, represented here by the Custer Gallatin. Examples of specific legislation designed to identify and protect Native American Indian sacred, religious, and ceremonial sites, traditional cultural properties and uses, and locations of religious importance are noted in previous sections. These laws and policies also govern the use

and protection of forest resources that may be of Tribal interest or covered by reserved treaty rights. In project planning and implementation, the Forest Service must comply with these laws and regulations and in doing so must conduct meaningful and timely consultation with Tribal governments.

The effects to areas of Tribal importance are defined by Tribes during consultation. Current management direction and requirements for consultation have been designed to ensure that areas on National Forest System lands that are important to the Tribes are not inadvertently impacted by Forest Service actions. Since management direction is required to follow all Federal laws, policy, and regulations in respect to Indian rights and concerns, related effects are the same across all alternatives.

In addition, numerous laws, regulations, and policies govern the use and protection of forest resources that may be of Tribal interest or covered under reserved treaty rights. Activities authorized or implemented by the Forest Service must comply with these laws, regulations, and policies which are intended to provide general guidance for the implementation of management practices and for protection of resources, including those of interest to the Tribes. Under the National Forest Management Act, the Forest Service is required to provide for the diversity of plant and animal communities and persistence, in the long term, of native species such as bison and bighorn sheep, along with plant species gathered by Native American Indians. For these reasons, the viability of reserved treaty resources and traditional and cultural species of interest to Native American Indians would be provided as a result of national forest activities.

Tribal access can be affected by policy decisions, administrative actions, and physical impacts on the ground. Specific concerns from resource management activities such as road building or other modifications on the landscape, could affect Tribal members accessing valued places (gathering areas or sacred sites) or practicing traditional and cultural activities. While these specific concerns are best addressed at the site-specific level during project or activity planning, restricting access to public lands can have both beneficial and adverse effects on traditional cultural activities. Restricting access may be beneficial when it preserves the solitude and quiet, necessary for fasting, prayer, and other ceremonies. It may have a negative effect when it restricts traditional practitioners' ability to collect traditionally important plant, animal, mineral, fossil resources, and teepee poles. Under all revised plan alternatives, the main arterial and collector system would remain the same, and this system should provide adequate access to most traditional use areas.

Since the revised plan components apply to all alternatives, it is the plan land allocations such as recommended wilderness and backcountry areas that vary across the alternatives. These plan land allocations might impact the Tribal traditional and cultural activities by limiting access to locations used for traditional and ceremonial purposes. Sites of importance to Tribes and many resources of Tribal interest are located in remote locations and have been used traditionally for many generations. Designating these areas as recommended wilderness or backcountry areas may limit or impair access to these sites by motorized transport, but would not deter the ability of Tribes to continue to conduct ceremonies and gather resources in traditional ways.

Conversely, plan land allocations such as recommended wilderness or backcountry areas may afford those locations with substantial protections that could prevent inappropriate access and damage to sacred sites while preserving these traditional and tribal cultural landscapes.

The amount of land in recommended wilderness or backcountry areas (low development areas in the current plans) varies by alternative as described for each alternative.

Current Plans

Management Direction under the Current Plans

Native American religious practices areas were recognized in at least one area on the Custer National Forest that is used by Tribes for the practice of traditional religious activities, and there is a recognition that there may be other areas still undisclosed. It provides the Custer Gallatin with specific direction for the management of these areas. Continued coordination with the Tribes was mandated to avoid loss of the areas' value for continuation of the traditional uses.

Several low development areas were identified in the plan including the Cook Mountain, King Mountain, and Tongue River Breaks on the Ashland District. A management area "J" was defined as a low development for the King Mountain, Cook Mountain, and Tongue River Breaks with direction to consider Native American Concerns in management of the area and to establish a consultation process to assess Northern Cheyenne views on activities that might affect ancestral cultural sites. Further, the area is to be managed to assure compliance with the American Indian Religious Freedom Act. The current plans have about 34,000 acres of recommended wilderness area.

For both plans, consideration was taken regarding Federal and State law compliance, and to include Tribal groups in consultation if a site appears to have religious or historical significance. The reburial policy appears to be a precursor to Native American Graves Protection and Repatriation Act and the designation of a special management area for the significant religious use recognizes the importance and respect of this activity before the term traditional cultural property was defined.

The plans predate the passage of the Native American Graves Protection and Repatriation Act (NAGPRA), EO 13007 on Sacred Sites (1996) and the 1992 amendment to the National Historic Preservation Act (NHPA); the latter calls attention to procedures for the identification of traditional cultural properties. While the current plans predate the passage of these laws, the Forest Service must follow these laws under the current plans.

Effects of the Current Plans

Under the current plans, the Tongue River Breaks tribal cultural landscape and traditional use locations are afforded protection and access to the resources by the Tribe. The North Cave Hills, South Cave Hills, Slim Buttes, and Chalk Buttes in the Sioux Geographic Area, the Pryor Mountains, and Crazy Mountains' traditional cultural landscapes and traditional cultural use locations, Ludlow Cave and Dryhead Overlook are not afforded additional plan land allocation protection.

The current plans have no plan direction for bison, although national forest would continue bison management in conjunction with partners under the Interagency Bison Management Plan.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The forest wide plan components recognize culturally significant species and habitats; availability of forest resources for collection by Tribal members with reserved treaty rights and Tribal member access to sacred sites and places, religious and ceremonial sites; and tribal cultural landscapes. Additional plan components address government to government consultation and development of agreements for management and access to sacred sites under goals FW-GO-TRIBAL-01, 02. Standards address accommodation of access and ceremonial use of sacred sites and the maintenance of confidentiality of sacred site locations; and the definition of how temporary closures for cultural and traditional purposes will be facilitated (FW-STD-TRIBAL-01-05). In addition, specific plan components for certain geographic areas recognize traditional use areas and areas of Tribal importance of the North Cave Hills and Chalk Buttes in the Sioux Geographic Area; Tongue River Breaks in the Ashland Geographic Area; the Crazy Mountains in the Bridger, Bangtail, and Crazy Mountains Geographic Area, and the Pryor Mountains Geographic Area. It is in the plan land allocations that effects to areas of Tribal importance may vary across alternatives.

Sioux Geographic Area plan components provide desired conditions, goals and guidelines that recognize traditional use areas of the North Cave Hills and Chalk Buttes (SX-DC-TRIBAL-01 and 02; SX-GO-TRIBAL-01 and 02; SX-GDL-TRIBAL-01 and 02).

Plan components for the Ashland Geographic area address the protection of the physical and visual setting of the Tongue River Breaks that include important ongoing traditional cultural practices of the Northern Cheyenne as a desired condition; a standards that recognizes, ensures, and accommodates Northern Cheyenne Tribal members access to the Tongue River Breaks for the practice of traditional cultural activities; and the original standard concerning new spring developments is now applied to the whole Ashland Geographic area (AL-DC-TRIBAL-01; AL-GO-TRIBAL-01; AL-STD-TRIBAL-01; AL-GDL-TRIBAL-01).

Plan components for the Pryor Mountains Geographic Area provide desired conditions, a goal and a guideline that recognize traditional use areas of the area by the Crow Tribe and direction that new recreation opportunities do not interrupt ongoing Crow traditional cultural activities (PR-DC-TRIBAL-01, 02, and 03; PR-GO-TRIBAL-01; PR-GDL-TRIBAL-01).

Plan components for the Crazy Mountains Geographic Area provide desired conditions and a goal that recognize traditional use areas of the area by the Crow Tribe and research, education, and interpretation of the Crazy Mountain tribal cultural landscape (BC-DC-TRIBAL-01 and 02; BC-GO-TRIBAL-01).

Effects Common to the Revised Plan Alternatives

All revised plan alternatives contain plan components that explicitly state the desired conditions for cultural and Tribal resources and provide guidance for achieving these desired conditions. Collectively, these plan components serve to ensure that potential adverse effects from land management activities are avoided or minimized. The revised plan alternatives also contain plan components designed to ensure reserved treaty rights are considered in management decisions and to provide access to the Custer Gallatin for traditional, religious, and ceremonial uses. Forest

management activities conducted under all alternatives are required to follow direction in all Federal laws and regulations in respect to Native American Indian rights and interests, and as such related effects are the same across all revised plan alternatives.

Vegetation treatment may help the restoration of vegetation to desired conditions, which consider historical vegetation and future climate. While ground disturbing in the short run, the restoration may contribute to the enhancement, preservation, protection, and continued use of forest resources by the Tribes. Teepee pole collection opportunities are available in all revised plan alternatives since vegetation and fuels treatment activities are geared toward moving vegetation toward desired conditions.

The revised plan alternatives also emphasize collaborating and consulting with Tribal partners to ensure continued access to sacred, religious, and ceremonial sites, and traditional use areas. While Tribes may traditionally have reached these places by foot or horseback, today, motorized vehicles are essential for reaching some locations, especially for elders who can no longer walk long distances. The Custer Gallatin would consult with Tribes when access and recreation management activities may impact reserved treaty rights, or cultural sites and traditional cultural use. There is some potential risk to sacred sites, sacred places, and tribal cultural landscapes where traditional practitioners conduct ceremonies that require privacy. If a road were built to or near such a site, the associated increase in visitation could make it difficult to conduct ceremonies there, undermining the important traditional cultural practice.

The North Cave Hills, South Cave Hills, and Slim Buttes have been identified through Tribal resolutions as sacred sites within the Sioux Geographic Area. There is still a potential that Tribal cultural landscape integrity and sacred sites may be affected because of the activities that are permitted under the revised plan alternatives. However, prior to implementing land management activities, impacts to reserved treaty rights and traditional and cultural practices would be assessed and consultation requirements fulfilled.

Desired conditions for bison under all revised plan alternatives include access to forage, security and movement corridors to facilitate distributions of bison to suitable habitats on national forest, accommodates bison migration out of Yellowstone Park in the winter, and supports year-round bison to provide a self-sustaining population on national forest (FW-DC-WLBI-01-04).

Effects of Alternatives B and C

Under these two alternatives, the allocations of backcountry areas for locations in the Pryor Mountains, the Tongue River Breaks, and the Crazy Mountains (under alternative C) would afford continued traditional use and access to these locations while protecting the tribal cultural landscape from overuse and inappropriate additional motorized transport. Under the backcountry areas allocation, no new permanent roads, energy or utility corridors, new commercial communication sites, new salable mineral material extraction, or developed recreation sites would be established (FW-STD-BCA). By making these units backcountry areas, access to traditional resources and cultural uses would be maintained, although restricting motorized and mechanized transport in the Pryor Mountains Backcountry Areas in alternative C may restrict some methods of access for Tribal members.

No additional plan land allocation, such as backcountry areas or recommended wilderness, is proposed for North Cave Hills, Slim Buttes, or Chalk Buttes (Sioux Geographic Area) under these

alternatives, although plan components recognize traditional use of the North Cave Hills and Chalk Buttes (SX-DC-TRIBAL-01, 02; SX-GO-TRIBAL-01, 02; SX-GDL-TRIBAL-01, 02).

For bison, both alternatives provide a proactive support to bison in terms of vegetation treatment and bison habitat improvement projects. Vegetation treatment projects within the bison management zones should result in favorable conditions for bison and management actions taken to resolve bison-livestock conflicts within the bison management zones would be resolved in favor bison over livestock (draft plan components FW-OBJ-WLBI-01; FW-GDL-WLBI-01, 03).

Minimizing risk of disease transmission from domesticated sheep to bighorn sheep is furthered by not allowing domesticated sheep grazing in the Pryor Mountains; Absaroka Beartooth Mountains; or Madison, Henrys Lake, and Gallatin Mountains Geographic Areas where wild bighorn herds are currently located. Outside of these locations domesticated sheep and goat could be permitted on grazing allotments if the risk assessment indicates that physical separation or other mitigation can effectively minimize the risk of disease transmission. These alternatives do not recognize the historic range of bighorn sheep across the national forest and the potential for recolonization (draft plan component FW-STD-GRAZ-02).

Effects of Alternative D

Alternative D would add the largest number and greatest acreage of new areas recommended for addition to the National Wilderness Preservation System. Desired conditions for proposed wilderness such as naturalness and opportunities for solitude; untrammeled and undeveloped landscapes; where natural ecological processes and disturbances continue with limited amount of human influence meet the same characteristics needed for sacred sites, sacred places, and tribal cultural landscapes (FW-DC-RWA-02, 03).

The Crazy Mountains and Tongue River Breaks backcountry areas under alternatives B and C become recommended wilderness areas in alternative D, preserving the natural setting, and protecting and enhancing the Tribal cultural landscape use and values. Four recommended wilderness areas are proposed in the Pryor Mountains, including an expanded Last Water Canyon Recommended Wilderness Area that includes the Pryor Mountain Wild Horse Territory. These allocations would contribute to the preservation and protection of this traditional cultural use areas, tribal cultural landscape, and protect the Dryhead Overlook traditional cultural property. The Chalk Buttes becomes a backcountry area which affords this traditional cultural use area additional protection from new permanent roads, utility corridors, commercial communication sites, new salable mineral material extraction, and developed recreation sites while allowing access for traditional cultural activities (FW-STD-BCA; SX-GO-TRIBAL-02).

While many Tribal activities could still occur within areas recommended for wilderness, some activities such as gathering and ceremonial uses may be restricted or more difficult due to decreased access. No additional plan land allocation is proposed for the North Cave Hills, South Cave Hills or Slim Buttes sacred sites, although plan components recognize traditional use areas of the North Cave Hills (SX-DC-TRIBAL-01; SX-GO-TRIBAL-01).

Alternative D goes the furthest toward promoting bison spatial and temporal expansion on the Custer Gallatin with a desired condition for year-round bison presence, sufficient numbers and adequate distribution of a self-sustaining bison population, and the maintenance and

improvement of existing bison habitat within and outside existing management zones (draft plan component FW-DC-WLBI-04.) Management actions taken to resolve bison-livestock conflicts within the bison management zones would be resolved in favor bison over livestock (draft plan component FW-GDL-WLBI-01). This alternative helps support reserved treaty rights by supporting bison habitat and allows for the continuance of traditional cultural activities.

No domesticated sheep grazing would be allowed forest wide, recognizing that historically bighorn sheep were present across most of national forest. This measure would reduce the risk of disease transference to bighorn sheep, and possibly promote future recolonization whether by natural dispersal or through deliberate transplant (draft plan component FW-STD-GRAZ-02).

Effects of Alternative E

No areas within the Chalk Buttes, North Cave Hills, or Slim Buttes in the Sioux Geographic Area; the Tongue River Breaks in the Ashland Geographic Area; the Pryor Mountains Geographic Area; or the Crazy Mountains in the Bridger, Bangtail, and Crazy Mountains Geographic Area are identified for any additional plan land allocations.

Forest wide direction requires that management activities avoid adversely affecting the physical integrity of sacred sites (FW-STD-TRIBAL-04) and requires new developments and land management activities avoid, minimize, and mitigate potential conflict with forest resources used for traditional cultural practices (FW-STD-TRIBAL-02). Plan components recognize traditional use areas of the North Cave Hills (SX-DC-TRIBAL-01; SX-GO-TRIBAL-01), the Tongue River breaks (AL-DC-TRIBAL-01) the Pryor Mountains (PR-DC-TRIBAL-01) and the Crazy Mountains (BC-DC-TRIBAL-01).

These tribal cultural landscapes, and sacred site characteristics may be detrimentally affected by the possibility of new roads, utility corridors, commercial communication sites, new salable mineral material extraction, and developed recreation sites.

Traditional cultural areas that are currently accessible and used by Tribes would continue, however, increased access and potential for ground disturbing activities within the tribal cultural landscapes of the Pryor Mountains, Tongue River Breaks, Chalk Buttes, Slim Buttes, North Cave Hills, and the Crazy Mountains may introduce visual, atmospheric, or audible elements that can diminish the integrity of traditional use sites, sacred sites and tribal cultural landscapes. All Forest Service management activities on national forest lands are required to meet applicable environment protection measures as required by law, regulation, and policy—compliance with these measures would ensure that areas of Tribal importance would be taken into consideration at the project level.

For bison, this alternative places more emphasis on livestock operations within the bison management zones and has no objectives to implement bison habitat improvement projects. Vegetation treatment projects would be designed with livestock needs in mind (draft plan component FW-GDL-WLBI-03). Threats to livestock by bison would result in the removal of bison through various means. While alternative E may support long-term bison occupation on the national forest, it is within a reduced spatial and temporal scale than the other alternatives.

This alternative would allow stocking of permitted sheep grazing allotments anywhere outside the grizzly bear recovery zone and primary conservation area on the national forest 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 (draft plan component FW-STD-GRAZ-02). While allowing more flexibility for domestic livestock grazing, this alternative increases the risk of disease transmission to bighorn sheep, especially the possibility of contact with domestic livestock in areas otherwise considered to be very low risk.

Effects of Alternative F

Alternative F draws from the range of alternatives B through E. It represents a mix of recommended wilderness areas, backcountry areas, recreation emphasis areas, and lands identified as suitable for timber production.

Under the Sioux Geographic Area, the Chalk Buttes becomes a backcountry area which affords this traditional cultural use area and tribal cultural landscape additional protection from new permanent roads, utility corridors, commercial communication sites, new salable mineral material extraction, and developed recreation sites while allowing access for traditional cultural activities (FW and Geographic Area STD-BCA). While no additional plan land allocation is proposed for the North Cave Hills, South Cave Hills, or Slim Buttes sacred sites, plan components under desired conditions, goals, and guidelines recognize traditional use areas and are protected under forestwide components under goals and standards (FW-GO-TRIBAL-01, 02; FW-STD-TRIBAL-03, 04).

The backcountry area allocation for Cook Mountain, King Mountain, and Tongue River breaks affords continued traditional use and access to these locations while protecting the tribal cultural landscape from overuse and inappropriate additional motorized transport. Under the backcountry areas allocation, no new permanent roads, energy or utility corridors, new commercial communication sites, new salable mineral material extraction, or developed recreation sites would be established (FW and Geographic Area STD-BCA). By making these units backcountry areas and with the additional components, access to traditional resources and cultural uses is maintained.

For the Pryor Geographic Area Bear Canyon and Lost Water Canyon, inclusive of the Lost Water Canyon research natural areas are proposed for recommended wilderness and Big Pryor and Punch Bowl are identified as backcountry areas. The recommended wilderness allocations would contribute to the preservation and protection of this traditional cultural use areas and tribal cultural landscape. Allocations of backcountry areas would afford continued traditional use and access to these locations while protecting the traditional cultural landscape from overuse and inappropriate additional motorized transport. Under the backcountry areas allocation, no new permanent roads, energy or utility corridors, new commercial communication sites, new salable mineral material extraction, or developed recreation sites would be established (FW and Geographic Area STD-BCA).

Portions of the Pryor Mountains tribal cultural landscape are recommended wilderness areas or backcountry areas, which would provide protection of the resources present within. Other areas of the Pryor Mountains are not appropriate for these allocations due to levels of existing development such as roads. As a result, not all of the tribal cultural landscape of the Pryor Mountains can be allocated as recommended wilderness or backcountry area as a cohesive landscape.

Under the Bridger, Bangtail, and Crazy Mountain Geographic Area, the South Crazy Mountain recommended wilderness area would, preserve the natural setting, and protect and enhance the tribal cultural landscape use and values. Desired conditions for recommended wilderness such as naturalness and opportunities for solitude; untrammelled and undeveloped landscapes; where natural ecological processes and disturbances continue with limited amount of human influence meet the same characteristics needed for sacred sites and tribal cultural landscapes (FW-DC-RWA-02, 03). The allocation of the Crazy Mountains Backcountry Area north of the South Crazy Mountains recommended wilderness area encompasses the high mountain peaks crossed by checkerboard land ownership. This combination of plan land allocations preserves and protects this tribal cultural landscape so integral to Crow traditional and cultural practices, while allowing access to important reserved treaty resources.

Plan components for this alternative would support most proactive management of bison on the Custer Gallatin National Forest and is similar to Alternative D. Promotion of bison spatial and temporal expansion on the Custer Gallatin with a desired condition for year round bison presence, sufficient numbers and adequate distribution of a self-sustaining bison population, and the maintenance and improvement of existing bison habitat within and outside existing management zones helps support reserved treaty rights by improving bison habitat and allows for the continuance of traditional cultural activities (FW-DC-WLBI-04, FW-GDL-WLBI-02 and 03). Management actions taken to resolve bison-livestock conflicts within the bison management zones would be resolved in favor bison over livestock (FW-GDL-WLBI-01).

For bighorn sheep the effects are the same as alternatives B and C.

Consequences to Areas of Tribal Interest from Plan Components Associated with Other Resource Programs or Management Activities

Throughout the plan components are goals for collaboration, cooperation and consultation with Tribes regarding Air Quality (FW-GO-AQ-01); At Risk Plant Species (FW-GO-PRISK-03); Vegetation (FW-GO-VEGNF-02, 03; PR-GO-VEGNF-01); Invasive species (FW-GO-INV-01, 02, 03); Wildlife (FW-GO-WL-02, 04); Areas of Tribal Importance (FW-GO-TRIBAL-01, 02; FW-STD-TRIBAL-01, 05; AL-GO-TRIBAL-01; PR-GO-TRIBAL-01; BC-GO-TRIBAL-01); Roads (FW-GO-RT-03); and Dams (FW-GO-DAM-01).

Effects from Vegetation Management

Desired conditions for vegetation components have been largely based on their natural ranges of variability (NRV) which reflect conditions prior to Euro-American settlement (FW-DC-VEGF-01 to 08; FW-DC-VEGNF-01, 02, 03, 04). For all alternatives, managing vegetation toward or within desired conditions should provide diverse and sustainable habitat conditions for plant and animal species similar to those that existed for traditional hunting and gathering, a right reserved through a number of treaties.

Important forest products for Tribal use include teepee and Sundance poles as well as other materials. Collection is currently administered in recognition of Crow reserved treaty rights to gather these materials under the 1968 Fort Laramie Treaty. As more demand for these cultural materials increases, the Custer Gallatin National Forest will be tasked to find additional locations for Tribal use. Forest Service practices management decisions or plan land allocations that may diminish the quantity and quality, or access to these resources. While vegetation treatments

may be ground disturbing, these practices under all alternatives may offer opportunities for identification of potential teepee pole patches and providing increased access to these resources.

Effects from Fire and Fuels Management

Fire suppression techniques, such as fire line construction, could impact cultural resources. However, under all alternatives, minimum impact suppression tactics (MIST) would be used to prevent damage to culturally sensitive areas (FW-GDL-FIRE-03). Surveys are completed before implementation of mechanical fuels treatments and prescribed fires to ensure that there are no impacts to cultural sites. Prescribed burning and wildfire, under the right conditions, may increase the propagation of certain tree and grass species that have traditional use. Wildland fire may also uncover previously unknown sites by clearing ground fuels.

Effects from Recreation Management

Recreation use on the Custer Gallatin National Forest has a marked rise for the last 40 to 50 years. Some of the places most sought after are also culturally, spiritually, and economically vital to Native American Tribes. As more people take to these lands to hike, bike, climb, ski, paddle, or camp, respect for indigenous values sometimes fades. Recreation can potentially affect Tribal resources through its effects on both ground disturbance and visitor use. Ground disturbance may occur either directly, through the construction and management of recreation sites, or indirectly, by motor vehicles for recreation. All revised plan alternatives contain plan components designed to avoid or mitigate these effects. New roads, campsites, trails, and other recreation infrastructure would be designed in a way that minimizes any adverse effects from construction and protects cultural, traditional, and historical resources from the effects of future visitor use (FW-DC-REC-05).

The Nez Perce National Historic Trail, which traces the 1877 flight of the Nez Perce from their traditional lands holds historical and cultural significance for the Nez Perce and other Tribes. The Custer Gallatin National Forest manages portions of Nez Perce Trail. Plan components associated with management of this trail ensures that they conserve important cultural values while allowing visitors an opportunity to learn about the local history (MG-DC-NPNHT-01; MG-GO-NPNHT-01).

Effects from Energy and Minerals Management

Activities such as mineral, oil, and gas exploration and development, construction of transmission lines, railroad spurs, pipelines, and utility corridors have the potential to affect areas of Tribal importance. Introduction of visual, atmospheric, or audible elements from oil and gas wells can diminish the integrity of traditional use sites, sacred sites, and tribal cultural landscapes.

Other energy and technology developments not necessarily linked to mineral development also can affect traditional cultural uses. Alternative energy development such as wind power can result in a large footprint on the landscape and often impact viewshed, which can be so integral to fasting and vision quest activities. Telecommunication towers are often located on high points such as mountaintops and if 200 feet in height are required by the Federal Aviation

Administration to be lit at night. This causes visual intrusions to the tribal cultural landscapes and possibly displacing traditional cultural practices.

All mineral and energy management activities on national forest lands are required to meet applicable environment protection measures as required by law, regulation, and policy, as well as plan guidance (FW-DC-EMIN-01, 02, 10)—compliance with these measures would ensure that areas of Tribal importance would be taken into consideration. Regarding culturally significant caves, FW-GO-EMIN, includes cooperation and exchange of information with governmental authorities and those who utilize caves.

The specific allocation for the Stillwater Complex in recognition of its unique geographic exposure, ore grade and scale of mineral deposits, should have little effect to areas of Tribal importance since consideration of this effect is mandated by law, regulation, and policy.

Effects from Permitted Livestock Grazing Management

Livestock can contribute to the deterioration of cultural and historical resources through physical contact (for example, hoof action, rubbing on structures) or by contributing organic matter to a site. They can remove or alter vegetation that protects sites from erosion and make these resources more visible for unauthorized collection. In cases where the level of impact is unacceptable, the impacts can be mitigated with fencing or with changes in management (intensity or timing) as required through consultation with the State Historic Preservation Officer and affected Tribes.

Plan components for permitted grazing would avoid, minimize, or mitigate adverse livestock-related impacts to traditionally significant plant species through appropriate design of grazing practices (such as stocking levels, duration, timing), and allotment infrastructure (FW-DC-GRAZ-01). In doing so, this promotes resiliency of riparian and upland ecosystems, and associated flora. To date, detrimental effects from current management within known plant collection areas such as Commissary Ridge in the Pryor Geographic Area, Tongue River Breaks in the Ashland Geographic Area, and the higher elevations of the Chalk Buttes (Sioux Geographic Area) have not been identified by the Tribes.

A common activity associated with range management is the development of springs on forest lands. For some Tribes such as the Northern Cheyenne, springs are associated with spirit life and development may cause the spirit to move away, no longer being available to those who visit the spring for traditional cultural purposes (Deaver and Kooistra-Manning 1995). Plan components designed for the Chalk Buttes on the Sioux Geographic Area and district wide in the Ashland Geographic Area call for new spring developments to avoid springs used for traditional cultural purposes to minimize conflicts with traditional cultural practices (SX-GDL-TRIBAL-02; AL-GDL-TRIBAL-01).

Effects from Land Status and Ownership Management

Land exchanges, sales, land transfers and other land adjustments that are considered for exchange to non-federal ownership may affect reserved treaty rights of access and use. These rights include but are not limited to the presence of cultural or religious sites and traditional uses such as hunting and gathering. Cultural resources located on many off-reservation lands are essential to the culture and traditions of the Tribes and are held in trust by the Federal

Government. These land actions may extinguish these rights when transferred to a private entity. Under all alternatives, Federal law requires consultation with Tribes prior to consideration of such land adjustments. This consultation is essential to fulfilling the Federal trust responsibility and reserved treaty rights to the Tribes and building on the Forest Service commitment to strong government to government relationships.

Cumulative Effects

Tribes, Tribal groups and organizations, and traditional cultural practitioners depend on the land and resources that cross multiple jurisdictions and ecosystems. Much of the lands in the planning area are managed by Federal land management agencies—other national forests, national parks, and Bureau of Land Management managed lands—which all have requirements for Government-to-Government meetings with Tribes to consult and coordinate management of the land and resources (to meet Tribal and agency responsibilities). Land and resource management under the plan is generally complementary with management across the Federal agencies regarding Tribal relations and uses.

Conclusion

All alternatives would continue the important Government-to-Government meetings for activities that may affect sacred, religious, and ceremonial sites, traditional use areas, and reserved treaty right resources including wildlife, fish and plant habitats. Revised plan alternatives include plan components that protect and, in some cases, enhances areas of Tribal importance, and improves the integration of Tribal interests into project planning. These alternatives would provide for increased opportunity to improve access to and use of resources important to Tribes, and traditional cultural practitioners, compared to the current plan.

Access to sacred sites, traditional resources and traditional cultural resources is also a key issue for Tribes. While some alternatives may restrict access through certain plan land allocations, the Custer Gallatin staff would collaborate with Tribes to accommodate access to and ceremonial use of sacred sites under all alternatives.

Alternative E would have the least impact to access to sites and resources currently used by Tribes, and traditional cultural practitioners since no areas would be recommended for wilderness allocation. Increased access, however, may introduce inappropriate visitation and use to locations of traditional use, tribal cultural landscapes, and sacred sites. Increased ground disturbance also has the potential to damage these traditional places. Alternative D would have the most potential impact because access to and use of areas may create additional barriers for Tribal members, while protecting the tribal cultural landscapes and setting. For alternatives B, C, and F the allocations of backcountry areas (for locations in the Pryor Mountains, the Tongue River Breaks, Chalk Buttes and the Crazy Mountains) would afford continued traditional use and access to these locations. The backcountry allocations (in alternatives B, C, and F) would also protect the tribal cultural landscape from overuse and additional motorized transport. Although, restricting motorized and mechanized transport in the Pryor Mountains backcountry area in alternative C may restrict some methods of access for Tribal members.

Both alternatives B and C are proactive for bison management on the Custer Gallatin National Forest. Alternatives D and F would provide the most proactive management for bison presence on the national forest, and alternative E would provide the least proactive bison management.

3.13 Cultural and Historic Resources

3.13.1 Introduction

Cultural resources can be defined as physical evidence or places of past human activity: site, object, landscape, structure; or a site, structure, landscape, object or natural feature of significance to a group of people traditionally associated with it. As defined in Forest Service Manual 2360, there is “an object or definite location of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence.” This includes prehistoric and historic archaeological sites and districts; historic buildings and structures; ethnographic landscapes; and traditional cultural properties. Traditional cultural properties are defined as 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 are rooted in that community’s history, and important in maintaining the continuing cultural identity of the community. It must also be a tangible property; that is, a district, site, building, structure, or object.

Cultural resources also include a substantial record of oral histories, photographs, maps, reports, and archaeological artifacts. The documentary record of the people and historical landscapes that are illustrated in these old stories, maps and photographs contribute greatly to the understanding of cultural resources on the Custer Gallatin.

The public's recognition that these non-renewable resources are important and should be protected began very early in this century and continues to the present through a myriad of Federal laws, regulations, and policies that direct the documentation and management of cultural resources. Maintaining the scientific, historic, and social integrity of these resources provides a vital link of our collective past to the present.

Cultural resources are significant social and economic contributors to the Custer Gallatin National Forest, region, and nation. They provide opportunities for cultural tourism, education and research. They are also necessary for maintaining the cultural identity of the traditional communities such as the Tribal, mining and ranching publics within and adjacent to the Custer Gallatin.

Regulatory Framework

Since these resources are nonrenewable and easily damaged, laws and regulations exist to help protect them. Pertinent laws and regulations governing the management of cultural resources of the Custer Gallatin can be separated into laws, executive orders, and regulatory and guidance related categories. Pertinent laws and regulations include:

Organic Act of 1897 (Title 16, United States Code (U.S.C.), section 473-478, 479-482, 551): is the original organic act governing the administration of National Forest System lands. It is one of several Federal laws under which the Forest Service operates. Under this act, the secretary of agriculture may make regulations and establish services necessary to regulate the occupancy and use of National Forest System lands and preserve them from destruction. Persons violating the act or regulations adopted under it are subject to fines or imprisonment. The Organic Act is one authority used to issue permits for archaeological investigations.

Antiquities Act of 1906 (16 U.S.C. 431): provides for permits, for misdemeanor-level penalties for unauthorized use, and for presidential designation of national monuments for long-term preservation. The Archaeological Resources Protection Act has replaced the Antiquities Act as the authority for special use permits if the resource involved is 100 years old or greater. Uniform regulations at 43 Code of Federal Regulations (CFR) part 3 implement the act.

Historic Sites Act of 1935 (16 U.S.C. 461): declares national policy to “preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States.” The act authorizes the National Park Service’s National Historic Landmarks Program. The National Historic Landmarks Program is implemented by regulations at 36 CFR part 65.

National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. 470), as amended: extends the policy in the Historic Sites Act to State and local historical sites as well as those of national significance, expands the National Register of Historic Places, establishes the Advisory Council on Historic Preservation and the State Historic Preservation Officers, and requires agencies to designate Federal Preservation Officers. National Historic Preservation Act Section 101(d)(2) establishes criteria for designating Tribal Historic Preservation Officers to assume the functions of a State Historic Preservation Officer on Tribal lands. National Historic Preservation Act Section 106 directs all Federal agencies to take into account the effects of their undertakings (actions, financial support, and authorizations) on properties included in or eligible for the National Register. Advisory Council on Historic Preservation regulations at 36 CFR part 800 implement National Historic Preservation Act Section 106. National Historic Preservation Act Section 110 establishes inventory, nomination, protection, and preservation responsibilities for federally owned historic properties.

National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321-4346): establishes national policy for the protection and enhancement of the environment. Part of the function of the Federal government in protecting the environment is to “preserve important historic, cultural, and natural aspects of our national heritage.” The act is implemented by the Council on Environmental Quality (CEQ) regulations at 40 CFR 15001508.

The Archeological and Historic Preservation Act of 1974 (AHPA) (16 U.S.C. 469): is also known as the Archeological Recovery Act and the Moss-Bennett Bill. Archeological and Historic Preservation Act amended and expanded the Reservoir Salvage Act of 1960 and was enacted to complement the Historic Sites Act of 1935 by providing for the preservation of historical and archaeological data, which might be lost or destroyed as the result of the construction of a federally authorized dam or other construction activity. This greatly expanded the number and range of Federal agencies that had to take archeological resources into account when executing, funding, or licensing projects. Archeological and Historic Preservation Act also allows for any Federal agency responsible for a construction project to appropriate a portion of project funds for archaeological survey, recovery, analysis, and publication of results.

Forest and Rangeland Renewable Resource Planning Act of 1974 as amended by the National Forest Management Act (NFMA) of 1976: requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition..."

Federal Land Policy and Management Act of 1976 (FLPMA), (43 U.S.C. 1701), directs the Forest Service to manage National Forest System (NFS) lands on the basis of multiple use, in a manner that “recognizes the nation’s need for domestic sources of minerals, food, timber, and fiber from the public lands” and that will “protect the quality of ...historical...resources, and archeological values.” The act provides for the periodic inventory of public lands and resources, for long-range, comprehensive land use planning, for permits to regulate the use of public lands, and for the enforcement of public land laws and regulations. Federal Land Policy and Management Act compels agencies to manage all cultural resources on public lands through the land management planning process.

National Forest Management Act of 1976 (NFMA) (16 U.S.C. 1600): directs the Forest Service to develop renewable resource plans through an interdisciplinary process with public involvement and consultation with other interested governmental departments and agencies.

The American Indian Religious Freedom Act (AIRFA) of 1978: American Indian rights to exercise traditional religions including access to sites and freedom to worship through ceremonials and traditional rights are protected by this act.

Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470aa et seq.), as amended: provides criminal penalties (felony and misdemeanor) and civil penalties for the unauthorized excavation, removal, damage, alteration, defacement, or the attempted unauthorized removal, damage, alteration, or defacement of any archaeological resource, more than 100 years of age, found on public lands or Indian lands. The act includes National Forest System lands in its definition of public lands. The act also prohibits the sale, purchase, exchange, transportation, receipt, or offering of any archaeological resource obtained from public lands or Indian lands in violation of any provision, rule, regulation, ordinance, or permit under the act, or under any Federal, State, or local law. No distinction is made regarding National Register of Historic Places eligibility. The act establishes permit requirements for removal or excavation of archaeological resources from Federal and Indian lands. The act further directs Federal land managers to survey land under their control for archaeological resources and create public awareness programs concerning archaeological resources. Uniform regulations and departmental regulations at 36 CFR part 296 implement Archaeological Resources Protection Act.

Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 U.S.C. 3001): provides a process for museums and Federal agencies to return certain Native American cultural items – human remains, funerary objects, sacred objects, or objects of cultural patrimony – to lineal descendants, and culturally affiliated Indian Tribes and Native Hawaiian organizations. Native American Graves Protection and Repatriation Act includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional excavation and unanticipated discovery of Native American cultural items on Federal and Tribal lands, and penalties for noncompliance and illegal trafficking. The act requires agencies and museums to identify holdings of such remains and objects and to work with appropriate Native American groups toward their repatriation. Permits for the excavation or removal of “cultural items” protected by the act require Tribal consultation, as do discoveries of “cultural items” made during activities on Federal or Tribal lands. The secretary of the interior’s implementing regulations can be found at 43 CFR part 10.

Federal Lands Recreation Enhancement Act of December 8, 2004, (REA) (16 U.S.C. 6801-6814)

permits Federal land management agencies to charge modest fees at recreation facilities that provide a certain level of visitor services. Federal Lands Recreation Enhancement Act also permits fees for specialized recreation permits necessary when recreation activities require exceptional visitor safety measures, extraordinary natural and cultural resource protection, or dispersal of visitors to ensure that good experiences are sustainable. Federal Lands Recreation Enhancement Act includes provisions that require the use of Recreation Resource Advisory Committees to provide the public with information about fees and how fee revenues will be used. The primary goal of Federal Lands Recreation Enhancement Act is to enhance visitor facilities and services to provide a quality recreation program.

Other Acts such as Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528-531) and the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (17 U.S.C. 1600-1674):

includes authorities that establish national forest management direction and thereby may affect Heritage Program activities.

Executive Order 11593 - Protection and enhancement of the cultural environment, issued May 13, 1971:

directs Federal agencies to inventory cultural resources under their jurisdiction, nominate all federally owned properties that meet the criteria to the National Register of Historic Places, use due caution until the inventory and nomination processes are completed, and assure that Federal plans and programs contribute to preservation and enhancement of non-federally owned properties.

Executive Order 13007 - Indian Sacred Sites, issued May 24, 1996: directs Federal land management agencies, to the extent permitted by law, and not clearly inconsistent with essential agency functions, to accommodate access to and use of Indian sacred sites, to avoid affecting the physical integrity of such sites wherever possible, and, where appropriate, to maintain the confidentiality of sacred sites. Federal agencies are required to establish a process to assure that affected Indian Tribes are provided reasonable notice of proposed Federal actions or policies that may affect Indian sacred sites.

Executive Order 13175 - Consultation and Coordination with Indian Tribal Governments: issues November 6, 2000, directs Federal agencies to establish regular and meaningful consultation and collaboration with Tribal officials in the development of Federal policies that have Tribal implications, to strengthen the United States government-to-government relationships with Indian Tribes, and to reduce the imposition of unfunded mandates upon Indian Tribes. Public Law (P.L.) 108-199 and 108-477 added language that directed the Office of Management and Budget and all Federal agencies to consult with Alaska Natives and Alaska Native Corporations on the same basis as Indian Tribes under Executive Order 13175.

Executive Order 13287 - Preserve America, issued March 3, 2003: establishes Federal policy to provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of the historic properties owned by the Federal government. The order encourages agencies to develop partnerships with Tribal, State, and local governments, and the private sector to make more efficient and informed use of historic properties for economic development and other recognized public benefits. The order requires Federal agencies to review and report on their policies and procedures for compliance with National Historic Preservation Act, Section 110 and 111, improve Federal stewardship of historic

properties, and promote long-term preservation and use of those properties as Federal assets contributing to local community economies. The order requires the head of each agency to designate a senior policy official. In addition, it directs the secretary of commerce, working with other agencies, to use existing authorities and resources to assist in the development of local and regional heritage tourism programs.

Executive Order 13327 - Federal Real Property Asset Management, issued February 4, 2004: establishes the Federal Real Property Council to develop guidance for each agency's asset management plan. The senior real property officer of each agency is required to develop and implement an agency asset management planning process that meets the form, content, and other requirements established by the Federal Real Property Council. In relation to cultural resources, the senior real property officer shall incorporate planning and management requirements for historic properties under Executive Order 13287 – Preserve America. Executive Order 13327, para. 2(a) defines "Federal real property" as any real property owned, leased, or otherwise managed by the Federal Government, both within and outside the United States, and improvements on Federal lands.

Executive Order 13007 - Indian Sacred Lands 1996: directs Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites and, where appropriate, to maintain the confidentiality of sacred sites.

Protection of Historic Properties (36 CFR part 800): implements National Historic Preservation Act (NHPA) Section 106 and defines how Federal agencies meet the statutory responsibility to consider the effects of their undertakings on historic properties. The regulations identify consulting parties as State historic preservation officers, Indian Tribes and Native Hawaiian organizations (including Tribal Historic Preservation Officers), representatives of local governments, applicants for Federal assistance, and additional consulting parties. The Advisory Council on Historic Preservation issues these regulations and oversees the operation of the National Historic Preservation Act, Section 106 process. The regulations identify the goal of consultation, which is "to identify historic properties potentially affected by the undertaking, assess its effects, and ways to avoid, minimize or mitigate any adverse effects on historic properties" (36 CFR 800.1).

National Register of Historic Places (36 CFR part 60): establishes the National Register of Historic Places (referred to as the National Register for the remainder of this chapter) as a planning tool to help Federal agencies evaluate cultural resources in consultation with State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Advisory Council). Regulations 36 CFR 60.4 provides the criteria for determining whether cultural resources are eligible for listing on the National Register of Historic Places.

Protection of Archaeological Resources Uniform Regulations (36 CFR part 296): regulations implement the Archaeological Resources Protection Act by establishing the uniform definitions, standards, and procedures for Federal land managers to follow in providing protection for archaeological resources located on public lands and Indian lands. The regulations define the prohibited acts, which include excavating, removing, damaging, or otherwise altering or defacing archaeological remains; and selling, purchasing, exchanging, transporting, or receiving any archaeological resource that was removed from Federal land in violation of Archaeological

Resources Protection Act or any other Federal law. The regulations also provide requirements for issuing permits under the authority of the Archaeological Resources Protection Act to any person proposing to excavate or remove archaeological resources from public lands or Indian lands.

Native American Graves Protection and Repatriation Regulations (43 CFR part 10, Subpart B – Human Remains, Funerary Objects, Sacred Objects, or objects of Cultural Patrimony From Federal or Tribal Lands): carries out provisions of the Native American Graves Protection and Repatriation Act of 1990. The regulations establish a systematic process for determining the rights of lineal descendants and Indian Tribes and Native Hawaiian organizations to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony with which they are affiliated. The regulations pertain to the identification and appropriate disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony that are in Federal possession or control or in the possession or control of any institution of State or local government receiving Federal funds. The regulations pertain to these objects whether they are inadvertently discovered or excavated intentionally under a permit issued under the authority of the Antiquities Act or Archaeological Resources Protection Act.

Curation of Federally owned and Administered Archaeological Collections (36 CFR part 79): establishes definitions, standards, procedures, and guidelines for Federal agencies to preserve collections of prehistoric and historic material remains, and associated records recovered under the authority of the Antiquities Act, Reservoir Salvage Act, National Historic Preservation Act, and Archaeological Resources Protection Act.

Planning (36 CFR part 219): sets forth a process for developing, adopting, and revising land and resource management plans for the National Forest System and prescribe how land and resource management planning is to be conducted on National Forest System lands.

Statement of Federal Financial Accounting Standards 29, Heritage Assets and Stewardship Land, July 7, 2005, (SFFAS 29): changes the classification of information reported for heritage assets and stewardship land provided by Statement of Federal Financial Accounting Standards 8. Statement of Federal Financial Accounting Standards 29 reclassifies all heritage assets and stewardship land information as basic except for condition information, which is reclassified as required supplementary information. This standard requires additional reporting disclosures about stewardship policies and an explanation of how heritage assets and stewardship land relate to the mission of the agency.

36 CFR 261 Prohibitions in Areas Designated by Order; Closure of National Forest System Lands to Protect Privacy of Tribal Activities (2011): “provides regulations regarding special closures to provide for closure of National Forest System lands to protect the privacy of Tribal activities for traditional and cultural purposes to ensure access to National Forest System land, to the maximum extent practicable, by Indian and Indian Tribes for traditional and cultural purposes.”

36 CFR 223.239 and .240 Sale and Disposal of National Forest System Timber, Special Forest Products, and Forest Botanical Products: Section 223.239: provides regulations for free use without a permit for members of Tribes with treaty or other reserved rights related to special forest products. Also, free use without a permit upon the request of the governing body of a

Tribe. Section 223.240 provides regulations regarding harvest of special forest products by Tribes with treaty or other reserved rights.

The following is a list of other documents that authorize and guide the cultural resource management activities on the Custer Gallatin National Forest.

- Forest Service Manual and Handbook (2360) original, revised draft (1986) and final 2008
- National Register Bulletin 38
- Montana Programmatic Agreement between the Advisory Council for Historic Preservation, the Montana State Preservation Office, and the Northern Region of the U.S. Forest Service (2015) regarding negative inventory and no historic properties affected undertakings in the State of Montana by the USDA Forest Service.
- South Dakota Programmatic Agreement between the Advisory Council for Historic Preservation, the South Dakota State Historic Preservation Office and the Northern Region of the U.S. Forest Service regarding cultural resource management on national forests in the northern region in the State of South Dakota, 1995.
- Programmatic Agreement among the Custer National Forest, the Bureau of Land Management Montana State Office, the Advisory Council for Historic Preservation, the South Dakota State Historic Preservation Officer, the Cheyenne Sioux Tribe, the Standing Rock Sioux Tribe, the Lower Brule Sioux Tribe, the Rosebud Sioux Tribe and the Mandan, Hidatsa and Arikara Nation regarding the identification, evaluation, and treatment of properties and cultural resources of traditional religious and cultural importance and significance affected by oil and gas leasing and development on the Custer National Forest, Sioux District, 2007.
- Heritage Program managed to standard performance measures, 2011.
- National Historic Preservation Act Programmatic Agreement regarding the maintenance of historic buildings by the Northern Region Historic Preservation Team, 1992, as amended 2015.

Key Indicators and Measures

Forest Management activities have the potential to affect cultural resources through the potential for ground disturbance to adversely affect cultural resources; additional cultural resources recorded through increased inventory prescribed by laws, regulations, policies; and change of access to sites.

Key indicators used to evaluate the effects of alternatives are:

- The amount of vegetation management related ground disturbance that might occur under each alternative, measured in projected vegetation management acres.
- Potential increase or decrease in access to cultural resources, measured in relative amount of land in recommended wilderness and backcountry area plan land allocations.

Methodology and Analysis Process

The projected amount of vegetation management is used as an analysis indicator due to the potential for ground disturbance to adversely affect cultural resources.

Cultural resource inventories have generally occurred in areas where there have been management activities in response to vegetation and fuels treatment, mineral developments, range assessments, recreational development, special uses, and engineering projects. Therefore, relative levels of these activities in the alternatives would influence the number of new cultural resources recorded that would require evaluation, protection, and interpretation. They would add to the understanding of cultural resources on the Custer Gallatin. When heritage resource inventories in response to projects would be reduced, there is an increased potential for presently unknown cultural resources to be lost, damaged or exposed from naturally occurring erosion and wildfire, and less opportunity to contribute to the site record and understanding of the cultural resources in these areas. Projected amount of vegetation management is used as an analysis indicator of future cultural resource inventory areas because objectives are included for this activity.

Potential increase or decrease in access to cultural resources is used as an analysis indicator because increased access could lead to detrimental effects such as vandalism and looting, while in areas where sites are less accessible, effects to cultural resources can result from neglect, leading to deterioration or potential vandalism. Increased access may also have a positive impact on cultural and historical resources if it increases the rate of discovery of new cultural or historical sites. Amount of recommended wilderness areas and backcountry areas are measured because these plan land allocations do not allow new permanent roads, and in some areas affect existing summer mechanized or motorized transport. It is assumed that over-snow transport does not affect cultural resources.

It is not possible to evaluate the impacts of alternatives on specific cultural sites because the programmatic nature of a land management plan does not predict the exact locations of future activities.

Information Sources

Information sources included published sources, site and report records, corporate geographic information system (GIS), INFRA, and Natural Resource Manager databases relevant to the Custer Gallatin. Additional documents include several historic and cultural overviews Cultural and Historic Resources and Uses Assessment Report (La Point and Bergstrom 2017).

Analysis Area

The analysis area is primarily related to the resources on the Custer Gallatin, within the context of the thousands of years of pre-contact history and hundreds of years of post-contact history of the Northern Rocky Mountains and Great Plains. The temporal scope of the effects analysis is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

Notable changes between draft and final environmental impact statements include:

- Inclusion of indigenous history under education component
- Analysis of alternative F

3.13.2 Affected Environment (Existing Condition)

The Custer Gallatin contains one of the richest and most diverse series of Pre-contact (prehistoric) sites in North America, due in large measure to the remarkable diversity of landforms and ecology which occurs within the far-flung boundaries of the Custer Gallatin National Forest. This diverse landscape also supported a remarkable variety of American Indian Tribes during contact (historic) period as Tribal oral histories and historic documents attest. Over the last 100 years, land use practices such as logging, mining, grazing, recreation, road systems, policies of fire suppression, and establishment of Indian reservations have changed or altered heritage resources in the planning area. These changes have contributed to the development of the historical landscape as n and experienced today.

Since the late 1970s, parts of the Custer Gallatin have been systematically inventoried for cultural resources in response to National Historic Preservation Act regulations. However, only about 222,000 (7.4 percent) of the national forest's 3 million acres have been inventoried. Usually occurring as part of unrelated management activities such as vegetation and fuels treatments, recreation development, oil and gas development, mine expansion and reclamation, rangeland management and engineering projects.

From these inventories a wide variety of cultural and historical sites themes, including pre-contact civilization, American Indian use, Tribal and 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.

As of July 2016, the Custer Gallatin had more than 4,360 cultural resources listed in the Forest Service's database. Of these cultural resources, 48 are listed on the National Register, 541 are eligible for nomination and 176 have been found to be not eligible. This leaves 3,595 sites, or 83 percent of the sites in the database, that have not been evaluated for National Register eligibility. Site evaluation would aid properly preserve and protect these resources and discover what significant information related to the prehistory and history of the Custer Gallatin they may hold. In reference to the National Historic Preservation Act, the unevaluated sites are considered eligible for nomination to the National Register until their eligibility status is determined.

Pre-contact, or prehistoric, sites represent most of the identified recorded sites, accounting for 76 percent of the Custer Gallatin's total. Historic sites comprise 22 percent of the historic properties on the Custer Gallatin, and multicomponent sites, sites displaying both historic and prehistoric elements sharing a common area, make up 2 percent of the Custer Gallatin total. The different environments and land use between east and west districts can be n with the number of mining sites—the west districts have 169 while the east has five sites, and homestead sites, there are 61 sites on the east districts and eight on the west districts.

The Custer Gallatin National Forest has 48 sites—5 individual and 43 as multiple listings—listed on the National Register of Historic Places as of August 2016, and two proposed Districts. There is also one National Historic Trail. These include:

- The OTO Homestead and Dude Ranch (24PA1227)
- Prehistoric Rock Art of South Dakota Multiple Listing Nomination
- Camp Senia Historic District, and 2015 Boundary Expansion (24CB1134)

- Rock Creek Ranger Station (24CB1198)
- Red Lodge-Cooke City Approach Road (includes segment of the Beartooth Scenic Byway); 24CB1964, 24PA1255, 48PA2310
- Lightning Springs (39HN204)
- Nez Perce National Historic Trail
- North Cave Hills Archaeological and Traditional Use District
- Crazy Mountains Traditional Cultural Property District (Proposed)
- Civilian Conservation Corps Roads on the Ashland and Beartooth Districts, Multiple Property Listing
- Dryhead Overlook District (Proposed)

In addition to these national register sites are three proposed traditional cultural landscapes, the Pryor Mountains, the Tongue River Breaks on the Ashland Geographic Area, and the Chalk Buttes Unit on the Sioux Geographic Area. There are also at least five identified traditional cultural property locations.

“Priority assets” is a special Forest Service category of sites that demonstrate a distinct value to the Custer Gallatin and are actively maintained and monitored every five years. There are 341 priority assets currently identified on the Custer Gallatin.

The Custer Gallatin has put significant effort into the restoration of many historic cabins for either continued administrative use or for public use as rental cabins. Examples of administrative use cabins include Meyers Creek, Sage Creek Cabin, Buffalo Forks Guard Station, Main Boulder, and Rock Creek Station. Examples of rental cabins include Basin Creek Ranger Station, Four Mile Guard Station, Diamond Butte, and Whitetail Cabin, with possibilities, in the long term, of adding Sage Creek Cabin as budgets permit. By 1920 there were at least 14 districts identified on the Gallatin National Forest. At least fifty historic guard and ranger stations, dating from 1905 to 1940, were constructed across the Custer Gallatin and are described in a recent publication ((MacLean 2013) pages 68–94). At least 24 of these buildings are in the cabin rental program. Fifty-six historic trails on the Custer Gallatin National Forest have been recorded and are still maintained for administrative and public use.

Restoration of fire lookouts has been conducted at Poker Jim and Tri Point Lookout Tower. These historic sites are still maintained and are seasonally used as lookouts when needed.

The Civilian Conservation Corps built environment and contributions to the Custer Gallatin are still evident and in use. Campgrounds built by the Corps include Basin, Camp Sheridan, Cascade, Palisades, Parkside, Ratine, Pine Creek and Butte Meadows. Former Civilian Conservation Corps camps—the Needmore Camp and Squaw (Shenango) Creek Camp—are maintained and used today for administrative and recreational purposes. The Whitetail Cabin was built as a ranger station and is now serves as a rental cabin. An impressive arch-deck, concrete bridge spanning the West Gallatin River near Squaw (Shenango) Creek Ranger Station, was built in 1935 by youths stationed at the Squaw (Shenango) Creek Civilian Conservation Corps Camp. Despite its age of over 80 years, this bridge continues to serve administrative and recreational vehicle traffic.

On the Ashland and Sioux Districts most of the main access roads were built by the Civilian Conservation Corps and are still maintained and in use today. They include 10- and 15-Mile Roads, Beaver Creek – Stacey Road, Beaver Creek Liscom Road, and Cow Creek road on the Ashland District; and Ekalaka-Stagville, Dugan, Snow Creek, Plum Creek, and Capital Rock Roads on the Sioux District. These districts are also sprinkled with numerous reservoirs and spring developments attributed to the Corps workforce, addressing the need for rangeland water during the drought stricken, and “dirty thirties.”

These cultural resources reflect the use of all the ecosystems within the Custer Gallatin National Forest, from the pine savanna to the mountains and river corridors and alpine environments for generations. Preservation of historic properties, traditional cultural properties and Tribal and historic cultural landscapes are important as a reminder of the collective past and a link to the future.

3.13.3 Environmental Consequences

Effects Common to All Alternatives

Compliance with the National Historic Preservation Act Section 106, and all other applicable Federal laws and regulations, are required for all Forest Service undertakings, regardless of the chosen alternative. The identification, evaluation, nomination, protection, and interpretation of cultural and historic resources would occur under all alternatives. Coordination and consultation with interested parties and affected Tribes would also continue in accordance with Federal laws and regulations. Sites eligible for listing in the National Register of Historic Places would formally be nominated to the register. Protection protocols and mitigation measures would be used to preserve resources that are inadvertently discovered. All alternatives thus provide protection for cultural resources consistent with National Historic Preservation Act.

Nearly every undertaking by the Forest Service has the potential to affect heritage resources. Not all effects are necessarily adverse, and some effects may be avoided either through project redesign or the implementation of standard protection measures.

The North Cave Hills Archaeological and Traditional Use District would not receive any additional protection through any plan land allocation.

Current Plans

Management Direction under the Current Plans

The existing forest plans are focused on Section 106 compliance and do not consider a balance between compliance, stewardship, and protection of cultural and historical resources. However, numerous Federal laws and regulations exist for the protection and enhancement of these resources regardless of any plan direction.

The Custer Forest Plan included a forest wide standard for cultural resources that requires the Forest Service to consult with Native American traditional religious leaders on any project having the potential to affect Native American cultural sites and practices.

Under the current plans, three locations on the Ashland District are “low development areas;” very similar to the revised plan alternatives backcountry areas. The current plans have about 34,000 acres of recommended wilderness area.

Effects of the Current Plans

Under the current plans, compliance with Federal laws and regulations would continue. While the current plans predate the passage of the Native American Graves Protection and Repatriation Act (NAGPRA) and the 1992 amendment to the National Historic Preservation Act (NHPA), the latter, which calls attention to procedures for the identification of traditional cultural properties, the Forest Service must follow these laws under the current plans.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Forest wide plan components for all revised plan alternatives envision cultural resources providing a tangible link to the past, and their use and interpretation provide public benefits and appreciation (FW-DC-CR-01, 02).

Effects Common to the Revised Plan Alternatives

Under the revised plan alternatives, compliance with Federal laws and regulations would continue. All revised plan alternatives contain plan components that explicitly state the desired conditions for cultural and historical resources and provide guidance for achieving these desired conditions (FW-DC-CR-01-03; FW-OBJ-CR-01, 02). Collectively, these plan components serve to ensure that potential adverse effects from land management and visitor use are avoided or minimized. The land management plan, however, is not an assemblage of individual program plans that have unique plan components for each resource. Other resource components may complement and address the management and protection of the cultural resources such as components for the Nez Perce trail and the administration of historic facilities (FW-DC-CR-03).

Forest management activities have the potential to affect cultural resources through site disturbance or discovery; increase or decrease in site access; or provide the opportunity and funding for conducting site surveys and recordation. Vegetation treatments may enhance associated plants and wildlife habitats that are integral to many traditional cultural properties as well as historical traditional cultural landscapes in the national forest.

Access can be affected by policy decisions, administrative actions, and physical impacts on the ground. Specific concerns from resource management activities such as road building or other modifications on the landscape, could affect access to traditional cultural properties and cultural resources. Increased access has been shown to increase vandalism to cultural resources, but could facilitate access to traditional cultural properties. Restricting access may be beneficial to traditional cultural properties when it preserves the solitude and quiet necessary for fasting, prayer and other ceremonies, but may have a negative effect when it restricts traditional practitioners’ ability to collect traditionally important plant, animal, mineral, fossil resources. Under all revised plan alternatives, the main arterial and collector system would remain the same, and this system should provide adequate access to most traditional cultural properties. The present level of site vandalism would remain the same.

Plan land allocation decisions such as recommended wilderness and backcountry areas, might impact the traditional cultural properties by limiting access to locations used for traditional and ceremonial purposes. Sites of importance to Tribes and many resources of Tribal interest are in remote locations and have been used traditionally for many generations. Recommended wilderness or backcountry area allocations may limit or impair access to these sites by motorized transport, but would not deter the ability of Tribes to continue to conduct ceremonies and gather resources in traditional ways.

Conversely, recommended wilderness or backcountry area allocations may afford cultural resources in those locations with protections that could prevent inappropriate access and reduce the level of cultural resource site vandalism.

The amount of land in recommended wilderness or backcountry areas varies by alternative as described for each revised plan alternative.

Effects of Alternative B

Alternative B proposes nine recommended wilderness areas and nine backcountry areas. The third highest acreage of lands within these two allocations, which would provide protective benefits to cultural resources as a result of use restrictions. Mechanized transport would continue to be suitable on about 18 trail miles in recommended wilderness areas, continuing a method of access, which could potentially make sites more prone to defacement, littering, and illegal collection of artifacts, although continuing potential access for Tribal members. In addition, in areas of minimal management, effects to cultural resources can result from neglect, leading to deterioration or potential vandalism. For example, the Windy Pass cabin would no longer be offered as a recreational rental, cutting off rental fees used for cabin maintenance.

The nine backcountry areas include Big Pryor Mountains and the Tongue River Breaks. These locations contain traditional cultural properties important to the Tribes and the direction to maintain the generally or lightly developed character of these areas helps to preserve and protect these cultural resources, while continuing existing access.

The Stillwater Complex plan land allocation encompasses several historic mining sites including the Benbow and Mouat mines. These mining sites demonstrate an historic and ongoing mining tradition and the integrity of these sites show the success of consultation with the Sibayne Stillwater Mines in preserving these important cultural resources and historical mining landscapes.

Under this alternative, there would be eight recreation emphasis areas suitable for high-density recreational development and use. Effects to cultural resources can occur from construction and reconstruction of campgrounds and trampling of cultural resources by people and vehicles, from increased vandalism. Most of these recreation emphasis areas are located along rivers and creeks on level locations which were also preferred locations of cultural resources – what people look for in a campsite site now is often the same locations that past occupants used. These water corridors were also used as travel corridors in prehistoric and historic times and evidence of the use of these trails may be compromised by increased and concentrated recreational use. Compliance with cultural resource laws require survey, avoidance or mitigation of potential impacts to cultural resources.

Projected vegetation treatment acres, including timber and fuels, range from 6,000 to 7,500 acres. Harvesting timber can affect cultural resources through ground disturbance caused by felling trees, skidding logs, road construction, slash disposal, and other activities. With potential increased access in support of these activities comes the possibility of increased artifact collection and vandalism of cultural resources. Fuel treatments may also reveal new cultural resource sites previously obscured by vegetation, adding to the site record but also visible to illicit collectors. These projects, however, would be subject to section 106 review and compliance, and cultural resources recorded and mitigated, adding to knowledge of the site record.

Heritage resource inventories in response to projects would be less than alternative D, but more than alternative E, with a commensurate relative potential for presently unknown cultural resources to be lost, damaged or exposed from naturally occurring erosion and wildfire, and less opportunity to contribute to the site record and understanding of the cultural resources in these areas.

Treatments for hazardous fuel reduction has a long-range benefit to certain types of cultural resources by making these sites more fire resistant and less subject to wildfire suppression actions such as dozer line construction. Increased site recordation from these actions also identifies cultural resources at risk and those requiring additional site protection.

Effects of Alternative C

Alternative C proposes a mix of plan land allocations similar to alternative B with the addition of backcountry areas in the Crazy Mountains traditional cultural property and tribal cultural landscape, and restrictions on existing motorized and mechanized transport in recommended wilderness areas, the Bad Canyon Backcountry Area and the Pryor Mountains backcountry areas. Alternative C proposes the second highest acreage of lands within the recommended wilderness area and backcountry area plan land allocations.

Effects are similar to alternative B for recreation emphasis areas, ground disturbance from projected vegetation acres, and the Stillwater Complex allocation. Under alternative C, motorized transport would no longer be suitable on about 4 miles of trail, and mechanized transport would no longer be suitable on about 34 miles of trail.

The addition of a backcountry area in the Crazy Mountains would help to preserve and protect the traditional cultural property and landscape found there as well as those found in the Pryor Mountains and the Tongue River Breaks, although restricting motorized and mechanized transport in the Pryor Mountains backcountry areas may restrict some methods of access for Tribal members.

Non-wilderness uses would be prohibited in the recommended wilderness areas as they are in alternative B with the exception that provides for the continued use of the Windy Pass cabin. The continued rental use would ensure continued funding for cabin protection and preservation.

Effects of Alternative D

Alternative D proposes the highest acreage of lands within the recommended wilderness area and backcountry area allocations, and highest number of acres for vegetation treatment.

With 39 recommended wilderness areas in alternative D, the traditional cultural properties and tribal cultural landscapes, cultural resources located within the Pryor Mountains, Crazy Mountains, and Tongue River would receive the greatest level of preservation and protection, although certain means of access to these areas may be restricted for Tribal members. Under alternative D, motorized transport would no longer be suitable on about 172 miles of trail, and mechanized transport would no longer be suitable on about 264 miles of trail. The Windy Pass cabin would no longer be offered as a recreational rental, cutting off rental fees used for cabin maintenance.

The backcountry area for the Chalk Buttes would help protect this tribal cultural landscape that has at least one traditional cultural property.

The Boulder River and Hebgen Lakeshore locations have a documented high density of cultural resources including a number of aboriginal trails.

Four recreation emphasis areas are proposed, and do not include the Boulder River and Hebgen Lakeshore locations which have a documented high density of cultural resources including a number of aboriginal trails. Excluding these locations may lessen the direct and indirect effects to these areas from concentrated and increased visitor use. The effects to the four recreation emphasis areas remain the same described in alternative B.

About 8,000 acres are projected for vegetation treatment acres, including timber and fuels. The effects of projected vegetation treatment acres are the same as Alternatives B and C, but over a larger area.

Effects of Alternative E

Alternative E emphasizes a higher human presence and use of the Custer Gallatin. This alternative proposes higher motorized recreation opportunities than other alternatives. There would be no recommended wilderness areas and two backcountry areas. Alternative E proposes the fifth highest acreage of lands within the recommended wilderness area and backcountry area allocations. Cultural resources would be more accessible and more prone to defacement, littering, and illegal collection of artifacts than other revised plan alternatives, but less accessible than in the current plans. The Windy Pass cabin would still be offered as a recreational rental, and rental fees used for cabin maintenance.

Traditional cultural properties and tribal cultural landscapes located in the Pryor Mountains, Tongue River Breaks, Chalk Buttes, and the Crazy Mountains would have no additional plan land allocations, although plan components in all revised plan alternatives recognize traditional use of springs in the Chalk Buttes.

Under this alternative, there would be eleven recreation emphasis areas suitable for high density recreational development and use. Effects associated with recreation emphasis areas are the same as alternative B, over a larger area. The Stillwater Complex allocation is proposed, with the effects similar to alternative B.

About 5,000 acres are projected for vegetation treatment acres, including timber and fuels. Fewer acres of vegetation and fuel treatments would reduce potential impacts from these activities compared to other alternatives.

Since the need for heritage resource inventories in response to projects would decrease, there would be less opportunity to contribute to the site record and understanding of the cultural resources in these areas.

Effects of Alternative F

Alternative F draws from the range of alternatives B through E. It represents a mix of recommended wilderness areas (7), backcountry areas (13), recreation emphasis areas (10), and lands identified as suitable for timber production.

Under this alternative, there would be ten recreation emphasis areas suitable for high density recreational development and use. Effects associated with recreation emphasis areas are the same as alternative B, over a larger area. The Stillwater Complex allocation is proposed, with effects the same as those in alternative B.

Seven recommended wilderness areas include allocations in the Crazy Mountains and the Pryor Mountains. This affords these lands the greatest level of preservation and protection, although certain means of access to these areas may be restricted for Tribal members. Backcountry areas in the Crazy Mountains and Chalk Buttes would help to preserve and protect the traditional cultural properties, and cultural resources found there from increased vandalism as well as those found in the Pryor Mountain and the Tongue River Breaks. Under alternative F, mechanized transport would no longer be suitable on about 31 miles of trail (although game carts would continue to be suitable on about 14 trail miles in the Bad Canyon Backcountry Area and about 2.5 miles in the Crazy Mountains Backcountry Area); motorized transport on trails would not be affected.

All lands that were are not withdrawn from timber suitability due to legal or technical factors (for example, designated wilderness) would be suitable for timber production except for research natural areas, special areas, the Pryor Mountain Wild Horse Territory, the Continental Divide National Scenic Trail, recommended wilderness areas, backcountry areas, eligible wild and scenic rivers, National Natural Landmarks, and riparian management zones. When consistent with other plan components, harvest for purposes other than timber production could occur on other lands not suitable for production. About 6,000 to 7,500 acres are projected for vegetation treatment acres, including timber and fuels, the same as those projected in alternatives B and C.

Consequences to Cultural and Historic Resources from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Fire and Fuels Management

Fire suppression techniques such as fire line construction could impact cultural resources. However, under all alternatives, minimum impact suppression tactics (MIST) would be used to prevent damage to culturally sensitive areas (FW-GDL-FIRE-03). Per established programmatic agreements, surveys are completed before implementation of mechanical fuels treatments and prescribed fires to ensure that there are no impacts to cultural sites. Prescribed burning and wildfire, under the right conditions, may increase the propagation of certain tree and grass species that have traditional use. Wildland fire may also uncover previously unknown sites by clearing ground fuels.

Effects from Access, Recreation, and Infrastructure

Recreation can potentially affect cultural, historical, and Tribal resources through its effects on both ground disturbance and visitor use. Ground disturbance may occur through the construction and management of recreation sites, or use of motor vehicles for recreation. While the development and maintenance of infrastructure such as roads and trails have the potential to affect cultural and historical resources through ground disturbance, both plan components and legal direction ensure that any potential effects are considered and mitigated in all alternatives. Roads, trails, camping areas, and other infrastructure would be designed in such a way as to minimize any negative impacts associated with their construction and use (FW-DC-REC-05). Revised plan alternative direction associated with visitor education can also help to minimize impacts from visitor use (FW-GO-RECSUP-01; FW-GO-RECOG-01; FW-DC-RECED-01, 05; FW-GO-RECED-01).

Motorized vehicle transport can be particularly harmful due to the potential for increases in both ground disturbance and ease of access. Unauthorized, user-created routes and areas can negatively affect historical and cultural resources. Effects of motorized transport include physical damage resulting in or from erosion, downcutting, rutting, or displacement of cultural features, and potential vandalism and looting, and can occur outside of designated routes and areas, such as at adjacent dispersed camping areas. Because adverse effects on cultural resources have been observed where motorized users have gone off road, the revised plan alternatives provide objectives to close and rehabilitate unauthorized recreation routes in non-motorized recreation settings to minimize future damage (FW-OBJ-ROSP-01, 02; FW-OBJ-ROSSPNM-01).

Recreation plan components emphasize providing opportunities for visitors to connect with and learn about both the natural and cultural environment (FW-GO-RECSUP-01; FW-GO-RECOG-01; FW-DC-RECED-01, 05; FW-GO-REDED-01). These opportunities could help to instill a sense of stewardship in forest visitors, potentially minimizing impacts to cultural and historical sites through careless use or direct vandalism. The current plans, alternatives B, C, and F propose more public outreach projects than alternatives D and E, and would further enhance the interpretation and stewardship of the historic resources (FW-OBJ-CR-01).

The Custer Gallatin National Forest manages a portion of the Nez Perce Trail, which has substantial cultural and historical value. Plan components associated with management of the trail ensures that they conserve important cultural and historical resources while allowing visitors an opportunity to learn about the local and Tribal history (MG-DC-NPNHT-01; MG-GO-NPNHT-01).

Effects of Wild and Scenic Rivers Plan Land Allocation

Several of the river segments that are identified as eligible to become wild and scenic rivers are eligible at least in part due to their outstanding cultural value. Eligible wild and scenic rivers must be managed to maintain the outstanding remarkable values for which they have been identified, which could result in greater protection for the outstanding cultural or historical values in these river segments (FW-DC-ESWR-01).

Effects from Energy and Minerals Management

Mineral activities such as mining and oil and gas exploration can have adverse effects on cultural resources and traditional cultural properties and tribal cultural landscapes, but legal

requirements apply in all alternatives and revised plan alternatives include plan components designed to avoid or mitigate these effects (FW-DC-EMIN-01). The Custer Gallatin would consult with Tribes when mineral management activities may impact reserved treaty rights, cultural sites, or traditional uses in all alternatives.

Cumulative Effects

Cumulative effects, over time, can include loss and damage to cultural resources and the effects past activities. Management practices are reflected in the condition of the historical landscapes and cultural resources that remain today. With the preservation laws, regulation, and policies in all alternatives and revised plan alternative plan components designed to preserve and enhance the cultural resources, traditional cultural properties, and historic landscapes, the cumulative effects from all alternatives would allow the continued protection and preservation of the Custer Gallatin's cultural resources.

Much of the lands near and adjacent to the Custer Gallatin are managed by Federal land management agencies; other national forests, national parks, and Bureau of Land Management lands. All Federal agencies have requirements for government-to-government meetings with affected Tribes to consult and coordinate management of the land and cultural resources to meet Tribal and agency responsibilities under the National Historic Preservation Act. Land and resource management under the revised plan is generally complementary with management across the Federal agencies regarding historic properties, traditional cultural properties, and landscapes.

Conclusion

Management actions that result in ground disturbance have the potential for effects to cultural resources and traditional cultural properties. The number of acres subject to vegetation management activities is greatest in alternative D, followed by the current plans, alternatives B, C, and F (which treat a similar amount), and finally alternative E.

Visitor use has the potential to harm cultural and historical resources, and so differences in access can affect the potential for harm and associated mitigation measures. Alternative D places the greatest restrictions on new roads and existing mechanized and motorized transport, followed by alternatives C, F, B, E, and then the current plans. All revised plan alternatives contain components designed to minimize this risk using education and strategic placement of recreation infrastructure to protect sensitive cultural resources.

All revised plan alternatives include components designed to avoid or minimize any adverse effects of any management activity. Furthermore, potential effects are identified, detailed, and disclosed during site-specific analysis, which gives the Forest Service the opportunity to determine appropriate mitigation, avoidance, and protection measures. Thus, the consequences to cultural resources from actions associated with other programs are estimated to be minimal or avoidable under all alternatives.

3.14 Permitted Livestock Grazing

3.14.1 Introduction

Livestock grazing has been, and continues to be, an important multiple use of National Forest System lands within the Custer Gallatin National Forest. Livestock grazing has been a use of public lands since the inception of the Forest Service and has become an important part of the culture of the rural western United States. The policies for Forest Service management of rangelands include managing rangeland vegetation to provide ecosystem diversity and environmental quality while maintaining relationships with allotment permittees; meeting the public's needs for rangeland uses; providing for livestock forage; maintaining wildlife food and habitat; and providing opportunities for economic diversity. Livestock grazing on the national forest contributes 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. Rangeland management is an essential part of the Forest Service multiple-use concepts.

Although rangelands provide a variety of ecosystem services, such as wildlife habitat, recreation, watershed functions, carbon sequestration, and biodiversity conservation, these lands have primarily been managed for forage production and livestock grazing. Forage is managed by the Forest Service to be sustainable, ensuring that it will be available for future generations while still providing the other rangeland's ecosystem services required by their multiple use strategy. To accomplish this, the Forest Service divides rangelands into allotments and monitors each one. Grazing allotments are managed to be responsive to current Federal and State environmental laws and regulations and to be consistent with the land management plan. Additionally, the Forest Service manages forage in transitory range. Transitory range is defined as forested lands that are suitable for grazing for a limited time following a timber harvest, fire, or other landscape event.

Grazing permits for each allotment are issued to eligible commercial livestock owners. Livestock grazing management is established through land management plans, Forest Service grazing guidelines, and individual allotment management plans. These plans are developed to be comprehensive, using sound science and incorporating public involvement. Plans are revised and updated to ensure that livestock grazing management decisions are based on existing and future ecological, social, cultural, and economic conditions.

The successful management of livestock grazing use on the Custer Gallatin National Forest relies upon the maintenance of healthy, functioning rangelands. Refer to the discussions for grasslands, shrublands, woodlands, riparian areas and wetlands, and sparsely vegetated communities in the terrestrial vegetation section and the riparian management zone portion of the watershed, aquatics, and riparian sections. These sections focus on the health of those plant communities utilized for grazing purposes, and how revised plan components would affect the plant communities upon which livestock grazing depends.

Regulatory Framework

36 CFR 222, subparts A and C: provides the authority to administer the grazing and livestock use permit system

36 CFR 219.10: requires that the land management plan under the 2012 Planning Rule must include plan components for integrated resource management to provide for ecosystem services and multiple uses including forage for grazing.

Organic Administration Act of 1897: provides the main statutory basis for the management of forest reserves. States that the intention of the forest reserves (which were later called national forests) was to “improve and protect the forest” and to secure “favorable conditions of water flows” and provide a “continuous supply of timber for the use and necessities of citizens of the United States.” This act also authorizes the Secretary of Agriculture to designate experimental forests and ranges, and to set forth broad direction for establishing and administering these areas.

Multiple Use-Sustained Yield Act of June 12, 1960 (P.L. 86-517, 74 Stat. 215, 16 U.S.C. 528-531): established the policy and purpose of the National Forests to provide for multiple-use and sustained yield of products and services.

Secure Rural Schools and Community Self-Determination Act of October 30, 2000 (P. L. 106-393, 114 Stat. 1607; 16 U.S.C.500 note): provides provisions to make additional investments in, and create additional employment opportunities through, projects that improve the maintenance of existing infrastructure, implement stewardship objectives that enhance forest ecosystems, and restore and improve land health and water quality. This act was designed to stabilize annual payments to state and counties containing National Forest System lands and public domain lands managed by the Bureau of Land Management. Funds distributed under the provisions of this act are for the benefit of public schools, roads, and related purposes.

Wilderness Act (1964) (16 U.S.C. 1131-1136): provides the statutory definition of wilderness and management requirements for these congressionally designated areas. This act established a National Wilderness Preservation System to be administered in such a manner as to leave these areas unimpaired for future use and enjoyment as wilderness.

The Public Rangelands Improvement Act of 1978: recognizes the need to correct unsatisfactory conditions on public rangelands by increasing funding for maintenance and management of these lands.

The Rescission Act of 1995: directs the FS to complete site-specific environmental analyses and decisions for grazing allotments on a regularly scheduled basis based on the permit requirements.

Forest Service Manual 2200: provides direction for rangeland administration on National Forest System lands.

Forest Service Handbook 2209.13: provides direction for permit administration on National Forest System lands.

USDA Environmental Compliance, Policy on Range, Departmental Regulation, Number 9500-5, April 21, 1988: sets forth Departmental Policy relating to range services and coordination of

range activities among agencies of the USDA and other executive agencies, organizations, and individuals.

Key Indicators and Measures

The indicators and measures used to analyze effects or changes to livestock grazing opportunities on the Custer Gallatin National Forest are:

- Expected trend in moving towards desired rangeland condition as a result of management actions based on the implementation of plan components, such as more intensive management of riparian areas and riparian management zones.
- Expected changes in potential added difficulty for livestock management due to plan land allocations.

Methodology and Analysis Process

Methods includes both quantitative and qualitative analysis. Animal unit month (AUM)¹ objectives were based on currently permitted animal unit months on active allotments from the Natural Resource Manager database and project file information on vacant allotments. Currently permitted animal unit months include Term, Term on/off – On Provision, Term Private Land and Temporary Grazing (issued for livestock use permits).

The following assumptions are used to determine the degree of impacts on livestock grazing. These assumptions are based on previous assessments, professional judgment, and Forest Service rangeland management and planning directives.

- Livestock grazing would be managed to meet specific standards and guidelines for rangeland health and resiliency, including riparian standards and guidelines. In addition, range improvements would be used to meet standards and guidelines for rangeland health and achieve rangeland management goals.
- The grazing prescription in each allotment would remain the same as it is currently, and permitted animal unit months for each active allotment is not expected to increase or decrease unless changed through a site-specific analysis, allotment management plan updates, or permit modifications. Plan components applicable to livestock grazing (including the end of season stubble height guideline) would be incorporated through permit modification(s), reissuance of existing term permits, issuance of new term grazing permits, or as allotment management plan revisions and sufficiency reviews occur. Monitoring data would be used to prioritize both allotments and stream reaches.
- Impacts on livestock grazing would be the result of activities that affect forage levels or the potential for limiting of motorized transport to allotments.

¹ An animal unit month or AUM is the amount of oven-dry forage (forage demand) required by one animal unit for a standardized period of 30 animal-unit-days. This would be 780 pounds dry weight forage for a 1,000-pound cow for one month (using 26 pounds/day/cow). AUM is not synonymous with animal month or head month. A head month (HM) is defined as one month's use and occupancy of the range by one animal. For grazing fee purposes, it is a month's use and occupancy of range by one weaned or adult cow (with or without calf), bull, yearling steer or heifer, horse, mule or other applicable permitted animal.

- Mitigations for impacts to, or from, livestock would be addressed in a site-specific analysis for allotments.
- Grazing use would be managed similarly in all alternatives.
- Grazing allotments would remain open as long as there continues to be demand, existing permits remain in good standing, and resource conditions are meeting or moving towards desired conditions.

Information Sources

The science of assessing rangelands is evolving as certain concepts and ecological processes are becoming better understood (Pellant et al. 2005). General concepts for maintaining or moving towards desired rangeland condition focus on aspects of ground cover, species composition and the presence or absence of invasive species as indicators.

Information sources include current scientific literature, Forest Service reports and databases, the Custer and Gallatin Forest Plans' monitoring reports, and other documentation. Data used to analyze the existing condition for livestock grazing and the rangeland resource came from the following sources:

- Forest Service Natural Resource Manager database (includes grazing allotment, permitted use and range improvement data). Data was validated with district range personnel where needed.
- Completed range analyses (includes range vegetation inventory and assessment data).

Analysis Area

The geographic scope of the analysis is the lands administered by the Custer Gallatin National Forest and other lands that are jointly used in allotment grazing systems. All lands within the Custer Gallatin National Forest boundary and other lands that are jointly used in allotment grazing systems form the geographic scope for cumulative effects, and the temporal scope is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

In addition to supplementing the final environmental impact statement with new information from Custer and Gallatin Forest Plan monitoring reports, new literature related to livestock grazing, updated tables and narratives describing allotment NEPA decision dates, updated tables related to allotments in plan land allocations, updated vacant allotment table, clarifying language, minor edits, and analysis of alternative F. The notable changes in the plan include a new guideline (FW-DC-GDL-10) to incorporate adaptive management in allotment plans to move towards desired conditions for vegetation and riparian resources, considering both the needs and impacts of domestic livestock and wildlife. Changes made to the final EIS after the objection period included corrections to Tables 13, 14, and 17 and associated text to reconcile several discrepancies between the Natural Resource Manager database and Decision Notices for allotment NEPA. Changes in the "effects from plan land allocations" section reflect revised allocations and updated data runs and note that allotments with less than ten acres in an allocation are not listed in the EIS. The changes did not alter any effects analysis.

3.14.2 Affected Environment (Existing Condition)

Allotments and Permittees

At present, 199 permittees are grazing livestock on 214 active grazing allotments. In addition, the Custer Gallatin National Forest has 19 vacant allotments. Approximately one-third (36 percent) of the Custer Gallatin National Forest consists of livestock grazing allotments (22 percent of the montane units and 93 percent of the pine savanna units).

Rangeland Capability and Suitability

Capable rangelands produce forage or have inherent forage producing capabilities, and if accessible can be grazed on a sustained yield basis. Primary rangelands are those areas that produce forage and that are near water where primary grazing activity occurs. On Custer Gallatin National Forest rangelands, livestock tend to congregate on the more convenient gentle terrain such as valley bottoms, riparian, hardwood draws, and ridgetops. Secondary rangelands are those areas that produce forage but are too far away from water or access is impeded due to natural barriers. Transitory rangelands are areas near water and accessible to livestock where forage was temporarily created by changed vegetative conditions from events such as wildfire or activities such as timber harvest.

About 658,000 acres (National Forest System lands within allotments) or 22 percent of the Custer Gallatin National Forest lands are considered primary rangeland where livestock generally graze (6 percent of the montane units and 86 percent of the pine savanna units). About 38,100 acres or about 1 percent of the Custer Gallatin National Forest is considered secondary rangeland.

Suitable areas are capable areas minus areas chosen to be unacceptable to graze to minimize conflicts with areas such as developed recreation sites, research natural areas, fenced rights-of-way or other areas closed by decision. These suitable areas must also be accessible to a specific kind of animal and can be grazed on a sustained yield basis. The existing plans are supported by a grazing suitability analysis that was done in the mid-1980s. In addition, there have been various suitability analyses conducted on allotments that have been closed since then. Allotment specific capability and suitability analyses have been conducted on allotments with changed conditions resulting in decisions that have refined capability and suitability aspects relative to livestock use. Current allotments are deemed suitable for permitted grazing and suitability is verified during allotment level National Environmental Policy Act analyses.

Allotment Management Plans

Allotment management plans contain the pertinent livestock management direction from the project-level National Environmental Policy Act-based decisions and include a general monitoring plan. These decisions and allotment management plans are considered part of the permit's terms and conditions.

Annual operating instructions document actions that are needed for implementation of the management direction set forth in the project-level decision. The annual operating instructions identify the obligations of the permittee and the Forest Service and articulates annual grazing management requirements, standards, and monitoring necessary to document compliance.

Annual operating instructions are typically issued to allotment permittees during annual meetings prior to the grazing season.

Many allotments are inspected annually. Compliance problems with the terms and conditions of grazing permits vary across the units and follow-up actions are initiated. Compliance with permit terms and conditions relates to whether a permit holder ensures that annual instructions or allotment management plans are being followed, including timing, intensity, and location of stock. It also includes such items as maintenance of range improvements per permit terms and conditions. Generally, if compliance issues occur on an allotment, range inspections are done jointly with permittees in order to try and jointly resolve the issues where possible.

Allotment management integrity relies heavily upon the maintenance of the related infrastructure such as fences, reservoirs, pipelines, and water troughs that have been established throughout the national forest. Allotment infrastructure is most prevalent on the Sioux and Ashland Districts. There are approximately 2,800 miles of fence and about 1,850 water developments related to the management of allotments.

The Custer Gallatin National Forest is operating under a schedule to revise and update allotment management plans tied to the Rescissions Act of 1995 (Public Law 104-19) Section 504(a), which requires each National Forest System unit to identify all allotments for which National Environmental Policy Act (NEPA) analysis is needed. These allotments must be included in a schedule that sets a timeline for the completion of the required environmental analysis. Since the 1986 Custer forest and 1987 Gallatin Forest Plan were completed, 211 allotments of the Custer Gallatin National Forest's 233 allotments have had interdisciplinary review and analysis per the National Environmental Policy Act, incorporating Forest Plan direction, and one additional allotment had NEPA completed prior to these plans. Currently, the remaining 21 allotments that have not had any environmental analysis conducted are on the rescissions schedule for analysis (table 17). Allotments with previous NEPA may also have priority needs for sufficiency reviews or assessment as well. Sufficiency reviews may be conducted to determine if analysis and documentation remain valid or if new information exists that requires some further analysis and potential modification of the activity (FSH 2209.13 Chapter 90, Section 96). Vacant allotments without current NEPA would require analysis before they could be stocked. In addition, the Federal Land Policy and Management Act, as amended in 2015 (Public Law 113-219, Section 3023) authorizes grazing without current NEPA. Forest plan components applicable to livestock grazing would be incorporated through permit modifications (FSH 2209.13, Chapter 10, Section 11), reissuance of existing term permits, issuance of new term grazing permits, and as AMP Revisions and sufficiency reviews occur. Additional information is provided in the trend section below.

Since development of the Custer Forest Plan and Gallatin Forest Plan, effectiveness monitoring has been conducted and monitoring reports were developed that summarized the information collected (U.S. Department of Agriculture 2001b;2012a). These were used to help inform the analysis. As an example, range condition and trend monitoring included collection of riparian inventory and monitoring data, woody draws, and uplands and has evolved since development of the 1985 and 1986 plans. Riparian monitoring is ongoing on the forest as a component of "Allotment Management Effectiveness Monitoring" under the Gallatin Plan, and is described in the Gallatin Forest Monitoring Report (2007-2011). It includes proper functioning condition and

long-term trend monitoring. The data collected has helped determine effectiveness of grazing in riparian areas for example and incorporates trend at an allotment scale, which has been used in support of allotment management plan revisions. These inform adjustments in grazing as needed to meet desired conditions and was used to make summaries in the key findings of the Permitted Livestock Grazing Report. The importance of continual monitoring and making management adjustments based on the results is also noted in the key findings section.

Permitted Livestock and Grazing Use

Permitted livestock grazing is widespread across the Custer Gallatin National Forest. There are approximately 36,200 head of cattle, 550 horses and 400 domestic bison permitted to graze at various times throughout the year on National Forest System lands and associated private lands. In general, for the pine savanna units the primary grazing season is between May 20 and November 15 and from June 15 to October 15 for the montane units, although some are longer or shorter. About 57 percent of the permittees are permitted to graze lands within the pine savanna units and 43 percent in the montane Units.

There are approximately 204,914 animal unit months (AUMs) permitted on National Forest System lands and about 8,738 animal unit months permitted on associated intermingled private lands.² The pine savanna units provide approximately 80 percent of the total permitted animal unit months. The Ashland Ranger District provides 56 percent of the total permitted animal unit months; see table 8.

Table 8. Permitted animal unit months by ranger district

Ranger District	Permitted Animal Unit Months
Ashland	120,297
Sioux	50,851
Yellowstone	13,953
Beartooth	13,109
Bozeman	12,794
Gardiner	2,350
Hebgen	298
Total AUMs	213,652

Table 9 displays allotments in vacant status and their estimated capacity in animal unit months.

Table 9. Vacant allotments, estimated capacity in animal unit months (AUMs)

Allotments in Vacant Status	Geographic Area	AUMs
Contact (Yellowstone RD)	Absaroka Beartooth Mountains	113
Evergreen (Yellowstone RD)	Absaroka Beartooth Mountains	159
Green Mountain (Yellowstone RD)	Absaroka Beartooth Mountains	633
Grouse Creek (Yellowstone RD)	Absaroka Beartooth Mountains	688
Lost Cabin Creek (Yellowstone RD)	Absaroka Beartooth Mountains	403
Nurses Lake (Yellowstone RD)	Absaroka Beartooth Mountains	498

² Term Private Land Permits are issued when the landowner waives the grazing management of their lands to the Forest Service when the private lands are incorporated into allotments when it makes a logical grazing unit.

Allotments in Vacant Status	Geographic Area	AUMs
Main Boulder (Yellowstone RD)	Absaroka Beartooth Mountains	120
Deep Creek South (Yellowstone RD)	Absaroka Beartooth Mountains	200
Mill Creek (Yellowstone RD)	Absaroka Beartooth Mountains	146
Suce Creek (Yellowstone RD)	Absaroka Beartooth Mountains	177
Sixmile South (Yellowstone RD)	Absaroka Beartooth Mountains	230
East Rosebud (Beartooth RD)	Absaroka Beartooth Mountains	150
West Bridger Forage Reserve (Bozeman RD)	Bridger, Bangtail, Crazy Mountains	166
Cottonwood (Gardiner RD)	Madison, Henrys Lake, Gallatin Mountains	218
Lion Creek (Gardiner RD)	Madison, Henrys Lake, Gallatin Mountains	537
Mill Creek (Gardiner RD)	Madison, Henrys Lake, Gallatin Mountains	212
Section 22 (Gardiner RD)	Madison, Henrys Lake, Gallatin Mountains	232
Sheep Mile Forage Reserve (Hebgen Lake RD)	Madison, Henrys Lake, Gallatin Mountains	571
Red Butte (Beartooth RD)	Pryor Mountains	188
Total	(Not applicable)	5,641

Recent administrative decisions determined that Sheep Mile and West Bridger allotments were good candidates as forage reserves providing management flexibility as grass banks generally for existing permittees in situations such as drought, wildland fire, other management needs, or emergency situations. A July 2015 decision for Red Butte Allotment determined that it would be offered to an existing permittee as an option to move from their current allotment or face a reduction of permitted animal unit months in their current allotment. Yellowstone Ranger District’s Suce Creek, Six Mile South, and Mill Creek Allotments are currently being considered as part of the East Paradise Allotment environmental analysis, being reviewed as potential forage reserves or for re-activation as opportunities arise. The remaining vacant allotments have either had environmental analysis since the Rescissions Act, do not have recent decisions, or are not involved in a current environmental analysis, but are scheduled for review.

Authorized Use

Permitted use typically reflects years of management, observations, and monitoring of initial stocking rates. However, annually, specific authorized use for an upcoming season may be a change from the permitted use to accommodate any need to respond to resource concerns (for example, drought or fire) or permittee convenience. It is estimated that authorized use has ranged from 65 percent to 100 percent of what is permitted. Figure 9 through figure 11 display authorized use levels since 1999. The dips in authorized use strongly correspond to responses to drought periods and large wildfire events.

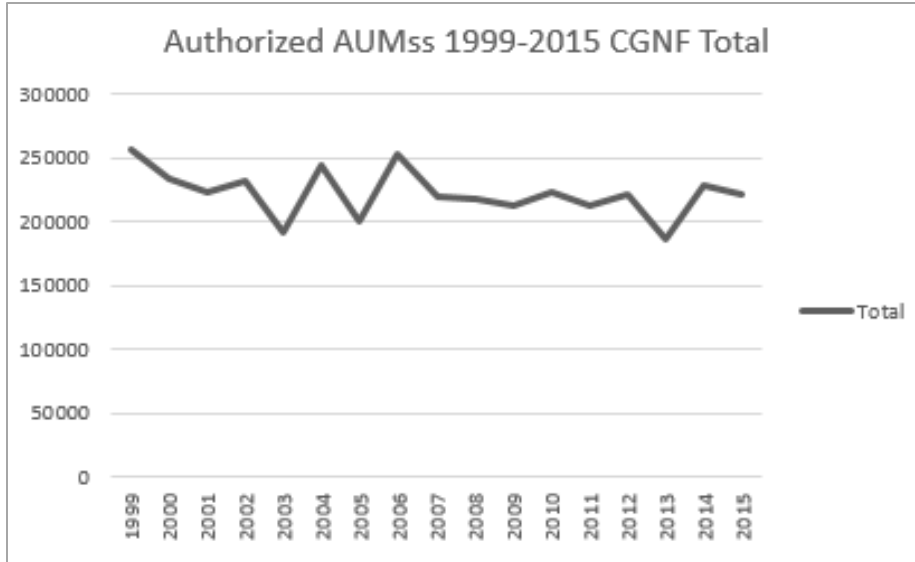


Figure 9. Authorized animal unit months for term permits from 1999 through 2015 - Custer Gallatin National Forest

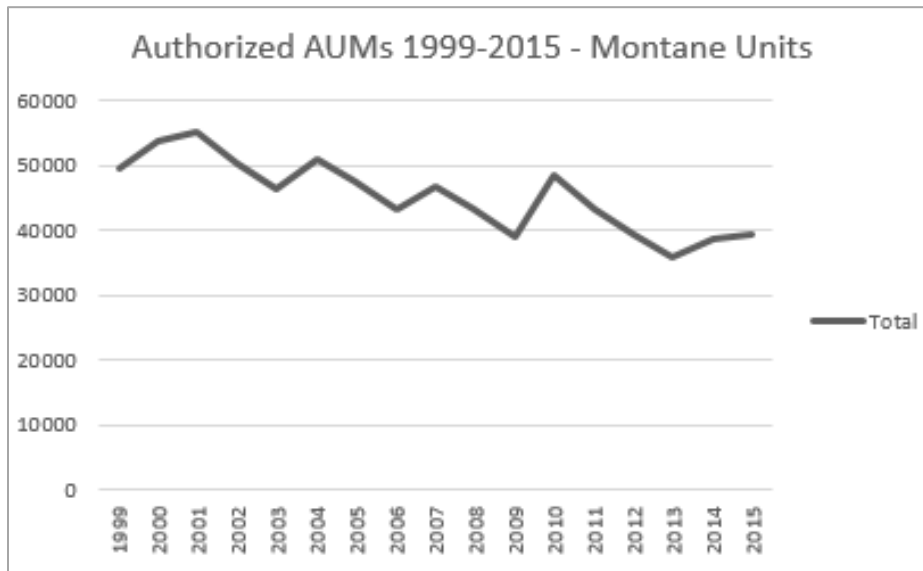


Figure 10. Authorized animal unit months for term permits from 1999 through 2015 – montane ecosystems

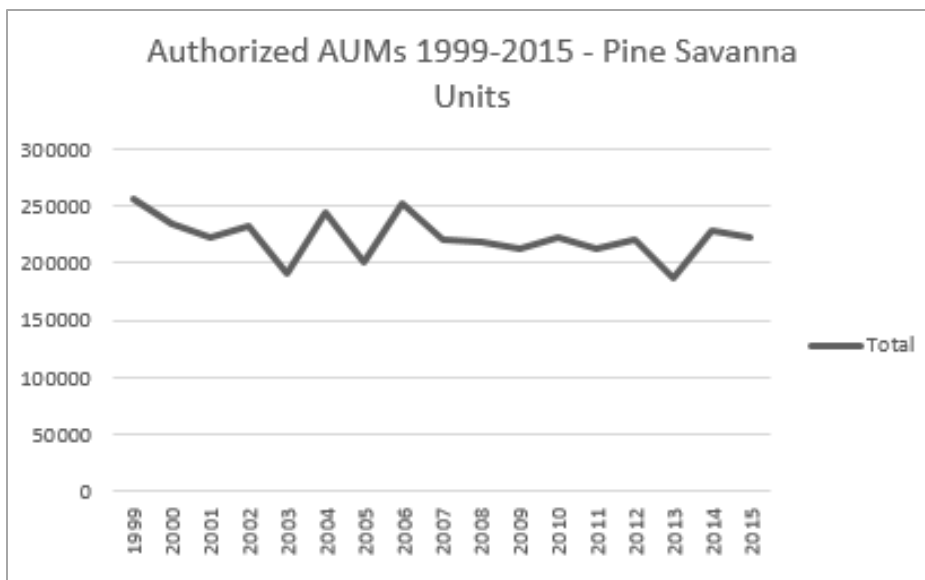


Figure 11. Authorized animal unit months for term permits from 1999 through 2015 – pine savanna ecosystems

Actual Use

The actual livestock numbers and season of use have varied greatly through time. Actual use numbers often vary from year to year and are reflective of variations in precipitation, changes for permittee convenience (late turnouts or early removals, yearly differences in numbers of stock), and actions initiated for resource protection such as allowable utilization levels being met. Records of actual use data have been kept through history. Actual use information is used to properly assess existing management and use levels that have led to existing vegetation conditions. Actual use level is generally near the authorized use level unless events such as wildfire occur. On some districts, actual use numbers are generally close to authorized numbers, but in some cases actual use length of season have been shorter than that authorized due to fall shipping, pine needle poisoning, or fall hunting considerations.

Stocking Rates

Livestock must be managed properly to insure the long-term sustainability of the resource base. Proper grazing management depends in part on determining correct livestock numbers per area of land, known as the stocking rate. Stocking rate is often expressed as acres per animal unit month. 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 proper stocking on any given parcel of land include, but are not limited to, permittee management knowledge and 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, and livestock age and size. With larger animals, as in many of today's cattle weights, and presumably a corresponding greater consumption rate, the allowable use level might be met sooner, and the livestock moved off a pasture sooner than would occur with smaller animals. Stocking rate adjustments can be and have been made through permit

modifications where sufficient information indicates that a change is needed to move towards desired conditions.

Rangeland Condition and Trend

Noxious weeds, bare ground and species composition were attributes tested in a Forest Service Intermountain Region Study (O'Brien et al. 2003) and proved to be viable indicators of rangeland health and functionality at a broad scale.

Presence and number of noxious weeds is a key indicator for overall rangeland health because of their aggressive capability of outcompeting native species. Noxious weeds are present on most allotments in low densities, most notably along roadways and in past wildfire areas. A low amount of infestations (about 6 percent) and density of noxious weeds occur within primary rangelands on the Custer Gallatin National Forest indicating overall minimally impactful conditions for this attribute.

Presence and amount of bare ground is a key indicator for overall rangeland health. Ground cover (basal vegetation, wood, rock, moss, lichen, crusts, and litter) aids in soil stability and minimizes water and wind erosion. Bare ground does not aid in soil stability. Noble (1963) indicated that for a wide variety of soil conditions and vegetal types in the Intermountain West, a minimum of 60 to 70 percent ground cover is needed to effectively control surface runoff of water and erosion occasioned by torrential summer rainstorms. The same study also indicated that when groundcover has been reduced below these amounts, overland flow and soil losses increased at an extremely rapid rate. This ground cover threshold is consistent with findings from other studies (Gary 1975, Singer and Blackard 1978, Benavides-Solorio 2005, Robichaud et al. 2010). Consistent with this research, on the Gallatin elk winter range in Montana, ground cover of at least 70 percent was considered necessary for restoring and maintaining soil stability (Packer 1963). Basic ground cover and bare ground data were captured for 3,788 visual macroplots during various vegetation inventories on the Custer Gallatin National Forest (in both forested and non-forested types; Natural Resource Manager corporate database). A 70 percent ground cover figure equates to 30 percent bare ground. Ninety-five percent of the overall plots had 30 percent or less bare ground with 81 percent being at 10 percent or less bare ground indicating satisfactory overall conditions for this attribute.

Species composition is a key indicator for overall rangeland health. At the time of the 1986 and 1987 forest plans, the Gallatin portion of the Custer Gallatin National Forest was estimated to have about 77 percent of suitable rangelands considered to be in good to excellent condition, while 23 percent was in fair condition ((1987) Gallatin Forest Plan) primarily based upon species composition. The Custer portion of the Custer Gallatin National Forest was estimated to have about 66 percent of suitable rangelands considered to be in good to excellent condition, while 32 percent was in fair condition and two percent in poor condition primarily based upon species composition (U.S. Department of Agriculture 1986). Rangeland analysis conducted since this timeframe cannot be aggregated up to a forestwide scale as most analysis were site specific depending upon identified issues. However, many improvements, administrative reductions, and environmental analysis decisions on 91 percent of the Custer Gallatin National Forest allotments that have been made since then have inherently improved composition conditions indicating satisfactory overall conditions for this attribute as follows.

Uplands

Past management practices have altered the composition and structure of plant communities and are affecting the ecological integrity in some portions of the uplands. Based on field observations and comparisons to data collected in the 1960s, there has been an upward shift towards more mid-structured grass species. However, there is still a need to continue to increase the amount of mid-structured grass species on all allotments with less dominance of short-structured grass species so that they exhibit closer similarity to potential in these areas. Some conifer colonization into meadows, shrublands, grasslands, and interspaces has occurred largely due to fire suppression over time.

Riparian Areas and Wetlands

Riparian areas and wetlands occur on less than 3 percent of the Custer Gallatin National Forest. As rare and biologically important landscape components, riparian areas and wetlands are targeted to be managed to be maintained or moved toward their potential hydrological and vegetative attributes. Within the primary rangelands permitted for grazing in the Custer Gallatin National Forest, 71 percent of the survey sites were in proper functioning condition (Prichard 1998;2003), with 27 percent functioning at-risk and 2 percent rated as nonfunctional. Within the montane units, 72 percent of the survey sites were in proper functioning condition, with 25 percent functioning at-risk and 3 percent rated as nonfunctional. Within the pine savanna units, 58 percent of the survey sites were in proper functioning condition, with 42 percent functioning at-risk and none rated as nonfunctional. Recent management decisions for addressing nonfunctional sites have been through minor fencing or other applicable mitigation relative to grazing impacts. Recent management decisions for addressing the at-risk sites have been through a mix of grazing prescription changes such as reduced stocking rate, improved distribution techniques such as proper salting and off-site water development, along with reduced grazing duration and timing considerations. The at-risk and nonfunctional sites are largely a function of legacy issues, including roads, uncharacteristic wildfire, developed recreation, dispersed recreation, historically unmanaged grazing by livestock, water development, or water diversion. However, this does not discount that there continues to be a need for improved grazing practices and monitoring in riparian areas along streams and in wetlands.

Woody Draws

Woody draws occur on less than 3 percent of the Ashland and Sioux Districts. As a rare and biologically important landscape component, woody draws to be managed to maintain or perpetuate a network of multi-layer and multi-age class herbaceous plants, shrubs, and trees. Predominant species included in the draws are green ash, box elder, hawthorn, wild plum, chokecherry, and snowberry. Sites that have lost the capability of improvement (without extremely high investment and energy) generally occurs where sod, often Kentucky bluegrass, impedes seedling establishment (non-functional sites). Most woody draws are intermediate in composition between these two extremes.

Measurements gathered from woody draw health surveys were used to generate estimates of conditions. On the Sioux District, 137 sites (acres not determined) were inventoried of which 21 percent were found to be functioning, 63 percent were at-risk, and 22 percent were nonfunctional. On the Ashland District, of the 299 acres inventoried, approximately 16 percent

were considered healthy, 59 percent considered at-risk, and 25 percent considered nonfunctional. Legacy issues such as unmanaged grazing during the turn of the 20th century have contributed to current conditions.

Other

In some isolated site-specific areas, thresholds have been crossed where one or more ecological processes responsible for maintaining a vegetative state have degraded beyond the point of self-repair. Once a threshold has been crossed, the degree of investment and action required to reverse the transition is typically significant. Examples include areas where:

- wildfire combined with green ash woodlands understory vegetation were altered by turn-of-the-20th-century unmanaged grazing. This past activity promoted higher density sod resulting in lower likelihood of green ash establishment from seed,
- mesic foothills altered by turn of the 20th century unmanaged grazing was adjacent to private land infested with non-native timothy grass and,
- past seeded areas that are still dominated by non-native species such as smooth brome.

Trend

- As noted in the allotment management plan section above, most of the national forest’s 233 allotments have undergone some sort of National Environmental Policy Act (NEPA) analysis. Various rangeland condition data have been collected for these allotment-specific analyses across the Custer Gallatin National Forest by interdisciplinary teams. Decisions were made following environmental analysis to implement identified mitigations needed to improve area conditions that were at issue. Table 10 through table 16 display allotment decision dates by ranger district. Dates of any sufficiency reviews or subsequent decisions that may have occurred since these decision dates are not included in these tables. Eight of the allotments with existing NEPA are on the latest rescissions schedule for subsequent analysis. In addition, table 17 shows the remaining 21 allotments that have not had any environmental analysis conducted and are on the current or previous rescissions schedule.

Table 10. Active and vacant allotment decision dates (sorted oldest to newest) for Sioux Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Burditt	3/8/1996
Active	Bye-Mrizek	3/8/1996
Active	Capitol Rock/Chiesman	3/8/1996
Active	Castles	3/8/1996
Active	Catron-Pendleton	3/8/1996
Active	Cleveland	3/8/1996
Active	Cox	3/8/1996
Active	Fuller	3/8/1996
Active	Gundlach	3/8/1996
Active	Haivala	3/8/1996
Active	J-B	3/8/1996
Active	Kerr-Whitney	3/8/1996

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Allotment Status	Allotment Name	Most Recent Decision Date
Active	Kortum	3/8/1996
Active	Moody	3/8/1996
Active	Needmore	3/8/1996
Active	North Ashcroft	3/8/1996
Active	North Range	3/8/1996
Active	North Willard	3/8/1996
Active	Painter	3/8/1996
Active	Park	3/8/1996
Active	Road Draw	3/8/1996
Active	Sawmill Gulch	3/8/1996
Active	South Snow Creek	3/8/1996
Active	South Willard	3/8/1996
Active	Stagville	3/8/1996
Active	Summers	3/8/1996
Active	Wood Gulch	3/8/1996
Active	Box Springs	4/22/2004
Active	Davis Draw	4/22/2004
Active	Dunn	4/22/2004
Active	J A Clarkson	4/22/2004
Active	J B Clarkson	4/22/2004
Active	Jenkins	4/22/2004
Active	John Brown	4/22/2004
Active	Lone Mountain	4/22/2004
Active	Pelham-Juberg	4/22/2004
Active	Schleichart	4/22/2004
Active	Van Offern	4/22/2004
Active	Antelope	9/13/2006
Active	Basin Valley	9/13/2006
Active	Cedar Canyon	9/13/2006
Active	Ledbetter	9/13/2006
Active	Moulton	9/13/2006
Active	North Bonniwell	9/13/2006
Active	South Ashcroft	9/13/2006
Active	Southwest Bonniwell	9/13/2006
Active	Waugh	9/13/2006
Active	Belltower	1/7/2009
Active	Brewer	1/7/2009
Active	Byrne	1/7/2009
Active	Carter	1/7/2009
Active	Devils Creek-Neece	1/7/2009
Active	Gross	1/7/2009
Active	Kennedy	1/7/2009

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Lampkin Gulch	1/7/2009
Active	Plum Creek	1/7/2009
Active	East Trenk	5/19/2011
Active	Flastead	5/19/2011
Active	Harkins	5/19/2011
Active	North Trenk	5/19/2011
Active	Peabody	5/19/2011
Active	West Trenk	5/19/2011

Table 11. Active and vacant allotment decision dates (sorted oldest to newest) for Ashland Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Liscom Butte	6/9/1970
Active	Gold	1/9/1990
Active	South Lyon	6/1/1990
Active	Coyote	6/22/1992
Active	Cow Creek	8/19/1992
Active	Bloom Creek	9/8/1992
Active	Anderson-Diamond Butte	3/8/1996
Active	Ash Creek	3/8/1996
Active	Beaver Creek	3/8/1996
Active	Coal Creek	3/8/1996
Active	Cub Creek - A+E	3/8/1996
Active	Deer Creek	3/8/1996
Active	East Fork	3/8/1996
Active	East Home	3/8/1996
Active	Elk Creek	3/8/1996
Active	Elk Ridge	3/8/1996
Active	Fifteen Mile	3/8/1996
Active	King Creek	3/8/1996
Active	North Lyon	3/8/1996
Active	Red Bull	3/8/1996
Active	Skinner Gulch	3/8/1996
Active	Ten Mile	3/8/1996
Active	Ten Mile - Three Mile	3/8/1996
Active	Upper Home	3/8/1996
Active	West O'dell	3/8/1996
Active	Whitetail	3/8/1996
Active	East Tooley	9/30/2003
Active	Indian Creek	9/30/2003
Active	Reanus	9/30/2003
Active	Stewart	9/30/2003

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Taylor Creek	9/30/2003
Active	3 X Bar	3/3/2005
Active	Brewster Gulch	3/3/2005
Active	South Lee Creek	3/3/2005
Active	Timber Creek	3/3/2005
Active	West Tooley	3/3/2005
Active	Brian-Gooseberry	9/18/2006
Active	East O'dell	9/18/2006
Active	Padget Creek	9/18/2006
Active	Stag Rock	9/18/2006
Active	Coleman Draw	1/20/2009
Active	Lower Home	1/20/2009
Active	Shorty Creek	1/20/2009
Active	West Home	1/20/2009

Table 12. Active and vacant allotment decision dates (sorted oldest to newest) for Beartooth Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Stillwater Bighorn Sheep Range	2/10/1989
Active	Bad Canyon	7/1/1992
Active	Sheep Creek	7/1/1992
Active	Crooked Creek	10/1/1992
Active	Wells	10/1/1992
Active	Dryhead	5/5/1997
Active	Bear Canyon	5/10/2004
Active	Big Pryor	5/10/2004
Active	Horseman Flat	11/15/2006
Active	Lodgepole	11/15/2006
Active	Pass Creek	11/15/2006
Active	Picket Pin	11/15/2006
Active	Butcher Creek	4/28/2009
Vacant	East Rosebud	4/28/2009
Active	Red Lodge Creek	4/28/2009
Active	West Rosebud	4/28/2009
Active	Burnt Fork	7/6/2015
Active	Hogan Creek	7/6/2015
Active	Rock Creek	7/6/2015
Active	Sage Creek	7/6/2015
Vacant	Red Butte	7/6/2015

Table 13. Active and vacant allotment decision dates (sorted oldest to newest) for Yellowstone Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Lost Creek	3/23/1993
Vacant	Green Mountain	4/20/1995
Active	Lodgepole	9/20/1995
Active	Blind Bridger	10/15/1995
Active	Hubble	2/15/1996
Active	Big Creek	5/21/1996
Active	Pole Gulch	5/21/1996
Vacant	Mill Creek	6/14/1996
Active	Hawley	7/20/1996
Active	Rock Creek North	8/20/1996
Active	Middle Fork Rock Creek	8/20/1996
Active	Porcupine	1/10/1997
Active	Porcupine On/Off	1/10/1997
Active	Otter Creek	2/15/1997
Active	Sunlight	3/15/1997
Vacant	Nurses Lake	9/20/1997
Active	Big Timber	1/15/1998
Active	Horse Creek	6/2/1998
Active	Little Timber	9/3/1998
Active	South Fork Of Shields	9/28/1998
Active	Deer Creek	11/15/1998
Active	West Fork Deer Creek	11/15/1998
Active	Trail Creek	3/24/2000
Active	South Fork American	3/12/2002
Active	Mission Creek	8/14/2002
Active	Little Mission Creek	8/14/2002
Active	Gaylor	8/14/2002
Vacant	Contact	2/21/1996
Vacant	Main Boulder (aka Contact Horse)	4/8/1996
Active	Dry Creek	4/20/2006
Active	Fridley	4/20/2006
Active	Lewis	4/20/2006
Active	Sunnybrook	4/20/2006
Active	Crazy	6/5/2006
Active	Three Peaks	9/26/2006
Active	Bennett Creek	9/27/2006
Active	Shields River	9/27/2006
Active	Smith Creek	9/27/2006
Active	Eightmile	8/14/2008
Active	West Pine	8/14/2008
Active	North Dry Creek	8/14/2008

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Carey Gulch	9/17/2012
Active	West Bridger	9/17/2012

Table 14. Active and vacant allotment decision dates (sorted oldest to newest) for Gardiner Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Horse/Reeder Creek	4/19/1991
Active	Slip-N-Slide	6/4/1991
Active	Tom Miner/Ramshorn	8/27/1992
Active	Green Lake	10/4/1995
Vacant	Mill Creek	11/21/1994
Active	Wigwam	11/24/1995
Vacant	Section 22	11/21/1994

Table 15. Active and vacant allotment decision dates (sorted oldest to newest) for Bozeman Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Pine Creek	9/10/1996
Active	Moose Creek	9/18/1996
Active	Pass Creek	9/18/1996
Active	Storm Castle	9/18/1996
Active	Weber	9/18/1996
Active	Big Bear	9/30/1997
Active	Reese On/Off	9/30/1997
Vacant	West Bridger Forage Reserve	9/30/1997
Active	Bear Canyon	3/24/2000
Active	Red Knob North	8/29/2003
Active	Alexander	9/24/2007
Active	Battleridge	9/24/2007
Active	Blacktail	9/24/2007
Active	Brackett Creek	9/24/2007
Active	Elk Ridge	9/24/2007
Active	Elkhorn	9/24/2007
Active	Flathead North	9/24/2007
Active	Flathead South	9/24/2007
Active	Middle Fork	9/24/2007
Active	Mill Creek	9/24/2007
Active	Troy	9/24/2007
Active	Bangtail	9/24/2009
Active	Jackson Creek	9/24/2009
Active	North Canyon	9/24/2009
Active	South Canyon	9/24/2009
Active	Willow Creek	9/24/2009

Table 16. Active and vacant allotment decision dates (sorted oldest to newest) for Hebgen Lake Ranger District

Allotment Status	Allotment Name	Most Recent Decision Date
Active	Moose	1/23/1996
Vacant	Sheep Mile Forage Reserve	1/16/1997
Active	Grayling Creek	4/17/1997
Active	North Cinnamon	3/25/1998
Active	South Cinnamon	3/25/1998
Active	Sage Creek	2/11/1999
Active	Taylor Fork	7/2/1999
Active	South Fork	9/13/2013
Active	Watkins Creek	9/13/2013

Table 17. Twenty-one (21) remaining active and vacant allotments with no NEPA decision date

Allotment Status	Allotment Name	Rescissions Schedule Date
Active	Swamp Creek	2022
Active	Dry Fork	2022
Active	Elbow	2019
Active	Kid Royal	2022
Active	Duck Creek	2022
Active	Pine Creek (Yellowstone)	2019
Vacant	Deep Creek South	Original schedule 2004
Vacant	Evergreen	2019
Active	Basin	2022
Active	Sweetgrass	2022
Active	6 Mile North	2019
Vacant	6 Mile South	2022
Vacant	Lost Cabin Creek	2019
Vacant	Suce Creek	2019
Vacant	Grouse	2019
Active	E Fishtail	2019
Active	West Fishtail	2019
Active	Little Rocky	2019
Active	Little Cottonwood (Yellowstone)	2022
Vacant	Cottonwood (Gardiner)	2022
Vacant	Lion Creek (Gardiner)	2022

Since the current forest plans were signed in 1986 and 1987, animal unit months permitted on the Custer Gallatin National Forest have decreased 23 percent. Animal unit months permitted on the Gallatin portion of the Custer Gallatin National Forest have decreased 42 percent and animal unit months permitted on the Custer portion have decreased 19 percent. The changes in Gallatin units were primarily due to allotment closures of long-standing vacant allotments, as well as some stocking rate adjustments. The changes in the Custer units were primarily made to

respond to range readiness issues, voluntary reductions coinciding with marketing timeframes, and carrying capacity and stocking rate issues.

Since the current plans were approved, there have been 60 allotment closures. Nine of the 59 closures were done through decisions made in the 1987 Gallatin Forest Plan, while the remaining 51 have been closed since then. These allotments were vacated and closed for a variety of reasons. These include access issues, land exchanges, conflicts with wildlife values and grizzly bear conservation, and economic considerations.

These changes have occurred at a landscape level, while at an allotment level, some allotments have sustained little to no change in stocking rates since the plans were signed, while other allotments have undergone large stocking rate changes. Even though these changes over time helped make improvements to range condition in some areas, continued monitoring and the use of adaptive management options to reach site specific conditions will be necessary to guide livestock management and reach desired ecological conditions. Attention is especially needed for:

- areas with season-long grazing,
- areas with long durations,
- during the fall when cattle diet preferences tend to switch more to browse species (such as green ash, willow or aspen),
- periods of time where distribution issues may arise in riparian or green ash draws (for example, during periods of hot season use),
- areas where stocking rates may not be in balance with carrying capacity, and
- areas with other resource considerations or concerns.

Because of the variability in sites, specific forage utilization guidelines for riparian areas, green ash woodlands, and uplands, as well as other monitoring metrics used along riparian green lines (such as utilization, stubble height and bank disturbance guidelines) are developed and recommended by an interdisciplinary team during the allotment planning process. Criteria is informed from best available scientific information applicable to the site.

The current trend for most uplands is considered not apparent to upward. At more site-specific scales, actions continue to be implemented to improve conditions. In general, rangeland conditions overall have shown improvement over time. This is largely due to more recent improvements such as:

- cross-fencing to move most units from season long to rotation grazing,
- installing offsite water developments away from riparian and hardwood draw areas,
- shortening the season for range readiness,
- reducing stocking rates to be within capacity of the land,
- large-scale fires across landscapes, and
- implementing shorter duration grazing to provide more opportunity for plant recovery.

Trends in riparian conditions cannot be determined based on one site visit. Trends can generally be inferred (apparent trend), based on known changes in livestock management, or known disturbance events or trends can be factual, based on repeated, quantitative monitoring. Five percent of the riparian sites surveyed on the Custer Gallatin were considered to be in downward trend based on proper functioning condition protocol and data. In general, the apparent long-term trends for all riparian is up due to decreases in stocking rates over past decades, rest due to periodic non-use, and natural recovery from past wildfire events. However, the current short-trend for most reaches is considered not apparent since repeated measurements over time have not generally been done, although some monitoring sites are beginning to get repeat measurements.

Climate Change

Climate change affects vegetation, which in turn could affect livestock grazing. Potential effects include, but are not limited to, changes in type, amount, and distribution of precipitation, which directly affects type, abundance, and distribution of vegetation. Lower-elevation grasslands and shrubland habitats are expected to become drier and habitat zones may shift upward in elevation (Finch 2012). The result of these potential changes could be an increase in suitable cattle forage, thereby causing increased forage for cattle grazing at higher elevations within an allotment. On the other hand, lower elevation rangeland and upland plant communities would be expected to wither and die earlier in the season, resulting in reduced palatability earlier in the grazing season. Reduced palatability in the uplands, combined with warmer temperatures would affect livestock distribution by concentrating livestock in riparian and wetland areas. Riparian use levels would be met earlier in the season, thus forcing livestock to be removed from an allotment or pasture earlier than the permitted off date.

Increases in atmospheric carbon levels and higher temperatures would likely make invasive species, especially annual grasses, more competitive and adaptable, which may allow some species to expand to higher elevations as well as become more difficult to control due to reduced chemical efficacy (Ziska et al. 2004). Not only will some species become more invasive, but the array of species would continue to change (Scott et al. 2013).

It is possible for climate change to impact resource use within a short timeframe, which could change the suitability and utilization of forage. For example, there have been periods of increased summer temperature and decreased summer precipitation over a 15- to 20-year planning period, which would indicate that the potential for changes in the suitability and utilization of forage within a grazing allotment may change within a planning period. This could cause beneficial or negative impacts to the permitted use of a grazing allotment for suitability and utilization. Annual fluctuations of temperatures and precipitation would affect forage palatability under all alternatives.

The impacts to livestock grazing from climate change remain to be fully understood or experienced by permittees of the Custer Gallatin National Forest. However, the Forest Service has administrative tools to adapt to unexpected conditions as well as short and long-term changes in resource conditions. Examples of administrative changes include stocking adjustments and adjusting management practices through permit modifications or annual operating instructions. The impact of climate change to livestock grazing could include limited use of allotments due to less available forage or seasonal changes in palatability.

3.14.3 Environmental Consequences

Current Plans

Management Direction under the Current Plans

The Custer Forest Plan goal for rangelands is to achieve a diversity of beneficial uses of rangeland resources, including an integrated management approach designed to attain healthy and productive soil and vegetation and water. Where necessary livestock management efforts will be intensified to allow for the improvement of vegetative condition and improve wildlife habitat. Land capabilities coupled with intensive management will dictate, on an allotment-by-allotment basis, the appropriate stocking level and the season of use. Livestock use levels are determined during allotment-specific analysis. The Gallatin Forest Plan goal for rangelands are to provide improved forage management to maintain or enhance the rangeland environment. Livestock grazing in riparian areas is to be controlled at levels of utilization that are listed for riparian management.

The current livestock grazing standard in the Custer plan is to follow the direction for grazing use within occupied grizzly bear habitat. The "Guidelines for Grizzly Bear Management in Greater Yellowstone Area" and Custer National Forest grizzly bear plan components will be the basis for resolutions of any conflicts between livestock and grizzly bears. The current livestock grazing standard in the Gallatin Forest Plan states grazing use will be guided by the Greater Yellowstone Area Grizzly Bear Conservation Strategy, where inside the primary conservation area or recovery zone for grizzly bears: (1) the number or acreage of active livestock grazing allotments above that which existed in 1998 is not to be increased, (2) vacant or closed sheep allotments are not to be reactivated, or (3) existing active or vacant cattle or horse allotments are not to be converted to sheep allotments.

Direction common to both the Gallatin and Custer Forest Plans includes:

- livestock use is not allowed in research natural areas unless permitted prior to the research natural area's establishment.
- existing grazing allotments within wilderness areas is to be managed in accordance with wilderness values.
- riparian areas are to be identified and mitigation implemented to retain unique riparian values during project-level allotment management planning for permitted livestock grazing. Adequate vegetation at the end of the growing season is important to provide streambank stability, protect streambanks from runoff events, and trap and filter potential sediment deposits. Desired vegetation that can meet these criteria are deep-rooted, water-loving species.

Direction in the Custer Forest Plan specifies green ash woodlands, also known as woody draws, are to be identified and mitigation implemented to retain unique values during project-level allotment management planning for permitted livestock grazing. In riparian and woody draw management areas, management practices such as fencing, grazing deferment, burning or planting may be tried on selected areas to determine their effectiveness in maintaining or improving green ash woodland or riparian conditions. Large-scale fencing efforts to protect these areas are generally not practical. Structural range improvements will be located to attract

livestock out of this management area. Nonstructural range improvements will be done only to improve diversity of habitats or implement practices designed to restore the desired vegetative composition.

Effects of the Current Plans

Under the current plans, grazing management as outlined in the affected environment section would continue, with revisions of allotment management plans and associated protections for other resources following direction from the existing plans. Grazing management would continue to provide the livestock animal unit months authorized in term Forest Service grazing permits. The current plans allowed for increasing the amount of animal unit months across the national forests, mainly from the transitory range being created from timber harvest. However, riparian and aquatic concerns would most likely keep permitted animal unit months stable or slightly reduced as more allotment management plans are updated and management prescriptions are improved to move riparian areas toward desired conditions. The pasture configurations, quantity and size of grazing allotments could change from the current condition. Under the current plans, additional grazing allotments could be added if they were to meet the goals and guidelines of the existing management areas. Currently, there are no domestic sheep allotments on the Custer Gallatin National Forest. Conversion from cattle to sheep allotments are not precluded in the current plans, except in the grizzly bear primary conservation area.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

While both the Custer and Gallatin plans contain relevant direction for rangeland and grazing management, the revision process provides an opportunity to make the plan more consistent and integrated with other national forest objectives. Plan components developed through the revision, will help guide future livestock management to move toward or maintain desired conditions. The permitted livestock grazing plan components are designed to protect upland and riparian resources, manage noxious weeds, and maintain adequate levels of forage.

Collectively with the additional riparian management zone and other plan components, the grazing standards and guidelines generally would affect how allotment planning is designed and implemented so that future grazing would move resource conditions within allotments toward desired conditions, where not already occurring.

Plan objectives for animal unit months vary by alternative (FW-OBJ-GRAZ-01). The plan objective for alternatives D and E is 213,652 animal unit months, which is the number of animal unit months currently permitted. The plan objective for alternatives A, B, and C is up to 219,293 animal unit months, which is the number of animal unit months currently permitted plus the 5,641 animal unit months previously permitted on all vacant allotments. The plan objective for alternative F is up to 217,221 animal unit months, which is the number of animal unit months currently permitted plus 3,569 animal unit months previously permitted on eleven vacant allotments.

Locations where permitted grazing of sheep and goats is allowed, including for weed control, varies by alternative, and ranges from no permitted grazing of sheep and goats (alternative D) to

permitted forestwide with a risk assessment to minimize risk of disease transmission between livestock and bighorn sheep (alternative E) (FW-STD-GRAZ-02 and 03).

Effects Common to the Revised Plan Alternatives

Desired conditions for livestock grazing collectively with plan components for other resources emphasize sustainable grazing, stable soils, diverse vegetation and native plant communities, as well as riparian and wetland health (FW-DC-GRAZ-01, FW-DC-VEGNF-01, 02, 04; FW-DC-RMZ-01; FW-DC-INV-01). Movement toward these conditions would be achieved through implementation of the standards and guidelines for grazing and the other resource areas. Necessary changes to move towards desired conditions would be determined and implemented at the allotment management plan and project level.

For the foreseeable future, management under any of the revised plan alternatives would continue to provide forage production and productive livestock grazing. Acres available for livestock grazing and currently permitted animal unit months would be the same under all revised plan alternatives. None of the revised plan alternatives change existing allotment management or provide specific direction regarding current livestock management. No active allotments or portions of allotments are proposed to be formally closed to grazing due to other resource needs. Under all revised plan alternatives, at the project specific scale, changes to livestock management and allowable forage use levels would be made during allotment management plan revision or with term permit modifications based on monitoring and management objectives. Furthermore, resource mitigations and best management practices are part of allotment plans designed to protect or mitigate forest resources from potential disturbances by livestock grazing. These elements are site-specific for each allotment and not part of this analysis.

Plan components (FW-GDL-RMZ-01; FW-STD-GRAZ-01; FW-GDL-GRAZ-01, 02, 04, 05) emphasize improving riparian and wetland conditions and are expected to continue under all revised plan alternatives. Revisions of allotment management plans, or term permit modifications would continue to implement best management practices and identify end of season allowable use levels that are expected to move riparian areas toward desired conditions. Management adjustments may result in a loss of permitted animal unit months for some permittees.

Existing forage reserve allotments would continue to be available under all alternatives. Current vacant grazing allotments could be used as forage reserves for livestock from allotments affected by issues such as wildfire, drought, threatened and endangered species, or prescribed fire management (FW-DC-GRAZ-02). In these cases, should a forage reserve allotment have a greater capacity, permitted animal unit months would be temporarily increased during the temporary period of reserve use. Some vacant allotments could be incorporated into adjacent allotments to help offset other resource considerations, typically done without increasing overall permitted animal unit months. In addition, some vacant allotments could be retained in vacant status for potential use demands in the future. Some vacant allotments could be permanently closed through future NEPA decisions for other resource reasons.

Should additional allotments become vacant in the future, they could be considered for use as forage reserves, opportunities to enhance management or improve resource conditions 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

Conifer canopy closure, conifer and shrub encroachment into grasslands, and the spread of invasive weeds all can reduce available forage for livestock. The degree to which future management actions address each of these ecological processes would influence the potential loss or increase in available forage. Fire and physical manipulation of the tree overstory may help to maintain or increase forage productivity for browsing and grazing ungulates. Treatment of invasive weeds can allow desired natural plant communities to flourish. As a result of site-specific project-level analysis, permitted livestock numbers could decline in some areas due to more stringent management constraints for riparian areas as well as the loss of forage from invasive weed spread, and encroachment of conifers into some grassland communities. However, vegetation modeling (as discussed in the terrestrial vegetation section) indicates that the extent of non-forested plant communities overall would likely remain constant under all alternatives, and forest densities may decrease. This may result in increased forage in some forested areas.

During the life of the plan, certain environmental influences may negatively impact rangeland health and forage production. As temperatures continue to increase, there may be changes in vegetation where there is a shifting from more mesic (moist) plant associations to more xeric (dry) communities that are better adapted to the drier sites. As a result, bare ground would likely increase within these plant communities as rangeland sites become drier during extended periods of drought (Pellant et al. 2004). Elevation will play a large role in plant species composition in conjunction with predicted climate change. High elevation, alpine, or other fringe-type environments may see plant species composition change first (Murphy and Weiss 1992). Invasive weeds would likely continue to spread and increase in abundance and density. Timber canopy may continue to close in areas where wildfires or other disturbances do not occur, and some grasslands and shrublands may see additional conifer encroachment and conversion to a conifer-dominated community. Conversely, it is likely that wildfire may play a larger role in shaping vegetation in some areas (Littell et al. 2018), perhaps promoting non-forested vegetation communities, particularly given warmer climate regimes. Transitory range acreage may fluctuate as forested stands become more open due to harvest, insects, disease, or fire. Over time and through succession, forest canopies would likely close in once again.

Effects that Vary Among the Alternatives

In the short term, all alternatives are designed to maintain forage production and livestock grazing. All alternatives have similar vegetation treatment levels, which could be favorable for livestock permittees as herbaceous forage should temporarily increase after treatments. The revised plan alternatives would not reduce livestock grazing, but would have more area in recommended wilderness and backcountry areas than the current plans, where access for permittees could be more limited or require higher authorization scrutiny in regard to the use of motor vehicles for permit administration.

The objective of providing animal unit months as currently permitted (213,652) and as vacant allotment capacity would allow (see vacant allotment table 9) at some future point (5,641 animal unit months; for a total of up to 219,293 animal unit months) would be the same under the current plans and alternatives B and C. The objective for alternative D would be to provide

animal unit months as currently permitted (213,652) and the vacant allotment capacity may not be reactivated due to other resource considerations such as forage reserves, at-risk species habitat needs, or other conservation needs. The objective for alternative E would be to provide animal unit months as currently permitted (213,652) and the vacant allotments may not be reactivated due to this alternative's lower budget projections for allotment administration. The objective for alternative F would be to provide animal unit months as currently permitted (213,652) and as allotment capacity would allow on 11 of the vacant allotments at some future point (3,569 animal unit months; for a total of up to 217,221 animal unit months). The remaining 8 vacant allotments [Cottonwood, Lion Creek, Mill Creek (Gardiner RD), Section 22, Lost Cabin, Main Boulder, Deep Creek South, and East Rosebud] would be recommended for future closure subject to project-level NEPA, with cumulative effects analyzed at the national forest scale. When evaluating these allotments for future closure, resource considerations could be based on such things as resource conflicts, conservation opportunities, or economic considerations.

Under all alternatives, the permitted use of the existing active grazing allotments would continue. However, animal unit month levels may be reduced as site-specific allotment changes are needed. Based on current rangeland and riparian conditions and the need to revise or review allotment management plans for allotments, changes in the amount of permitted animal unit months are difficult to predict. Project-level analysis and allotment-specific monitoring will continue to determine site-specific prescriptions, future stocking rates, and other management adjustments to meet desired conditions under all alternatives. Permitted animal unit months over the long term could possibly decrease under all alternatives due to more intensive management of riparian areas or habitats for threatened, endangered, or at-risk species.

Infestations of noxious weeds can substantially impact livestock grazing if they are extensive and dense enough to reduce the amount of available forage. Any ground-disturbing activity has the potential to expose a site to noxious and invasive plants, particularly when motor vehicles are involved. Conversely, established motorized transport can make noxious and invasive plant treatment much easier and cost effective. Even though grazing can be used as a noxious weed and invasive species control mechanism, there is potential of spreading undesired species to other areas within the Custer Gallatin without the use of mitigations. The alternatives vary slightly in their potential for ground-disturbing activities such as timber harvest and prescribed fire, with alternative E predicted to have the least amount. Similarly, the potential of weed spread from motorized transport also varies to a limited extent, based primarily on whether existing motorized transport continues to be suitable in recommended wilderness areas or backcountry areas, especially under alternative D (see the Invasive Species Environmental Consequences). However, for both ground-disturbing activities and motorized transport, the differences between the alternatives are slight in respect to the potential to impact rangeland condition and trend. These differences are negligible at the programmatic scale.

Consequences to Permitted Livestock Grazing from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Watershed, Aquatic, Riparian, and Soil Management

The aquatics and terrestrial vegetation sections discuss the effects of plan components on aquatic resources, particularly riparian areas. Management and protection of riparian and wetland resources are emphasized under all alternatives. The riparian plan components under

the current plans, and the plan components under the revised plan alternatives (FW-GDL-GRAZ-01, 02, 04, 05; FW-STD-GRAZ-01; FW-GO-GRAZ-01; FW-GDL-RMZ-01) have had and would continue to need compliance monitoring in relation to livestock management. The objectives and standards for protecting riparian and wetland resources have some of the greatest influences relative to the permitted livestock grazing in achieving desired conditions. Changes have been made in grazing management and practices to protect riparian and wetland resources, which are reflected in current resource conditions. Over the last 20 years, much has been accomplished by altering grazing practices to protect riparian and aquatic resources. This has occurred through allotment management plan revisions throughout the Custer Gallatin as well as implementation of site-specific mitigations determined during allotment management plan analysis. However, efforts still need to be implemented on many allotments to move toward desired riparian conditions while maintaining permitted grazing.

Methods available to monitor grazing in riparian areas are varied and being improved (Bryant et al. 2004, Kershner et al. 2004, Coles-Ritchie et al. 2007, Burton et al. 2008, Al-Chokhachy 2010, Hough-Snee 2013, Batchelor et al. 2015, Laine et al. 2015). While no one method works everywhere, stubble height has been extensively studied and is widely put in practice as an end-of-season monitoring indicator (Clary and Webster 1990, Clary and Leininger 2000, Goss and Roper 2018).

End of season stubble height of greenline vegetation has been shown to be a good indicator of two primary factors: (1) the effect of grazing on the physiological health of herbaceous, hydrophilic plants, and (2) the ability of the vegetation to provide streambank protection and bank building function during the following spring's peak flows. Stubble height criteria should be used where streambank stability is dependent upon herbaceous plants. Alternatively, woody plant utilization or streambank alteration could be used as a management guide in situations where streambank stability is controlled by substrate or the stream is deeply incised (Clary and Leininger 2000, Clary and Kinney 2002).

To maintain or improve riparian habitat and aquatic conditions and achieve riparian desired conditions over time through adaptive management, in all revised plan alternatives, guideline FW-GDL-GRAZ-02 directs that low gradient, alluvial channels should have end of season stubble height of vegetation along the greenline to be at least 4 to 6 inches. Alternative use and disturbance indicators and values may be used if they are based on site capability, relevant science, monitoring data, and meet the purpose of this guideline. This is based on Rosgen C and E stream channel classes (Rosgen 1996), which are streams that rely heavily upon the hydrophilic streambank vegetation and associated root strength to maintain or improve streambank stability. A 4 percent or less perennial stream gradient is a characteristic of Rosgen C and E stream channels. It is estimated that about 150 to 175 miles of perennial streams with a 4 percent or less gradient are found within allotment primary projected to be beneficially affected by the revised plan alternatives' stubble height plan component (FW-GDL-GRAZ-02). In turn, permittees may potentially be required to move off an area earlier than permitted. Permittees may also be affected financially or by increased labor requirements. Monitoring may indicate that changes in grazing prescription (timing, duration, intensity of use, or off-site water developments) or permitted stocking are needed. Modifications to permit terms and conditions may be done at any time when monitoring information indicates a need for change to achieve resource management objectives.

Physical factors such as stream type, geology, climate, and elevation greatly influence the recovery of riparian areas. Specific management action must be made to fit local conditions (Clary and Webster 1990), which also includes selecting annual use indicators that match the resource goals of a riparian site. Riparian grazing plans should be site-specific and based upon the best research and evidence available to maintain and enhance vegetation and protect streambanks (Mosley et al. 1997). Allotment management plans for livestock provide specific operational guidance and are the most appropriate planning level to implement management tools such as minimum stubble height, multiple year mean utilization, or streambank alteration limitations (FSH 1909.12 23.22d).

Under the revised plan alternatives, stubble height guidelines would be implemented in all allotments where appropriate and could increase the amount of management needed within allotments to meet desired conditions. Under all alternatives, other best management practices would be implemented to mitigate livestock impacts where they are present and if riparian areas are not meeting or moving toward desired conditions.

Many variables impact the effectiveness of action by the permittee and the agency to comply with plan components. Site-specific riparian allowable use levels have been effective to move riparian condition in an upward trend. Under all alternatives, a strong commitment is needed by both the grazing permittee and agency to implement, monitor, and provide accountability for allowable use levels to be successful. Overall, effects of plan components guiding end of season riparian stubble height (FW-GDL-GRAZ-02) and limiting livestock handling facility construction within riparian management zones (FW-GDL-RMZ-01; FW-GDL-GRAZ-05) would be similar under all revised plan alternatives.

Effects to riparian habitat would likely not vary for livestock grazing under any plan revision alternative. Over time, conditions in riparian management zones as well as aquatic habitat within grazing allotments are expected to improve over current conditions.

Under all alternatives, soil plan components (FW-STD-SOIL-01;) would place limitations on detrimental soil conditions. These measures may potentially place limitations on grazing but impacts from prescribed grazing seldom exceed detrimental soil condition standards. Protecting soil productivity would help provide for better upland and riparian management zone conditions in the long term.

Effects from Vegetation, Timber, Fuels and Fire Management

Vegetation management, such as timber harvest and prescribed fire, can provide transitory range that would be available for livestock and wildlife grazing. Transitional range forage capacity decreases over time as the national forest overstory grows back and shades out the herbaceous understory. As timber is harvested, areas may open up to livestock that were not previously available thus increasing capable grazing acres. These newly accessible areas would be used as transitory range as long as the acreage occurs within an existing allotment. Timber harvest could also open up range that is inaccessible to livestock because of natural barriers. This could cause livestock control and management problems if the previously unharvested timber stands were used as natural barriers between allotments or other critical area. If this were to occur, additional range improvements would need to be installed to control livestock. In addition, if livestock use is inhibiting regeneration of trees (through trampling or grazing), livestock may

need to be temporarily excluded from these areas, which would offset potential gains in transitory range for a time.

Projected acres of vegetation management using timber or fuels treatments are used to compare the relative probability of creating transitory range across alternatives. Alternative D would have the most acres of vegetation treatment and, therefore, would be the most likely to create transitory rangeland. Transitory rangeland temporarily provides capable rangeland, but conifer regeneration would slowly come back into the harvest units over the next approximately 10 to 20 years and would only provide increased forage during that timeframe. However, transitory range would help grazing allotments by providing increased forage and additional foraging areas which would have been inaccessible or void of herbaceous forage prior to timber harvest.

Opportunities for vegetation management that include reducing conifer encroachment and restoring aspen and woody draw stands would have beneficial effects on livestock grazing. The predominant understory vegetation in conifer encroachment areas would respond favorably to conifer removal and provide forage for livestock, big game, and wildlife habitat.

A flush of forbs and grasses occurs especially after a prescribed burn and to a lesser extent after other conifer removal methods. The increase in production in these cases can last for many years or even decades. Aspen and woody draw restoration would also increase forage, but treatments and post-treatment project design criteria must account for the potential for heavy browsing and trampling. Cattle may be fenced from treatment areas or physical barriers be placed and felled, or pastures placed in non-use or prescribed rest until sprouts escape the browse zone from livestock and wildlife. Once stands have recovered, understory vegetation would be favorable for providing forage for livestock, big game and wildlife habitat.

All alternatives have similar potential to promote aspen and woody draws and reduce conifer encroachment, although the revised plan alternatives have more explicit desired conditions related to aspen woody draws and non-forested plant communities (FW-DC-VEGNF-04).

Fire and fuels management can have different short-term and long-term effects on livestock grazing. Effects depend upon burning conditions and burn type, and the results and timing of a wildfire are much less predictable compared to a prescribed fire. Prescribed burning often results in an increase in forage production and availability, and a shrub community more compatible with a variety of wildlife species. A reduction in shrub and conifer density could potentially accelerate the recycling of nutrients and make water more accessible across the landscape, such as in springs, seeps, and intermittent streams. Wildland fire can temporarily increase forage on an allotment, which, in turn can provide more flexibility for livestock management, improve livestock or wildlife distribution, and increase available animal unit months. Understory burns in conifers or other types of burns can increase forage production and accessibility. Areas that are typically grazed may have use deferred prior to a prescribed burn to ensure there is sufficient fine fuels to meet the burn objectives, and use deferred following a prescribed burn to allow for vegetation recovery depending upon local conditions. This deferment requires that the permittee be flexible in management and involved in considerable advance planning and coordination. If a prescribed fire does not take place on schedule, arrangements need to be made again in successive attempts, which could accrue additional costs to the permittees and the Forest Service.

A wildfire can have similar effects as prescribed fire, but is likely to have unplanned adverse effects as well. Wildfire may result in the entirety of an allotment being burned, resulting in forage unavailability, with permittees being forced to move livestock to other lands in their operation (such as private or state). On rare occasions, large, quick-moving wildfires may also overrun livestock that cannot escape, which results in direct financial loss for a permittee. Wildfire may remove allotment infrastructure, which results in direct financial loss for the Forest Service and permittees. Wildfire may remove trees and open forest understories to a flush of grass and forb production for many years. Similar to prescribed fire, wildfire can have the effect of recycling nutrients and improving the quality and quantity of forage for livestock and wildlife. However, since timing, location, and burn conditions are not controllable, wildfires are less likely to provide the same amount of positive effects as prescribed burns.

To evaluate the potential impact of fire on livestock grazing, the projected acres of wildland fire are used to determine areas most likely to create more suitable forage. Expected wildfire will continue to a similar degree under all alternatives because of both natural and human-caused ignitions, an expansive fuel source, and climate effects. It cannot be predicted with high accuracy where and when fires will occur. There is a high degree of variation, spatially and temporally, in the amount and location of fire. The projected acres of prescribed fire range from about 24,000 to 38,000 fire acres per decade over the next 50 years. Projected acreage of prescribed burning on forested lands are similar for the current plans and alternatives B, C, and F, while alternative E is less, and alternative D would have the most expected acreage.

Fire would need to be within an existing allotment to affect the amount of forage for livestock grazing and allotment infrastructure. The differences in the expected acreages of wildland fire are negligible at the forestwide scale in the long term, and therefore the potential effects would be similar across all alternatives. All alternatives have plan components (FW-OBJ-FIRE-01; FW-DC-FIRE-02; FW-GDL-FIRE-02) that are generally permissive to the use of prescribed fire on the landscape.

Effects from At-Risk Plant Species Management

Protection of at-risk plant species habitat has an influence on livestock grazing. Intensive management can generally be successful in moving resource conditions towards desired condition, but instances may arise where reduced stocking levels or other mitigation measures are needed. At this time, predicting any future reductions are outside the scope of this analysis but would be addressed with site-specific analyses if species are listed.

Although known at-risk plant occurrences are minimal in size and abundance within primary rangelands, livestock can contribute to the deterioration of the quality of at-risk plant habitat through improper grazing or physical contact (such as hoof action). In cases where the level of impact is unacceptable, the impacts can be mitigated with fencing or with changes in management (intensity or timing).

Under all alternatives, plan components would ensure the protection of threatened, endangered, or at-risk plant species (FW-DC-PRISK-01, FW-STD-PRISK-01). The potential for these effects is the same for all alternatives.

Effects from Invasive Species Management

Noxious and other invasive weeds have the potential to substantially decrease livestock forage when left unchecked. Impacts are similar between all alternatives, including the current plans. Noxious weed management would continue under direction of both the Gallatin National Forest and the Custer National Forest noxious weed environmental impact statements (U.S. Department of Agriculture 2005;2006a), until revised. Any subsequent decisions based on environmental analysis would continue to provide additional direction. Infestation levels of invasive plants would likely remain steady to slightly increasing over time. Some species may contract in density as new treatment and biological options become available, while other weeds will expand in range and density.

All revised plan alternatives would formalize the need to adopt and authorize the best available tools for weed management (FW-STD-INV-03), but the same tools can also be pursued under current management. Revised plan alternatives may be more favorable in the long term for overall management direction for invasive species, but in regard to effects on livestock forage, no substantial difference would be present between the alternatives.

Current and foreseeable treatment objectives under alternatives A, B, C, and F for noxious weeds are adequate to maintain livestock forage production on grazing allotments. Alternative D treatment objectives would increase and lessen the loss of forage to competition from weeds. Alternative E treatment objectives would substantially decrease to one eighth to one quarter of the recent treatment levels, which would increase the chance of weeds outcompeting forage in some dense infested areas. As such, alternative E could result in early removal of livestock from a unit. Weed treatments and prioritization would need to continue to evolve in order to manage new weed species, expanding infestations, and possible herbicide resistance under all alternatives.

Minor inconveniences for grazing permit administration may occur under all alternatives for weed prevention and treatments. Access to areas may be temporarily closed or delayed for weed management activities. Also, mitigations, such as washing vehicles or equipment entering National Forest System lands, or restricting off-road travel may be used as part of the grazing permit and allotment plan. These actions may temporarily limit access but would have positive effects for rangeland vegetation and livestock forage under all alternatives.

Effects from Wildlife Management

Grazing livestock share habitat resources with big game and other wildlife species. Big game grazing and browsing can be compatible with livestock grazing and browsing. Elk grazing patterns have been influenced by cattle grazing, depending upon grazing season, intensity of grazing vegetation types, available vegetation and its spatial distribution, and other environmental factors as they seek areas of forage regrowth following grazing by livestock. Crane (Crane et al. 2001), found that in the fall and winter, elk preferred to forage where cattle had lightly or moderately grazed the preceding summer, while in spring, elk strongly preferred to graze where cattle had grazed moderately during the preceding summer. Their results indicate that prescriptive cattle grazing can encourage or discourage where elk graze in rangeland landscapes. In southern Colorado, Hansen and Reid (1975), found a range of overlap in summer diets of elk and cattle from 30-51 percent. Vavra et al. (1989) also noted the variability associated with seasonal differences in their 55–76 percent range of dietary overlap values found in eastern

Oregon. In the Red Desert of Wyoming, Olsen and Hansen (1977) examined diets of elk and cattle for each season and determined a 25–85 percent range of overlap. In northwestern Wyoming it was found that in all seasons, elk and cattle consumed grass-dominated diets although elk diets were more diverse, and that mule deer consumed more forbs and shrubs than either elk or cattle (Torstenson et al. 2006). While several studies indicate dietary overlap is likely, the degree varies by area and among seasons (Clegg 1994). A study by Damiran et al. (2003) suggests that early summer grazing by cattle or elk at the moderate utilization level has very little effect on the subsequent foraging efficiency of deer and elk. In addition, early summer grazing by cattle can improve the quality of subsequent elk diets, but early summer grazing by elk may reduce subsequent diet quality for cattle, deer, and elk.

Current plans and allotment management plans for most Custer Gallatin National Forest allotments identify and manage for wildlife forage needs, such as crucial winter range and limiting interactions between permitted livestock and bighorn sheep to avoid disease transmission, and would continue to do so under all alternatives. Allotment management plans have adjusted grazing management prescriptions accordingly where allotment boundaries overlap with known big game winter range by decreasing permitted livestock use and attempting to increase livestock distribution. In certain site-specific cases, such as localized population fluctuations or a distribution shift due to habitat loss on historic winter range, future limitations could be placed on forage use by permitted livestock through the allotment management plan revision process or permit modification due to monitoring results to assure adequate forage for the wild ungulate populations. Most allotments would have the flexibility to adjust permitted livestock distribution if needed for adequate winter range forage. Upland use levels are rarely exceeded, let alone approached on most Custer Gallatin National Forest allotments, as riparian areas primarily drive management actions. Plan components (FW-GDL-GRAZ-03; 07; 08) in all alternatives associated with big game habitat management should not limit livestock forage opportunity and not affect permitted use, suitability, and utilization within the grazing allotments to a great degree.

Key Linkage Areas

Key linkage areas support seasonal, exploratory, or dispersal movements of animals beyond the home range and facilitate demographic and genetic connectivity between geographically separate patches of habitat. A key linkage area has been identified near the Custer Gallatin National Forest boundary in the Bridger Mountains north of Bozeman and near Bear Canyon and Trail Creek southeast of Bozeman, where wildlife movement is desirable for genetic exchange between blocks of public lands. Components in the revised plan alternatives require that management activities in key linkage areas include design features to restore, maintain or enhance habitat connectivity to facilitate daily and seasonal movements. New permanent facilities and structures, such as fences or stock driveways, should not be constructed unless needed to address ongoing or imminent resource concerns with the key linkage area, including but not limited to degradation of wildlife habitat connectivity.

Key linkage area plan component (FW-GDL-WL-04) would require that new permanent facilities or structures and relocation of existing facilities not permanently disrupt wildlife movement patterns, and could preclude new allotment fence construction or require design features such as a “let-down” fence design to prevent barriers to wildlife movement. Allotments that could be

affected, the associated amount of primary rangeland, and allotment infrastructure are listed in table 18. At least eight allotments could potentially be affected by higher administrative costs associated with labor and cost of letting new fence down and putting new fence up at the end and beginning of each grazing season. Two allotments have no fencing within the key linkage area. Allotments with less than 10 acres are not included in table 18 due to the small acreage involved and little to no infrastructure. This information is available in the project record.

Table 18. Allotments (10 acres or more), primary rangeland, and associated infrastructure within key linkage areas

Allotment and Primary Rangeland	Geographic Area	Current Infrastructure
Alexander; no portion in primary range	Bridger, Bangtail, Crazy Mountains	No infrastructure
Blacktail; a portion of primary rangeland	Bridger, Bangtail, Crazy Mountains	2 water developments and 1.54 miles of fence
Flathead South; no portion in primary range	Bridger, Bangtail, Crazy Mountains	No infrastructure
Pass Creek; a portion of primary rangeland	Bridger, Bangtail, Crazy Mountains	No water developments and 1.44 miles fence
Pine Creek; a portion of primary rangeland	Bridger, Bangtail, Crazy Mountains	No water developments and 1.66 miles fence (Alt B, C, D) and 1.33 miles of fence (Alt F)
Mill Creek; a portion of primary rangeland	Bridger, Bangtail, Crazy Mountains	1 water development and 0.87 miles of fence
Reese on/off; a portion of primary rangeland	Bridger, Bangtail, Crazy Mountains	No water developments and 0.21 miles of fence
West Bridger; a portion of primary rangeland	Bridger, Bangtail, Crazy Mountains	No water developments and 3.81 miles fence
Bear Canyon; a portion of primary rangeland	Madison, Henrys Lake, Gallatin Mountains	No water developments and 1.69 miles of fence
Trail Creek; a portion of primary rangeland	Madison, Henrys Lake, Gallatin Mountains	One water development and 0.15 miles of fence

Grizzly Bears

All alternatives would include the adoption of the Grizzly Bear Conservation Strategy. Potential for grizzly bear-livestock conflicts exist where grizzly bear habitat and livestock operations overlap on both National Forest System lands as well as outside the national forest boundary. Historically, grizzly bear and livestock conflicts have been rare under current management. Potential for grizzly bear-livestock conflicts would be mitigated to the best possible extent while continuing to authorize permitted livestock grazing under the alternatives.

Inside the recovery zone and primary conservation area, revised plan alternatives would not allow:

- an increase in the number or acreage of active livestock grazing allotments above that which existed in 1998 (FW-STD-WLGB-06)
- stocking of allotments with domestic sheep or goats for livestock production in alternatives B, C, D, and F. In alternative E stocking of allotments with domestic sheep or goats for

livestock production would be subject to a bighorn sheep disease transmission risk assessment (FW-STD-GRAZ-02)

The Custer Gallatin National Forest would continue to allow livestock grazing in the 19 allotments (14 active, 5 vacant) in the primary grizzly bear conservation area (see volume 3, appendix A – Maps). There are no permitted sheep allotments within the primary conservation area nor the remainder of the national forest.

No matter what the strategy or alternative selected, having a sustainable population of grizzlies in the same mountain ranges as permitted livestock will probably result in depredation of livestock at some point. This may increase operating costs and stress for permittees, as some level of livestock death loss may be inevitable under all alternatives.

Bison

On the Hebgen Lake Ranger District, there are two active horse allotments within western bison zone 2, four active horse allotments within the western year-round bison tolerance zone, and two active cow and calf pair allotments and one vacant cow and calf pair allotment outside of but near the western bison management zones to the south and west. On the Gardiner Ranger District, there are two active (6/16 grazing season entry dates) and three vacant cow and calf pair allotments within the northern bison tolerance zone and three active cow and calf pair allotments in Tom Miner Basin outside of but near the northern bison management zones.

Bison guideline FW-GDL-WLBI-01 allows for flexibility in allotment management planning to accommodate changes in bison management. The Custer Gallatin National Forest can consider various options with grazing permit holders to alleviate potential bison and livestock conflicts. This may include adaptive management National Environmental Policy Act decisions such as authorizing a change in the kind of livestock from cow and calf pairs to horses or steers; or turn cattle out on the allotment later in the season when the transmission of brucellosis is not likely (for example, after July 15), non-use for resource protection, or other identified opportunities. Bison guideline FW-GDL-WLBI-01 varies by alternative regarding management actions and potential bison/livestock conflicts. Alternatives B, C, D, and F favor bison and alternative E favors livestock in case of conflicts.

Bighorn Sheep

Disease transmission from domestic animals, particularly domestic sheep and goats, is considered a primary threat to bighorn sheep populations. Since there are no permitted domestic sheep or goat allotments on the Custer Gallatin National Forest, there would be no direct effects on associated permittees. Currently, sheep or goat permits are not allowed in the grizzly bear primary conservation area and that direction would remain under all alternatives.

Under alternative D, there would be an indirect effect of precluding any future domestic sheep or goat permitted use on the Custer Gallatin National Forest. Under alternatives B and C, there would be an indirect effect of precluding any future domestic sheep or goat permitted use in the Pryor Mountains; Absaroka Beartooth Mountains; and Madison, Henrys Lake, and Gallatin Mountains Geographic Areas. In the Bridger, Bangtails, and Crazy Mountains; Ashland; and Sioux Geographic Areas, alternatives B and C would require a site-specific risk assessment prior to determining whether to authorize sheep or goat occupancy by permit. Under alternative F there

would be an indirect effect of precluding any future domestic sheep or goat permitted use in the Pryor Mountains; Absaroka Beartooths; Madison, Henrys Lake, and Gallatin; and Bridger, Bangtail, and Crazy Mountains Geographic Areas. Alternative F would require a risk assessment in the Ashland and Sioux Geographic Areas to determine whether to authorize sheep or goat occupancy by permit (FW-STD-GRAZ-02). Alternatives A and E would require a site-specific risk assessment prior to determining whether to authorize sheep or goat occupancy by permit anywhere on the national forest.

Greater Sage-Grouse

The greater sage-grouse is one of the species of conservation concern identified by the regional forester. The sagebrush habitat components are important for this species persistence because greater sage-grouse are sage obligates. The primary concerns for sage-grouse are loss and fragmentation of their habitat. There are approximately 2,102 acres of priority habitat on National Forest System lands in eleven allotments on the Ashland and Sioux Ranger Districts, while there are about 119,018 acres of general habitat on National Forest System lands in 46 allotments in the Absaroka-Beartooth, Pryor Mountains, Ashland, and Sioux Geographic Areas. Plan components in the revised plan alternatives direct that vegetation management will be beneficial to greater sage-grouse and no net loss of habitat (FW-STD-WLSG-01; FW-GDL-WLSG-05). In addition, new range management structures (such as fences, stock tanks, and other features) are to be designed and located to be neutral or beneficial to greater sage-grouse (for example, use visual fence markers to minimize greater sage-grouse collisions with fences) (FW-STD-WLSG-06). These plan components may affect timing, duration, and intensity of livestock grazing as well as the infrastructure used for site-specific management on 46 allotments in the Absaroka-Beartooth, Pryor Mountains; Ashland; and Sioux Geographic Areas. Management approaches in the draft revised plan appendix A, outline possible ways to reduce impacts from grouse collisions by using fence markers within a half a mile of leks on flat or gently rolling terrain. In addition, when planning new fence projects, fence siting should avoid high-risk areas to minimize risk of collision.

Bats

Bats typically drink on the fly and are vulnerable to obstructions such as barbed wire across natural water sources (such as ponds, or pools in creeks) and artificial water sources such as stock tanks. Management approaches in the draft revised plan appendix A, outline possible ways to reduce impacts from bat collisions by design considerations that place barbed wire away from water openings, and using escape ramps in stock tanks to reduce incidences of drowning.

Effects of Designated Areas and Plan Land Allocations

Designated Wilderness

The two congressionally designated wilderness areas on the Custer Gallatin National Forest, are the Absaroka Beartooth and Lee Metcalf Wildernesses. These designations are the same for all alternatives. Twelve allotments lie totally or partially within wilderness areas on the Custer Gallatin National Forest. One allotment is within the Lee Metcalf Wilderness and eleven allotments are within the Absaroka-Beartooth Wilderness. Minor infrastructure associated with the management of these allotments includes fences, water lines, and water tanks. In designated wilderness, livestock grazing “and activities and the necessary facilities to support a

livestock grazing program, would be permitted to continue in wilderness areas, when such grazing was established prior to classification of an area as wilderness” in accordance with Congressional Grazing Guidelines (FSM 2323.2, WO Amendment 2300-90-2). There is to be “no curtailment of grazing permits or privileges in an area simply because it is designated wilderness.” Wilderness designation should not prevent the maintenance of existing fence or other livestock improvements, nor the construction and maintenance of new fences or improvements which are consistent with allotment management plans or which are necessary for the protection of the range.” However, travel variances would need to be issued to permittees for motorized transport to administer their allotments, and would also be subject to line officer approval. The following table displays the allotments affected and the relative amount of primary range and infrastructure within wilderness. Allotments with less than 10 acres in wilderness areas are not included in table 19 due to the small acreage involved and little to no infrastructure. This information is available in the project record.

Table 19. Custer Gallatin National Forest allotments (10 acres or more), primary rangeland, and infrastructure located partially within wilderness areas (all alternatives)

Wilderness Area	Geographic Area	Allotment
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Grouse Creek: a portion of the allotment and primary range is in the Wilderness Area. No infrastructure
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Hawley: a portion of the allotment and primary range is in the Wilderness Area. No infrastructure
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Lost Creek: a portion of the allotment and primary range is in the Wilderness Area along with 1.0 mile of fence.
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Main Boulder: a portion of the allotment but no primary range is in the Wilderness Area. No infrastructure.
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Deep Creek South: the entire allotment and primary range is in the Wilderness Area. No infrastructure
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Sixmile South: a portion of the allotment and primary range is in the Wilderness Area along with 0.2-mile fence and one water development.
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Suce Creek: a portion of the allotment and primary range is in the Wilderness Area along with 0.8-mile pipeline.
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Slip and Slide: a portion of the allotment and primary range is in the Wilderness Area. No infrastructure
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	East Rosebud: a portion of the allotment and primary range is in the Wilderness Area. No infrastructure
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	Red Lodge Creek: a portion of the allotment is in the Wilderness Area. No infrastructure
Absaroka-Beartooth Wilderness	Absaroka Beartooth Mountains	West Rosebud: a portion of the allotment is in the Wilderness Area. No infrastructure
Lee Metcalf Wilderness	Madison, Henrys Lake, Gallatin Mountains	Sage Creek: a portion of the allotment and primary range is in the Wilderness Area. No infrastructure

Wilderness Study Area

The Hyalite, Porcupine, Buffalo Horn Wilderness Study Area (144,064 national forest acres) was designated by Congress. Portions of seven allotments occur within this area under all alternatives. Allotment infrastructure maintenance and allotment administration continues to be

suitable in those portions of the wilderness study area. Some on-the-ground management practices, especially concerning motorized transport, would continue to be subject to review for authorization. All this area is also classified as inventoried roadless area where the setting is semi-remote and primitive, which would not result in substantial travel or access changes as a result of this designation.

The following lists allotments, primary rangeland, and infrastructure in the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area:

- Tom Miner/Ramshorn: a portion of allotment and primary range, along with 0.17 miles of fence and one water development within the wilderness study area
- Lewis Creek: a portion of allotment, no primary range, and no infrastructure within the wilderness study area
- Big Creek: a portion of allotment and a portion of primary range, along with 0.65 mile of fence, 0.66 miles of pipeline and four water developments within the wilderness study area
- Fridley: a portion of allotment and primary range, and no infrastructure within wilderness study area
- Pole Gulch: a portion of allotment, no primary range, and no infrastructure within wilderness study area
- North Dry Creek: a portion of allotment and primary range and no infrastructure within the wilderness study area
- Eightmile: a portion of allotment and primary range and no infrastructure within the wilderness study area

If the wilderness study area designation were released by Congress, the revised plan alternatives propose a range of potential plan land allocations that would continue to allow for permitted livestock use and allotment infrastructure maintenance, although motorized transport in recommended wilderness or backcountry areas would be subject to review for administrative motorized transport authorization for some on-the-ground management practices.

If Congress released the wilderness study area in the future, resulting plan land allocations could continue to affect:

- three allotments in recommended wilderness areas under alternative B
- three allotments in recommended wilderness areas and three in backcountry areas under alternative C
- seven allotments in recommended wilderness areas under alternative D
- seven allotments in backcountry areas under alternative E
- three allotments in recommended wilderness areas and three allotments in backcountry areas under alternative F

Table 20 indicates relative amount of allotments, primary range and infrastructure where administration and maintenance could be affected by increased review for administrative motorized transport in these areas. Allotments with less than 10 acres in a plan land

allocation are not included in table 20 due to the small acreage involved and little to no infrastructure. This information is available in the project record.

Table 20. Allotment (10 acres or more), primary rangeland, and infrastructure in resulting plan land allocations if Hyalite-Porcupine-Buffalo Horn Wilderness Study Area were released by Congress

Plan Land Allocation	Allotment, Primary Range, and Infrastructure
Gallatin Crest Recommended Wilderness Area	<p>Alternative B Tom Miner/Ramshorn: a portion of allotment and primary range, along with 0.2 miles of fence and one water development. Lewis Cr: a portion of allotment and no primary range and no infrastructure. Big Creek: a portion of allotment and a portion of primary range, along with 3 water developments and 0.7 miles of pipeline.</p> <p>Alternative F Tom Miner Ramshorn: a portion of allotment and primary range, with no infrastructure. Lewis Cr: a portion of allotment and no infrastructure. Big Creek: a portion of allotment and a portion of primary range, along with 3 water developments and 0.7 miles of pipeline.</p>
Gallatin Recommended Wilderness Area	<p>Alternative C Tom Miner/Ramshorn: A portion of the allotment and primary range, 0.2-mile fence and one water development. Lewis Creek: a portion of allotment and no primary range and no infrastructure. Big Creek: a portion of allotment and a portion of primary range, along with 3 water developments and 0.7 miles of pipeline.</p> <p>Alternative D Tom Miner/Ramshorn: A portion of the allotment and primary range; 0.2-mile fence and one water development. Lewis Creek: a portion of allotment and no primary range and no infrastructure. Big Creek: a portion of allotment and a portion of primary range, along with 1 water development. Fridley: a portion of allotment and primary range, no infrastructure. Pole Gulch: a portion of allotment and no primary range, no infrastructure. North Dry Creek: a portion of allotment and primary range, no infrastructure. Eightmile: a portion of allotment and primary range, no infrastructure.</p>
Hyalite Backcountry Area	<p>Alternative C No allotments or infrastructure within the backcountry area.</p>
Buffalo Horn Backcountry Area	<p>Alternatives B, C, and F No allotments or infrastructure within the backcountry area.</p> <p>Alternative E Tom Miner Ramshorn: a portion of allotment and primary range, 0.17 miles of fence along with one water development. Lewis Creek: a portion of allotment and no primary range, and no infrastructure. Big Creek: a portion of allotment and a portion of primary range, 0.65 miles of fence, along with 4 water developments and 0.66 miles of pipeline. North Dry Creek: a portion of the allotment and no primary range, and no infrastructure. Eightmile: a portion of the allotment and primary range and no infrastructure. Pole Gulch: a portion of allotment and no primary range, and no infrastructure Fridley: a portion of the allotment and primary range, and no infrastructure</p>
West Pine Backcountry Area	<p>Alternative C and F N. Dry Creek: allotment and no primary range and no infrastructure. Eightmile: a portion of the allotment and a portion of primary range and no infrastructure. Pole Gulch: a portion of allotment and no primary range and no infrastructure.</p>

Plan Land Allocation	Allotment, Primary Range, and Infrastructure
South Cottonwood Backcountry Area	<p>Alternative F No allotments or infrastructure within the backcountry area</p>

Recommended Wilderness and Backcountry Areas

Motorized transport for allotment administration can continue for maintenance of allotment infrastructure in allotments within recommended wilderness areas and could be subject to increased review for administrative motorized transport authorization. This plan land allocation could affect cost and labor of allotment operations and infrastructure maintenance to permittees on at least six allotments under alternative B, eight allotments under alternative C, 82 allotments under alternative D, no allotments under alternative E, and 11 allotments under alternative F. Some allotments may be potentially more difficult to administer if a travel variance to use motor vehicles is not authorized. Table 21 displays allotments by alternative in recommended wilderness areas.

Motorized transport for allotment administration is allowed to continue for maintenance of existing allotment infrastructure in allotments within backcountry areas, but administrative motorized transport on new allotment infrastructure would be subject to increased review for use of motorized transport and equipment needed for maintenance. This plan land allocation could affect cost and labor of allotment operations and infrastructure maintenance to permittees on 19 allotments under alternative B, 47 allotments under alternative C, seven allotments under alternative D, eight allotments under alternative E, and 35 allotments under alternative F. Table 22 displays allotments within backcountry areas by alternative. Allotments with less than ten acres in recommended wilderness or backcountry areas are not listed in tables 21 and 22 due to the small acreage involved, and very limited to no infrastructure. This information is available in the project record.

Table 21. Allotment (10 acres or more), primary rangeland, and infrastructure in recommended wilderness areas (RWA)

Plan Land Allocation	Geographic Area	Allotment, Primary Range, and Infrastructure
Tongue River Breaks RWA	Ashland	Alternative D W. O'Dell: a portion of allotment and primary range with 13.9 miles of fence and 11 water developments.
King Mountain RWA	Ashland	Alternative D King Creek: a portion of allotment and primary range with 6.5 miles of fence. Brian-Gooseberry: a portion of the allotment and primary range along with 5.3 miles of fence and six water developments.
Cook Mountain RWA	Ashland	Alternative D Ash Creek: a portion of allotment and primary range along with 1.5 miles of fence and 16 water developments. Deer Creek: a portion of allotment and primary range along with 1.8 miles of fence.
Big Pryor RWA	Pryor Mountains	Alternative D Bear Canyon: a portion of the allotment and primary range along with 2.3 miles of fence, 0.4 miles of pipeline and 6 water developments. Crooked Cr: a portion of allotment and primary range and 0.4 miles of fence. Sage Creek: a portion of the allotment and primary range along with 1.9 miles of fence and 2 water developments. Big Pryor: a portion of allotment and primary range along with 0.7 miles of fence, 0.3 miles of pipeline and 3 water development.
Punchbowl RWA	Pryor Mountains	Alternative D Dryhead: the entire allotment and primary range with no infrastructure. Wells: Almost entire allotment and primary range with 1.6 miles of fence. Sage Creek: a portion of allotment and primary range with 1.3 miles of fence. Crooked Creek: a portion of allotment and primary range, 2.0 miles of fence with three water developments.
Bear Canyon RWA	Pryor Mountains	Alternatives D and F Bear Canyon: a portion of allotment and primary range, along with 9 water developments and 3.4 miles of fence.
Lost Water Canyon RWA	Pryor Mountains	Alternatives B and C No Allotments or infrastructure Alternative D Crooked Cr: a portion of allotment and primary range along with 1.2 miles of fence and one water development. Alternative F Crooked Cr: a portion of allotment and primary range along with 0.3 miles of fence and one water development.

Chapter 3. Affected Environment and Environmental Consequences

Plan Land Allocation	Geographic Area	Allotment, Primary Range, and Infrastructure
Crazy Mountains RWA	Bridger, Bangtail, Crazy Mountains	<p>Alternative D Big Timber: a portion of allotment and primary range with no infrastructure. S. Fork American: a portion of allotment and primary range along with 0.5 miles of fence. Sunlight: the entire allotment and primary range along with 0.2 miles of fence. S. Fork of Shields: a portion of allotment and primary range with no infrastructure. Porcupine: a portion of allotment and primary range with no infrastructure. Horse Creek: a portion of allotment and primary range along with 0.9 miles of fence and two water developments. Little Cottonwood: a portion of allotment and primary range with no infrastructure. Rock Creek North: a portion of allotment and primary range with no infrastructure. Duck Creek: a portion of allotment and primary range with no infrastructure. Little Timber: a portion of allotment and primary range with no infrastructure. Swamp: a portion of allotment and primary range with no infrastructure. Crazy: a portion of allotment and primary range with no infrastructure. Kid Royal: a portion of allotment and primary range with no infrastructure. Shields River: a portion of allotment and primary range with no infrastructure.</p>
South Crazy Mountains RWA	Bridger, Bangtail, Crazy Mountains	<p>Alternative F Big Timber: a portion of allotment, no primary range with no infrastructure. Swamp: a portion of allotment and primary range with no infrastructure.</p>
West Bridger RWA	Bridger, Bangtail, Crazy Mountains	<p>Alternative D Mill Creek: a portion of the allotment and primary range with 1.9 mile of fence and one water developments. Reese On/Off: a portion of the allotment and primary range with 0.2 mile of fence. W Bridger: a portion of the allotment and primary range with 1.4 mile of fence. Pass Creek: a portion of allotment and primary range with no infrastructure. Pine Creek: a portion of allotment and primary range with no infrastructure.</p>
Blacktail Peak RWA	Bridger, Bangtail, Crazy Mountains	<p>Alternative D Blacktail: a portion of primary range in the RWA along with 0.8 miles of fence and one water development.</p>
Mystic RWA Republic RWA	Absaroka Beartooth Mountains	<p>Alternatives B and C No allotments or infrastructure</p>
Line Creek Plateau RWA	Absaroka Beartooth Mountains	<p>Alternative D Rock Creek: a portion of allotment and primary range, 0.2 miles of fence.</p>
Timberline RWA	Absaroka Beartooth Mountains	<p>Alternatives B, C and F No allotments or infrastructure</p>

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Plan Land Allocation	Geographic Area	Allotment, Primary Range, and Infrastructure
North Fork RWA Republic RWA Phelps Creek RWA W Woodbine RWA Mystic RWA Knowles Peak RWA Deckard Flats RWA	Absaroka Beartooth Mountains	Alternative D No allotments or infrastructure
West Fork Rock Creek RWA	Absaroka Beartooth Mountains	Alternative D Rock Creek: a portion of allotment and primary range and no infrastructure.
Red Lodge Creek RWA	Absaroka Beartooth Mountains	Alternative D Burnt Fork: a portion of allotment and primary range and 1.6 miles of fence. Hogan Cr: portion of allotment and primary range along with 1.1 mile of fence. Butcher Creek: a portion of allotment and primary range and 0.9 miles of fence. Red Lodge Creek: a portion of allotment and primary range and 0.8 miles of fence.
Dome Mountain RWA	Absaroka Beartooth Mountains	Alternative D Slip and Slide: almost entire allotment and primary range along with 8.8 miles fence and 5 water developments.
E. Rosebud to Stillwater RWA	Absaroka Beartooth Mountains	Alternative D East Fishtail Combined: a portion of allotment and primary range and 5.4 miles of fence. West Rosebud: a portion of allotment and primary range and 0.5 miles of fence. East Rosebud: a portion of allotment and primary range with no infrastructure.
Strawberry Creek RWA	Absaroka Beartooth Mountains	Alternative D Elbow: A portion of allotment but no primary range but includes 0.1 mile of fence and one water development.
Mount Rae RWA	Absaroka Beartooth Mountains	Alternative D Grouse Creek: a portion of allotment and primary range along with 0.2 miles of fence. Main Boulder: a portion of allotment and primary range along with 0.1 miles of fence. Contact: a portion of allotment and primary range along with 1.6 miles of fence and one water development.
Tie Creek RWA	Absaroka Beartooth Mountains	Alternative D Gaylor: a portion of allotment and primary range along with 0.7 miles of fence and one water development. Mission Creek: a portion of allotment and primary range along with 3.3 miles of fence and two water developments. Little Mission Creek: a portion of allotment and primary range along with 0.6 miles of fence.

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Plan Land Allocation	Geographic Area	Allotment, Primary Range, and Infrastructure
Deer Creek RWA	Absaroka Beartooth Mountains	<p>Alternative D Green Mountain: a portion of allotment and primary range with no infrastructure. Dry Fork: a portion of allotment and primary range with no infrastructure. Lodgepole: a portion of allotment and primary range along with 2.6 miles of fence, 0.1 miles of pipeline and five water developments. Pass Creek: a portion of allotment and primary range along with 2.2 miles of fence, 0.1 miles of pipeline and thirteen water developments. Picket Pin: a portion of allotment and primary range along with 1.4 miles of fence and three water developments. Bad Canyon: a portion of allotment and primary range along with 3.6 miles of fence and 13 water developments. Blind Bridger: a portion of allotment and primary range with no infrastructure. West Bridger: a portion of allotment and primary range along with 1.4 miles of fence. Deer Cr: a portion of allotment and primary range along with 1.1 miles of fence and three water developments. W. Fork Deer Creek: a portion of allotment and primary range along with 0.7 miles of fence and 12 water developments. Evergreen: a portion of allotment and primary range along with two water developments. Lost Cabin Creek: a portion of allotment and primary range with no infrastructure. Hubble: a portion of allotment and primary range along with 2.0 miles of fence and two water developments.</p>
Sheep Creek RWA	Absaroka Beartooth Mountains	<p>Alternative D Lost Creek: a portion of allotment and primary range with no infrastructure. Grouse Creek: a portion of allotment and primary range with no infrastructure. Nurses Lake: a portion of allotment and primary range and 0.6 miles of fence.</p>
Emigrant Peak RWA	Absaroka Beartooth Mountains	<p>Alternative D Sixmile South: a portion of allotment and primary range and 3.2 miles of fence. Sixmile North: almost entire allotment and primary range along with 0.8 miles fence, 0.7 miles of pipeline and 4 water developments.</p>
Chico Peak RWA	Absaroka Beartooth Mountains	<p>Alternative D Mill Creek: a portion of allotment and primary range with no infrastructure.</p>
Sawtooth Mountain RWA	Madison, Henrys Lake, Gallatin	<p>Alternative B Horse/Reeder Creek: a portion of the allotment and primary range along with 0.5 miles of fence. Tom Miner/Ramshorn: A portion of the allotment and primary range and no infrastructure. Lion Creek: a portion of the allotment and primary range and no infrastructure. Cottonwood: A portion of allotment and primary range and no infrastructure.</p> <p>Alternative F Horse/Reeder Creek: a portion of the allotment and primary range along with 0.5 miles of fence. Tom Miner/Ramshorn: A portion of the allotment and primary range and with no infrastructure. Lion Creek: a portion of the allotment and primary range and with no infrastructure. Cottonwood: A portion of allotment and primary range and with no infrastructure.</p>

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Plan Land Allocation	Geographic Area	Allotment, Primary Range, and Infrastructure
Gallatin Crest RWA	Madison, Henrys Lake, Gallatin	<p>Alternative B Tom Miner/Ramshorn: a portion of allotment and primary range, 0.2 miles of fence with one water development. Lewis Cr: a portion of allotment and no primary range or infrastructure. Big Creek: a portion of allotment and of primary range, 0.7 miles of pipeline and three water developments.</p> <p>Alternative F Tom Miner Ramshorn: a portion of allotment and primary range, 0.2 mi and one water development. and with no infrastructure. Lewis Cr: a portion of allotment, no primary range or infrastructure. Big Creek: a portion of allotment and primary range, 0.1 miles of fence, 0.7 miles of pipeline and three water developments. Horse/Reeder Creek: a portion of allotment with no primary range or infrastructure.</p>
Gallatin RWA	Madison, Henrys Lake, Gallatin	<p>Alternative C Big Creek: a portion of allotment and primary range with 0.7 miles of pipeline and three water developments. Horse/Reeder Creek: a portion of the allotment and primary range along with 3.6 miles of fence and two water developments. Lewis: a portion of allotment with no infrastructure. Lion Creek: the entire allotment and primary range and 1.7 miles of fence. Tom Miner/Ramshorn: a portion of allotment and primary range with 0.2 miles of fence and one water development. Wigwam: a portion of allotment with no infrastructure. Cottonwood: a portion of allotment and primary range with no infrastructure.</p> <p>Alternative D Horse/Reeder Creek: a portion of allotment and primary range with 3.9 miles of fence and two water developments. Lion Creek: the entire allotment and primary range and 1.4 miles of fence. Tom Miner/Ramshorn: a portion of allotment and primary range with 0.2 miles of fence and one water development. Big Creek: a portion of allotment and primary range with 0.3 miles of fence and one water development. Cottonwood: a portion of allotment and primary range with no infrastructure. Bear Canyon: a portion of allotment and primary range with no infrastructure. Big Bear: a portion of allotment but no primary range with no infrastructure. Storm Castle: a portion of allotment and primary range with no infrastructure. Pole Gulch: a portion of allotment with no infrastructure. Lewis: a portion of allotment with no infrastructure. North Dry Creek: a portion of allotment with no infrastructure. Eight Mile: a portion of allotment and primary range with no infrastructure. Fridley: a portion of allotment and primary range with no infrastructure. Trail Creek: a portion of allotment and primary range with no infrastructure. Wigwam: a portion of allotment and primary range with no infrastructure.</p>
Cowboy Heaven RWA	Madison, Henrys Lake, Gallatin	<p>Alternative C Red Knob North: a portion of the allotment and primary range with 7.1 miles of fence.</p> <p>Alternative D Red Knob North a portion of the allotment and primary range with 2.8 miles of fence.</p> <p>Alternative F Red Knob North a portion of the allotment and primary range with 7.0 miles of fence.</p>

Plan Land Allocation	Geographic Area	Allotment, Primary Range, and Infrastructure
Lionhead RWA	Madison, Henrys Lake, Gallatin	Alternative B There are no allotments or infrastructure. Alternative C There are no allotments or infrastructure. Alternative D Sheep Mile: a portion of the allotment and primary range along with 3.8 miles of fence. Watkins Creek: a portion of the allotment and primary range with no infrastructure.
Cabin Creek North RWA	Madison, Henrys Lake, Gallatin	Alternative D Sage Cr: a portion of the allotment and primary range along with 5.6 miles of fence.
Taylor Hilgard RWA	Madison, Henrys Lake, Gallatin	Alternatives B, C, D and F No allotments or infrastructure
Spanish Peaks South RWA Spanish Peaks East RWA Cabin Creek South RWA	Madison, Henrys Lake, Gallatin	Alternative D No allotments or infrastructure
Buck Creek RWA	Madison, Henrys Lake, Gallatin	Alternative D South Cinnamon: a portion of allotment and primary range along with 1.7 miles fence and one water development. North Cinnamon: a portion of allotment and primary range along with 1.2 miles fence.
Yankee Jim Lake RWA	Madison, Henrys Lake, Gallatin	Alternative D Wigwam: a portion of allotment and primary range along with 1.4 miles of fence and one water development. Green Lake: a portion of allotment and primary range along with 10 miles of fence and three water developments. Section 22: a portion of allotment and primary range, 1.7 miles of fence along with two water developments.

Table 22. Allotment (10 acres or more), primary rangeland, and infrastructure in backcountry areas (BCA)

Plan Land Allocation	Geographic Area	Allotment, Primary Range and Infrastructure
Chalk Buttes BCA	Sioux	Alternatives D and F Harkins: almost entire allotment and primary range along with 3.6 miles of fence and three water developments. North Trenk: allotment and some primary range along with 1.6 miles of fence and three water developments. East Trenk: almost entire allotment and primary range along with 3.2 miles of fence and three water developments. West Trenk: almost entire allotment and primary range along with 5 miles of fence and three water developments. Kortum: a portion of the allotment and primary range along with 1.2 miles of fence.
Tongue River Breaks BCA	Ashland	Alternatives B, C, and F West O'Dell: a portion of allotment and primary range along with 11 water developments and 13.9 miles of fence.

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Plan Land Allocation	Geographic Area	Allotment, Primary Range and Infrastructure
King Mountain BCA	Ashland	<p>Alternatives B and C, and F Brian-Gooseberry: a portion of allotment and primary range, along with 10 water developments and 5.2 miles of fence King Creek: a portion of allotment and primary range, along with 12 water developments, 4.4 miles of pipeline and 2.3 miles of fence. Padget Creek: a portion of allotment and primary range, along with 1 water development and 0.5 miles of fence. Red Bull: a portion of allotment and primary range and 0.1 miles of fence. Alternative D Padget Creek: a portion of allotment and primary range, along with 0.1 miles of fence</p>
Cook Mountain BCA	Ashland	<p>Alternatives B, C, and F Ash Cr: a portion of allotment and primary range, along with 16 water developments and 1.5 miles of fence. Deer Creek: a portion of allotment and primary range, 1.8 miles of fence.</p>
Big Pryor BCA	Pryor Mountains	<p>Alternatives B, C and F Bear Canyon: a portion of allotment and primary range, along with 7 water developments, 0.5 miles of pipeline and 2.3 miles of fence. Crooked Cr: a portion of allotment; no primary range and 0.4 miles fence. Sage Cr. a portion of the allotment and primary range with 1.9 miles of fence, 1 miles of pipeline and 10 water developments. Big Pryor: a portion of allotment and primary range with 0.4 miles of pipeline, 0.7 mile of fence and 10 water developments.</p>
Punchbowl BCA	Pryor Mountains	<p>Alternatives B, C, and F Dryhead: the entire allotment and primary range with 0.8 miles fence. Wells: allotment and primary range with 1 mile fence. Sage Creek: a portion of allotment and primary range with 0.2 miles fence. Crooked Creek: allotment and primary range, with no infrastructure.</p>
Bear Canyon BCA	Pryor Mountains	<p>Alternatives B and C Bear Canyon: a portion of allotment and primary range, along with 12 water developments and 3.7 miles of fence.</p>
Bad Canyon BCA	Absaroka Beartooth Mountains	<p>Alternatives B, C, and F Bad Canyon: a portion of primary range; 24 water developments; 9.5 miles of fence. Blind Bridger: a portion of allotment and primary, 1.9 miles of fence. Sheep Creek: a portion of primary range; 2.7 mile of fence and 7 water developments. Pass Creek: a portion of primary range; 3 water developments; 0.8 miles of fence. Lodgepole: a portion of primary range and primary range; 0.3 mile of fence.</p>

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Plan Land Allocation	Geographic Area	Allotment, Primary Range and Infrastructure
Crazy Mountains BCA	Bridger, Bangtail, Crazy Mountains	<p>Alternative C Big Timber: a portion of allotment and primary range no infrastructure. Otter Creek: a portion of allotment and primary range, no infrastructure. Basin: a portion of allotment and primary range, no infrastructure. Sweet Grass: a portion of allotment and primary range and 1.6 miles of fence. S. Fork American: a portion of allotment and primary range along with 0.8 miles of fence. Sunlight: the entire allotment and primary range along with 0.2 miles of fence. Shields River: a portion of allotment and primary range, no infrastructure. Bennett Cr: a portion of allotment and primary range, no infrastructure. S. Fork of Shields: a portion of allotment and primary range along with 2.4 miles of fence. Porcupine On/Off: a portion of allotment and primary range along with 0.5 miles of fence and two water developments. Porcupine: a portion of allotment and primary range along with 0.5 miles of fence and two water developments. Horse Creek: a portion of allotment and primary range along with 1 mile of fence and 2 water developments. Little Cottonwood: a portion of allotment and primary range along with 4.2 miles of fence and one water development. Middle Fork Rock Creek: a portion of allotment and primary range along with 6.2 miles of fence and one water development. Rock Creek North: a portion of allotment and primary range, and 0.4 miles of fence. Duck Creek: a portion of allotment and primary range, no infrastructure. Little Timber: a portion of allotment and primary range and 0.5 miles of fence. Kid Royal: a portion of allotment and primary range and 0.8 miles of fence. Swamp: a portion of allotment and primary range, no infrastructure. Crazy: a portion of allotment and primary range, no infrastructure.</p> <p>Alternative D Shields River: a portion of allotment and primary range, no infrastructure</p> <p>Alternative F Big Timber: a portion of allotment and primary range, no infrastructure. S. Fork American: a portion of allotment and primary range along with 0.8 miles of fence. Sunlight: the entire allotment and primary range along with 0.2 miles of fence. Crazy: a portion of allotment and primary range, no infrastructure. Shields River: a portion of allotment and primary range, no infrastructure</p>
West Bridger BCA	Bridger, Bangtail, Crazy Mountains	<p>Alternative C Mill Creek: a portion of allotment and primary range along with 0.2 miles of fence and one water development. Reese On/Off: a portion of allotment and primary range along with 0.2 miles of fence. West Bridger: the entire allotment and primary range along with 0.9 miles of fence.</p>
Blacktail Peak BCA	Bridger, Bangtail, Crazy Mountains	<p>Alternatives C and F Blacktail: a portion of allotment and primary range along with 0.8 miles of fence and one water development.</p>
Hyalite BCA	Madison, Henrys Lake, and Gallatin	<p>Alternative C Big Bear: a portion of allotment, no primary range, along with no infrastructure.</p>
Buffalo Horn BCA	Madison, Henrys Lake, and Gallatin	<p>Alternatives B, C, and F No allotments or infrastructure</p>

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Plan Land Allocation	Geographic Area	Allotment, Primary Range and Infrastructure
Buffalo Horn BCA	Madison, Henrys Lake, and Gallatin	<p>Alternative E</p> <p>Lewis: a portion of allotment with no infrastructure.</p> <p>Big Creek: a portion of allotment and primary range along with 0.7 miles fence and 0.7 miles of pipeline and four water developments.</p> <p>Eightmile: a portion of allotment and primary with no infrastructure.</p> <p>Fridley: a portion of allotment and primary with no infrastructure.</p> <p>Tom Miner/Ramshorn: a portion of allotment and primary range along with 0.2 miles fence and one water development.</p> <p>North Dry Creek: a portion of allotment with no infrastructure.</p> <p>Pole Gulch: a portion of allotment with no infrastructure.</p>
West Pine BCA	Madison, Henrys Lake, and Gallatin	<p>Alternatives C and F</p> <p>West Pine: entire allotment and primary range along with 1.1 miles fence and two water developments.</p> <p>Pole Gulch: a portion of allotment with no infrastructure.</p> <p>North Dry Creek: a portion of allotment and 1.2 miles of fence and 2 water development.</p> <p>Eightmile: portion of allotment and primary range, 3.4 miles of fence and 2 water development.</p>
Cowboy Heaven BCA	Madison, Henrys Lake, and Gallatin	<p>Alternative B</p> <p>Red Knob: Almost the entire allotment and primary range, along with 7.9 miles of fence.</p>
Lionhead BCA	Madison, Henrys Lake, and Gallatin	<p>Alternatives E and F</p> <p>Sheep Mile: a portion of the allotment and primary range along with 3.7 miles fence.</p>
South Cottonwood BCA	Madison, Henrys Lake, and Gallatin	<p>Alternative F</p> <p>Big Bear: a portion of allotment, no primary range, along with no infrastructure.</p>

Permittees that have allotments within portions of recommended wilderness and backcountry areas could potentially have increased administrative requirements that make it more difficult to operate as compared to alternatives with less recommended wilderness and backcountry area allocation. Alternative D has the most recommended wilderness and backcountry area acreage and has the most potential to change motorized transport for grazing permit administration. Therefore, alternative D could affect the most grazing permittees in terms of allotment access, operability, and management. Alternative D would not lead to a decrease in permitted animal unit months, but could create increased operating expense for some affected permittees in terms of added time to manage their allotment(s). Alternatives B, C, E, and F could also be potentially administratively restrictive for some permittees in recommended wilderness and backcountry areas, but less than alternative D. The current plans are least restrictive to allotment administration.

Many of the recommended wilderness and backcountry areas are also classified as inventoried roadless area where the setting is semi-remote and primitive, which would not result in substantial change in difficulty regarding travel or access as a result of these allocations, but would still result in a higher level of authorization scrutiny for motorized transport for allotment administration purposes. However, many of these areas are outside of inventoried roadless areas as well. In these areas not classified as roadless, there would be potential to affect allotment operations for permittees on 16 allotments under alternative B, 42 allotments under alternative C, 45 allotments under alternative D, no allotments under Alt E, and 30 allotments in alternative F by being subject to increased review for authorizing administrative motorized transport. Allotments with less than 10 acres are not included due to the small acreage involved and little to no infrastructure. This information is available in the project record.

Effects from Access Management

Travel planning has been completed on the Custer Gallatin National Forest, but travel plans are designed to adapt to changing conditions and adjust as needed in order to manage motorized transport in accordance with other resource needs. The impact to livestock grazing from recreation and travel management is mainly limited by the grazing permit holder's ability to use motor vehicles to access the allotment. Motorized transport to areas allocated for non-motorized settings can be authorized by line officers. These decisions are discretionary and are made on a case-by-case review of the proposal and circumstances. The intent of the non-motorized areas is not to prevent allotment management as some of the motorized transport needs include transportation of fence or water development materials, noxious weed control, and salt distribution. Under the revised plan alternatives, during particular times of the year, or with routes grown in with vegetation from the lack of use or maintenance, vehicle access may be more restrictive than what is available under the current plans.

Effects from Recreation Management

Recreation emphasis areas in all revised plan alternatives are areas that have existing high use by different types of recreationists. Locations are in the front country and accessible by roads. Recreation emphasis areas may have a high density of human activities and associated structures. There may be roads, utilities, and trails. Three of the six revised plan geographic areas have proposed recreation emphasis areas; none is proposed in the Pryor Mountains, Ashland, or Sioux Geographic Areas. Higher levels of summer recreation could create increased levels of potential conflicts with livestock grazing, and often may complicate livestock management and make it more expensive (for example, more gates may be left open and livestock inadvertently or purposely moved). Increased traffic on roads and trails

could make it more difficult to keep livestock in scheduled pastures as gates may be left open and cause livestock to stray. A management approach in the draft revised plan suggests educational messages to hunters on what to expect and how to interact with permittee activities on active allotments, such as closing gates and not shooting near livestock. With expected increases in visitation to easily accessible National Forest System lands, vehicle collisions with livestock on system roadways and vandalism to range improvement infrastructure are likely to increase. As displayed in table 23, plan components include recreation emphasis areas, which may have a high density of human activities and have the greatest potential for conflict with livestock operations under alternatives F, E, B, C and less so in alternative D. Allotments with less than 10 acres are not included due to the small acreage involved and little to no infrastructure. This information is available in the project record.

Table 23. Allotments (10 acres or more) within recreation emphasis areas by alternative

Recreation Emphasis Area	Geographic Area	Alternative B Allotments	Alternative C Allotments	Alternative D Allotments	Alternative E Allotments	Alternative F Allotments
Main Fork Rock Creek	Absaroka Beartooth	Rock Creek	Rock Creek	Rock Creek	Rock Creek	Rock Creek
West Fork Rock Creek	Absaroka Beartooth	None	None	None	None	None
Main Boulder River	Absaroka Beartooth	Green Mountain, Hawley	Green Mountain, Hawley	None	Green Mountain, Hawley	Green Mountain, Hawley
Cooke City Winter	Absaroka Beartooth	None	None	None	None	None
Yellowstone River	Absaroka Beartooth / Gallatin	Green Lake, Wigwam	Green Lake, Wigwam	Green Lake, Wigwam	Green Lake, Wigwam	Green Lake, Wigwam
Bridger	Bridger, Bangtail, Crazy	None	None	None	Brackett Creek, Pine Creek	Battleridge, Brackett Creek, Flathead South, Pine Creek, West Bridger
The M	Bridger, Bangtail, Crazy	None	None	None	None	None
Hyalite	Madison, Henrys Lake, Gallatin	None	None	None	None	None
Storm Castle	Madison, Henrys Lake, Gallatin	None	None	None	Big Bear, Storm Castle	Big Bear, Storm Castle
Gallatin River	Madison, Henrys Lake, Gallatin	Moose Creek, North Cinnamon, South Cinnamon, Sage Creek, Storm Castle	Moose Creek, North Cinnamon, South Cinnamon, Sage Creek, Storm Castle	Moose Creek, North Cinnamon, South Cinnamon, Sage Creek, Storm Castle	Moose Creek, North Cinnamon, South Cinnamon, Sage Creek, Storm Castle	Moose Creek, North Cinnamon, South Cinnamon, Sage Creek, Storm Castle
Hebgen Lakeshore	Madison, Henrys Lake, Gallatin	Moose, Watkins Creek, and South Fork	Watkins Creek, South Fork	None	Watkins Creek, and South Fork	Watkins Creek, and South Fork
Hebgen Winter	Madison, Henrys Lake, Gallatin	Watkins Creek	Watkins Creek	None	Watkins Creek	Watkins Creek
Number of Allotments	(not applicable)	13	12	8	16	19

Cumulative Effects

Adjacent Lands

Portions of the Custer Gallatin National Forest adjoin other national forests, each having its own land management plan. The Custer Gallatin National Forest is also intermixed with lands of other ownerships,

including private lands, other Federal lands, and State lands. Some of the geographic areas are island ranges and are typically surrounded by private, State, or Tribal lands.

Timber harvest, grazing, or conversion of rangeland or forests on adjacent lands would affect vegetation conditions at the landscape level, changing composition and structures, and could potentially affect the lands' capability to be grazed at current levels. Most National Forest rangelands, state (Montana and South Dakota) and Bureau of Land Management lands, should remain undeveloped and suitable for livestock grazing in the foreseeable future. Private lands surrounding the Custer Gallatin National Forest could potentially be affected by conversion to agricultural lands or residential development. Development of these private lands would affect wildlife connectivity and overall landscape function with National Forest System lands within the national forest. Future development of private lands adjacent to the national forest boundary could also affect the spread of invasive weeds, increase fire protection responsibilities and costs, as well as increasing the complexity of grazing livestock on the Custer Gallatin in some areas.

Some adjacent lands are subject to their own resource management plans. The national forest plans for National Forest System lands adjacent to the Custer Gallatin National Forest include the Helena-Lewis and Clark, Beaverhead-Deerlodge, Targhee, Shoshone. In general, management of vegetation is consistent across all national forests due to law, regulation, and policy. The cumulative effect would be that the management of vegetation and grazing would be complementary. This includes specific adjacent landscapes that cross national forest boundaries, such as the Henrys Lake Mountains, Bridger Mountains, Crazy Mountains, and the Absaroka Beartooth Mountains.

Bureau of Land Management lands adjacent to the Custer Gallatin National Forest are managed with Bureau of Land Management resource management plans by the Dillon, Butte, Billings, Miles City, and South Dakota field offices. The Miles City and Billings resource management plans were recently revised in 2015. These plans' components related to resilient terrestrial vegetation and livestock grazing are complementary to the plan components for the Custer Gallatin National Forest. Some Custer Gallatin National Forest grazing allotments contain Montana State lands and would also need to follow resource management plan direction for those parcels. The Yellowstone National Park 2014 Foundation Document calls for preserving natural vegetation, landscapes, and disturbance processes. Broadly, the terrestrial vegetation characteristics in this area are therefore likely similar to the wilderness areas in the adjacent Absaroka Beartooth and Madison, Gallatin, Henrys Geographic Areas and would complement these conditions.

The Montana State Parks and Recreation Strategic Plan 2015-2020 guides the management of State parks, some of which lie nearby or adjacent to National Forest System lands. Terrestrial vegetation is a component of these parks, although not always the primary feature. Specific vegetation conditions would not necessarily contribute to the desired conditions as described for the Custer Gallatin National Forest. Montana's State Wildlife Action Plan describes a variety of vegetation conditions related to habitat for specific wildlife species. This plan would likely result in the preservation of these habitats on state lands, specifically wildlife management areas. These plans also outline the sideboards on how domestic grazing leases on wildlife management areas will be managed. This plan would complement grazing management on Custer Gallatin National Forest lands.

The Interagency Bison Management Plan is a cooperative, multi-agency effort that guides the management of bison and brucellosis in and around Yellowstone National Park, including livestock considerations. The plan was developed by the National Park Service, Forest Service, Animal and Plant

Health Inspection Service, Montana Department of Livestock, and Montana Fish Wildlife & Parks. The Bison Plan has operated under an adaptive management framework since the record of decision was signed in 2000. Adjustments have been made to the framework numerous times. The Bison Plan partners created a formal adaptive management plan in December 2008 that incorporated changes made since the 2000 record of decision. Since then, the Interagency Bison Adaptive Management Plan has been considered a living document, updated annually or as appropriate. Revised plan components are consistent with the Interagency Bison Adaptive Management Plan (Interagency Bison Management Plan 2016).

Revised plan components are compatible with both the Sage-grouse Management Plan for South Dakota 2014-2018 (2014) and Montana Management Plan and Conservation Strategies for Sage-grouse (2005), which aim at achieving long-term sustained rangeland production that is beneficial to livestock production and maintenance of stage-steppe habitat for sage-grouse. Revised plan components are compatible with both the South Dakota Bighorn Sheep Management Plan 2018-2027 (2018) and the Montana Bighorn Sheep Conservation Strategy (Montana Fish Wildlife and Parks 2010), which aim to minimize disease transmission between bighorn sheep and domestic sheep and goats. Separation of domestic sheep and goats from wild sheep populations is recognized as the most important step in maintaining healthy bighorn sheep populations and assessing new areas for potential reintroductions.

Livestock Grazing Use

Livestock grazing, especially for cattle, is likely to be still desired by the local livestock industry within the Custer Gallatin National Forest for the foreseeable future. Cattle, domestic bison, and horses that graze the Custer Gallatin during the summer months are provided forage largely from private lands during late fall, winter, and early spring. Forage from private lands during this period is in the form of native grass pasture, irrigated pasture, irrigated and dry land hay, and fall crop residue. The availability of private lands in the surrounding area that can provide summer forage is somewhat limited. This demand for forage, especially during the months June through October, is greater than National Forest System lands can supply. Productive lands associated with the lands surrounding the Custer Gallatin are generally used for crops, including spring and winter wheat and along with other cereal grains. Demand for grazing on National Forest System lands should continue to be very high for livestock operators whose private lands are adjacent to the national forest.

Livestock management is generally considered more management intense on National Forest System lands than on private lands. Livestock grazing is influenced by effects that impact the allocation of forage resources between livestock and wildlife; predation and disease transmission; management adjustments to protect cultural and historical resources; fisheries; threatened and endangered species; water quality; considerations necessary due to wildland fire management, and recreation. All of these factors add to the complexity and expense for the ranching operations that are permitted to graze livestock on the national forest (Rimbey and Torell 2011). In addition, the business of livestock management is subject to factors most often not under the control of livestock operators, such as tourism; land values and potential subdivision of ranches; labor prices and availability; domestic and foreign demand for livestock products; markets and meat prices; fuel prices; social values; and Federal policy.

Increasing Human Population

It is expected that recreational uses on National Forest System lands will continue to increase as more people nationwide continue to look for places to recreate. As more people venture onto public lands,

differing societal desires and ideas of what public lands should provide will continue to influence public land management policy. Increased attention and public recreation on grazing allotments in the future may make operating on National Forest System lands more expensive for permittees.

Conclusion

The plan objective of providing up to 219,293 animal unit months would be the same in the current plans and in alternatives B and C. To be clear, this is the number of animal unit months currently permitted under term, term on/off - on provision, livestock use permits, and term private land permits (213,652) plus as all vacant allotment capacity would allow at some future point (5,641). The plan objective of 213,652 animal unit months in alternatives D and E is the number of animal unit months currently permitted. Vacant allotments may not be reactivated due to other resource purposes in alternative D and due to projected lower budgets for allotment and permit administration in alternative E. The plan objective of up to 217,221 animal unit months in alternative F is the number of animal unit months currently permitted (213,652) plus as vacant capacity would allow on eleven vacant allotments (3,569 animal unit months). The remaining 8 vacant allotments would be considered for future closure for resource considerations through site specific environmental analysis, with cumulative effects analyzed at the national forest scale.

Under all alternatives, the permitted use of the existing active grazing allotments would continue. However, these animal unit month levels may be modified as site-specific allotment changes are needed. Based on current rangeland and riparian conditions and the need to revise or review allotment management plans, changes in the amount of permitted animal unit months are difficult to predict. Project-level analysis and allotment-specific monitoring will determine site-specific prescriptions, future stocking rates and other management adjustments to meet desired conditions under all alternatives. Permitted animal unit months over the long-term could possibly decrease under all alternatives due to more intensive management of riparian areas and habitats for threatened, endangered, or at-risk species.

Desired conditions for livestock grazing emphasize sustainable grazing, stable soils, diverse vegetation and native plant communities, as well as riparian and wetland health. Movement toward these conditions would be achieved through implementation of the standards and guidelines for grazing and the other resource areas (see terrestrial vegetation section for projected effects to vegetation). Necessary changes to meet desired conditions would be implemented at the allotment management plan and project level. Grazing standards and guidelines generally would affect how allotment planning is implemented. The plan components developed for the revised plan are designed to protect upland, riparian, and wetland resources, manage noxious weeds, and maintain levels of forage within capacity of the land and in consideration of other resources.

With the incorporation of revised plan alternative components livestock management in riparian areas may become more intensive under the revised plan alternatives than the current plans. Stubble height guidelines may place limitations on grazing, but would help provide for better vegetation and streambank conditions. Trailing livestock to other pastures would need to be done outside of riparian management zones, and new permanent livestock handling facilities would need to be placed outside of riparian management zones, unless it can be demonstrated that these facilities or handling activities will not affect 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. Salting and new allotment infrastructure would be located to reduce livestock attraction and impacts in riparian management zones and other special habitats.

Invasive weeds will continue to be one of the biggest threats to desired rangeland condition under all alternatives as these ecosystems are typically vulnerable to weed infestations. All alternatives have tools under the existing weed analysis decisions to effectively manage noxious weeds in a manner that should preserve forage production and permitted grazing use within allotments. The revised plan alternatives include plan components that are more proactive in adapting to new findings and technology in weed science and management, and should have a greater impact in slowing the spread of invasive species, which benefits herbaceous vegetation and, ultimately, livestock grazing in the future. However, the objectives for treatment under alternative E are substantially reduced to one eighth to one quarter of recent average treatments due to budget offsets that would go to other resources being emphasized under that alternative. As such, alternative E would not likely preserve forage production and other related habitat quality.

All alternatives can implement vegetation treatments, such as timber harvest, prescribed fire, and to allow wildfire to provide resource benefits where feasible. Vegetation should move towards a desired mix of conditions from these treatments and thus provide a secondary benefit of improving forage conditions and transitory range in the future.

All revised plan alternatives provide plan components for conflict resolution between livestock and grizzly bear, bison, bighorn sheep, greater sage-grouse, and other wildlife. Alternatives B, C, D, and favor bison and alternative E favors livestock in case of conflicts. In consideration of reducing risk of disease transmission to bighorn sheep, alternatives A (current plans) and E allow for sheep or goat permit authorization in all geographic areas with appropriate site-specific risk of contact assessment. Under alternatives B and C, no sheep or goat permits would be authorized in the Madison, Henrys Lake, and Gallatin; Absaroka Beartooth; or Pryor Mountains geographic areas, but permits could be authorized in the other geographic areas with an appropriate site-specific risk assessment. Under alternative D, sheep or goat permits would not be authorized forestwide. Under alternative F, no sheep or goat permits would be authorized in the Madison, Henrys Lake, and Gallatin Mountains; Absaroka Beartooth Mountains; Bridger, Bangtails, Crazy Mountains; or Pryor Mountains Geographic Areas, but permits could be authorized in the other geographic areas with an appropriate site-specific risk assessment.

Increased recreational uses of National Forest System lands within the Custer Gallatin would most likely make grazing on the national forest more expensive for permittees under any alternative due to potential vandalism to allotment infrastructure and gates being left open. Plan components include recreation emphasis areas, which may have a high density of human activities and has the most potential for conflict with livestock operations under alternatives B, C, E, and F and less so in alternative D.

Motorized transport for allotment administration can continue for maintenance of existing allotment infrastructure in allotments within recommended wilderness and backcountry areas, but administrative motorized transport on new allotment infrastructure would be subject to increased review for use of motorized transport and equipment needed for maintenance. Plan land allocation and higher scrutiny for motorized transport for allotment administration could affect cost and labor of allotment operations and infrastructure maintenance to permittees. Table 24 summarizes the number of allotments potentially affected by plan land allocations by alternative.

Table 24. Number of allotments (10 acres or more) potentially affected by recommended wilderness and backcountry area allocations by alternative

Plan Land Allocation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Recommended Wilderness Areas	0	6	8	82	0	11
Backcountry Areas	0	19	47	7	8	35
Total	0	25	55	89	8	46

Permittees that have allotments within portions of recommended wilderness or backcountry areas, could potentially have increased administrative terms and conditions that make it more difficult to operate as compared to alternatives with less recommended wilderness and backcountry area allocation. Alternative D has the most recommended wilderness and backcountry area overlap with allotments and has the most potential to change motorized transport for grazing permit administration. Therefore, alternative D could affect the most allotments (89) in terms of allotment access, operability, and management. Alternative D would not lead to a decrease in permitted animal unit months, but could create increased labor and operating expense for some affected permittees in terms of added time to manage their allotment(s). Alternatives B, C, E, and F could also be potentially administratively restrictive for 25, 55, 8, and 46 allotments, respectively, in recommended wilderness or backcountry areas, but less than alternative D. The current plans are the least restrictive to allotment administration.

3.15 Timber

3.15.1 Introduction

The Custer Gallatin National Forest has a long history of supplying timber products for local uses. The harvest of trees from these forests provided wood materials for a variety of uses such as, fuelwood, sawlogs, house logs, posts and poles, and fencing materials. Timber harvest may be used to supply timber products as well as move vegetation towards desired conditions and meet other resource objectives such as improving watershed condition, improving wildlife habitat, and reducing wildfire risk. As such, a viable forest industry helps provide capacity to undertake forest restoration activities that require a trained workforce and mills to process resulting wood products (Smith and Cluck 2011). Timber harvest also provides jobs and income in logging and manufacturing of wood products. This section focuses on the effects of plan direction on timber suitability, timber supply, contribution of timber to economies, and timber harvest. The effects of timber harvest on ecological elements such as vegetation and wildlife are primarily assessed in other areas including the terrestrial vegetation and wildlife sections.

Regulatory Framework

Organic Administration Act of 1897: established “to improve and protect the Forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States.”

Multiple-Use Sustained-Yield Act of 1960: “It is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed and wildlife, and fish purposes. The Secretary of Agriculture is authorized and directed to develop and administer the renewable surface resources of the national forests for multiple use and sustained yield of the several

products and services obtained therefrom. . . ‘Sustained yield of the several products and services’ means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.”

Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976: set forth the requirements for land and resource management plans for national forests.

2012 Planning Rule (36 CFR 219): require the identification of areas suitable for timber production and of the amount of timber that can be removed annually on a sustained-yield basis. In addition, the procedures require an analysis of the supply and demand situation for resource commodities.

Forest Service Handbook 1909.12 chap. 60: describes the procedures for identification of lands as not suitable and suitable for timber production and methods for determining the sustained-yield limit, the projected wood sale quantity, and the projected timber sale quantity.

Key Indicators and Measures

- Timber Suitability (acres)
 - lands suitable for timber production
 - lands unsuitable for timber production where harvest may occur for purposes other than timber production
- Timber supply (million board feet, mmbf, and million cubic feet, mmcf)
 - projected timber sale quantity
 - projected wood sale quantity
 - sustained yield limit
- Timber harvest
 - Area harvested by decade (acres)

Methodology and Analysis Process

Timber production is defined as the growing, tending, harvesting, and regenerating of trees to produce logs or other products for industrial or consumer use. Lands determined to be suitable for timber production are areas identified as capable of producing a regular, periodic output of timber, maintained in perpetuity, without impairment of the productivity of the land or inconsistency with other land management direction. Criteria for determining timber suitability of lands are defined in the 2012 Planning Rule procedures at 36 CFR 219.11 and Forest Service Handbook 1909.12, chapter 60. The analysis for timber suitability was performed using existing GIS data to apply these criteria as detailed in appendix B.

Timber harvest outputs (projected volumes and treatment acres) were modeled using the linear optimization model, PRISM (Nguyen 2018). The assumptions and input data associated with model are detailed in appendix B and summarized here.

In the PRISM model, a mix of vegetation management activities are selected over time by considering the multiple resource objectives of each alternative coupled with plan land allocations, land suitability, budget limitations, and other resource limitations on treatments (such as plan components associated with riparian management zones or wildlife considerations). For each alternative, the PRISM model was run with a set of objectives and constraints that was in keeping with the theme of each alternative. The following summarizes key differences in PRISM model assumptions across alternatives:

- For all alternatives, the primary objective of harvest was to trend vegetation conditions towards the desired conditions.
- For all alternatives, the model was constrained by the minimum amount of saw timber volume to be produced based on objectives for each alternative (details below). The range of timber volumes was selected to reflect a reasonable range of outputs and vegetation management objectives and was based primarily on anticipated capacity given reasonably foreseeable budgets. Timber volumes were used as a minimum constraint; the model was able to schedule higher volumes if doing so would accelerate the rate of achieving the desired vegetation conditions.
- In a similar manner, the minimum number of acres to be treated (such as, by prescribed fire, timber harvest, or fuels treatments) was also used as a constraint based on the objectives and theme of the alternatives. The model was able to schedule treatments on more acres if doing so would accelerate the rate of achieving the desired vegetation conditions.
- For the current plans and alternatives B, C, D, and F the vegetation management budget was assumed to be comparable to fiscal years 2012 to 2015. For alternative E, the budget for vegetation management was assumed to increase by approximately 33 percent relative to current plans and alternatives B, C, D, and F. All PRISM model runs assumed a non-declining flow in timber volume outputs. Models were projected 150 years to ensure long-term sustainability but only the first 50 years was analyzed.
- All alternatives assume a doubling in acres burned by wildfire per decade relative to the period from 1986 to 2015. Appendix B provides further information on the scientific basis for this assumption. Notably, a doubling of acres burned relative to this thirty-year time period represents only a modest increase from acres burned in the most recent decade for which data were available (2006 to 2016).

Harvest prescriptions are generalized for this broad scale analysis. During implementation of the revised plan under any alternative, site-specific prescriptions and silvicultural practices would be tailored to the national forest stand to be treated. Further, site-specific mitigations and best management practices, such as those that apply in riparian management zones, would apply as described in the plan.

Although vegetation desired conditions are not quantified in the existing forest plans, in practice the Custer Gallatin National Forest would be managed in the spirit of these desired conditions under the current plans (for example, timber harvest would be used as a tool to achieve ecological integrity and resilience). As such, the desired conditions were used in the PRISM as the primary objective of timber harvest in all alternatives and the mix of treatments and volume estimates presented below reflect this management objective.

Information Sources

The affected environment was described using Forest Service cut and sold reports from the Timber Sale Accountability database and treatment records in the Forest Activity Tracking System database.

Vegetation plot data and a variety of geospatial data such as soil and vegetation mapping were used to determine the lands that may be suitable for timber production (appendix B). Yield tables were developed using forest inventory and analysis plot data in combination with the Forest Vegetation Simulator (Dixon 2008). This information was used in the PRISM model to estimate acres treated by treatment type and volume outputs associated with moving vegetation towards desired conditions, as described in appendix B. The actual timber harvest level that would occur during implementation of the plan is dependent on many variables, including budgets and the demand for products.

Analysis Area

The analysis area for timber suitability, timber supply, and timber harvest is comprised of the National Forest System lands administered by the Custer Gallatin National Forest. The temporal scope of the analysis is the anticipated life of the plan.

The analysis area for the contribution of timber to economies consists of a multi-county region depicted in the benefits to people, economic analysis area of influence. This area includes a total of 52 counties that stretch into five states. Within this economic area of influence exist all of the national forest industry and wood products manufactures that historically have purchased timber sales and processed timber from the Custer Gallatin National Forest.

Notable Changes between the Draft and Final Environmental Impact Statements

The analysis of lands suitable for timber production was updated to reflect larger RMZs for Category 2 streams. FW-OBJ-TIM-03 from draft plan was deleted and intent was captured in FW-OBJ-VEGF-01 of final plan. Analysis and modeling was updated to reflect these changes and include analysis of Alternative F.

3.15.2 Affected Environment (Existing Condition)

Use and development of natural resources on the Custer Gallatin National Forest and surrounding lands played an essential role in the economy and growth of the area since the turn of the century. Mining for gold and other minerals boomed in the late 1800s, and associated tree cutting on both national forests occurred for fuelwood, mine timbers, and railways was extensive. During the time period of approximately 1920-1950, timber harvest took place on the Sioux and Ashland Districts of the Custer National Forest primarily to supply railroad ties for the building of railroads and a considerable number of accessible drainages and draws contained a small sawmill.

In addition to information below, see the Final Timber Assessment Report (Thornburgh 2017) for more detail on the affected environment relative to timber production and harvest.

Timber Suitability

The 1986 Custer Forest Plan estimates that 239,231 acres or about 20 percent of the total forest acres as tentatively suitable for timber production, and the Gallatin Forest Plan estimates that approximately 440,000 acres or about 23 percent of the total forest acres as tentatively suitable for timber production. Suitable lands recorded in the current database for the combined Custer Gallatin National Forest show approximately 680,110 acres as may be suitable for timber production (table 25).

Table 25. Summary of lands that may be suitable for timber production under current plans

Land Classification Category	Acres
A. Total National Forest lands in the plan area	3,045,965
B. Lands not suited for timber production due to legal or technical reasons	2,365,855
C. Lands that may be suited for timber production (A minus B)	680,110
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan	664,628
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C minus D)	15,482
F. Total lands not suited for timber production (B plus E)	2,381,337

A total of 664,628 acres or approximately 22 percent of the forested acres are suitable for timber production under the current forest plans (table 26). The approximately 15,000 acres difference between may be suitable designations is primarily due to the removal lands designated as Eligible Wild and Scenic Rivers and Special Areas.

Table 26. Summary of lands currently suitable of for timber production

Geographic Area	Total National Forest System Acres	Suitable Acres	Percentage of Geographic Area
Sioux	164,460	65,959	40%
Ashland	436,134	196,127	45%
Pryor Mountains	75,067	32,888	44%
Absaroka Beartooth Mountains	1,358,541	98,637	7%
Bridger, Bangtail, Crazy Mountains	205,148	59,203	29%
Madison, Henrys Lake, Gallatin Mountains	806,615	211,814	26%
Custer Gallatin National Forest	3,045,965	664,628	22%

Timber Supply

Forest growth rates directly influence potential timber production over time. Site productivity is generally considered to be fixed based upon site attributes such as topography, soil type, and climate. On the Custer Gallatin National Forest, based on current forest plans, site productivity in terms of tree growth is estimated to be between 20 and 119 cubic feet per acre per year on suitable lands with average rotation ages ranging from 90 to 120 years, depending on the species and site.

The current 1986 Custer Forest Plan estimated the long-term sustained yield capacity (LTSYC) to be 6.4 million board feet (MMBF) per average annual year and the Gallatin Forest Plan estimated the long-term sustained yield capacity to be 27.0 MMBF per average annual year. Current long-term sustained yield capacity assumes that suitable timber lands are maximized for timber production.

The Periodic Timber Sale Accomplishment Reports (PTSAR) provide summaries of the timber products sold each year since 1980, in thousand board feet (MBF). Figure 12 displays the total volume of timber products sold on each national forest from 1980 to 2015. "Timber products" include sawtimber, pulp, poles, posts, and nonsaw material. The largest combined volumes sold occurred in 1980 at over 30 million board feet. Beginning in the early 1990s, combined volume sold began a general downward trend, with pulses ranging from less than 1 MMBF to approximately 19 MMBF per year. Volume from the

Gallatin National Forest has sharply declined from the 1980s and volume from the Custer National Forest has remained relatively stable with periods of no volume sold followed by periods of volume exceeding the yearly allowable sale quantity throughout the forest plan period.

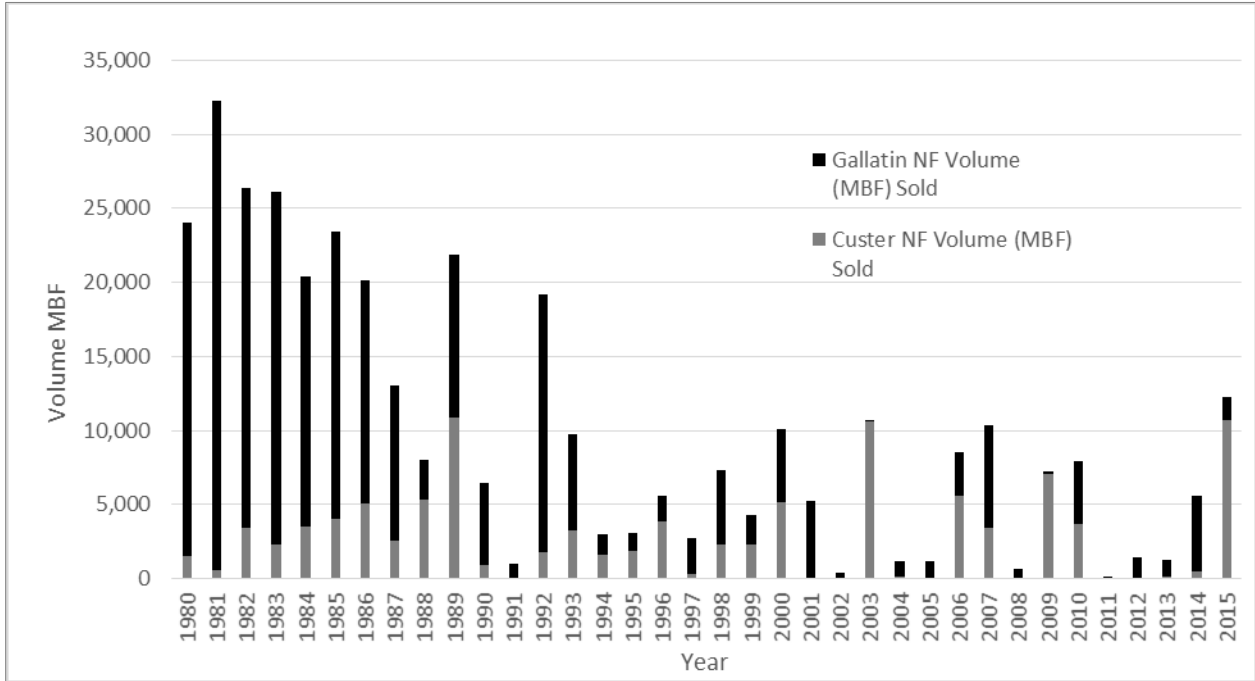


Figure 12. Total volume sold by national forest, 1987–2015 (excluding fuelwood)

Sawtimber encompasses the major portion of volume over the span of the current forest plan. Starting in 2004, nonsaw material became a component of wood products sold on the Custer Gallatin National Forest. Much of the nonsaw materials sold on both national forests is made up of fire-killed trees from wildfires and mountain pine beetle-killed trees. Post and pole materials have been a small and minor component of volume sold on the national forests. Sales of post and pole materials have gone down since the early 1980s and is currently a very small component of volume sold on the Custer Gallatin National Forest.

Figure 13 displays the proportional sawtimber volume sold by tree species on the Custer Gallatin National Forest from 1980 to 2015. The primary species utilized for sawtimber on the Custer Gallatin National Forest is lodgepole pine (36 percent). For multiple reporting years a substantial amount of volume was categorized as “combined softwood”; this is a combination of Engelmann spruce, subalpine fir, or any combination of the tree species displayed in figure 13. Lodgepole pine and ponderosa pine combined accounted for about 62 percent of the volume sold and are valuable for manufacturing a variety of wood products that consumers use. Douglas-fir is the third most prevalent sawtimber species sold (10 percent).

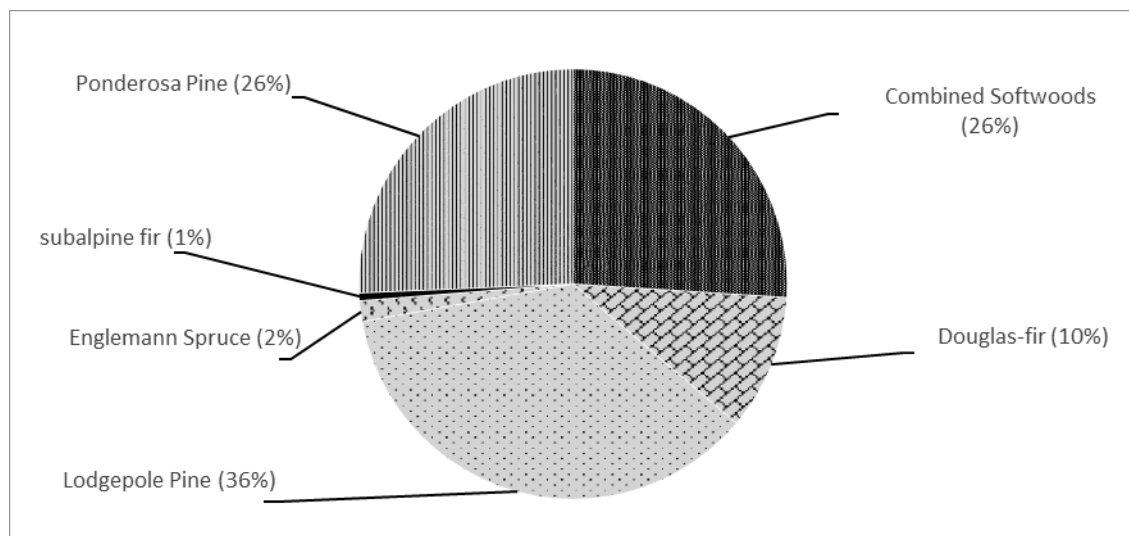


Figure 13. Sawtimber volume sold by species on the Custer Gallatin National Forest, 1980-2015

This mix of saw timber eventually supplies several manufacturing firms located within a limited range of the Custer Gallatin National Forest. Timber harvest contributes to a small, but historic, economic sector in this part of Montana. For more information on the contributions of timber harvests to the economy, see section general contributions to society and economic sustainability.

Regionally, demand for sawlogs remains stable after a modest uptick in demand and then flattening out following the recession of 2007-2009. Employment in the Montana forest sector regained 700 jobs between 2010 and 2017, with an estimated 7,732 jobs statewide in 2017, but industry employment remained down from an estimated 10,000 jobs in 2004. Similarly, in 2004 primary sales were over \$1.5 billion, and more recently Montana forest industry gross sales have leveled out below \$600 million; (\$569 million in 2017). This downshift largely reflects permanent closures and loss of invested capital and infrastructure including the state’s only pulp mill in 2010 (Morgan 2019).

Today there remain approximately 80 primary forest product firms operating in Montana. Most are small and nearly all are directly dependent on timber from public lands. Collectively, these 80 firms have a vastly shrunken capacity from Montana’s historic industry levels. Montana’s total timber capacity and harvest levels have consistently trended down since 1990. Capacity to harvest ratio is relatively high, which has improved competitiveness of sawlog prices and helped ensure successful timber sales across Montana. This suggests that when mills have more unused capacity, they are more motivated to bid on sales in order to procure enough raw materials to increase product output and revenue. Higher capacity to harvest ratios also suggest the industry could scale up production in the short-term to meet increased national lumber demand if enough timber supply is available. However, when firms experience a long period of low-capacity utilization levels, there is an increased risk of permanent closure. Permanent mill closures effectively reduce competition for timber inputs and could make it more difficult to sell timber from all ownerships including the Custer Gallatin National Forest.

Timber Harvest

Timber harvest is a tool used not only to provide timber products and contribute to the local economy, but also to achieve multiple resource objectives. These include reducing insect or disease impacts, improving wildlife habitat, increasing tree growth, improving timber productivity, lowering fuels and fire

risk, and altering vegetation conditions to enhance forest resilience. Three main types of timber harvest are displayed: even-aged regeneration harvest (such as clearcutting, shelterwood, and seed-tree cuts); uneven-aged regeneration harvest (such as group selection and single-tree selection); and intermediate harvest (such as commercial thins and improvement cutting). Table 27 displays the harvest activities by harvest type and geographic location from the 1940s to 2015. Harvest activities have occurred on approximately 7 percent of the non-wilderness land base on the Custer Gallatin National Forest.

Table 27. Custer Gallatin National Forest harvest acres by harvest type and geographic location since 1940

Geographic Area	Regeneration Harvest	Uneven-aged Harvest	Intermediate Harvest	Total Harvest Acres
Sioux	4,932	2,515	9,556	17,003
Ashland	1,978	2,465	6,035	10,478
Pryor Mountains	625	0	276	901
Absaroka Beartooth Mountains	8,905	477	4,409	13,791
Bridger, Bangtail, Crazy Mountains	20,483	1,372	2,846	24,701
Madison, Henrys Lake, Gallatin Mountains	60,212	6,666	20,950	87,828
Total	97,329	13,495	44,679	155,503

Table 28 displays the trend of harvest type by decade across the Custer Gallatin National Forest. The greatest amount of harvest occurred in the 1960s and 1980s; more than 37,000 acres were harvested in each of these periods. Regeneration harvests were the most common, representing more than 65 percent of harvest type prior to 2010. There has been a proportional shift to more intermediate harvests recently, trending toward 40 percent in the 1980s and 1990s, and 70 percent since the 2000s. Regeneration harvests, removing dead trees, since 2000 have been largely related to post-fire and insect salvage. Total harvest acres have declined sharply since the 1990s.

Table 28. Harvest acres by type and decade for the Custer Gallatin National Forest, 1940-2015

Year Decade	Acres of Regeneration Harvest	Acres of Uneven-aged Harvest	Acres of Intermediate Harvest	Totals
1940–1949	193	1,260	0	1,453
1950–1959	7,327	3,041	265	10,633
1960–1969	31,490	1,973	3,856	37,319
1970–1979	18,328	3,396	3,065	24,789
1980–1989	19,787	2,714	14,888	37,389
1990–1999	16,554	665	12,165	29,384
2000–2009	3,650	212	5,794	9,656
2010–2015	0	234	4,646	4,880
Totals	97,329	13,495	44,679	155,053

Economic conditions and changing timber market values are partially responsible for the lows and highs in timber harvest levels; insect and disease epidemics and wildfires are ecological factors that also influence harvest levels and trends. Salvage of fire-killed trees on the Custer Gallatin National Forest

following stand-replacement fires in the late 1980s and early 2000s increased the regeneration harvest levels during that time.

3.15.3 Environmental Consequences

Current Plans

Management Direction under the Current Plans

The current forest plans provide extensive direction on timber management. Plan direction ensures that timber harvest is conducted within law and policy and is sustainable over time. Plan direction includes limitations on timber harvest required by law, primarily the National Forest Management Act, such as assurance of restocking. Under the current plans, even-aged harvest is limited to a 40-acre maximum opening.

Custer Forest Plan goals and objectives for timberland management are to harvest timber within the sustained-yield capability to help maintain timber dependent communities; maintain forest health, vigor and productivity; provide vegetative diversity for wildlife; eliminate tree encroachment on selected livestock grazing areas; salvage dead timber; control insects and disease; reduce natural fuel loading; and provide for scenic openings. The plan regulates timber harvest activities such as silviculture systems, timber stand improvement and reforestation, and opening size.

Gallatin Forest Plan goals and objectives for timberland management are to: provide a sustained yield of timber products and improve the productivity of timber growing lands; salvage dead timber; harvest in areas with insects; distribute vegetation management activities over the entire suitable timber base; and experiment with new techniques in certain areas. The plan regulates timber harvest activities such as silviculture systems, site preparation and debris disposal, tree improvement and regeneration, opening size, and number of snags.

Timber harvest plan direction under the current plans are not designed to move the Custer Gallatin National Forest towards desired vegetation conditions. However, in practice, the current plans are being implemented to achieve desired conditions.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Like the current plans, the revised plan alternatives provide extensive direction to ensure timber management complies with law and policy and is sustainable over time.

All revised plan alternatives contain the same plan components for timber and other forest products. Table 29 summarizes the expected effects of these plan components. Plan components in all alternatives are consistent with the 2012 Planning Rule and the National Forest Management Act. All alternatives include provisions for sustainable levels of forest products (FW-STD-TIM-07), assurance of restocking (FW-STD-TIM-10), direction on where harvest for purposes of timber production may occur (FW-STD-TIM-01, FW-GDL-TIM-03), where harvest should not occur due to resource concerns (soil, riparian areas, wildlife, etc.) (FW-STD-TIM-02), direction on salvage (FW-GDL-TIM-01, FW-GDL-TIM-02) and requirements for even-aged harvest including maximum opening size (FW-STD-TIM-08, FW-STD-TIM-06, FW-STD-TIM-04).

Vegetation desired conditions provide a framework to guide the design and objectives of harvest activities. As described below, plan components related to suitability of designated areas as well as standards and guidelines related to resource areas, such as recreation, wildlife, or scenic integrity, will affect design of harvest activities. Finally, the revised plan alternatives specify an exception to the 40-acre maximum opening size created by even-aged harvest. Based on an analysis of the natural range of variability, FW-STD-TIM-08 sets the maximum opening size at 75 acres. Compared to the current plans, this direction is designed to be more consistent with the natural range of variation for early successional forest. See appendix B for additional detail on the natural range of variation analysis for maximum opening size.

Table 29. Plan components for timber (TIM) and other forest products (OFF) – all revised plan alternatives

Plan Component(s)	Summary of expected effects
FW-TIM-DC-01 FW-TIM-DC-02 FW-TIM-DC-03 FW-TIM-DC-04	The suite of timber desired conditions are expected to encourage the use of timber harvest to maintain the resilience of lands suitable for timber production and minimize economic losses, contribute to the economic sustainability of local communities, respond to market demand and achieve desired vegetation conditions. This would result in a regular timber harvest program which would in turn contribute to providing the coarse filter of desired vegetation conditions on the landscape.
FW-TIM-OBJ-01 FW-TIM-OBJ-02	These objectives vary across alternatives and would help ensure that a regular timber harvest program is conducted to meet the FW-TIM-DCs. In meeting these objectives, timber harvest would also contribute to moving vegetation towards desired conditions (FW-OBJ-VEGF-01). The plan objectives are based on a reasonably foreseeable budget. However, it is recognized that there is potential for a higher or lower level of timber production depending on future budgets.
FW-TIM-STD-01 FW-TIM-STD-02 FW-TIM-STD-10	FW-TIM-STD-01 ensures that harvest for purposes of timber production shall occur only on those lands classified as suitable for timber production. FW-TIM-STD-02 ensures that harvest would not irreversibly damage soil or watershed conditions. FW-TIM-STD-10 ensures that reforestation as appropriate would occur within 5 years after final regeneration harvest, based on a silvicultural prescription. These standards may result in project-level field reviews determining that some stands are not suitable for regularly scheduled timber harvest but are not expected to materially change the volume projections displayed in FW-TIM-OBJ-01 and 02.
FW-TIM-STD-03	This standard ensures that harvest treatments are not selected based solely on economic return; this would allow that all resources and the purpose and need of the project are also considered.
FW-TIM-STD-04	This standard would ensure that clearcutting is only used when it is the best method to achieve plan objectives or for achieving desired conditions for vegetation, wildlife habitat, scenery, and other resources
FW-TIM-STD-05	This standard would ensure that timber harvests are consistent with the desired scenic conditions of the landscape.
FW-TIM-STD-06	This standard would help ensure that volume production is maximized on the landscape, by not allowing for regeneration harvest to occur prior to the culmination of growth except in specific circumstances.
FW-TIM-STD-07	This standard would ensure that the average volume sold per year in a given decade does not exceed the sustained yield limit, thereby ensuring that the timber harvest program is sustainable.
FW-TIM-STD-08 FW-TIM-STD-09	FW-TIM-STD-08 limits the maximum size allowed for regeneration harvests to ensure harvests do not create unnaturally large patches that are inconsistent with other resource needs. The maximum allowed size is 75 acres. Exceptions to this size requires public review and regional forester approval. FW-TIM-STD-09 ensures that the patch size limitation is not applied to stand-replacing disturbance events.
FW-TIM-GDL-01 FW-TIM-GDL-02	These guidelines ensure that salvage harvest after wildfire retain ecological components that contribute to ecosystem diversity and wildlife habitat.

Plan Component(s)	Summary of expected effects
FW-TIM-GLD-03	This guideline would result in harvests on lands unsuitable for timber production are only conducted for certain purposes.

In addition to the timber plan components summarized in table 29, there are numerous other plan components that will affect the design and timing of timber harvest operations. For example, forested vegetation desired conditions provide a framework to guide the design and objectives of harvest activities (FW-DC-VEGF-01-09). Plan components related to suitability of designated areas will also affect design of harvest activities. For example, in areas that are not suitable for timber production but are suitable for vegetation management, any timber harvest must be designed to achieve multiple use objectives and not for the purposes of timber production (FW-SUIT-RECDEV-01, FW-SUIT-RECORGCAMP-01, FW-SUIT-DWSR-01, FW-SUIT-IRA-01, FW-SUIT-RNA-01, FW-SUIT-NNL-01, FW-SUIT-EWSR-01, FW-SUIT-BCA-01, PR-SUIT-WHT-01).

All Alternatives

Timber Suitability

Lands suitable for timber production were determined following the 2012 Planning Rule. Appendix B describes this process and results from the suitability analysis in more detail. Lands that may be suitable for timber production are the same for all alternatives and total 680,708 acres (table 30). These lands are physically and biologically capable of timber production and have not been administratively withdrawn.

Based on management guidance and desired conditions, the lands suitable for timber production vary by alternative, as shown in table 30 and table 31. Timber suitability for the plans are based on the 1986 Custer and 1987 Gallatin Forest Plans as amended and implemented. The total land area considered suitable for timber management under the current plans is roughly 22 percent of the Custer Gallatin National Forest. Alternatives B through F have similar amounts of land suitable for timber production ranging from approximately 18-19 percent of national forest lands. The primary reason for the difference between the current plans and the revised plan alternatives is the removal of lands in riparian management zones from the suitable timber base in all revised plan alternatives. Otherwise, at the forestwide scale, there is relatively little variability in suitable acres among alternatives. This is because of primary factors driving suitability at the forestwide scale, such as the inherent capability of the land and existing designations such as wilderness and inventoried roadless areas, do not vary by alternative.

Table 30. Lands not suitable for timber production by alternative

Land Classification Category	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F
A. Total National Forest lands in the plan area	3,045,965	3,045,965	3,045,965	3,045,965	3,045,965	3,045,965
B. Lands not suited for timber production due to legal or technical reasons	2,365,855	2,365,855	2,365,855	2,365,855	2,365,855	2,365,855
C. Lands that may be suited for timber production (A minus B)	680,110	680,110	680,110	680,110	680,110	680,110
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan	664,628	573,275	549,115	545,274	593,735	560,071

Land Classification Category	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C minus D)	15,482	106,835	130,995	134,836	86,375	120,039
F. Total lands not suited for timber production (B plus E)	2,381,337	2,472,690	2,487,850	2,500,691	2,452,230	2,485,894

Table 31 displays the lands suitable for timber production by alternative in each geographic area and forestwide. Again, there is relatively little variability among the revised plan alternatives with the exception of the Pryor Mountains, where inclusion of backcountry areas in alternatives B, C, and F and recommended wilderness in alternative D notably lower the amount of suitable timber ground relative to alternative E in this geographic area.

Table 31. Acres and percent of National Forest System (NFS) land suitable for timber production by geographic area and alternative

Geographic Area	Total NFS acres	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F
Sioux	164,460	65,959 (40%)	59,061 (36%)	59,860 (36%)	56,779 (35%)	59,061 (36%)	56,779 (35%)
Ashland	436,134	196,127 (45%)	186,299 (43%)	186,299 (43%)	186,305 (43%)	186,449 (43%)	186,299 (43%)
Pryor Mountains	75,067	32,888 (44%)	12,628 (17%)	12,628 (17%)	11,349 (15%)	27,371 (36%)	12,522 (17%)
Absaroka Beartooth Mountains	1,358,541	98,637 (7%)	80,108 (6%)	80,108 (6%)	71,558 (5%)	85,962 (6%)	80,111 (6%)
Bridger, Bangtail, and Crazy Mountains	205,148	59,203 (29%)	51,355 (25%)	43,780 (21%)	50,528 (25%)	51,355 (25%)	50,947 (25%)
Madison, Henrys Lake, and Gallatin Mountains	806,615	211,814 (26%)	183,823 (23%)	167,239 (21%)	168,755 (21%)	183,538 (23%)	173,412 (22%)
Custer Gallatin National Forest	3,045,965	664,628 (22%)	573,275 (19%)	549,115 (18%)	545,274 (18%)	593,735 (19%)	560,071 (18%)

On lands not suitable for timber production, but where timber harvest is suitable (FW-SUIT-RECDEV-01, FW-SUIT-RECORG CAMP-01, FW-SUIT-DWSR-01, FW-SUIT-IRA-01, FW-SUIT-RNA-01, FW-SUIT-NNL-01, FW-SUIT-EWSR-01, FW-SUIT-BCA-01, PR-SUIT-WHT-01), timber harvest contributes to achieving desired conditions while providing economic and social services and benefits to people (FW-GDL-TIM-03). Timber harvest on these lands occurs for purposes such as salvage; fuels management; insect and disease mitigation; protection or enhancement of wildlife habitat; research or administrative studies; or recreation and scenic-resource management (FW-GDL-TIM-03). Timber harvest would have to be consistent with other management direction. Any timber harvest from these lands is not scheduled and would not occur on a rotation basis (FW-GDL-TIM-03). Table 32 compares the percentage of lands where harvest may occur. In the current plans, lands unsuitable for timber production, where harvest is suitable, represent roughly 17 percent of the Custer Gallatin National Forest; although harvest may be very limited in some of these areas depending on management direction and objectives, as well as

existing vegetation conditions. Among the revised plan alternatives, alternative D has substantially less land that would be available for timber harvest, primarily due to the amount of recommended wilderness in this alternative. It is important to note, in all alternatives the main component of lands that are available for harvest, but not suitable for production fall in inventoried roadless areas where only very limited harvest could occur (per the 2001 Roadless Area Conservation Rule (U.S. Department of Agriculture 2001a)). Limitations associated with inventoried roadless areas are the same across all alternatives.

Table 32. Percentage of lands that are available for timber harvest

Availability for Timber Harvest	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Not Available ¹	61%	62%	63%	74%	61%	62%
Available	17%	20%	19%	8%	20%	20%
Suitable	22%	19%	18%	18%	19%	18%

1. Percentage of National Forest System lands unsuitable for timber production and where harvest may not occur. Includes non-forest lands and lands where timber harvest would not be permitted for any purpose, such as designated wilderness, wilderness study areas and recommended wilderness.

Timber Supply

Due to regulatory changes on the landscape, including changes to the areas that may be suitable for timber production, the timber supply estimates in the 1986 and 1987 plans no longer reflect the management situation in the future if the current plans were selected. For this reason, and to make direct comparisons to the revised plan alternatives, the projected volumes in the 1986 and 1987 forest plans were updated to display projected volumes following current handbook requirements. Plan objectives for the current plans are based on recent budgets and associated accomplishments.

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. The projected wood sale quantity (PWSQ) 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 (PTSQ) is the portion of the projected wood sale quantity that meets applicable utilization standards (the sawlog portion of offered timber sales). As required by the Planning Rule and handbook direction, the projected timber sale quantity and projected wood sale quantity reflect currently foreseeable budget levels. The sale quantities are also estimated without a budget constraint to assess sustainable volumes under potentially higher budgets. In the revised plan alternatives, the projected timber sale quantity and projected wood sale quantity are captured in management objectives FW-OBJ-TIM-01 and FW-OBJ-TIM-02 respectively.

Projected timber and wood sale quantities were estimated using the PRISM model based on reasonably foreseeable budget levels, as shown in table 33. The model was run with a mix of constraints based on the theme of the alternative as described above and detailed in appendix B. Volume constraints for the current plans and alternatives B, C, and F were to achieve a projected timber sale quantity of 10 mmbf (million board feet) per year while alternatives D and E were constrained to 6 mmbf and 15 mmbf respectively.

Table 33. Average annual projected timber and wood sale quantities assuming reasonably foreseeable budgets for decades one and two of model simulation

Category ¹	Alternatives A, B, C, F	Alternative D	Alternative E
Projected timber sale quantity (mmcf)	1.96	1.26	2.94
Projected timber sale quantity (mmbf)	10	6	15
Projected wood sale quantity (mmcf)	3.53	2.61	4.80
Projected wood sale quantity (mmbf)	18	13.30	24.50

1. Projected timber sale quantity include volumes from harvested material (other than salvage or sanitation) that meet timber product utilization standards. Projected wood sale quantity is the average annual estimated quantity of timber and other wood products that is expected to be sold from the plan area for the plan period. It consists of the Projected wood sale quantity plus other material such as fuelwood, firewood, or biomass that is also expected to be available for sale.

Note: mmcf = million cubic feet; mmbf = million board feet.

To achieve 15 mmbf in alternative E, it was necessary to assume that the budget for vegetation management would increase relative to the current plans and alternatives B, C, D, and F. This would have effects on other resource areas as displayed in the comparison of alternatives in table 9 of chapter 2. The projected wood sale quantity for each alternative ranges from approximately 13 to 25 mmbf reflecting the projected timber sale quantity of that alternative plus additional volume from fuelwood (estimated as 5 mmbf in all alternatives), as well as volume from non-saw material (estimated as approximately 30 percent of projected timber sale quantity). All alternatives were modeled with the objective of moving vegetation towards desired conditions while meeting other resource constraints. Outputs are expressed as average annual outputs (averaged across the decade). The model assumed 95 percent of the volume would be removed from lands suitable for timber production.

The PRISM model was also run without a budget limitation, as shown in Table 34. Here again, the objective for all models was to move vegetation towards desired conditions. Because all resource constraints are considered, these outputs levels represent what could be generated given the ecological conditions of the Custer Gallatin National Forest, coupled with regulatory direction and the management emphasis of each alternative. These numbers are not used as objectives in the revised plan because they do not meet the requirement to be within reasonably foreseeable budgets. The budget constraint was the most influential factor affecting projected volume outputs. However, even without a budget constraint, volume outputs is limited by resource constraints associated with each alternative as well as the assumption of a non-declining flow in timber volumes. As shown in table 34, all alternatives produced approximately the same volume in the unconstrained model runs suggesting that the requirement of non-declining flow becomes the primary limiting factor after budget constraints.

Table 34. Average annual projected timber and wood sale quantities without a budget constraint for decades one and two of model simulation

Category ¹	Alt A	Alt B	Alt C	Alt D	Alt E	Alt F
PTSQ mmcf	4.89	4.53	4.42	4.37	4.69	4.54
PTSQ mmbf	24.40	22.60	22.00	21.70	23.40	22.70
PWSQ mmcf	7.20	6.74	6.59	6.51	6.95	6.77
PWSQ mmbf	36.72	34.38	33.60	33.21	35.42	34.51

1. Projected timber sale quantity (PTSQ) include volumes from harvested material (other than salvage or sanitation) that meet timber product utilization standards. Projected wood sale quantity (PWSQ) is the average annual estimated quantity of timber and other wood products that is expected to be sold from the plan area for the plan period. It consists of the PTSQ plus other material such as fuelwood, firewood, or biomass that is also expected to be available for sale. mmbf—million board feet and mmcf—million cubic feet

Table 35 displays the projected acres of vegetation management that may occur to achieve the national forest management objectives (FW-OBJ-VEGF-01, FW-OBJ-FIRE-01, FW-OBJ-TIM-01, FW-OBJ-TIM-02) with a reasonably foreseeable budget. Table 36 displays the same information without a budget constraint. When budget is removed as a constraint in the model, treatment schedules generally converge and become more limited by suitability of lands associated with each alternative. Acres treated are a mix of silvicultural prescriptions, including even-aged regeneration (clearcut, seedtree, shelterwood), intermediate harvest (uneven-aged harvest or commercial thin), non-commercial treatments (such as, precommercial thinning and fuels treatments) and prescribed fire. The harvest levels achieved during the implementation of the 1986 plans to date is shown in the affected environment section. The PRISM model was used to estimate the mix of treatments that would occur under all alternatives in the future as explained above (also see appendix B).

Table 35. Projected acres of forested vegetation treatments, average of the first two decades (constrained by reasonably foreseeable budget)

Activity	Alt A	Alt B	Alt C	Alt D	Alt E	Alt F
Even-aged Regeneration Harvest	3,144	3,190	3,203	1,860	4,997	3,225
Intermediate Harvest	8,055	7,776	7,686	6,564	9,509	7,579
Other Mechanical Treatments (such as, precommercial thinning and fuels treatments)	24,230	24,606	24,539	49,393	13,667	24,77
Prescribed Fire	27,820	28,376	8,701	25,239	27,995	28,284
Total Acres Treated	63,249	63,948	64,130	83,056	56,168	63,865

Table 36. Projected acres of forested vegetation treatments, average of the first two decades (unconstrained by budget)

Activity	Alt A	Alt B	Alt C	Alt D	Alt E	Alt F
Even-aged Regeneration Harvest	6,132	5,559	5,407	5,283	5,781	5,640
Intermediate Harvest	14,592	14,058	13,810	14,396	14,528	14,532
Other Mechanical Treatments (such as, precommercial thinning and fuels treatments)	50,648	39,393	39,089	38,216	41,054	39,296
Prescribed Fire	31,399	30,008	29,711	28,631	30,584	30,302
Total Acres Treated	102,771	89,019	88,017	86,527	91,946	89,771

In addition to the total number of acres harvested, it is also useful to compare the distribution of timber harvest across vegetation types by alternative. Figure 14 shows the relative distribution of timber harvest acres across the Northern Region Broad Potential Vegetation Types (PVT) by alternative, averaged over the first five decades. Across all alternatives, the model scheduled most of the harvest acres in the warm dry potential vegetation types. This reflects the ecological departure of this frequent fire system resulting in an emphasis for restoration efforts as well as the relatively large amount of suitable base in this area.

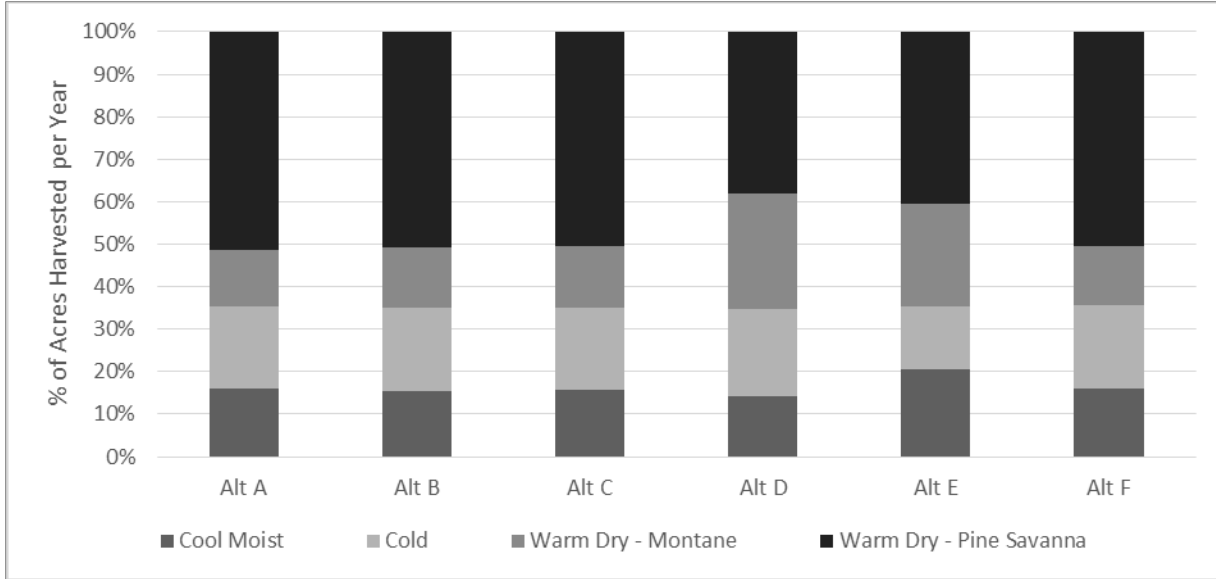


Figure 14. The average of acres harvested per year by Northern Region Broad Potential Vegetation Types

Sustained-Yield Limit

A sustained-yield limit was calculated to determine the amount of timber “which can be removed from [a] forest annually in perpetuity on a sustained-yield basis” (National Forest Management Act, sec. 11, 16 U.S.C. 1611; 36 CFR 219.11(d)(6)). Based on Forest Service handbook direction (Forest Service Handbook 1909.12, 64.3), the sustained-yield limit is the volume that could be produced in perpetuity on lands that may be suitable for timber production. The calculation of the sustained-yield limit is not limited by land management plan desired conditions, other plan components, or the Custer Gallatin’s fiscal capability and organizational capacity. The sustained-yield limit is not a target; it is a limitation on harvest. Because it is based on lands that may be suitable for timber production, the sustained-yield limit does not vary by alternative. The sustained-yield limit was calculated using the PRISM model for each proclaimed forest separately and was determined to be 3.16 million cubic feet (15.3 million broad feet) annually on the Custer National Forest and be 4.92 million cubic feet (22.95 million broad feet) annually on the Gallatin National Forest.

Consequences to Timber from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, Aquatic, Old Growth and Wildlife Management

Measures to protect aquatic habitat, riparian areas, watersheds, old growth, and wildlife will affect the design of timber harvesting operations and may limit the amount of timber that may be harvested. In contrast to the current plans, riparian management zones are not suitable for timber production in all revised plan alternatives (FW-SUIT-RMZ-01) and design of harvest operations must protect riparian and aquatic resources (FW-STD-RMZ-01, FW-GDL-RMZ-07). Under the current plans, riparian management zones and associated plan components would not apply but the Custer Gallatin National Forest would be directed by Montana streamside management zone laws and best management practices. Within these zones, no broadcast burning, clearcutting, or road construction would occur, and no ground-based equipment would be used. Various levels of green tree retention would be required depending on the type of stream present.

All alternatives would incorporate the Northern Rockies Lynx Management Direction (U.S. Department of Agriculture 2007b); it is applied to the existing forest plans. This direction would influence timber activities in potential lynx habitat; this effect varies slightly by alternatives based on the overlap of potential lynx habitat with lands identified as suitable for timber production and where harvest can occur. The components that would influence timber production and harvest in these areas includes not allowing harvest in multi-storied forest except in specified situations (VEG S6); limiting the extent of regeneration harvest depending on how much stand initiation habitat is present in a given lynx analysis unit (VEG S1, S2); and not allowing precommercial thinning in stand initiation habitat (VEG S5). The lynx management direction also notes the potential for vegetation management that would help develop desired habitat characteristics. This may influence the type of harvest conducted in some areas but is not explicitly captured in the modeling.

The sensitivity analysis for PRISM indicates that management constraints for lynx do not have a measurable impact on projected wood sale quantity (PWSQ) in the constrained budget scenario. In the unconstrained budget scenario, lynx constraints result in a 5 percent reduction in projected wood sale quantity and a 6 percent reduction in commercial harvest acres. Using lynx constraints and a budget constraint, the model scheduled 300-800 acres per year of harvest in potential lynx habitat (which equates to a total of 2.1 percent of potential lynx habitat harvested over 50 years). Using lynx constraints and an unconstrained budget, the model scheduled 450-1100 acres per year (3.4 percent of potential lynx habitat over 50 years), with slight variance across alternatives.

All alternatives would adopt the Grizzly Bear Conservation Strategy (Yellowstone Ecosystem Subcommittee 2016). Associated plan components that would require secure habitat to be maintained may limit access, and thus timber harvest, within the Greater Yellowstone Ecosystem Primary Conservation Area. The general effect would be to lower the feasibility of some timber projects. This would apply to the Absaroka Beartooth Mountains and the Madison, Henrys Lake, and Gallatin Mountains Geographic Areas.

Management guidance for big game (FW-GDL-WLBG-01) and wildlife connectivity (FW-GDL-WL-02), could also affect the design and timing of timber harvest activities, but are not expected to have major effects on timber supply. The amount of suitable timber ground affected by plan components associated with key linkage areas varies by alternative from a low of approximately 6,000 acres in Alternative C to a high of approximately 11,000 acres in Alternatives B and F and approximately 9,000 acres in alternative D. Alternative E has no key linkage areas.

In contrast to the current plans, timber harvest in old growth (FW-GDL-VEGF-01) is limited to purposes of restoration, protecting values at risk, or managing infrastructure in all revised plan alternatives. These factors may reduce the amount of land available for harvest and the type of harvest allowed and is the same across all revised plan alternatives.

Effects from Soils Management

Under all alternatives, plan components related to soils would generally benefit the timber resource by ensuring that soil productivity (and thus, future timber growth) is maintained in the long term. Standards and guidelines related to soils would have the general impact of limiting timber production and harvest in some areas, to the extent that activities that may be detrimental to soils would be restricted (such as repeated compaction (FW-STD-SOIL-01, FW-STD-SOIL-02), operating equipment on steep slopes (FW-GDL-SOIL-01), and seedbed preparation (FW-GDL-SOIL-04). Such restrictions have been applied to recent

timber management activities and continuing these practices would help sustain future timber production and are generally the same for all alternatives. The revised plan alternatives provide greater specificity in the standards and guides for soils than the current plans, particularly with respect to allowable detrimental disturbance (FW-STD-SOIL-01) and post-treatment ground cover requirements (FW-GDL-SOIL-07).

Effects from Vegetation Management

The revised plan alternatives contain detailed desired conditions (FW-DC-VEGF-01-09) and objectives (FW-OBJ-VEGF-01) for terrestrial vegetation; timber harvest is one of the tools available to help move the Custer Gallatin toward those conditions. Although vegetation desired conditions are not quantified in the existing forest plans, in practice Custer Gallatin National Forest would be managed in the spirit of these desired conditions under the current plans (for example, timber harvest would be used as a tool to achieve ecological integrity and resilience). Desired conditions and objectives for terrestrial vegetation were used in the PRISM model as the primary objective of timber harvest in all alternatives and the mix of treatments and volume estimates presented above all reflect the effects of these plan components. In general, the influence of these components would be to limit the potential timber volume because ecologically based desired conditions often lead to more expensive restoration treatments or harvest in less productive types.

Other plan components associated with terrestrial vegetation such as guidelines related to old growth (FW-GDL-VEGF-01, FW-GDL-VEGF-02), snags (FW-GDL-VEGF-03, FW-GDL-VEGF-04) and large tree (FW-GDL-VEGF-05) retention do not outright prohibit timber harvest, but may influence the design or the location of on-the-ground harvest activities. These plan components are the same across all revised plan alternatives; their effect on timber harvest is generally greater in the revised plan alternatives (for example). In general, guidelines associated with terrestrial vegetation components (such as those referenced above) are more restrictive in the revised plan alternatives than the current plans. As such, the effect of terrestrial vegetation plan components on the design and location of timber harvest activities will be more pronounced under the revised plan alternatives than the current plans.

Effects from Fire and Fuels Management

In all revised plan alternatives, the plan objective for fuel reduction (FW-OBJ-FIRE-01) is consistent with timber harvest, generally creating more growing space for larger, more fire-resistant trees and promotes a landscape that is more resistant to disturbance. Timber harvest is often the tool for reducing fire risk through a reduction in fuel loading. The use of timber harvest to achieve fuels objectives is more likely to occur in the wildland-urban interface than other areas and this is the same across all alternatives (FW-DC-FIRE-02, FW-OBJ-FIRE-01). Timber harvest also moves vegetation towards desired conditions that are more resilient and less fire prone. Wildfire may have substantial impact on timber supply, but this effect will be the same across all alternatives (FW-DC-FIRE-01, FW-OBJ-FIRE-02).

Effects from Plan Land Allocations

In all alternatives, recommended wilderness areas are not suitable for timber production and timber harvest is not suitable (FW-SUIT-RWA-01). While there is substantial variability in acres of recommended wilderness across alternatives, most of the recommended wilderness area is also designated as inventoried roadless area under all alternatives which severely limits the potential for timber harvest in these areas regardless of the alternative. The amount of recommended wilderness area within inventoried roadless area is approximately 88 percent in alternative D, 90 percent in alternative F, and 97

to 100 percent in alternatives A, B, and C. Alternative E has no recommended wilderness areas. In absolute terms, the number of acres where timber harvest would be limited by recommended wilderness area allocation varies from a low of zero in alternatives A and E to a high of approximately 89,000 in alternative D. Alternative F designates approximately 12,500 acres of recommended wilderness area that is not inventoried roadless area, which is more than alternatives B and C with approximately 2,000 and 4,000 acres respectively (table 37).

Table 37. Percentage of recommended wilderness areas within designated inventoried roadless areas

Alternative	Total RWA Acres	Acres of RWA in IRA	Acres of RWA not in IRA
A	33,741	33,741	0
B	113,382	111,586	1,999
C	145,777	142,574	3,981
D	711,425	623,797	88,901
E	0	N/A	0
F	139,425	126,393	13,032

The establishment of inventoried roadless areas limited harvest across a large portion of the Custer Gallatin National Forest. The establishment of these areas is not within the scope of plan revision. Plan components in the revised plan alternatives reflect the Roadless Area Conservation Rule. The possible purposes of harvesting “generally small diameter timber” would include improving at-risk species habitat, or maintaining or restoring ecosystem composition and structure within the desired conditions. The effect of this direction would be to limit the acres of harvest and volume outputs that occur. Although not included in the existing plans, this direction would also apply to alternative A. The limitations to harvest in these areas were incorporated into the timber modeling and had a substantial impact on the projected timber volume outputs. Inventoried roadless areas are not suitable for timber production (FW-SUIT-IRA-01) and do not vary by alternative. Timber harvest is suitable, but is limited under the Roadless Area Conservation Rule.

The rivers found to be eligible as a wild and scenic river do not change by any revised plan alternative. A range of vegetation management and timber harvest practices are suitable if these practices are designed to protect users, or protect, restore, or enhance the river environment, including the long-term scenic character (FW-SUIT-EWSR-01).

The establishment of recreation emphasis areas in the revised plan alternatives do not limit the production of timber per se but plan components guide activities so that that vegetation management complements the recreational setting over the long term (FW-DC-REA-05). In contrast, backcountry areas limit vegetation management (including timber harvest) to purposes such as fuels reduction, restoration, or wildlife habitat enhancement (FW-SUIT-BCA-01). Acres of backcountry areas and recreation emphasis areas varies by alternative as displayed in table 154 and table 157. However, due to overlap with inventoried roadless area, even without the backcountry area designation, it should be noted that timber harvest would still be restricted in much of the area recommended as backcountry area. In alternatives with backcountry area designation, the amount of backcountry area in inventoried roadless area varies from 65 percent to 99 percent.

The effects of plan land allocations and the associated plan components were considered in both the suitability analysis as well as the PRISM modeling (see appendix B). As such, effects on timber supply and are reflected in projected outputs presented above in terms of timber suitability and timber supply.

Effects from Recreation Opportunity Spectrum

The acres allocated to summer recreation opportunity settings (ROS) by alternative are shown in table 38 for lands suitable for timber production. All alternatives are similar in terms of the distribution of suitable timber acres across recreation opportunity settings. Recreation opportunity spectrum allocations regulate motorized and non-motorized recreation, the design of recreation facilities and may influence the design or the location of on-the-ground projects as described in the associated plan components (FW-ROS-DC, FW-ROS-STD, FW-ROS-GDL, and FW-ROS-SUIT). For example, the desired condition for semi-primitive non-motorized ROS classification is that vegetation management does not dominate the landscape or detract from the experience of visitors (FW-DC-ROS-07). Temporary roads for vegetation management projects, where otherwise not prohibited, may occur in semi-primitive non-motorized recreation opportunity spectrum classification (FW-STD-ROSSPNM-01). Management restrictions associated with recreation opportunity spectrum are accounted for in the PRISM model, and therefore their influence on expected timber outputs and harvest acres are expressed in the outputs shown previously.

Table 38. Percentage of acres of summer recreation opportunity spectrum classes by alternative, for lands suitable for timber production

Recreation Opportunity Spectrum Class	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Primitive	0%	0%	0%	0%	0%	0%
Semi-Primitive Non-motorized	11%	9%	9%	6%	11%	8%
Semi-Primitive Motorized	58%	60%	60%	62%	59%	60%
Roaded Natural	26%	26%	26%	27%	25%	27%
Rural	5%	5%	5%	5%	5%	5%

Effects from Scenery Management

In all alternatives, the revised plan scenic integrity objectives (lowest scenic levels allowable) do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the maximum threshold of visual dominance and deviation from the surrounding scenic character.

Cumulative Effects

Many factors influence timber harvest. The demand for timber products, supply from other sources, the timing and location of large disturbance events, laws, and regulations all affect the amount of timber that may be harvested from the Custer Gallatin National Forest. Budgets and court decisions also impact timber supply. The effects that past activities have had on all the components of forest vegetation (such as, forest composition and structure, landscape pattern, etc.) were discussed in the Affected Environment (Existing Condition) section and are reflected in the current condition.

Increasing Human Population

Additional stressors that may increase in the future are increasing population levels, both locally and nationally, with resulting increasing demands and pressures on public lands. Populations on the west side increased between 2000 and 2010 and are expected to continue to grow in the coming decades. Populations on the east side saw minor declines between 2000 and 2010, but are also expected to increase in the coming decades. These changes may lead to increased tensions between the demand for timber and changing societal desires related to the mix of other uses public lands may provide. The sustainable use of other forest products may become increasingly vulnerable, requiring permitting and limitation of use.

Management of Adjacent Lands

Portions of the Custer Gallatin National Forest adjoin other national forests, each having its own land management plan. The Custer Gallatin National Forest is also intermixed with lands of other ownerships, including private lands and state lands. Some geographic areas contain substantial inholdings of such lands, while others are less divided in terms of ownership. The geographic areas which are island mountain ranges are largely surrounded by private lands. Harvesting or conversion of forests on adjacent lands would affect vegetation conditions at the landscape level. State law applies to all harvest activities regardless of ownership; therefore, basic resource protections would be consistent. However, harvest practices on other lands, particularly private lands, would not necessarily be conducted to meet the same desired conditions as those outlined in the Custer Gallatin National Forest Draft Plan.

Some adjacent lands are subject to their own resource management plans. The cumulative effects of these plans are summarized in table 39, for those plans relevant to the timber resource. Refer to appendix E for further summarization of resource plans considered.

Table 39. Summary of cumulative effects to timber from other resource management plans

Resource plan	Summary of effects
Land Management plans of Adjacent National Forests	The forest and grassland management plans for National Forest System lands adjacent to the Custer Gallatin include the Helena Lewis and Clark, Beaverhead-Deerlodge, Targhee, Shoshone. All plans contain plan direction that promotes ecological integrity and meets the requirements of the National Forest Management Act, such as limitations on harvest, reforestation practices, and maximum sized openings. Generally speaking, management of vegetation is consistent across all national forests due to law, regulation, and policy. The cumulative effect would be that the management of vegetation and associated timber harvest would be complementary.
Montana Forest Action Plan; Montana State Parks and Recreation Strategic Plan 2015-2020; Montana's State Wildlife Action Plan	The 2020 Montana Forest Action Plan (2020) compliments timber management on the Custer Gallatin by including strategies related to increased resilience, wildfire safety, and providing forest products and biomass. The cumulative effect would likely be additive, in terms of the amount of timber harvest treatments that occur across the landscape and in a broad sense moving towards at least some of the vegetation desired conditions as described in the revised plan. Montana State Parks and Recreation Strategic Plan guide the management of state parks, some of which lie nearby or adjacent to National Forest System lands. Terrestrial vegetation is a component of these parks, although not always the primary feature. Specific vegetation conditions would not necessarily contribute to the desired conditions as described for the Custer Gallatin. Montana's State Wildlife Action Plan (2014) describes a variety of vegetation conditions related to habitat for specific wildlife species. This plan would likely result in the preservation of these habitats on state lands, specifically wildlife management areas. This plan would be consistent with desired conditions of the Custer Gallatin and thus the goals of the timber harvest program.

Resource plan	Summary of effects
South Dakota Forest Action Plan 2020 Revision	The 2020 South Dakota Forest Action Plan (2020) compliments timber management on the Custer Gallatin by including strategies related to achieving structurally diverse, healthy forests to develop more resilient forest landscapes increased resilience, and wildfire safety; promoting natural species diversity within native forest lands; and providing forest products and biomass.
Bureau of Land Management Resource Management Plans	Bureau of Land Management lands near the Custer Gallatin are managed by the Dillon (2006) plan, Butte (2009) plan, Billings (2015a) plan, Miles City (2015b) plan and South Dakota (2015c) plan field offices. These plans components related to resilient terrestrial vegetation are complementary to the plan components for the Custer Gallatin; timber management would be generally conducted in a similar manner and with similar results.
National Park Service - Yellowstone National Park Foundation Document (2014)	The foundation document for Yellowstone National Park calls for preserving environmental integrity, which allows natural processes to shape ecosystem functions, resulting in outstanding wilderness character. Broadly, the terrestrial vegetation characteristics in this area are therefore similar to the wilderness areas in the adjacent Absaroka Beartooth and Madison, Henrys Lake, and Gallatin Geographic Areas and would complement these conditions. By managing for ecologically based desired conditions and resilience, any timber harvest activities in non-wilderness areas adjacent to Yellowstone National Park would also be consistent with this plan.
County growth plans; comprehensive plan	Many of the county plans associated with the Custer Gallatin emphasize an interest in resilient forests and promoting the use wood products from National Forest System lands as an economic contribution and to enhance the sustainability of forest landscapes. As such, timber harvest and demand would remain important feature in the local communities.
County wildfire protection plans	Some county wildfire protection plans map or define the wildland-urban interface. The Forest Service notes that these areas may be a focus for hazardous fuels reduction, and other plan components (such as Northern Rockies Lynx Management Direction) have guidance specific to these areas. Treatments, including harvest, may be emphasized in these areas more so than others.

Timber Demand

The demand for wood products allows for more cost-effective vegetation management and timber sales from the Custer Gallatin National Forest. If demand for wood products increases, so too will demand for timber sales from the Custer Gallatin National Forest. Alternatively, if demand decreases and mills close, there may be less desire for Custer Gallatin National Forest timber. A decrease in demand may reduce the amount of timber sold regardless of the alternatives. Lower wood quantity may contribute to total public and private land timber supply chain elasticity, especially for mills isolated from other ownership and highly dependent on Custer Gallatin National Forest ownership. If enough timber is collectively removed from markets, it would have the effect of increasing sawlog prices, decreasing operating profits for existing mills.

Conclusion

- Timber suitability: The current plans, as updated and amended, have the most amount of land suitable for timber production, and alternative D has the least, but all alternatives are relatively similar ranging from 18 to 22 percent of the Custer Gallatin. In all alternatives, timber harvest has the potential to occur in lands that are unsuitable for timber production to achieve other objectives. Alternative D has the least amount of unsuitable lands where harvest may occur because it has the most recommended wilderness while alternative E has the most total unsuitable lands where harvest may occur.
- Timber supply: Consistent with the themes of the alternatives, alternative E has the highest projected timber and wood sale quantities while alternative D has the smallest. The current plans

and alternatives B, C, and F are similar in terms of expected timber outputs. In all alternatives, projected budget assumptions have a substantial effect on anticipated volumes and treatment acres.

- Timber harvest: Current plans and alternatives B, C, and F are similar in terms of expected harvest treatment acres. Alternative E would treat fewer acres, but achieve greater volume outputs driven primarily by the selection of different silvicultural prescriptions (more regeneration treatments). Alternative D would treat the highest number of acres, but achieve the lowest timber volume outputs by focusing more resources on prescribed burning and thinning of small diameter trees.

3.16 Special Forest Products

3.16.1 Introduction

Special forest products are mainly plant and fungi materials that are gathered from National Forest System lands for personal use, for commercial resale, or for sale as a craft product.

Regulatory Framework

36 CFR 223.1: states trees, portions of trees, and other forest products on National Forest System lands may be sold for the purpose of achieving the policies set forth in the Multiple-Use Sustained-Yield Act of 1960, as amended, and the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended.

36 CFR 223.239-240, Sale and Disposal of National Forest Timber, Special Forest Products, and Forest Botanical Products: section 223.239 provides regulations of free use without a permit for members of Tribes with treaty or other reserved rights related to special forest products. Section 223.240 provides regulations regarding harvest of special forest products by Tribes with treaty or other reserved rights.

36 CFR 261.6: lists activities regarding timber and other products that are prohibited.

Forest Service Manual 2670, Threatened, Endangered, and Sensitive Plants and Animals: directs national forests to avoid or minimize impacts to species whose viability has been identified as a concern.

Forest Service Handbook 2409.18, chapter 80: provides direction for special forest products.

Key Indicators and Measures

The differences between alternatives will be qualitatively evaluated by considering effects of revised plan direction and how well it supports and benefits people. Differences between alternatives related to gathering opportunities or potential impacts to special forest products are largely linked to the degree of road or trail access and amount of land where gathering special forest or botanical products are allowed.

Methodology and Analysis Process

The analysis included a review of plan components, rules, and regulations for special forest products and effects. Differences between alternatives were evaluated based on the variation in management area allocations among alternatives as they influence access to and availability or other aspects of special forest products.

Information Sources

This analysis draws upon the best available literature citations that were found to be relevant to the ecosystems on the Custer Gallatin National Forest. Literature sources that were the most relevant, most recent, peer-reviewed, and local in scope or directly applicable to the local ecosystem were selected. Uncertainty and conflicting literature have been acknowledged and interpreted when applicable.

Forest Service data is supported by hard-copy files held at the ranger district and forest supervisor's offices for administration of special forest product authorizations.

Analysis Area

The geographic scope of the analysis is the lands administered by the Custer Gallatin National Forest. All lands within the Custer Gallatin National Forest boundary form the geographic scope for cumulative effects, and the temporal scope is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

Analysis was updated to include Alternative F.

3.16.2 Affected Environment (Existing Condition)

Special forest products include, but are not limited to, mosses, fungi (including mushrooms), roots, bulbs, berries, seeds, wildflowers, forbs, sedges, grasses, nuts, boughs, cones, transplants, Christmas trees, firewood, posts and poles, mine props, and rails. Some of the most popular special forest products on the Custer Gallatin are firewood, post and poles, Christmas trees, boughs, and mushrooms.

Existing uses are often tied to historical knowledge and patterns of use. Special forest products are available through commercial harvest and sale, with some available through free use. Historically, the Custer Gallatin has granted commercial and free use of special forest products to individuals and Tribes with treaty and other reserved rights.

The supply of special forest products is dependent on ecological conditions and existing distributions of potential growing sites. Forest management or natural disturbances can influence the supply of certain products. For example, fire can increase the availability of firewood and mushrooms, but may decrease the availability of berries in the short term. Thinning of young sapling stands and conifer regeneration after fire or timber harvest can increase production of Christmas trees for a period of time.

Various plant materials are used for foods (for example, morel mushrooms), medicines (for example, Echinacea), floral arrangements, ornamentals, contemporary traditional uses, etc. Markets for these various products have fluctuated. Permits may be issued for personal use or commercial use of species. Generally, personal use permits have been issued on the Custer Gallatin National Forest and commercial permits have been avoided. Species proposed for harvest and collection are assessed for the vulnerability and sustainability of the species and pertinent conservation approaches and restrictions are stipulated.

The most common edible mushroom harvested on the Custer Gallatin National Forest is the morel (a fungus of the genus *Morchella*). Fire prompts morels to fruit, and they are particularly abundant the first year after fire and where the ground has been totally blackened. Though this relationship with fire is well known, the density and distribution of morels within a fire's boundaries can vary widely. The specific environmental factors that cause this fruiting are still largely unknown. Personal or commercial picking of

mushrooms on the Custer Gallatin is limited in intensity and extent, largely because of the lack of access, the difficult terrain, and the limited amount (both temporally and spatially) of area where abundant morels occur (such as post-fire conditions).

Echinacea or purple coneflower (*Echinacea angustifolia* var. *angustifolia*) populations are widely distributed across the Ashland and Sioux Districts of the Custer Gallatin National Forest. It is one of the most popular, and most researched, plants in the herbal product industry. Echinacea has traditionally been used for colds, flu, and other infections, based on the idea that it might stimulate the immune system to fight infection more effectively. These plants are slow-growing, long-lived perennials, whose roots are the primary medicinal plant part used in the commercial trade. A sizable portion of the demand for Echinacea is for wild-harvested plant material, especially roots of *Echinacea angustifolia*.

Special forest products have importance to Tribes as traditional and cultural uses. The Sioux, Northern Cheyenne, Crow, Bannack, Shoshone, Nez Perce, Flathead, and Kootenai Tribes have affiliations with the Custer Gallatin National Forest. There are many plant species that have traditional uses as food, medicines, industrials (paint, etc.) and rituals (for example, incense and sweat lodge construction). Tribal members used trees, shrubs, and grasses as part of their survival and knowledge about their use has been handed down through generations. They have developed strong spiritual relationships with plants. Several plant species important to the Tribes important for traditional uses have been identified within the Custer Gallatin.

Based on current handbook direction (Forest Service Handbook 2409.18 sec. 87.13), the Custer Gallatin considers “treaty rights, customary, and traditional uses (including subsistence and other historical uses of plant material by Tribes), the Federal trust responsibility to Tribes, and competitive market demands in determining which products would be excluded from or allowed for sale to commercial harvesters. When there is a shortage of any particular special forest product for Tribal use, commercial permits will be issued only to the extent that the Tribal use can be accommodated.” The Custer Gallatin consults and coordinates with Tribal governments prior to issuing any permits, contracts, or other authorized instrument when there is a possible impact to Tribal treaty and other rights and interests in the permitted or contracted area (Forest Service Handbook 2409.18 sec. 87.18). The Custer Gallatin honors the unique legal relationship, including the trust relationship, between the Federal government and Tribal governments.

The primary non-timber special forest products sold on the Custer Gallatin National Forest include personal use firewood and Christmas trees. Other products, such as mushrooms, boughs, and transplants have been permitted in small quantities and are not a significant portion of the forest products sold on the national forest. Figure 15 displays the volume of fuelwood sold during 1980-2015. From 1980 to 2015, fuelwood demand per year averages approximately 4.4 MMBF on the Custer Gallatin National Forest; individually the Custer National Forest averaged 1.2 MMBF per year and the Gallatin National Forest averaged about 3.2 MMBF per year. During the years of 1984-1987 and 1989 fuelwood use averaged approximately 9.5 MMBF. Fuelwood gathering involves the cutting and removing of dead trees for firewood and has been a consistent use by the public of the timber resource on the Custer Gallatin National Forest. Average volumes by decade were higher in the mid to late 1980s, decreasing significantly in the 1990s through early 2000s. During the time period of 2008-2015, demand for firewood has steadily increased and is approaching the average levels set in the mid-1980s. The rise in firewood demand since 2007 could be attributed to the increased number of dead trees available for

harvesting following wildfire events, insect or disease outbreaks, and the economic downturn that occurred in 2008.

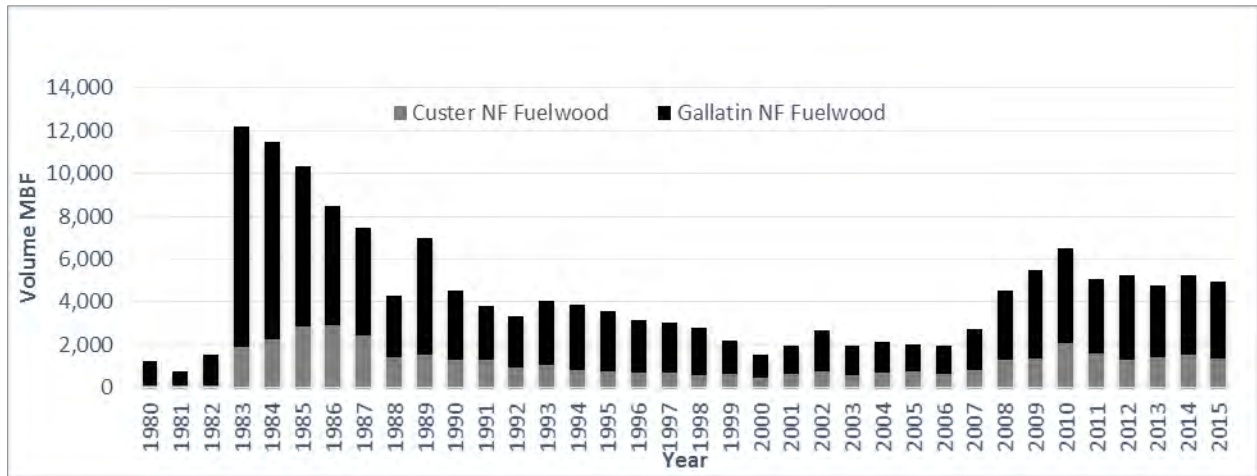


Figure 15. Volume (MBF) fuelwood sold by each national forest, 1987-2015

Christmas trees are also a consistent and popular personal use product sold by the Custer Gallatin National Forest. The product sold is tracked by quantity rather than volume. Figure 16 displays the quantity of Christmas trees sold on the Custer Gallatin National Forest for the period of 1980-2015.

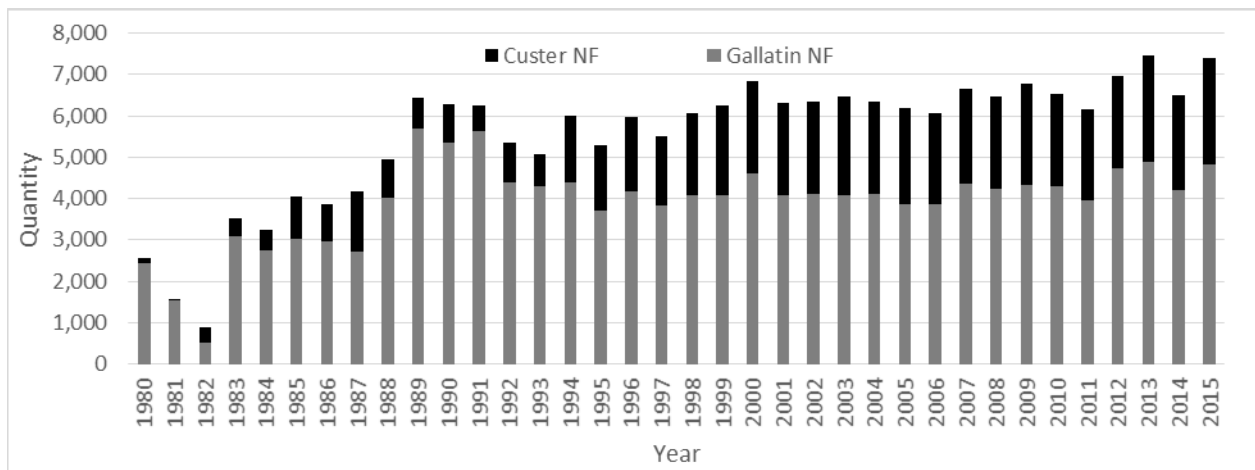


Figure 16. Number of Christmas trees sold by national forest, 1980-2015

On average, the Custer Gallatin National Forest sells approximately 5,518 trees with the Custer National Forest selling approximately 1,600 tree per year and the Gallatin National Forest selling approximately 3,916 trees per year. Prior to 1994, the Custer National Forest sold fewer than 1,000 trees per year, but in subsequent years the Custer National Forest has increased to over 2,000 trees per year. The Gallatin National Forest has maintained selling a consistent stable quantity of approximately 4,000 trees per year. Since 1988 both national forests have been relatively stable in the quantity sold, combined to be between 6,000 and 7,000 trees per year.

The expected change in climate in future decades could influence the availability of some special forest products. Insofar as it alters the growing conditions of a site, climate change could influence presence and productivity of plants. Increased frequency or severity of fire could also cause changes or shifts on the landscape in terms of plant species composition or abundance. More firewood might be available with the increased size or frequency of fire, but an increase in fire might eliminate other special products, at least over the short term. Uncertainty exists regarding the possible effects of climate change on vegetation and thus on the availability and distribution of plants that are gathered as special forest products.

Timber products and other forest products are identified as multiple uses and key ecosystem services provided by the Custer Gallatin National Forest. The economy of local communities can directly benefit from the use of these products. Refer to the social and economics section for more information about multiple uses, key ecosystem services, and benefits to people.

3.16.3 Environmental Consequences

Effects Common to all Alternatives

All alternatives contain plan components that protect soil quality and sustain soil ecological functions during activities related to forest products (FW-STD-SOIL-01, FW-GDL-SOIL-01, and FW-GDL-SOIL-04). These components also serve to protect plants, roots, and rhizomes from excessive damage.

Under all alternatives, the revised plan provides direction to provide for sustainable levels of all forest products, including special forest or botanical products. All the revised plan alternatives have components that provide for the sustainable harvest of plant materials by people and encourage the use of non-destructive harvesting methods, as applicable (FW-GDL-FP-01). These serve to protect the current and future availability of plants for both wildlife and human use.

The effects to Tribal interests are defined by Tribes during consultation. Current management direction and requirements for consultation have been designed to ensure that areas on National Forest System lands that are important to Native Americans are not inadvertently impacted by the Forest Service. Because management direction is required to follow all Federal laws and regulations in respect to American Indian rights and Interests, related effects are the same across all alternatives. Plan components provide for protection of Tribal treaty rights related to harvestable plants, including access to the national forest for the effective exercise of gathering rights (FW-DC-TRIBAL-01, FW-STD-TRIBAL-02).

Concerns are sometimes raised about the possible detrimental ecological effects of mushroom picking on, for example, soil conditions, invertebrates, or mushroom productivity. There is little if any scientific evidence that there are any broad adverse ecological effects caused by the picking of mushrooms. On a small, localized scale, intensive gathering by large numbers of people over long periods of time may possibly disturb soils and understory plants, much as could occur at an intensively used recreation site. However, evidence that such harvesting could detrimentally impact mushroom productivity is lacking. A long-term study (over a 27-year period) conducted in a mixed hardwood, fir, and pine forest in Switzerland found no difference in species richness or abundance of species of edible fungi in harvested areas compared to non-harvested sites (Egli et al. 2006). The authors did note that very wide scale harvesting, in which the depletion of spores over large areas might occur, deserves additional study. A study on post-fire morel abundance in a Sierra Nevada mixed conifer forest found that burned forests in

Yosemite National Park alone could produce an average crop of more than 1 million morels per year (Larson et al. 2016).

On the Custer Gallatin, the amount and intensity of mushroom picking is greatly limited by the lack of easy access, the difficult and steep terrain, the periodicity of abundant mushroom crops, and the relative remoteness of the Custer Gallatin when compared to areas adjacent to large cities. It is anticipated that there would be no effect to mushroom productivity or other ecological factors associated with mushroom picking on the Custer Gallatin due to the implementation of the revised plan.

The popularity of Echinacea products has repeatedly risen and fallen in recent history, cyclically renewing concerns that unregulated harvesting will decimate wild populations. One study found that root harvests killed half of the plants which suggests potential recovery of these populations, even after severe harvests (Kindscher et al. 2008). Full population recovery would require a period of at least two years without harvest plus the combination of root resprouting, seed bank germination, and small plants reaching flowering size. This same study suggested that with responsible harvest techniques, the harvest and removal of Echinacea can be sustainable.

Current Plans

Management Direction under the Current Plans

Under the 1986 Custer Forest Plan, extraction of indigenous plant materials can be allowed under permit, either free-use or charge, depending upon the location and demand. The 1987 Gallatin Forest Plan did not address forest products and plant materials.

Under the current plans, personal use of special forest products is allowed across the Custer Gallatin, except in Research natural areas, so long as the use does not conflict with other management guidance. Commercial use of special forest or botanical products is not allowed in designated wilderness, wilderness study areas, recommended wilderness areas, research natural areas, or wild segments of designated or eligible wild and scenic rivers and special areas. In addition, commercial use firewood, post and poles, teepee poles, and biomass and wood fiber permits within developed recreation sites is not allowed. Current plans retain the existing amount of motorized transport

Effects of the Current Plans

Plan direction under the Custer plan and policy are designed to support sustainable levels of special forest products.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

All revised plan alternatives contain the same plan components for special forest products. They were developed under the 2012 Planning Rule, and all revised plan alternatives provide direction for sustainable levels of special forest products (FW-GDL-FP-01).

Like the current plans, personal use of special forest products would be allowed across the Custer Gallatin, except in research natural areas, so long as the use does not conflict with other management guidance. Commercial use of special forest or botanical products would not be allowed in designated wilderness, wilderness study areas, recommended wilderness areas, research natural areas, backcountry areas, Cabin Creek Wildlife Management Area or wild segments of designated or eligible wild and scenic

rivers and special areas (FW-STD-FP-01). Commercial use firewood, post and poles, teepee poles, and biomass and wood fiber permits within developed recreation sites would not be suitable (FW-SUIT-RECDEV-02). Finally, under the revised plan alternatives, firewood gathering in inner riparian management zones would not be suitable (FW-SUIT-RMZ-02). These limitations on firewood collection are expected to protect developed recreation sites and riparian areas while not substantially limiting access to firewood.

Effects of the Revised Plan Alternatives

Under all revised plan alternatives, plan components and policy are designed to support sustainable levels of special forest products (FW-GDL-FP-01). FW-DC-FP-01 will have the effect of guiding management to ensure a variety of special forest products and plant materials are available for commercial, personal, Tribal, educational, and scientific uses. Commercial use of special forest products will not be permitted in designated wilderness, wilderness study areas, recommended wilderness, wild portions of designated and eligible wild and scenic rivers, research natural areas, Cabin Creek Recreation, and Wildlife Management Area and special areas (FW-STD-SA-01). This will ensure that these areas are protected from any possible negative ecological effect of commercial use. Finally, FW-GDL-FP-01 will ensure persistence and conservation of special forest product habitats, permits for special forest product and plant materials collection by requiring sustainable collection methods and levels.

Consequences to Special Forest Products from Plan Components Associated with other Resource Programs or Management Activities

Effects from Vegetation and Timber Management

Timber harvest and other vegetation management objectives may increase or decrease the availability of some special products. For example, the availability of Christmas trees may be increased after regeneration harvest. Firewood may increase, either due to an increase in commercial firewood sales or as a byproduct of other commercial timber sales. FW-SUIT-RMZ-02 prohibits firewood gathering in the inner riparian management zone. This is expected to protect riparian areas, but not result in substantial loss of opportunity to fuel wood collection. All alternatives propose harvest to some amount and would have opportunity to affect the availability of associated products. Roads associated with timber harvest has potential to provide permanent or temporary access which can accommodate easier access to special products. Although these desired conditions are not enumerated in the existing 1986 and 1987 forest plans, in practice Custer Gallatin National Forest would likely be managed in the spirit of these desired conditions.

Effects from Fire and Fuels Management

The current plans' fire management direction are to consider multiple fire management strategies. Revised plan alternative direction for natural, unplanned ignitions would continue the long-term ecological processes in these areas (FW-DC-FIRE-01, FW-DC-FIRE-02, and FW-OBJ-FIRE-02). Under all alternatives, fire may increase or decrease the potential availability of some special forest products, such as mushrooms and firewood. Future potential wildfire patterns and amounts have a relatively high degree of uncertainty; and a range of possible wildfire acres are projected to be about the same for all alternatives. Therefore, all alternatives would have similar potential to provide for some special forest products linked to fire events, specifically firewood, and mushrooms.

Effects from Access and Recreation Management

In all revised plan alternatives, FW-SUIT-RECDEV-02 prohibits gathering of personal use firewood, post and poles, teepee poles, and biomass and wood fiber for solely commercial purposes within developed recreation sites. Given the limited size of these areas, this is not expected to have a major effect on public opportunity. In addition, in all alternatives, limits related to motorized transport on trails as well as construction of new roads (both permanent and temporary) could impact the ease of access to special forest products on portions of the Custer Gallatin.

Although roads or trails are not necessary for the removal of special forest or botanical products, they generally make it easier to access forest lands and areas where special products may be gathered. Therefore, areas that tend to have greater road or trail access, particularly wheeled motorized transport, may be expected to provide greater opportunities to gather special forest products. Conversely, the potential for over-harvesting special forest or botanical products in some areas may increase with greater access. Table 40 displays the change in trail miles suitable for motorized and mechanized transport by alternative.

Table 40. Change from current conditions by alternative: miles of motorized roads, miles of trail no longer suitable for motorized transport, and miles of trail no longer suitable for mechanized transport

Access Type	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Motorized Roads	No Change	No Change	No Change	No Change	No Change	No Change
Motorized Transport on Trails	No Change	No Change	4	172	No Change	No Change
Mechanized Transport on Trails	No Change	No Change	34	264	No Change	31*

*Game carts would continue to be suitable on 14.11 trail miles in the Bad Canyon Backcountry Area and 2.44 trail miles in the Crazy Mountains Backcountry Area.

There are no changes to open motorized road and trail suitability in the current plans, alternatives B, E, or F. Under alternative C, about four miles of trails would no longer be suitable for motorized transport. Under alternative D, about 172 miles of trails would no longer be suitable for motorized transport.

There are no changes to open non-motorized trail suitability in the current plans, alternative B or alternative E. Under alternative C, about 34 miles of trails would no longer be suitable for mechanized transport. Under alternative D, about 264 miles of trails would no longer be suitable for mechanized transport. Under alternative F, about 31 miles of trails would no longer be suitable for mechanized transport, although game carts would continue to be suitable on about 14 trail miles in the Bad Canyon Backcountry Area and about two- and one-half trail miles in the Crazy Mountains Backcountry Area.

Under all alternatives, gathering of special forest products for personal use is allowed over most National Forest System lands. Though wheeled motorized transport is limited, hiking is not. Biking or horseback riding are also widely available forms of transport to lands for gathering of special forest products.

Effects of Plan Land Allocations

Under all alternatives, special forest products may not be collected for commercial or noncommercial personal use in research natural areas. Under all alternatives, except for research natural areas, personal use of special forest products would be allowed across the Custer Gallatin, so long as the use does not conflict with other management guidance. Under all alternatives, commercial use of special forest products is not allowed in designated wilderness, “wild” portions of designated or eligible wilderness study areas, recommended wilderness, research natural areas and special areas. The differences between alternatives is driven primarily by the acres included as recommended wilderness areas. Table 41 displays the acres by alternative where commercial use of special forest products is not allowed. Forty-two to 65 percent of the Custer Gallatin is unavailable for commercial use of special products depending upon the alternative. Commercial use of special products is allowed to the greatest degree in alternative E, and to the least in alternative D. Similar amounts of land are available under the current plans, alternatives B, C, E, and F ranging from 56 to 58 percent, while alternative D provides 40 percent of the Custer Gallatin being available for commercial use of special products.

Table 41. Approximate acreage of areas where commercial use of special forest products is not allowed and percent of forest by alternative

Area	Alternative A (acres)	Alternative B (acres)	Alternative C (acres)	Alternative D (acres)	Alternative E (acres)	Alternative F (acres)
Commercial Use Not Allowed in: Wilderness Areas, Wilderness Study Area, Recommended Wilderness Areas, Research Natural Areas, Special Areas, Wild Portions of Wild and Scenic Rivers ² Cabin Creek Recreation and Wildlife Management Area	1,300,678	1,314,897	1,334,312	1,818,555	1,273,050	1,330,348
Percent of Forest (3,039,279 NFS acres) where commercial use of Special Products is not allowed	43%	43%	44%	60%	42%	44%

1. Due to mapping limitations, these figures did not include acres of developed recreation sites or inner riparian management zones where commercial uses are also not allowed

2. Designated and eligible wild and scenic rivers: not allowed in wild sections; allowed in scenic and recreation sections

Cumulative Effects

Neighboring land ownerships and various restrictions could affect pressure for commercial and personal use of forest products from National Forest System lands.

Gallatin, Park, Sweet Grass, Stillwater, and Carbon counties (Montana) have experienced high rates of population growth over the past couple of decades. With this increased growth rate comes increased pressure on National Forest System lands for a variety of social needs and desires, including the use of special forest products. The sustainable use of some of these resources may become increasingly vulnerable, requiring permitting and limitation of use.

Conclusion

Under all alternatives, personal use of special forest products would be allowed across the Custer Gallatin, except in research natural areas and Black Sands Spring Special Area, so long as the use does not conflict with other management guidance. Under all alternatives, gathering of special forest products for personal use is allowed over the vast majority of National Forest System lands. Though wheeled motorized transport is limited, hiking is not. Biking or horseback riding are also widely available forms of access to lands for gathering of special forest products.

Under all alternatives, commercial use of special forest or botanical products would not be allowed in designated wilderness, wilderness study areas, recommended wilderness areas, research natural areas, backcountry areas, Cabin Creek Wildlife Management Area, or wild segments of designated or eligible wild and scenic rivers and special areas (FW-STD-FP-01). In addition, commercial use firewood, post and poles, teepee poles, and biomass and wood fiber permits within developed recreation sites are not suitable (FW-SUIT-RECDEV-02). Also, under all revised plan alternatives, all firewood gathering in inner riparian management zones is not suitable (FW-SUIT-RMZ-02).

Differences between alternatives related to gathering opportunities or potential impacts to special forest products are largely linked to the degree of road or trail access and amount of land where special forest or botanical products are allowed. Commercial use of special products is allowed to the greatest degree in alternative E, and to the least in alternative D. Similar amounts of land are available for commercial use under the current plans, alternatives B, C, E, and F ranging from 56-to 58 percent, while alternative D provides 40 percent of the Custer Gallatin being available for commercial use of special products.

Plan components provide for protection of Tribal treaty rights related to harvestable plants, including access to the Custer Gallatin for the effective exercise of gathering rights (FW-DC-TRIBAL-01, FW-STD-TRIBAL-02).

The plan components cited above provide direction to provide for sustainable levels of all special forest products and encourage the use of non-destructive harvesting methods, as applicable.

3.17 Energy, Minerals, and Geologic Areas of Interest

3.17.1 Introduction

The following information forms the basis of both the affected environment and environmental consequences pertaining to renewable and nonrenewable energy, mineral resources, and geologic areas of interest found across the Custer Gallatin National Forest. Topics discussed address items required by the 2012 Planning Rule (36 CFR Part 219) and also those considered important to future management of geologic and minerals resources and issues over the life of the ensuing revised plan. The diversity of topics included is reflective of the energy and minerals resources, geologic issues, and geographic diversity represented across the 400 miles of the Custer Gallatin National Forest. An overview of forest geology is not included, although the types and arrangement of rocks underlying the national forest directly influences the presence or absence of mineral and energy resources. The information presented within this section draws from a detailed report pertaining to these same considerations and is found in the Renewable and Nonrenewable Energy and Mineral Resources Assessment Report (Pierson 2017).

Regulatory Framework

A variety of Federal mineral, energy, and geologic resource laws and resource management regulations and policies directly influence the development of mineral and energy resources and the management of geologic resources and hazards within the Custer Gallatin. A brief overview of this information is provided below.

The authority to manage and regulate the exploration and development of mineral and energy resources within National Forest System (NFS) lands is jointly shared between the secretary of agriculture and the secretary of the interior. The regulatory framework for mineral and energy resource exploration and extraction depends upon the type of commodity, the surface and mineral estate ownership, and the land status (public domain or acquired). The Forest Service has authorities to administer minerals on both public domain and acquired lands. Public domain lands are those that have never left Federal ownership and jurisdiction. These lands, unless they are subject to a mineral withdrawal, are open to mineral entry under the Mining Laws.

The primary laws which govern minerals management on Federal lands are briefly discussed below. A much more exhaustive listing of Federal laws pertaining to the management of National Forest System Lands inclusive of mineral resources is contained in the Renewable and Nonrenewable Energy and Mineral Resources Assessment Report (Pierson 2017).

General Mining Law of 1872: authorizes placer and lode mining claims, mill sites and tunnel sites of specific dimensions and a patenting process. This act sets forth the principles of discovery, right of possession, assessment work, and patent for hardrock minerals on lands reserved from the public domain. Except as otherwise provided, all valuable mineral deposits, and the lands in which they are found, are free and open to exploration, occupation, and purchase under regulations prescribed by law (FSM 2810).

Organic Administration Act of June 4, 1897 (30 Stat. 11, as amended; 16 U.S.C. 473-475, 477-482, 551): provides the secretary of agriculture the authority to regulate the occupancy and use of National Forest System lands. It provides for the continuing right to conduct mining activities under the general mining laws if the rules and regulations covering National Forest System lands are complied with. This act recognizes the rights of miners and prospectors to access National Forest System lands for all proper and lawful purposes; including prospecting, locating, and developing mineral resources.

Mineral Leasing Act of 1920 as amended: provides that deposits of laterally extensive minerals such as coal, oil, gas, and phosphate can be acquired through competitive leasing systems.

Mining Act of July 23, 1955 (69 Stat. 368; 30 U.S.C. 601 et seq.): requires the disposal of common varieties of sand, stone, gravel, pumice, pumicite, and cinders under the provisions of the Materials Act of July 31, 1947, and gives to the secretary of agriculture the authority to dispose of these materials. It also provides that rights under any mining claim located under the mining laws are subject to the right of the United States to manage and dispose of surface resources.

Multiple Use Mining Act of 1955 (30 U.S.C.611-615): authorizes the Forest Service to restrict mining operations on National Forest System lands to only those uses reasonably incident to mining and in a manner that minimizes adverse environmental impacts.

Mining and Minerals Policy Act of December 31, 1970 (84 Stat. 1876; 30 U.S.C. 21a): states that the continuing policy of the Federal government is to foster and encourage private enterprise in the

development of economically sound and stable domestic mining and minerals industries and the orderly and economic development of domestic mineral resources.

Title 36, Code of Federal Regulations, Part 228: set forth rules and procedures governing use of the surface of National Forest System lands in conjunction with operations authorized by the general mining laws, and mineral material disposal laws.

Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA) (94 Stat. 2767; 42 U.S.C. 9601, et seq): provides authority to the Environmental Protection Agency and to other Federal agencies, including the United States Department of Agriculture, to respond to release of hazardous substances, pollutants, and constituents. It also provides for joint and several liability to potentially responsible parties (PRPs) for cleanup costs of existing water contamination (FSM 2160).

Energy Policy Act of 2005 (Pub. L. 109–58): addresses energy production in the United States, including: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Tribal energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Paleontological Resources Preservation subtitle of the Omnibus Public Land Management Act, 16 U.S.C. 470 aaa to aaa-11 (2009): provides for the preservation, management, and protection of paleontological resources on National Forest System lands (NFS), and ensures that these resources are available for current and future generations to enjoy as part of America's national heritage.

Federal Cave Resources Protection Act (FCRPA) of 1988: states that it is the policy of the United States that Federal lands be managed in a manner which protects and maintains, to the extent practical, significant caves. The purposes of the FCRPA are (1) to secure, protect, and preserve significant caves on Federal lands for the perpetual use, enjoyment, and benefit of all people; and (2) to foster increased cooperation and exchange of information between governmental authorities and those who utilize caves located on Federal lands for scientific, educational, or recreational purposes. The FCRPA is guided by implementing regulations at 36 CFR Part 290 – Cave Resources Management.

Key Indicators and Measures

- restrictions that could affect energy and mineral development, such as timing and access restrictions, measured in relative acres between alternatives where new road building is not allowed
- area unavailable for extraction of salable mineral material, measured in relative acres between alternatives

Methodology and Analysis Process

The differences between alternatives are evaluated by considering effects of revised plan direction and how well it supports or limits energy and mineral development and geologic resources. Effects for minerals development activities are assessed for different alternatives and specifically for areas that have been identified as not suitable for salable mineral materials and those areas where new road construction is not allowed. Salable mineral materials availability would vary by alternatives. Restrictions on road building are assumed to make permitting more expensive and time consuming and likely result in a more expensive mining operation. Mineral development in recommended wilderness and other special areas would have more opposition from the public and would result in additional constraints on

the mining operation and require more time for processing and environmental analysis. Locatable and leasable minerals availability does not vary by alternative.

Mineral encumbrances; reserved and outstanding private mineral rights, active and suspended oil and gas leases, and locatable mining activities that may occur in recommended wilderness areas are analyzed in the recommended wilderness area section. All of these have the right to access the national forest to explore for and develop the minerals; reasonable access and new facilities for these mineral encumbrances would not be prohibited under this plan.

The analysis of renewable and non-renewable energy and mineral resources considers lands that comprise the Custer Gallatin National Forest yet are not currently managed as wilderness or have otherwise been withdrawn from locatable mineral actions to be available for multiple use management.

Assumptions used in this analysis include the accuracy of data used at the time this analysis was prepared. Mineral rights data, especially the mining claims for locatable minerals, are always changing, so the analysis is a snapshot in time.

Information Sources

This analysis draws upon appropriate and applicable data found to be relevant to the geologic conditions found on the Custer Gallatin National Forest. The analysis uses data contained within Forest Service and Bureau of Land Management data bases. These data sources have been incorporated into the corporate Geographic Information System (GIS) used by the Custer Gallatin. A variety of mapping and analysis products were generated and this information has been used in the effects analysis.

Analysis Area

The geographic scope of the analysis is all National Forest System lands within the Custer Gallatin National Forest boundary. Cumulative effects consider neighboring national forest and Bureau of Land Management land jurisdictions. The temporal scope is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

In addition to supplementing the final environmental impact statement with new information, clarifying language, minor edits, and analysis of Alternative F, the notable changes in the revised plan include a new desired condition (FW-DC-EMIN-03) to acknowledge the contribution of energy and mineral resources to economic sustainability, deletion a draft plan goal (FW-GO-EMIN-02) that does not pertain to national forest lands, new guidance for paleontological resources (FW-DC-EMIN-10 and FW-GDL-EMIN-03) and addition of a definition of mining activities.

3.17.2 Affected Environment (Existing Condition)

Locatable Minerals

Locatable minerals include both metallic minerals (gold, silver, copper, zinc, nickel, lead, platinum, etc.) and nonmetallic minerals (fluorspar, asbestos, gypsum, mica, locatable grade limestone, pumice, etc.) and certain uncommon variety minerals. The General Mining Law of 1872 provides the right to prospect, explore, and develop minerals on public domain lands open to mineral entry. The right of access for exploration and development of locatable minerals is also guaranteed, although the Forest Service may condition this right. If the land is open to mineral entry and a mining claim is properly filed with the Bureau of Land Management and the local county, the claimant has legal title to the mineral.

Locatable Mineral Activities on the Custer Gallatin National Forest

Currently, there are numerous authorized locatable mineral activities, such as exploration or production operations for locatable minerals within the boundaries of the Custer Gallatin. Approved locatable mineral operations range in scope from large underground mines (Sibayne Stillwater Mining Company) to very small dredging and hardrock exploration programs. Over the last 20 years (1995-2015) the Custer Gallatin has processed and administered 5 to 10 plans of operations annually. Most of these activities have occurred within the Stillwater Complex, on the Yellowstone and Beartooth Districts.

Two large-scale hard rock underground mines are located within the Stillwater Complex along the northern margins of the Beartooth Plateau. Both of these mines produce platinum and palladium minerals and are operated by the Sibayne Stillwater Mining Company. These two mines represent a significant source of employment within and adjacent to the Custer Gallatin National Forest. The scale and grade of the ore deposit suggest that, at a minimum, mining activities should continue throughout the forest planning horizon and likely in excess of 30 years.

Locatable mineral mining and exploration activities are proposed or ongoing in areas within and immediately adjacent to the Custer Gallatin. Most notable are exploration activities within the Crevice Jardine and Emigrant areas, as well as ongoing locatable grade limestone mining adjacent to the Pryor Mountain assessment area. Recent interest in placer exploration has been taking place within the Emigrant Creek and the Gardiner Jardine areas. Other small-scale placer activity is ongoing in the Boulder River drainage.

Locatable Mineral Withdrawals

The Custer Gallatin National Forest contain lands that have been withdrawn from mineral entry; therefore exploration, development, and production of locatable mineral resources is not allowed, subject to valid existing rights. These areas consist of administrative sites, existing ski areas, campgrounds or other areas of capital improvements, areas with other outstanding natural resource values, and wilderness areas. Both original Custer (appendix IV) and Gallatin (appendix D) forest plans included listings of sites where locatable mineral withdrawals had been enacted. In total, 81 sites were identified in both plans.

Since that time additional locatable mineral withdrawal areas have been identified or approved. The largest land positions currently withdrawn from mineral entry within the Custer Gallatin include the Absaroka-Beartooth Wilderness (916,599 acres) and Lee Metcalf Wilderness (133,848 acres) Areas. Additional areas of locatable mineral withdrawals have been approved since both forest plans were approved in the mid-1980s. Approximately 26,223 acres of Federally owned lands and interests in lands within the New World Mining District have been withdrawn from all forms of entry, appropriation, and disposal under the public land laws, from location, entry and patent under the mining laws, and from disposition under all mineral and geothermal leasing laws. A locatable mineral withdrawal for the Emigrant and Crevice areas within the western margins of the Absaroka Beartooth Geographic Area of the Custer Gallatin which totals 30,370 acres has recently been approved. These lands were withdrawn from location and entry under the United States mining laws for a period of 20 years, subject to valid existing rights. On March 12, 2019, President Trump signed Public Law No. 116-9, the "John D. Dingell, Jr. Conservation, Management, and Recreation Act." This act included the "Yellowstone Gateway Protection Act" making the 30,370-acre administrative withdrawal permanent. The lands have been and will remain open to leasing under the mineral leasing and geothermal leasing laws. Many smaller areas throughout the Custer Gallatin have been withdrawn from mineral entry. A total of 1,107,915 acres of National

Forest System land has been withdrawn from mineral entry (not including the smaller withdrawal areas) within the 3,045,965 acres of the Custer Gallatin National Forest. Active mining claims are located within these withdrawal areas. A validity examination would need to be conducted to determine if the active mining claim is valid before any mining activities could begin.

Leasable Minerals

Leasable mineral commodities (both renewable and non-renewable) include oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, sulfur, and trona on public domain lands. Solid minerals, including locatable minerals, on acquired lands are leasable. Leasable public domain minerals are leased under authority of the Mineral Leasing Act of 1920, as amended. Acquired minerals are leased under the authority of the 1947 Mineral Leasing Act for Acquired Lands (1947 Act), as amended.

Oil and Gas

The Bureau of Land Management issues all leases for the production of federally owned oil and gas minerals on National Forest System land with consent from the Forest Service. Forest Service regulations at 36 CFR 228, Subpart E, establishes the process for making oil and gas leasing decisions in accordance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Under the Federal Coal Leasing Amendments Act of 1975, Forest Service consent is required for a coal license or lease. Whether public domain or acquired lands, pursuant to the Geothermal Steam Act of 1970, Bureau of Land Management may lease geothermal resources after obtaining consent from the Forest Service.

Oil and Gas Activities, Existing Leases, and Lease Nominations on the Custer Gallatin – The majority of the Custer Gallatin does not have a current oil and gas leasing analysis necessary to offer leasable mineral resources for lease sale. Only the South Dakota portion of the Sioux District currently has an oil and gas leasing environmental impact statement and record of decision. Currently, the Custer Gallatin National Forest has 86 authorized leases (totaling 116,594 acres) located within the national forest. Approximately 100,531 of these leased acres are located on the western portion of the Custer Gallatin, but have been suspended from further activities, as a result of legal challenges discussed below under the subject area entitled suspended oil and gas lease activities on the Custer Gallatin.

The remaining 16,062 acres of authorized leases are located on the Sioux District portion of the planning area. All portions of the South Cave Hills unit were leased in January 2009. To date, no applications for development for these 2009 leases have been received. The Sioux District contains three existing oil and gas wells. One is a saltwater disposal well, while the other two produce leasable mineral resources. Currently, no leasable mineral exploration activity exists on the Custer Gallatin.

The Custer Gallatin National Forest also has a number of pending leases which are areas that have been nominated for lease sale by the oil and gas and coal bed methane industry, but no leasing action has taken place (total acreage of pending leases is 96,090 acres). Acreage totals by district are Ashland – 19,057, Sioux – 60,143, Beartooth – 6481, Big Timber – 160, Bozeman – 3174 and Yellowstone – 7076. Forest Service priorities for oil and gas leasing environmental analyses are based on public desire for action, applications for permits to drill on existing leases, and available funding. No environmental analysis for oil and gas leasing will be conducted as part of this plan, however the plan sets the stage for future analysis for leasing.

Suspended Oil and Gas Lease Activities on the Custer Gallatin – The secretary of interior suspended oil and gas leases which had previously been sold in 1985 as a result of the Conner v. Burford district court

decision [Conner v. Burford, 605 F. Supp. 107 (D.Mont.1985)]. The court found the environmental effects analysis supporting lease issuance on the Gallatin and Flathead National Forests to be inadequate. The court specified that no activity may take place on the leases until an environmental impact statement is completed. The 9th Circuit Court of Appeals upheld the district court decision to require an environmental impact statement prior to any post leasing activities in a January 13, 1988, decision, as amended July 1, 1988. Therefore, no oil and gas exploration drilling or development can be undertaken on these leases until an environmental impact statement is completed. This analysis was never conducted and a leasing decision will not be a part of this analysis.

As of April 4, 2016, 68 suspended oil and gas leases covering 100,531 acres are located within forest. These suspended leases are found within the Madison, Henrys, Gallatin, and Absaroka Beartooth Mountain forest planning subunit on the Bozeman (51 leases; 77,203 acres), Gardiner (1 lease; 480 acres), and Livingston (16 leases; 22,848 acres) Districts (Hunt 2018 personal communication).

Coal Deposits

Significant coal deposits are found within the Powder River Basin of southeastern Montana; the Ashland District is located within this area. The Powder River Basin contains the largest occurrence of low-sulfur, low-ash, subbituminous coal in the United States and is the single most important coal basin in the United States.

The Ashland District and to a lesser degree, the Sioux District contain the coal resource found on the Custer Gallatin. Coal deposits of the Ashland District are best described as sub-bituminous while coal within the Sioux District is classified as lignite. No expressed interest in leasing or development of coal within the Ashland or Sioux Districts have been received. Given the coal occurrence, current price, and coal market conditions, future coal development is not foreseeable.

Coalbed Methane

Bureau of Land Management assessments related to coalbed methane occurrence and development potential have been conducted for lands encompassed within the current forest planning assessment area. Areas which were identified as having a high occurrence and development potential were generally located within the Ashland District, within the Powder River Basin of southeastern Montana. Areas which were identified as having a moderate occurrence and development potential related to coalbed methane include the Bangtail and northern portions of the Absaroka Mountain areas due to the occurrence of cretaceous aged coals of sufficient thickness. Although there have been lease nominations for coal bed methane, no leasing has occurred. Since the time of the interest in leasing, the coal bed methane industry has declined significantly due to more cost-effective sources of natural gas production.

Geothermal

Geothermal resources are defined as all products of geothermal processes including indigenous steam, hot water or hot brines, steam and other gases, heat or other associated energy found in geothermal formations, and any byproducts (43 CFR 3200). Renewable energy minerals on National Forest System lands are made available through issuance of leases similar to nonrenewable energy resources leasable minerals.

A nationwide programmatic final environmental impact statement for geothermal leasing in the western United States was prepared which identified lands that would be made available for issuance of geothermal leases. A record of decision was issued by the Bureau of Land Management and the Forest

Service in (2008). The analysis identified National Forest System lands that are legally open or closed to geothermal leasing in twelve western states, including the Montana portions of the Custer Gallatin. The South Dakota portion of the planning area was not considered in this nationwide programmatic final environmental impact statement.

Certain lands may be excluded from geothermal leasing on the basis of existing laws, regulations (see 43 CFR 3201.11) and Executive Orders. These non-discretionary closures are typically associated with designations of national monuments, wilderness areas, and some wilderness study areas. Since the South Dakota portion of the Custer Gallatin was not considered within the final environmental impact statement for geothermal leasing, a separate geothermal leasing environmental impact statement would need to be conducted prior to leasing or development.

Potential for enhanced geothermal system development on the Custer Gallatin ranged from low to high suitability. Most of the lands which are attractive from a geothermal perspective are associated with known hot springs or elevated water temperatures at depth in the far eastern portions of forest.

Renewable Energy Resources

In 2013, the National Renewable Energy Laboratory (NREL) completed an assessment of the potential for solar and wind energy development on National Forest System lands entitled Analysis of Renewable Energy Potential on U.S. National Forest Lands (Zvolanek et al. 2013). Authorization and permitting of both wind and solar renewable energy activities is conducted under the Forest Service's Special Use program. Management direction and authority for generation, transmission, and distribution of electric energy is provided by the Federal Land Policy and Management Act of 1976 (FLPMA). Additionally, the Energy Policy Act of 2005 (section 211) recognizes the Forest Service's role in meeting the renewable energy goals of the United States. The use and occupancy of National Forest System lands for renewable energy production, such as hydropower, solar and wind energy development, are appropriate.

Wind Power

National Forest System lands were evaluated for potential suitability for wind energy development (Zvolanek et al. 2013). Montana and western South Dakota have substantial potential for wind generation. The planning area was found to have potential for the development of wind energy due to the available resource and proximity to transmission lines (Zvolanek et al. 2013).

Nationwide, the eastern side of the Custer Gallatin was identified as one of the top ten National Forest units with the most potentially suitable land for wind development, with 139,243 acres which could produce 2,785 MW of wind generated energy (assuming 50 acres per MW). The lands within the western side of the Custer Gallatin were estimated to have 3,678 acres of potentially suitable land for wind development which could potentially generate 75 MW of wind generated energy (assuming 50 acres per MW).

Solar Power

The Custer Gallatin does not have a high potential for the development of solar energy (U.S. Department of Agriculture and U.S. Department of Energy 2005, Zvolanek et al. 2013). The lands on the eastern side of the Custer Gallatin have a maximum development potential for photovoltaic solar energy of 69,929 acres with potential to generate 1415 MW of energy (assuming 1 MW per 5 acres). The lands on the western side of the Custer Gallatin are estimated to have 49,410 acres of maximum development potential for photovoltaic solar energy with 1000 MW (assuming 1 MW per 5 acres).

Hydropower

Hydropower accounts for 36 percent of electricity generation in Montana and 40 percent in South Dakota (National Hydropower Association 2016). The permitting and licensing of hydropower projects is overseen by the Federal Energy Regulatory Commission (FERC). Because the construction and operation of hydropower facilities hold significant implications for the environmental, cultural, and economic resources in a river system, projects undergo a rigorous review with input from stakeholders including Federal and State agencies.

The western, mountainous portions of the Custer Gallatin have the highest potential for hydropower development and generation due to topographic characteristics of the terrain. These areas typically receive a relatively constant precipitation as compared to prairie ecosystems located in the eastern portions of the Custer Gallatin. The eastern portions have limited localized opportunities for development of hydropower energy generation. As evidenced by the public reaction to recent proposal for hydropower development in the East and West Rosebud drainages on the Beartooth District, significant local opposition to hydropower proposals are likely to take place.

Hydropower Facilities

Two renewable energy facilities are located within the Custer Gallatin National Forest. The Mystic Lake hydroelectric dam, located on the West Rosebud River, Beartooth District, has been in operation since 1924. Mystic Lake Dam is a two-unit hydroelectric plant and is classified as a storage generation project because it uses the water stored in its reservoir to generate electricity. Mystic Lake Dam is permitted by Federal Energy Regulatory Commission through 2050. Upgrades to the original turbines enable the facility to generate up to 11.8 megawatts.

Hebgen Lake, located on the Hebgen Lake District, serves as a storage reservoir, which provides water release from a 905-square-mile drainage area at the headwaters of the Madison-Missouri river system. These water releases, flow into eight downstream Montana hydroelectric plants. While operation of Hebgen Lake dam is used to regulate the flow of water into the Madison-Missouri system, it does not specifically generate hydropower.

Permits were granted by Federal Energy Regulatory Commission (FERC) to study hydropower project feasibility on East Rosebud and West Rosebud Creeks on the Beartooth District and Quake Lake Reservoir on the Hebgen Ranger District (Federal Energy Regulatory Commission 2009;2010b;a). No special use permit applications for feasibility studies have been received by the Forest Service to date. There are no other known, pending or proposed hydroelectric permits, projects, dams or storage reservoirs, or other renewable energy projects on the Custer Gallatin.

Salable Mineral Materials

Salable mineral materials, such as petrified wood and common varieties of sand, stone, gravel, cinders, clay, pumice, pumicite and other similar materials that are reserved from the public domain fall under the Materials Act of 1947. The associated Forest Service regulations (36 CFR 228, Subpart C) provide for disposal of mineral material on public lands through competitive sale, negotiated contracts, preference right negotiated sale, free use, and Forest Service force account or contract (36 CFR 228.57). The salable mineral material policy, as specified in FSM 2850-3, states that disposal of mineral material will occur only when the authorized officer determines that the disposal is not detrimental to the public interest and that the benefits to be derived from a proposed disposal would exceed the total cost and impacts of resource disturbance.

The Custer Gallatin uses mineral materials, such as gravel, riprap, and crushed aggregate in routine maintenance and new road construction, recreation sites, and trailheads. Other uses may include forest contract work, culvert replacement, and repairs of damage caused by fire, floods, landslides, and abandoned mine reclamation. Additionally, the Custer Gallatin annually issues approximately 75 personal use mineral material permits for landscape rocks and other materials. Additionally, approximately 100 petrified wood minerals material permits are issued each year.

Mineral Encumbrances on the Custer Gallatin

The Custer Gallatin National Forest contains four different types of encumbrances of the subsurface minerals estate. There are both reserved and outstanding private mineral rights on acquired lands. There are also active and suspended oil and gas leases and mining activities under the 1872 Mining Law. All of these mineral rights have the right to access the land to explore for and develop the minerals. Many plan components for other resources have stipulations stating that no new roads will be constructed; reasonable access and new facilities for these mineral encumbrances would not prohibit under any alternative.

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.

As discussed above, the Custer Gallatin has 86 authorized oil and gas leases (includes suspended and active leases) totaling 116,594 acres. Approximately 100,531 acres of suspended oil and gas leases acres are located on the western portion of the national forest. Approximately 16,062 acres of active leases are located on the Sioux District.

Hardrock mining is regulated by the 1872 Mining Law and state and Federal regulations. Reasonable access to valid mining claims is guaranteed under the mining laws. Mining claims are located across the Custer Gallatin with the majority being located in the Stillwater Complex, Jardine, and Crevice areas.

Geologic Areas of Interest

Geologic areas of interest include geologic resources, caves and karst, paleontological resources, and geologic hazards. Geologic resources consist of interesting and unusual geologic occurrences such as exposed faulting and deformed rocks showing tectonic movement and glacial features such as U-shaped valleys and glacial lakes. Caves and karst geology is a forest resource that has been inventoried and is being actively managed.

The Custer Gallatin contains differing geologic conditions characterized by mountainous terrain in the western and central portions, which have significant occurrences of igneous and metamorphic rocks. The eastern portions (Ashland and Sioux Districts) are characterized by relatively flat lying sedimentary geologic units. On the Custer Gallatin, many geologic areas of interest contribute to landscape diversity. Broad categories of geologic areas of interest include geologic resources, caves and karst resources, paleontological resources, and geologic hazards.

Noteworthy examples of geologic resources include:

- Well exposed large-scale faulting which formed the mountain ranges found throughout the western and central portions of the planning area.
- Prominent Pleistocene glaciation features such as u-shaped valleys, arêtes, alpine glacial lakes, thick deposits of ground moraines, and hanging valleys.
- Unglaciaded subalpine highlands containing extensive cave and karst formations, including four ice caves. These features are unique to the northern Rocky Mountains.
- Steep sided erosion resistant remnant buttes of the Sioux District provide a stark and dramatic contrast to the adjacent rolling and dissected grassland prairies.
- Exposures of geologic formations known to contain important paleontological resources.
- Additionally, specific areas of geologic areas have been formally designated as notable (table 42).

Caves and Karst Areas

Caves and karst areas represent unique geologic features that contain potentially significant biological, hydrological, mineralogical, scientific, cultural, recreational, and economic resources. Karst topography results from the dissolving action of acidic water on soluble carbonate bedrock units.

The majority of known caves on the Custer Gallatin are solution caves within the Madison Limestone Formation and a lesser amount occur in Cambrian limestone. Other types of caves within the Custer Gallatin include glacier caves, sandstone caves, talus caves, or boulder caves. There are numerous inventoried and un-inventoried caves on the Custer Gallatin National Forest. Inventoried caves have been documented to contain biotic, cultural, mineralogical, paleontological, geologic, hydrologic, and recreation resources. Several areas on the Custer Gallatin can be defined as karst landscapes, most notable amongst these are the Pryor Mountains. Caves in Pleistocene travertine deposits are located on the Gardiner Ranger District.

Table 42. Designated or developed geologic areas of interest

Geologic area of interest	Geographic Area	Description
Capital Rock National Natural Landmark	Sioux	Capital Rock displays uplift and erosion of Late Cretaceous, Paleocene, Oligocene, and Miocene strata within the surrounding prairie environment. The area is a remnant of the once continuous blanket of Tertiary deposits that covered much of the Great Plains.
The Castles National Natural Landmark	Sioux	The Castles consists of steep-walled, flat-topped buttes standing 200 to 400 feet above the surrounding prairie and contains exposed rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene Ages, with a variety of flora and fauna fossils.
Big Ice Cave	Pryor Mountains	Interpretative facilities related to the formation of Ice Caves within the Pryor Mountain cave and karst landscape.

Natural Bridge	Absaroka Beartooth Mountains	Interpretative facilities related to Karst topography; Main Boulder River disappears underground and reappears on cliff face creating dramatic waterfalls.
Bangtail Botanical and Paleontological Special Area	Bridger, Bangtail Crazy Mountains	Occurrence of Tertiary (Eocene) mammalian fossils.
Middle Fork Canyon National Natural Landmark	Bridger, Bangtail Crazy Mountains	Middle Fork Canyon illustrates rocks deformed by the earth's tectonic movement. Few places more clearly illustrate the effects of erosion and stream superposition.
Gallatin Petrified Forest	Madison, Henrys Lake, Gallatin Mountains	Widespread occurrence of petrified wood available for public collection via permit. Signed interpretive trail.

The Sioux and Ashland Ranger districts have significantly different bedrock geology than the western portions of the Custer Gallatin National Forest and do not contain large masses of carbonate bedrock. No landscapes traditionally considered as “karst” have been identified in these areas, but there are numerous small caves and alcoves formed in sandstone outcrops.

Paleontological Resources

Paleontological resources are broadly synonymous with “fossils,” as defined by Forest Service regulations (36 CFR Part 29). These regulations recognize that all paleontological resources on National Forest System shall be managed by the Secretary of Agriculture using scientific principles and expertise.

Custer Gallatin National Forest lands, particularly the eastern portions, have an abundance of paleontological resources, particularly in the Cretaceous and Tertiary aged formations. The Sioux District contains the largest exposure of Cretaceous Hell Creek Formation on the Custer Gallatin. The Forest Service has been conducting active inventory of paleontological resources on the Sioux District over the last several years. These efforts have resulted in the discovery of numerous vertebrate fossil specimens.

Other portions of the national forest have had paleontological investigations. Areas immediately adjacent to the Pryor Mountains have been explored for the presence of Paleozoic and Mesozoic aged vertebrates. Additionally, caves and traps within the karst topography of the Pryor Mountains have yielded unique Quaternary animal remains. The Bangtail Mountains on the Bozeman District have been recognized for the presence of fossils that document Eocene mammalian macroevolution, faunas and flora diversification, and climatic change. The area is also believed to represent unique documentation in the fossil record pertaining to mammalian evolution during the Paleocene epoch. Undiscovered paleontological resources may exist in other portions of the Custer Gallatin. As an example, recently a large, fossilized bone was located in the northwest portion of the Yellowstone District; an area not widely known for fossil occurrences.

Geologic Hazards

Geologic hazards are part of the natural environment of the Custer Gallatin National Forest. Hazards can include unstable landforms such as landslides, rock cliffs or sinkholes. These types of geologic hazards are not generally problems unless associated with forest infrastructure and public recreation areas. Geologic hazards may also consist of naturally occurring minerals and elements, such as erionite, offretite, and uranium, located with bedrock or resultant soils that are naturally a part of the landscape.

Actions that disturb these naturally occurring minerals and elements have the potential to create possible human health and safety issues.

Another type of geologic hazard is abandoned and inactive mine sites. A mine site inventory identified 536 possible sites on the Custer Gallatin. This inventory includes both physical public safety hazards and chemical contamination problems at mine sites. The majority of the abandoned and inactive mine sites were associated with the New World Mining District, the Jardine area and Independence. Ongoing inventory has identified additional uranium exploration safety hazards on the Sioux District and the Pryor Mountain area of the Beartooth District.

Several of the abandoned mines fall under the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 et seq. and 40 CFR part 300 et seq., 1980). This statute provides the authority to clean up where there is a release or a threat of a release of a hazardous substance. Mine sites on the Custer Gallatin that have used this authority for cleanup include the Riley Pass Uranium Mine on the Sioux Ranger District and the New World Mine on the Beartooth and Gardiner Districts.

3.17.3 Environmental Consequences

Effects Common to all Alternatives

The right to access locatable mining operations is a provision of the 1872 mining law. Access to mining activities on the Custer Gallatin must be reasonable as defined by law and statute. Reasonable access and new facilities for mineral encumbrances; reserved and outstanding private mineral rights, active and suspended oil and gas leases, and locatable mining activities would not be prohibited under any alternative. The plan does not identify new areas for mineral withdrawals.

The Hyalite/Porcupine-Buffalo Horn Wilderness Study Area would be managed and regulated according to existing direction. This area would continue not to be available for mineral leasing and salable mineral materials based on the provision in the law requiring this area to be managed to maintain its wilderness character, but is still open to locatable mining activities.

The congressionally determined boundaries of the Absaroka Beartooth and Lee Metcalf Wildernesses and the Cabin Creek Recreation and Wildlife Management Area located on the Custer Gallatin National Forest are withdrawn from mineral entry and would be carried forward in all alternatives in the plan. Since direction for wilderness management is detailed in law, regulation, and agency policy and in specific management plans, the effects to congressionally designated wilderness as a result of the revised plan do not differ by alternative.

All inventoried roadless areas within the Custer Gallatin were established as a part of the 2001 Roadless Area Conservation Rule and their boundaries would not change in any of the alternatives. Roadbuilding for leasable and salable mineral development is not allowed in these areas under the 2001 Roadless Rule. Based on statutory rights, the 2001 Roadless Rule allows for locatable mining activities within inventoried roadless areas.

There are many areas across the Custer Gallatin that have been administratively withdrawn from mineral entry, including designated wilderness, campgrounds, ranger stations, workstations, powerline corridors, and trailheads. These areas are not open to mineral entry and, therefore, locatable, leasable or salable mineral materials cannot be developed in these areas depending upon the specifics in the withdrawal.

The plan does not address existing, pending, or future mineral withdrawal areas. All existing mineral withdrawals are in all alternatives.

Current Plans

Management Direction under the Current Plans

The 1986 Custer Forest Plan contains forestwide and management area direction and extensive standards for the minerals program. Standards discuss specific requirements for the various minerals programs, including cooperation, geophysical exploration, oil and gas leasing, exploration, coal and other leasable minerals, common variety mineral material, locatable minerals, and paleontological resources. An amendment to this forest plan added uniform format for oil and gas lease stipulations, eliminated oil and gas production as a monitoring item and added standards and guides for caves in 1991. In 1996, various changes were made to oil and gas stipulations. In 2007, the Sioux Ranger District Oil and Gas Leasing Amendment was added to the plan. There is no direction for geologic areas of interest, such as geologic hazards in the 1986 Custer Forest Plan.

The 1987 Gallatin Forest Plan provides objectives for locatable, leasable and saleable minerals programs, and mineral withdrawal areas. These objectives state that geothermal development in the Corwin Springs area will be deferred until studies of any effect on Yellowstone National Park are completed. Mineral withdrawal areas were to be reviewed in accordance with the Federal Land Policy and Management Act of 1976. Common variety mineral extractions may only be authorized when compatible with the goals of the management areas. The minerals standards in the plan apply to the locatable, common variety (saleable) and leasable minerals programs and mineral withdrawal areas. Certain management areas within the plan have specific minerals direction. The plan was amended in 1997 to include the Cooke City Minerals Withdrawal. There is no direction for geologic areas of interest, such as caves and karst, paleontological resources, or geologic hazards in the 1987 Gallatin Forest Plan.

Effects of the Current Plans

Under the current plans, management of the Custer Gallatin would continue under each of the existing Custer and Gallatin Forest Plans. Additionally, plan components provide for the management of exploration and development of mineral and energy resources as well as geologic areas of interest in a manner consistent with other resource values and management area goals. Although the Gallatin National Forest Plan does not address paleontological and cave resources, they are managed in accordance with existing laws and regulations.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

All revised plan alternatives have the same minerals management direction. Desired conditions envision that the Custer Gallatin is available for mineral and energy resource use, in consideration of other resource values (FW-DC-EMIN-01 and 02). No plan components eliminate the right to access and develop locatable minerals, although the standards and guidelines for other resources may affect access for mining, the timing of an operation, and other conditions for operations. Various plan components for certain areas, such as recommended wilderness and backcountry areas, do not allow for the extraction of saleable mineral material. Several plan standards protect cave and karst resources (FW-STD-EMIN-03 to 07).

In alternatives B through F and subject to statutory rights, new permanent or temporary roads are not allowed in recommended wilderness areas (FW-STD-RWA-01), Cabin Creek Recreation and Wildlife Management Area (MG-STD-CCRW-01), wilderness study area (MG-STD-WSA-01), and Pryor Mountain Wild Horse Territory (PR-STD-WHT-01). Road reconstruction and new road construction are not allowed in inventoried roadless areas, except for the exceptions listed in the 2001 Roadless Area Conservation Rule (FW-STD-IRA-01). In alternatives B through E and subject to statutory rights, new permanent roads are not allowed in backcountry areas, although temporary roads may be constructed. In alternative F, subject to statutory rights, new permanent roads are not allowed; temporary roads may be allowed in the Chalks Buttes Backcountry Area (SX-STD-CBBCA-01), Pryor Mountains Backcountry Areas (PR-STD-PRBCA-01, PR-STD-PBBCA-01) and South Cottonwood Backcountry Area (MG-STD-SCBCA-01). New permanent and temporary roads are not allowed in the Ashland backcountry areas (AL-STD-ABCA-01), Bad Canyon Backcountry Area (AB-STD-BCBCA-01), Blacktail Peak Backcountry Area (BC-STD-BPBCA-01), Crazy Mountains Backcountry Area (BC-STD-CMBCA-01), Buffalo Horn Backcountry Area (MG-STD-BHBCA-01), West Pine Backcountry Area (MG-STD-WPBCA-01), and Lionhead Backcountry Area (MG-STD-LHBCA-01). In addition, new roads are not allowed in designated wilderness areas or in designated or eligible wild rivers by statute or in research natural areas by policy.

In alternatives B through F and subject to statutory rights, new energy or utility structures are not allowed in Pryor Mountain Wild Horse Territory (PR-STD-WHT-02), Cabin Creek Recreation and Wildlife Area (MG-STD-CCRW-02), wilderness study area (MG-STD-WSA-02), research natural areas (FW-STD-RNA-01), national natural landmarks (FW-STD-NNL-01), recommended wilderness areas (FW-STD-RWA-02), and backcountry areas (FW-STD-BCA-01).

Backcountry area standard FW-STD-BCA-06 allows exceptions to the backcountry area standards of no new roads or no new energy or utility structures in chapter 2 and chapter 3 of the plan if needed to provide for reasonable access and mining activities pursuant to the 1872 mining law, while requiring new access or development to minimize impacts to backcountry areas.

In alternatives B through F, no new saleable mineral material extraction would be allowed in riparian management zones (FW-STD-RMZ-05), administrative sites (FW-STD-FAC-01), developed recreation sites (FW-STD-RECDEV-01), designated wild and scenic rivers (FW-STD-DWSR-01), research natural areas (FW-STD-RNA--03), national natural landmarks (FW-STD-NNL-02), eligible wild and scenic rivers (FW-STD-EWSR-01), recommended wilderness areas (FW-STD-RWA-06), backcountry areas (FW-STD-BCA-04), regional endemic and peripheral plant occurrences (PR-STD-VEGNF-02), Pryor Mountain Wild Horse Territory (PR-STD-WHT-04), Cabin Creek Recreation and Wildlife Management Area (MG-STD-CCRW-05), wilderness study area (MG-STD-WSA-06) and Continental Divide National Scenic Trail (MG-STD-CDNST-03). In addition, extraction of saleable mineral material is not allowed in designated wilderness areas by statute.

The standard of no new saleable mineral material extraction in recommended wilderness areas and the wilderness study area does not apply to permitted collection of petrified wood in the Gallatin Petrified Forest Special Management Zone (FW-STD-WSA-06, FW-STD-RWA-06).

In alternative C, no new saleable mineral material extraction would be allowed in the Hyalite Recreation Emphasis Area.

The Stillwater Complex area is identified as a separate plan land allocation for specific management direction due to its importance as a significant platinum and palladium deposit which supplies critical

minerals (AB-DC-SWC-01 and 02). Sibanye Stillwater mining operates two large underground mines and the life of mine is expected to exceed the lifespan of the plan. The Stillwater Complex is identified as an area that will be disturbed, both on the surface and subsurface, for the development and production of locatable minerals. The Stillwater Complex allocation is not included in alternative D.

Effects of the Revised Plan Alternatives

The Stillwater Complex is included in all revised plan alternatives except for alternative D. Since there are no specific plan components to guide mining operations in the Stillwater Complex allocation differently than other locatable operations on the Custer Gallatin, the effects for the Stillwater mining area are the same for all revised plan alternatives. In alternative D, some of the Stillwater mining area is recommended wilderness area.

Mineral encumbrances; reserved and outstanding private mineral rights, active and suspended oil and gas leases, and locatable mining activities have the right to access the national forest and build associated structures. Reasonable access and new facilities for mineral operations would not be prohibited under any revised plan alternative. Reserved and outstanding private mineral rights may include locatable, saleable, and leasable minerals.

Although reasonable access is a guaranteed right under the mining laws, the plan components that would not allow new permanent or temporary road construction or new energy or utility structures would likely result in an increase in the length of time to process a minerals plan, additional mitigation requirements and costs for the operations. There would also likely be an increase in the length of time to process a plan, additional mitigation requirements, and costs for oil and gas activities. There may be an increase in the length of time to process a plan, additional mitigation requirements and costs for a proposal to develop reserved and outstanding minerals.

Table 43 summarizes the acreage where no new roads would be allowed by alternative. The acreage includes plan land allocations that do not change by alternative, such as designated wilderness areas and inventoried roadless areas, as well as allocations that vary by alternative, such as recommended wilderness. Backcountry areas are included in table 43, although standard FW-STD-BCA-06 allows exceptions to the no new roads and no new utility or energy structures standard if needed to provide reasonable access pursuant to the 1872 mining law and temporary roads are allowed in four backcountry areas.

Table 43. Acreage of lands where new roads are not allowed, by alternative

Custer Gallatin National Forest	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
All lands with no new roads allowed	1,899,682	1,944,565	1,976,610	1,989,541	1,901,082	1,964,670
Net additional acres when compared to alternative A (existing condition)	0	+44,883	+76,928	+89,859	+1,400	+64,988

Alternative A represents the current plans' future projections if kept.

Alternative D would have the highest amount of land with the plan direction of no new roads, followed by alternatives C, F, B, E, and the current plans (A). Alternative D is the highest as a result of the large number of recommended wilderness areas, followed by alternatives C and F which result from the

amount of recommended wilderness and backcountry areas. Alternative B has less acreage of recommended wilderness areas and backcountry areas than alternative C or F. Backcountry areas in alternative E are also inventoried roadless areas and do not result in new areas that restrict new roads. All revised plan alternatives restrict new roads in eligible wild rivers.

The Forest Service has the authority to dispose of salable mineral materials through a variety of methods. The disposal of saleable mineral materials is discretionary. Plan components that prohibit the extraction of saleable mineral materials would reduce the availability of saleable mineral material for forest projects such as roads, trails and trailheads, campgrounds, and other projects. Material needed for these types of projects may need to be purchased and transported from commercial sources resulting in an increase in the use of fuel and project costs.

Table 44 summarizes the acreage where extraction of saleable mineral materials would not be allowed by alternative. The acreage includes plan land allocations that do not change by alternative, such as designated wilderness areas, as well as allocations that vary by alternative, such as recommended wilderness.

Table 44. Acreage of lands where saleable mineral material extractions are not allowed, by alternative

Custer Gallatin National Forest	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
All lands where saleable mineral material extraction not allowed	1,225,962	1,638,182	1,795,541	1,985,436	1,530,227	1,702,100
Net additional acres above Alternative A (existing condition)	0	+412,220	+569,579	+759,474	+304,265	+476,138

Alternative A represents the current plans' future projections if kept.

Similar to the analysis of the land with the plan component of no new roads, alternative D would have the highest amount of land that would not allow the extraction of saleable mineral material followed by alternatives C, F, B, E, and the current plans (A). The amount of recommended wilderness areas and backcountry areas in each alternative has the greatest relative effect on the lands where saleable mineral material extraction is not allowed.

Analysis relative to the four mineral rights, which are encumbrances on the land, including reserved and outstanding private mineral rights, active and suspended oil and gas leases, and locatable mining claims is completed in the recommended wilderness section. This analysis shows the various mineral encumbrances on the land for each recommended wilderness area for consideration in the decision process. Although this is a snapshot in time, it gives some indication as to the amount of development that may occur within the recommended wilderness areas. Where backcountry areas have the same boundaries as recommended wilderness areas, impacts would be similar.

Forest Service direction for completing oil and gas leasing environmental analyses and decisions are based on laws, congressional direction, public desire for leases, and available funding. No environmental analysis for oil and gas leasing will be conducted as part of this plan; however, the plan sets the stage for future analysis for leasing. The plan would set the framework for how the Forest Service would blend oil and gas leasing and subsequent development with the sustainable management of the Custer Gallatin.

Leasable minerals management is ongoing on the Custer Gallatin. Large areas of the national forest are leased, but many of these leases are suspended due to a court decision, which required further environmental analysis of the leased land. No activity can take place on the suspended leases until a site-specific environmental impact statement is completed. Other areas of the Custer Gallatin, primarily on the east side have active leases, and drilling and development activities are occurring and future activities may occur on these leases.

Renewable minerals include geothermal, hydropower, solar, and wind energy. Lands on the Custer Gallatin are available for development of renewable resources in consideration of other resource values.

Paleontological resources and geologic hazards are abundant across the Custer Gallatin and plan components would allow for the protection of these resources. The management of geologic areas of interest would be in accordance with the plan components and regulatory direction for each specific resource, such as caves and karst and paleontological resources.

Consequences to Energy, Minerals, and Geologic Areas of Interest from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternatives direct that new mining activities should avoid riparian management zones to protect aquatic and riparian associated resources (such as streams, rivers, woody draws, wetlands, springs, and seeps). If the riparian management zone cannot be avoided operators should take all practicable measures to maintain, protect, and rehabilitate water quality and habitat for fish and wildlife, hydrologic function, and other riparian associated resources which 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 (FW-GDL-EMIN-02). This plan direction may increase in the length of time to process a minerals plan, additional mitigation requirements and costs for the operations. In the revised plan alternatives, new saleable mineral material permits are not to be issued in riparian areas (FW-SRD-RMZ-05).

Effects from Wildlife Management

In general, wildlife plan components have a moderate impact on minerals and energy management. There may be timing or location restrictions for mineral activities due to wildlife plan components, such as restrictions on energy and mineral developments in priority sage-grouse habitat (FW-GDL-WLSG-07).

Habitat security requirements and other mineral mitigation measures for grizzly bear can be expected to affect locatable, leasable, and salable mineral exploration and development. Where roads, and the access they provide, are necessary, limitations on road construction and operating seasons can be expected to have the effect of prolonging exploration or development work. The developed site standard (FW-STD-WLGB-04, FW-GDL-WLGB-02) for grizzly bear could affect a mineral or energy operation by requiring extra mitigation and result in additional costs, if a proposal is within a developed site. The revised plan direction may increase in the length of time to process a minerals plan, additional mitigation requirements and costs for the operations.

Key linkage areas would limit new permanent facilities (FW-GDL-WL-04). Where mining activities are allowed by valid existing rights or statutory rights in a key linkage area, plan components would result in an increase in the length of time to process a minerals plan and in mitigation requirements and costs for the operations.

Effects from Scenery Management

In all alternatives, the plan scenic integrity objectives do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground minerals and energy projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest maximum threshold of visual dominance and deviation from the surrounding scenic character. Scenery guidelines allow deviation from the scenic integrity objectives in recognition of statutory rights (reserved and outstanding private minerals rights, existing oil and gas leases, and locatable mineral rights). Plan direction may result in an increase in the length of time to process a minerals plan, additional mitigation requirements and costs for the operations.

The plan scenic integrity objectives do not affect geologic resources or geologic hazards as these are natural processes that are part of the natural environment.

Cumulative Effects

If recommended wilderness areas became designated as wilderness by Congress under the Wilderness Act of 1964 and subsequent wilderness legislation, lands would be withdrawn from appropriation under the mining and mineral leasing laws, subject to valid existing rights. Prior to designation as wilderness, mining claims may have been located on public domain lands. Mining operations may continue after designation and will be subject to strict regulation to protect wilderness character. Holders of valid mineral leases retain the rights granted by the terms and conditions of the specific leases. Holders of valid mining claims are allowed to conduct operations necessary for the development, production, and processing of the mineral resource. Reasonable access and development shall not be prohibited under the revised plan alternatives. However, these activities and the reclamation of all disturbed lands must minimize the impact on the surrounding wilderness character.

If an eligible wild and scenic river is designated, Federal lands within the boundaries of designated river areas (one-quarter mile from the bank on each side of the river) classified as wild, would be withdrawn from appropriation under the mining and mineral leasing laws by sections 9(a) and 15(2) of the Wild and Scenic Rivers Act. No new mining claims or mineral leases are allowed for designated river segments classified as wild. Existing valid mining claims or mineral leases within the river boundary would remain in effect, and activities would be allowed, but are subject to regulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment. Reasonable access to mining claims, mineral leases, and other outstanding mineral rights would be permitted.

Federal lands within the boundaries of designated river areas classified as scenic or recreational are not withdrawn under the act from the mining and mineral leasing laws. Therefore, in designated river segments classified as scenic or recreational, location of new mining claims or mineral leases is allowed, but are subject to reasonable access and regulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

Adjacent and nearby national forests and Bureau of Land Management lands are available for mineral and energy resource development, but will consider other resources which cumulatively provide for the mineral and energy needs of the nation and the impacts on resources such as water and wildlife.

Conclusion

Plan direction under all alternatives would support continued mineral and energy operations and the management of the areas of geologic interest. Plan direction under alternatives B, C, D, E, and F may increase the length of time to process a minerals plan, and add additional mitigation requirements and costs for the operations. Plan components are sufficient to manage the mineral and energy resources and the geology, caves and karst, and paleontology programs.

Plan components in a number of plan land allocations that would not allow the construction of new roads would likely result in an increase in the length of time to process a locatable plan of operations and in additional mitigation requirements and costs for the operations. These standards would also affect operations on lands with mineral encumbrances, including reserved and outstanding private mineral rights, existing oil and gas leases (both suspended and active) and locatable minerals. Alternative D would have the highest amount of land with the plan component of no new roads, followed by alternatives C, F, B, E, and the current plans (A).

In the revised plan alternatives, extraction of saleable mineral material would be prohibited in additional areas (primarily recommended wilderness, backcountry areas, and riparian management zones) and it would likely limit the availability of material for forest and county roads, trails, and other recreational development. Alternative D would have the highest amount of land that would not allow the extraction of salable mineral material followed by alternatives C, F, B, E, and the current plans (A).

3.18 Infrastructure

3.18.1 Introduction

The infrastructure addressed in section 3.18 occurring on the Custer Gallatin National Forest includes roads, trails, bridges, facilities, dams, and proposals for new airfields.

Regulatory Framework

Term Permit Act of March 4, 1915 (Pub. L. 63-293, Ch. 144, 38 Stat. 1101, as amended; 16 U.S.C. 497): provides direction authorizing occupancy of National Forest System lands for a wide variety of uses through permits not exceeding 30 years.

National Forest Roads and Trails Act of October 13, 1964 (Pub. L. 88-657, 78 Stat. 1089, as amended): declares that an adequate system of roads and trails should be constructed and maintained to meet the increasing demand for recreation and other uses. This act authorizes road and trail systems for the national forests. It authorizes granting of easements across National Forest System lands, construction and financing of maximum-economy roads (Forest Service Manual 7705), and imposition of requirements on road users for maintaining and reconstructing roads, including cooperative deposits for that work.

Highway Safety Act of September 9, 1966 (Pub. L. 89-564, 80 Stat. 731, as amended): authorizes State and local governments and participating Federal agencies to identify and survey accident locations; to design, construct, and maintain roads in accordance with safety standards; to apply sound traffic control

principles and standards; and to promote pedestrian safety. The Highway Safety Improvement Program and the Safety Performance Management Measures Final Rules (effective April 14, 2016) address the requirements of the Moving Ahead for Progress in the 21st Century Act and the Fixing America's Surface Transportation Act. Updates to the existing Highway Safety Improvement Program requirements under 23 CFR 924 are consistent with Moving Ahead for Progress in the 21st Century Act and the Fixing America's Surface Transportation Act, and clarify existing program requirements. The Safety Performance Management Measures Final Rule adds part 490 to title 23 of the Code of Federal Regulations to implement the performance management requirements under 23 U.S.C. 150, including specific safety performance measure requirements for the purpose of carrying out the Highway Safety Improvement Program to assess serious injuries and fatalities on all public roads.

Federal Aid Highway Act of 1968, as amended (23 U.S.C. 109(a) and (h), 144, 151, 319, and 351): establishes the National Bridge Inspection Standards (23 CFR 650, Subpart C) and the requirement that each state have a current inventory of bridges on all public roads, including National Forest System roads open to public travel (Forest Service Manual 1535.11).

Surface Transportation Assistance Act of 1978 (Pub. L. 95-599, as amended): supersedes the Forest Highway Act of 1958 and authorizes appropriations for Forest highways and public lands highways. Establishes criteria for Forest highways; defines Forest roads, Forest development roads, and Forest development trails (referred to as "National Forest System roads" and "National Forest System trails" in Forest Service regulations and directives); and limits the size of projects performed by Forest Service employees on Forest roads. Establishes the Federal Lands Highway Program.

Secure Rural Schools and Community Self-Determination Act of October 30, 2000 (Pub. L. 106-393, 114 Stat. 1607; 16 U.S.C.500 note): provides provisions to make additional investments in, and create additional employment opportunities through, projects that improve the maintenance of existing infrastructure, implement stewardship objectives that enhance Forest ecosystems, and restore and improve land health and water quality.

National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core Best Management Practices Technical Guide, April (2012b): (This is the first volume of guidance for the Forest Service, U.S. Department of Agriculture, and National Best Management Practices Program) developed to improve agency performance and accountability in managing water quality consistent with the Federal Clean Water Act and State water quality programs. Current Forest Service policy directs compliance with required Federal Clean Water Act permits and State regulations and requires the use of the National Best Management Practices Program to control nonpoint source pollution to meet applicable water quality standards and other Federal Clean Water Act requirements. It includes the National Best Management Practices Program for construction, operation, and maintenance of roads and motorized trails.

Moving Ahead for Progress in the 21st-Century Act of July 6, 2012 (Pub. L. 112-141): replaces the Federal Lands Highway Program with the Federal Lands Transportation Program and Federal Lands Access Program. This act authorizes funding for Federal lands transportation facilities and Federal lands access transportation facilities under a unified program, with policy similar to Federal-aid highways and other public transportation facilities. It requires Federal land management agencies to identify a comprehensive inventory of public Federal lands transportation facilities that, at a minimum, includes the transportation facilities that provide access to high-use Federal recreation sites or Federal economic generators.

36 CFR 212—Travel Management Final Rule: requires designation of those roads, trails, and areas that are open to motor vehicle use. Designations are made by class of vehicle and, if appropriate, by time of year. This rule prohibits the use of motor vehicles off the designated system, as well as use of motor vehicles on routes and in areas that is not consistent with the designations. Subpart B provides for a system of National Forest System roads, trails, and areas on National Forest System lands designated for motor vehicle use. After these roads, trails, and areas are designated, motor vehicle use, including the class of vehicle and time of year, not in accordance with these designations is prohibited by 36 CFR 261.13. Motor vehicle use off designated roads and trails and outside designated areas is prohibited by 36 CFR 261.13. Subpart C provides for a system of National Forest System roads, trails, and areas on National Forest System lands that are designated for over-snow vehicle use. After these roads, trails, and areas are designated, motorized over-snow vehicle use not in accordance with these designations is prohibited by 36 CFR 261.14. Motorized over-snow vehicle use off designated roads and trails and outside designated areas is prohibited by 36 CFR 261.14.

Forest Service Manual and Handbook 7700 Engineering: covers all aspects of roads, facilities, dams, road and trail bridges, and airfields policy and guidance. Specific sections under this umbrella are highlighted below.

Forest Service Manual 2350 Trail, River, and Similar Recreation Opportunities and Forest Service Handbook 2309.18 Trails Management Handbook: provides policy and guidance for the trails program.

Forest Service Handbook 7709.58 Transportation System Maintenance Handbook and Forest Service Manual 7700 -Transportation System, Chapter 7730 – Transportation System Operation and Maintenance: provides road maintenance guidelines.

Forest Service Manual 7730 and 7709 and 23 CFR 650: provides direction for management of the bridge program and inspection responsibilities and authorities.

Forest Service Handbook 7309.11, section 22: provides detailed requirements for administrative buildings.

Forest Service Manual 7310: provides direction for the management of buildings and other structures.

Engineering Management (EM) publication, EM-7310-4, Facilities Planning: guides facility planning.

Forest Service Manual 7500-Water Storage and Transmission: provides policy for the operations and maintenance of dams.

Key Indicators and Measures

- Amount of land where new public recreational airfields could be proposed, measured in acres
- Projected infrastructure maintenance and improvements, per plan objectives
- Qualitative assessment of plan direction and effects on infrastructure

Methodology and Analysis Process

Effects to infrastructure are qualitatively evaluated by considering effects of plan direction on how well it supports and protects infrastructure values and compare the relative level of projected infrastructure maintenance indicated by the objectives of each alternative. Effects to recreation aviation are

quantitatively evaluated comparing the amount of land where new public recreational airfields could be proposed.

Information Sources

Existing information used to complete the analysis includes a wide range of documentation including but not limited to INFRA database modules that hold corporate data on infrastructure and spatial information in the geographic information system (GIS) data and feature classes. Historical maintenance and improvement records identify trends. There are also four completed travel management plans used- Beartooth Travel Plan (2008), Ashland Travel Plan (2009c), Sioux Travel Plan (2009d) and the Gallatin National Forest Travel Management Plan (2006b).

Analysis Area

The geographic area for assessing effects to the infrastructure is the Custer Gallatin National Forest and other transportation corridors outside the national forest boundary occupied by important national forest access routes under the jurisdiction of the Forest Service, the counties, and the states. The temporal scope is the expected life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

A notable change in plan components is removal of the draft revised plan objective to remove planned unneeded system roads (draft plan objective FW-OBJ-RT-03). This objective was deleted because the program of removing planned unneeded system roads is nearly completed. The final environmental impact statement has been updated to reflect this is no longer an analysis indicator. Draft plan guidelines FW-GDL-RT-07 and FW-GDL-RT-13 have been removed because they overlapped revised standard FW-STD-RT-05. Standard FW-STD-RT-06 was added to apply both the plan's road and trail guidance to "trails open to all vehicles." A number of infrastructure related definitions were added or modified for clarity. The final environmental impact statement has been updated to include analysis of alternative F.

In response to objections, standard FW-STD-AIRFIELDS-02 was modified to broaden the partnership direction for potential new recreational airfields. In addition, standard FW-STD-AIRFIELDS-02 was clarified to apply to designated aircraft landing and take-off locations; guidelines FW-GDL-RT-06 and 10 were modified to apply to airfields, and a definition of airfields was added to the glossary. Plan component FW-SUIT-AIRFIELDS-01 was modified to apply to designated as well as eligible wild river corridors; because the designated wild East Rosebud River is within wilderness, this change did not affect suitable acreage for new airfields. Because wildlife guideline FW-GDL-WL-03 would limit construction of new airfields, FW-SUIT-AIRFIELDS-01 was also clarified to apply to key linkage areas; this change affected suitable acreage for new airfields in alternatives B, C, and F.

3.18.2 Affected Environment (Existing Condition)

Transportation System

The transportation system for the Custer Gallatin National Forest is defined as the system of National Forest System roads, trails, and airfields located on National Forest System lands (36 CFR 212.1) or across private lands to national forest with legal access rights. The need for the roads and trails within the transportation system is determined through processes outlined in the Final Rule for Travel Management: Designated Routes and Motor Vehicle Use (36 CFR Parts 212, 251, 261, and 295). Implementation of the Travel Management Rule is outlined in Forest Service Manual (FSM) 7700 -

Transportation System, Chapter 7730 – Transportation System Operation and Maintenance and in Forest Service Handbook (FSH), 7709.58 Transportation System Maintenance Handbook, and the 2309.18 Trails Management Handbook.

Roads

National Forest System roads are those roads the Forest Service has determined necessary for the protection, administration, and utilization of National Forest System land and the use and development of its resources. National Forest System roads are under the jurisdiction of the Forest Service and are located on or provide access to National Forest lands. These roads are a part of a network of an overall transportation system that is managed jointly with other public road agencies such as states, counties, and municipalities. This network, when combined, provides access to National Forest System lands. The entire road system is concentrated within approximately 20 percent of the Custer Gallatin National Forest land base. Most were constructed for fire protection, private land access, timber harvest, and range management. A lesser number were constructed for mining, recreational access, water development, and other reasons. Many of the roads were acquired as part of the several major land consolidation projects in the recent past (estimated around 700 miles).

National Forest System roads are designed, constructed, maintained, and operated in support of the Forest Service mission. A road management objective is established for each road as guidance to road managers for implementing objectives of multiple resource programs. Road management objectives are recorded in the corporate Infrastructure database. Road management objectives guide such things as road width, surfacing, road grades, traffic types, maintenance levels, traffic service levels, user comfort, and access management.

The number of roads on the Custer Gallatin National Forest has been determined by the individual travel management plans that have been completed. Each travel management plan determined which roads would be retained for permanent use and which roads were not needed and would be removed from the system. When the travel management plans determined which routes would be retained, they designated the type of traffic allowed, the type of traffic prohibited, and the seasons of each. Only that portion of the road management objective was established by the travel management plans. Other criteria, such as maintenance levels, road widths, surface types, and other factors were not determined by the travel management plans. These are determined by the district ranger when establishing the road management objectives for each road.

The travel management plans on the Custer Gallatin National Forest fulfilled the requirements of the minimum roads analysis. The travel management plans evaluated each route on the Custer Gallatin and determined if it was needed for the long term or not needed. Since the travel planning process involved extensive public involvement, the minimum roads analysis was also, by default, a public process.

There are approximately 3,070 miles of National Forest System roads on the Custer Gallatin National Forest. Of those, approximately 1,445 miles of road are open for public and administrative use either seasonally or year-round. Of those miles, approximately 660 miles are operated for passenger car use and 780 miles are operated for high-clearance vehicles. Many of the roads are operated seasonally for the protection of adjacent natural resources and the roadbed itself. Another approximately 1,445 miles are open for administrative vehicle use only. About 180 miles are out-of-service (closed to all vehicle traffic).

An additional 1,250 miles of road are closed (gated) to public recreational vehicle use. These roads are reserved for administrative use for the protection and use of the national forest and are accessed at the discretion of the district ranger. Approximately 180 miles of road have been temporarily taken out of service and put in storage (generally closed by an earthen berm) for short-term future use.

Finally, there are over 2,000 miles of project roads (see glossary) that have been removed (decommissioned) from the National Forest Transportation System and either restored back to the natural landscape or scheduled for restoration. These historic road corridors may be reused in the future for specific project access and implementation.

An unknown number of unauthorized routes exist throughout the Custer Gallatin National Forest, created by users to access firewood, campsites, hunting areas, or for game retrieval. Since these are unauthorized, the routes are slated for removal when identified.

National forest material sources (gravel pits) are scattered throughout the Custer Gallatin National Forest. These are important road features for long-term maintenance of the road system. Many have aggregate or riprap stockpiles for routine maintenance and are kept in operation. Occasionally, Custer Gallatin staff or contractors will enter these pits and extract or crush materials for a road improvement project. Management of weeds in these pits could be improved.

Routine funds that support the management of the road system for all program areas come primarily from an annual appropriation by Congress. These funds fluctuate over the years but have generally been sufficient to cover only custodial road work and have not allowed Custer Gallatin road managers to fully manage the roads to their established road management objectives. The Custer Gallatin staff prioritizes what road work will be addressed each year.

Other funds become available occasionally through congressional initiatives or partnerships. These funds are typically designated toward improvement projects and not maintenance. For example, bridges and culverts are replaced to benefit fish habitat, surfacing is added for erosion control or improved access. The Custer Gallatin routinely pursues these funds and is frequently successful.

Important Roads Adjacent to the Custer Gallatin National Forest

Access to national forest lands is generally provided by a seamless transportation system under the jurisdiction (ownership) of multiple public road agencies. These include Federal highways, such as the Interstate system, state highways, county highways and roads, municipal surface streets, and other Federal road agencies such as the Forest Service or the Bureau of Land Management. At virtually every level, there is some form of cooperation between these road agencies. They share maintenance and improvement schedules, allow guide and destination signing to be placed across they system, and even share in maintenance work where cost efficiencies can be found. A seamless transportation network is critical for the efficient and safe movement of people, goods, and services—particularly emergency services.

Outside of the National Forest System of roads for which the Forest Service has jurisdiction, the Forest Service has identified the “shared-interest” transportation routes that connect the national forest roads to the broader transportation network. These are mostly county roads and State and Federal highways. The mechanism for cooperation with counties is a “Schedule A Agreement.” This agreement identifies the county and national forest roads that comprise the primary access network to the national forest. The maintenance and improvements to this network may be shared by mutual agreement. In most

cases, this cooperation provides a more seamless, efficient, and cost-effective road system. The cooperation with the highway systems is generally less hands-on than the county systems, but are no less necessary. These agreements generally consist of authorizations for encroachments for road approaches to the highway and directional signing installations within the highway corridor. Without these shared transportation systems, it would be impossible for the Forest Service to access and manage National Forest System lands.

Road Bridges

There are 87 road bridges under the jurisdiction of the Forest Service within the Custer Gallatin National Forest, and these are scattered throughout the national forest. Most of these structures meet or exceed the minimum criteria for bridge condition. Approximately 10 percent of the bridges do not meet the full minimum criteria, but are not in jeopardy to failure at the current time. Forest Service policy requires a two-year inspection cycle on each bridge. This is meant to ensure that issues related to the bridge are identified early and can be efficiently corrected.

Trails

National Forest System trails are managed for the enjoyment, protection, and administration of the national forest. Historically, many of the trails were established for fire protection, including access to fire lookouts. Many more were established for ranger access to the national forest when roads were infrequent and access to range allotments was important. Others were created by forest users accessing mountain attractions. Today most trails are used for recreational access into the national forest.

The trail system was designated by the travel management plans alongside the designation of the road system. Trail corridors were designated for allowed and prohibited uses. The travel management plan for the Gallatin National Forest included non-motorized uses such as hiking, horseback riding, bicycling, and skiing, and motorized transport such as snowmobiling, off-road vehicle riding, motorcycling, 4-wheel driving, and electric bicycling.

National Forest System trails are designed, constructed, maintained, and operated in support of the Forest Service mission. A trail management objective is established for each trail as guidance to trail managers for implementing objectives of multiple resource programs. Trail management objectives are recorded in the corporate Infrastructure database. Trail management objectives guide such things as tread width, surfacing, trail grades, vehicle types, maintenance levels, and access management.

Approximately 3,600 miles of trails are under the jurisdiction of the Forest Service on the Custer Gallatin National Forest. The trails are scattered throughout the national forest and cover most of the land base, including the roaded areas.

Approximately 3,083 miles of trail are operated as summer trails. These are designated for a mix of non-motorized, mechanized, and motorized trail vehicles. Of those, approximately 1,142 miles are maintained for motorized vehicles and 1,941 miles maintained for non-motorized users. There are approximately 738 miles of designated summer mountain bike trails.

Approximately 616 miles of trail are operated as winter trails. Some of these share the same corridor as summer roads and trails. Of those, approximately 496 miles are maintained for snowmobiles and 120 miles maintained for cross-country skiing.

Approximately 519 miles are classified as “trails open to all vehicles.” All are located in the pine savanna portion of the national forest, 430 miles in the Ashland Geographic Area and 89 miles in the Sioux Geographic Area. Trails open to all vehicles are open to all non-motorized uses and motorized vehicles uses shown on the Motor Vehicle Use Map. Motorized users may be licensed or non-licensed as required by the State jurisdictions.

Routine trail improvement and maintenance funds largely come from congressional appropriations. The Custer Gallatin typically receives around \$200 per mile. This has been sufficient to cover custodial maintenance and priority improvements, such as bridge replacements or travel plan implementation projects.

Additional funding also comes from partnerships and congressional initiatives. These funds usually cover prioritized improvement projects, enforcement patrols, and some maintenance.

Trail Bridges

There are approximately 131 trail bridges on the Custer Gallatin National Forest. A trail bridge is generally defined as 20-feet long or longer and over 5-feet high. The Custer Gallatin also has a large number of minor structure not inventoried as trail bridges. Trail bridges are inspected every five years for issues. The Custer Gallatin has generally been able to keep up with bridge maintenance, so the bridges are in adequate condition. Most trail bridge issues are the result of installation of an undersized structure hydraulically and foundation erosion threatens to undermine the bridge. Funding for trail bridges comes from the routine trail appropriation.

Facilities

Administrative Facilities

Administrative facilities are typically buildings and their appurtenances necessary to support the employees, equipment, and activities necessary for the management of the national forests. These are commonly called “fire, administrative, and other.” Administrative facilities are separate from recreation facilities. Administrative facilities include fire stations, offices, warehouses, and shops, as well as living quarters such as barrack and individual residences. Living quarters are partially supported by rental receipts, while administrative facilities and other facilities are financially supported through annual budget appropriations.

The Custer Gallatin National Forest Headquarters is located in Bozeman, Montana, and is leased from the General Services Administration. There are seven ranger stations located throughout the Custer Gallatin in the following towns – West Yellowstone, Bozeman, Livingston, Gardiner, Red Lodge, Ashland, and Camp Crook (South Dakota). The facilities at Livingston and Bozeman are leased and the other are Forest Service owned. There are leased offices in Billings and Big Timber.

The Custer Gallatin also operates other work centers throughout the national forest that support both fire protection (such as the smokejumper and air tanker base in West Yellowstone and the helicopter Base near Bozeman) as well as other resource programs.

The current administrative facilities inventory lists 199 Forest Service-owned buildings. These range from larger offices, warehouses, bunkhouses, residences, and garages to smaller outbuildings. Each of these buildings is supported by a mix of water and wastewater systems, access roads, parking, fencing, and other structures.

Administrative facilities are routinely inspected for maintenance issues. The Custer Gallatin has sufficient resources to keep up with the routine maintenance but is falling behind in major replacements and repairs. Additional resources would be needed to keep the facilities infrastructure in acceptable operating condition.

Recreation Facilities

Recreation facilities are buildings, cabins, water, and wastewater systems that are operated and maintained specifically to support public recreational use. These recreation facilities are often located at developed recreation sites, such as campgrounds, day use areas, and interpretive sites, where recreation use requires a management investment to operate or maintain the site to health and safety standards.

The inventory of developed recreation sites and recreational structures is held in the INFRA database. Condition surveys are completed on every structure and within every developed recreation sites on a 5-year cycle, and are recorded in the INFRA database.

These sites range in size and category from developed campgrounds and picnic areas to small interpretive sites with signs and interpretation. These developed sites may contain site features such as signs, tables, fire rings, and parking barriers.

Larger infrastructure elements such as toilet buildings, picnic shelters, cabins, lookouts, and water and wastewater systems are also located within these developed recreation sites. There are 427 buildings classified as recreation facilities across the planning area. There are 35 buildings used for cabin rentals. In addition, there are 324 toilet buildings, primarily located within developed recreation sites. Spread across the Custer Gallatin are another 68 buildings such as picnic shelters, barns, and pump houses. Finally, the Custer Gallatin National Forest also maintains 82 water systems and 36 wastewater systems across the planning area.

Dams

There are six Forest Service owned dams in the Custer Gallatin National Forest and are all located in the eastern ranger districts. These are all small earthen dams created years ago using local materials. They were originally constructed as water storage in dry areas for the stock management program. Their purpose has evolved into wildlife and recreational values as well as the stock program.

These dams are routinely inspected for issues. In recent years, funds have been available to correct minor issues. The dams are in acceptable condition but since they were built under past standards, they could be vulnerable to extreme weather events.

Other privately-owned dams are located on the Custer Gallatin and are under special use permits. They are not discussed in this section.

Airfields

The Custer Gallatin National Forest does not manage any public or administrative airfields as part of the transportation system. The Forest Service owns taxiways and tarmacs at the West Yellowstone Airport in support of the smokejumper and air tanker base. There are no existing public or administrative airfields on National Forest System lands.

General Infrastructure Condition

Much of the infrastructure on the Custer Gallatin National Forest was constructed decades in the past and could use repair and heavy maintenance. As a rule, the Custer Gallatin has been able to keep up the critical health, safety, and condition issues. In some cases, the Forest Service has made important steps forward where there have been congressional initiatives to support the work. These initiatives, as a rule, have been infrequent and insufficient, although a positive step forward in reducing the overall backlog of maintenance. The Custer Gallatin continues to deal with emergency unforeseen issues due to outdated infrastructure nearing or past its service life. This applies to all the infrastructure: roads, trails, dams, and facilities.

If the result of climate change is larger more erratic storms, higher flash flooding events, and more forest drying and fires, the road and trail systems would have to adapt. Where streams are close to roads and trails, they would have to be moved or armored to protect the transportation investment. Large flood events in the last three decades on the Custer Gallatin have given a glimpse on what could happen in the future if these events are as or more powerful and frequent as those past events.

Climate change (warming) would affect the winter recreation program. As shoulder seasons get warmer, low elevations and south aspects drier, and snow packs more inconsistent, the road and trail systems would have to adjust. Parking lots may have to move up-drainage to “chase” the snow levels, grooming extents and schedules would have to change, dry areas may be more prevalent, roads may require less plowing, and maybe even a reconsideration of designated winter recreation area reevaluated. During the 1990s drought, low snow levels in the Hebgen Basin required snowmobile managers to install cautionary information for increased hazards such as dry spots, exposed stumps and logs, collapsed snow bridges across creeks, and poor snow conditions. The effects of that drought are likely similar to future climate change effects.

3.18.3 Environmental Consequences

Current Plans

Management Direction under the Current Plans

The 1986 Custer Forest Plan and the 1987 Gallatin Forest Plan both describe forestwide and management area-specific goals, objectives, and standards related to management of a variety of resource values found within the respective planning areas, including facilities.

The Gallatin Forest Plan was amended during the transportation planning effort. All transportation management was removed from the forest plan and incorporated into the travel management decision. Dam direction states that applications for hydropower, water diversion, water storage, or other water-related facilities will be evaluated on a case-by-case basis and coordinated with other agencies when appropriate.

The Custer Forest Plan was amended and road-specific information for the Beartooth District was removed and incorporated into the Beartooth Travel Management Decision. The Sioux and Ashland Districts did not have road-specific management direction in the current plan. Facilities such as buildings are addressed in management area P, with direction such as interpretive facilities may be used at these sites, specifically that hunter camps are permitted at the Meyers Creek Station, grazing may be used to achieve other resource objectives, these areas are not part of the suitable timber base but harvest may

be used for other reasons. Other infrastructure direction states that dams constructed on National Forest System lands shall be designed, constructed, and maintained to standards ensuring safe and satisfactory performance. The Federal Guidelines for Dam Safety (National Dam Inspection Act of 1972) shall be followed.

The Gallatin Forest Plan has specific direction in management area 1 for areas including all developed recreation sites such as campgrounds, picnic areas, boat ramps, visitor information sites, airfields, recreation residence tracts, and recreation rental cabins, as amended. Goals are to maintain these sites and facilities and there is direction that recreation activity scheduling will identify where construction, modification, or closure will take place and which areas are unsuitable for timber production. Other direction is to maintain these sites and facilities for the safety and enjoyment of users and provide additional facilities where analysis shows the need. Livestock grazing is restricted to meet management area goals and keep individual camping units away from shorelines.

Gallatin Forest Plan management area 26 addresses ranger stations, work centers and other administrative sites with a goal to provide and maintain sites and facilities necessary for the administration of Gallatin National Forest lands. It states that these sites are not managed specifically for recreation, but sites not seasonally needed for administration may be made available for rentals to the public. Administrative cabins in wilderness will not be rented to the public. Livestock grazing may be allowed where compatible with the management area goal and the locations are classified as unsuitable for timber production.

Neither the Custer nor Gallatin Forest Plans currently address airfields, as there are none other than the smokejumper base. However, the Gallatin Travel Plan Record of Decision prohibited public recreational aircraft landing and takeoff except at designated and authorized sites, and precluded consideration of potential sites in designated wilderness, the wilderness study area, recommended wilderness, and within the Grizzly Bear Recovery Zone.

Effects of Current Plans

Under the current plans, the four travel plans remain in effect for the Custer Gallatin National Forest. Road, bridge, trail, dam and facility maintenance (both recurrent and deferred) would continue to occur, as funding allows. Physical conditions would continue to be addressed through maintenance activities and be based on public health and safety, resource protection, and mission priorities. Annual operating budgets and supplemental funding would likely fluctuate, resulting in varying maintenance accomplishments from year to year. Maintenance funding for trail bridges and structures comes from within the trails budget. As those budgets flex, so does the ability to properly maintain trail bridges and structures. Bridge issues would get priority attention since they carry higher risk in evaluating the safety of users.

There are no current proposals pending to build new recreation or administrative facilities or dams. Trail and road bridge construction would be likely as a normal course of maintenance. Roads would likely be constructed or reconstructed as part of the vegetation management program. Trails would continue to be constructed or reconstructed as part of the travel management plan implementation and resolution of user or resource issues or increases in demand.

About 34 percent of the Custer Gallatin National Forest is suitable for new recreational airfields in the current plans. Table 45 displays acres where new recreational airfields are suitable by geographic area.

Table 45. Acreage suitable for new airfields under the current plans

Geographic Area	Acres
Sioux	163,269
Ashland	402,555
Pryor Mountains	49,489
Absaroka Beartooth Mountains	172,316
Bridger, Bangtail, and Crazy Mountains	98,131
Madison, Henrys Lake, and Gallatin Mountains	136,523
Total	1,022,282

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components for roads and trails, facilities and dams do not vary between the alternatives. Design standards for new infrastructure would vary by alternative recreation opportunity spectrum classes. For instance, a trail bridge may be built using different materials in a primitive setting compared to a semi-primitive motorized setting.

Desired conditions envision a safe and effective transportation system, connected to roads of other jurisdictions, with minimal impacts on natural and cultural resources (FW-DC-RT-01, 02, 03). Facilities and dams support the Forest Service mission (FW-DC-FAC-01, 02, 03). Standards and guidelines protect aquatic, riparian and other resources (FW-STD-RT-01 to 05, FW-GDL-RT-01 to 13, FW-STD-FAC-01, FW-GDL-FAC-01 to 04). Standard FW-STD-RT-06 would apply both the plan's road and trail guidance to 519 miles of "trails open to all vehicles." Objectives outline road, trail, and facility maintenance levels (FW-OBJ-RT-01 to 04; FW-OBJ-FAC-01).

Objectives for road, trail and facility maintenance would be similar in alternatives A, B, C, and F. Projected road and trail maintenance would be lower in alternative D than alternatives A, B, C, and F because natural resource restoration would be emphasized in this alternative. Projected facility and road maintenance would be lower in alternative E than alternatives A, B, C, and F and road maintenance would emphasize roads needed for timber access because the budget demands of a higher timber volume result in less funding for infrastructure maintenance.

Because public recreational airfields are considered part of the transportation system, plan guidance for the transportation system or transportation infrastructure, such as FW-DC-RT-01 and 02 and FW-GDL-RT-11 apply to new airfield proposals. In addition, guidelines FW-GDL-RT-03, 06 and 10 specifically apply to airfields. Locations where new airfields would be suitable vary by alternative in concert with plan land allocations that vary by alternative such as recommended wilderness areas and key linkage areas. The use would not be suitable in alternative D. In alternatives B, C, E, and F (FW-SUIT-AIRFIELDS-01):

Public airfields are not suitable in designated wilderness, the Hyalite Porcupine Buffalo Horn Wilderness Study Area, the Cabin Creek Recreation and Wildlife Management Area, National Natural Landmarks, the Wild Horse Territory, research natural areas, special areas, recommended wilderness areas, designated or eligible wild river corridors, within ½ mile each side of the Continental Divide Trail, key linkage areas, riparian management zones, areas of primitive or semi-primitive non-motorized recreation opportunity spectrum, or within the Grizzly Bear Recovery Zone. Public airfields are

suitable in areas of rural, roaded natural and semi-primitive motorized summer recreation opportunity spectrum, outside of the areas listed in the preceding sentence.

Effects of the Revised Plan Alternatives

Similar to the current plans, road, bridge, trail, dams and facility maintenance (both recurrent and deferred) would continue to occur, as funding allows for alternatives B through F. Physical conditions would continue to be addressed through maintenance activities and be based on public health and safety, resource protection, and mission priorities. Annual operating budgets and supplemental funding would likely fluctuate, resulting in varying maintenance accomplishments from year to year.

The projected amount of road, trail and facility maintenance would be similar in alternatives A, B, C, and F and lower in both alternatives D and E. The lower maintenance levels in alternatives D and E could lead to deteriorating physical condition of infrastructure, resource impacts and impacts to the visitor’s experience.

The Custer Gallatin National Forest would continue to implement the four travel plans. If the selected alternative calls for change in motorized or mechanized transport, the applicable travel plans would be updated through site specific NEPA decision making after completion of the plan revision process.

Under alternatives B through F, the Custer Gallatin National Forest expects to maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns. The national forest road system of the future would continue to provide access for recreation and resource management, as well as support watershed restoration and resource protection to sustain healthy ecosystems. Standard FW-STD-RT-06 would apply both the plan’s road and trail guidance to “trails open to all vehicles,” ensuring important direction applies to 519 miles of these routes.

Table 46 displays the number of acres where new public recreational airfields would be suitable by alternative. In alternatives B, C, E and F, about 29 to 30 percent of the Custer Gallatin would be suitable for airfields. Airfields would be not suitable in alternative D anywhere on the national forest. Those seeking this type of recreation opportunity would have to visit other destinations off the national forest. Within these areas, only a limited number of sites would meet the criteria for an airfield. The appropriate airfield length and width, glide paths, side-slopes, wind variability, difficulty of construction and maintenance would have to be taken into consideration.

Table 46. Acreage suitable for new airfields in the revised plan alternatives

Geographic Area	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Sioux	143,627	143,627	0	143,627	143,627
Ashland	379,804	367,179	0	379,804	379,806
Pryor Mountains	42,704	29,071	0	42,898	38,293
Absaroka Beartooth Mountains	153,576	153,576	0	153,974	153,969
Bridger, Bangtail, and Crazy Mountains	72,763	72,763	0	86,242	72,811
Madison, Henrys Lake, and Gallatin Mountains	107,785	105,398	0	118,028	108,402
Total	900,261	871,614	0	924,574	896,908

Consequences to Infrastructure from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

Alternatives B through F provide more detailed guidance than the current plans for protection of watersheds, riparian areas and aquatic habitats (see the suite of watershed, aquatic and riparian management revised plan components). The alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Due to limited funding allocations for road maintenance, prioritizing road maintenance and obliteration to travel routes that directly affect streams verses roads that are ecologically disconnected from streams, may result in roads with higher public use not receiving road maintenance, reducing their drivability.

Avoiding construction of roads in riparian management zones (FW-STD-RT-04) may limit new access or increase cost of construction. Requiring all new, reconstructed and replaced crossings to meet the 100-year flow event (FW-STD-RT-05) would increase the cost and limit the number completed each year but provide increased road protection during high water events. Installation of drainage features on new roads, trails and skid trails (FW-GDL-RT-03) would increase the stability of the road or trail and reduce its deterioration for long-term storage. Repairing stream crossings would protect the road and avoid future road failure during high water event (FW-GDL-RT-08). Desired conditions (FW-DC-RT-01 and 03) would ensure that bridges and culverts are managed to provide safe access while protecting natural and cultural resources, and provide for aquatic organism passage. In all alternatives, not locating roads on lands with high mass wasting potential or wetlands and unsuitable areas would increase the stability and longevity of the road but may result in increased construction costs to avoid those areas (FW-GDL-RT-06 and 10).

Additional material sources (gravel pits) would likely be needed throughout the Custer Gallatin National Forest to provide weed-controlled aggregate and riprap for the required road and crossing improvements. In all alternatives, extraction of saleable mineral materials would not be allowed in certain plan land allocations. Alternative D would have the highest acreage where saleable mineral materials would not be allowed, followed by alternatives, C, F, B, E, and then A (the current plans). See the energy and mineral section of this document for details.

Effects from Timber Management

Timber harvest activities would generally result in road reconstruction, maintenance, and continued application of best management practices on existing National Forest System roads. Additional road construction would be likely to access new harvest areas, assuming conventional logging systems are used. Temporary roads would be used when a single access is anticipated and restored following the project. Permanent system roads would be considered where multiple projects in the area are contemplated. These roads may either be put into storage or gated and left in service. In either case, the roads would remain as administrative roads and not be open to public vehicle use, unless amended by the travel management plan.

Bridge load ratings are required for all road bridges on timber haul routes. When bridges are expected to carry over-sized and over-weight machinery, either an overload permit or bridge improvements would be required. Alternative E has the highest projected timber volume, and therefore has the highest

potential for new roads associated with timber harvest, followed by alternatives A, B, C, and F, and finally alternative D.

Timber projects bring additional maintenance to the haul roads, benefiting the recreational traffic with better maintained roads and allowing the offset appropriated funds to be moved to other critical maintenance needs. In alternative E, the limited funds for high-clearance road maintenance would be prioritized for access for timber harvest in keeping with the theme of this alternative.

Effects from Fire and Fuels Management

Fuels management activities (such as prescribed burning) and fire management actions have plan direction to protect constructed facilities (FW-DC-FIRE-02, 03, FW-STD-FIRE-01, FW-GDL-FIRE-02).

Effects from Wildlife Management

Those facilities that are within areas of wildlife plan direction (for the grizzly bear in particular) will operate to reduce potential for conflicts (FW-WLGB guidance). Key linkage areas would restrict future developed recreation facilities, trails and new roads (FW-GDL-WL-03 and 04). New recreation facilities, 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 (FW-GDL-SG-04).

Effects from Weed Management

As weed issues continue to increase on National Forest System roads and trails, additional restrictions to road and trail maintenance will be likely. For instance, road blading may be restricted to dates outside of when seed heads could fracture and spread for differing species, or blading methods would adapt to reduce seed spread (FW-STD-INV-01 and 04). Additional machinery cleaning intervals may be required to reduce spread of individual species within the national forest (FW-STD-INV-05). Plan objectives for weed control are lowest in alternative E, followed by alternatives A, B, C, and F. Alternative D proposes the highest amount of weed treatment.

Effects from Recreation Management

As recreational demands increase over time, the road and trail system operation and maintenance will have to adapt. The demand for additional road maintenance, roadbed improvements, destination guidance, additional parking, and other responses would be expected by the users. The existing road system is primarily single lane with periodic turnouts for passing. These single lane roads have a finite carrying capacity. As use increases, some popular roads will exceed that capacity and will need to be converted to double lane roads with a corresponding change in driving surfaces. The need for paved roads to handle the traffic will have to be considered. Differing speed limits may have to be considered to slow down or speed up traffic.

Operation of trails accessing or within recommended wilderness areas would be affected. Motorized trails would be converted to non-motorized trails. Future maintenance and improvements those trails would adapt to the changing uses, such as narrowing treads, removal of unneeded bridges, adding vehicle restriction devices, and other actions. The applicable travel plans would need to be updated through site specific NEPA decision making after completion of the plan revision process. Maps and inventories would have to be updated.

If some areas became unsuitable for motorized and mechanized transport, these uses may become more concentrated in the areas that remain suitable. The concentrated areas would require additional maintenance and improvements as the trails would likely carry more use. Changes in trail use would be highest under alternative D, followed by alternative C and then alternative F. No changes in trail use are proposed for alternatives A, B, or E.

Effects from Scenery Management

The revised plan scenic integrity objectives do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground infrastructure projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest maximum threshold of visual dominance and deviation from the surrounding scenic character.

Cumulative Effects

Public use on the Custer Gallatin National Forest is increasing, as is the population of Montana, specifically in Billings and Bozeman, two of the larger cities in Montana. There is a greater demand for services as well as greater degradation of the road system from the increased use and additional maintenance and improvements would be required. This trend is expected to continue. There will continue to be a need to provide access for multiple uses including mining, timber, grazing and recreation.

Conclusion

In alternatives A, B, C, E, and F between about 29 percent and 34 percent of the Custer Gallatin National Forest would be suitable for recreational airfields. This use would not be permitted in alternative D.

Strengthened plan components for watershed, riparian, and aquatic resources in the revised plan alternatives would require increased improvements on roads and trails near streams.

Additional roads would potentially be constructed to access timber within the suitable base. In general, single short-term entries would construct temporary road systems while multiple long-term entries would construct long-lasting system roads.

Expanding recreational demand would require road and trail managers to consider traffic volume improvements such as route widening and surfacing while increasing routine maintenance.

Climate changes would require added storm proofing of the road and trail systems. Climate change would also lead winter trail managers into reevaluating winter trails in low elevations and south aspects, and within shoulder seasons. Winter parking locations would have to adjust along with the designated winter trail system.

The projected amount of road, trail and facility maintenance would be similar in alternatives A, B, C, and F and lower in both alternatives D and E. The lower maintenance levels in alternatives D and E could lead to deteriorating physical condition of infrastructure, resource impacts and impacts to the visitor's experience. Maintenance funding would be prioritized for the most heavily used routes, at the expense of less used routes.

If some areas became unsuitable for motorized and mechanized transport, these uses may become more concentrated in the areas that remain suitable, thus increasing pressures on the infrastructure. Changes

in trail use would be highest under alternative D, followed by alternative C and then alternative F. No changes in trail use are proposed for alternatives A, B, or E.

New plan components would provide for a safe and effective transportation system, connected to roads of other jurisdictions, with minimal impacts on natural and cultural resources. Facilities and dams would support the Forest Service mission.

3.19 Recreation Settings, Opportunities, and Access

3.19.1 Introduction

The focus of outdoor recreation management is to provide a range of environmentally sustainable opportunities in natural settings in order to meet the needs and desires of visitors. Recreation settings are the social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. Sustainable recreation is defined as the set of recreation settings and opportunities on the national forest that are ecologically, economically, and socially sustainable for present and future generations.

The Forest Service often categorizes recreational activities into two descriptions, developed recreation and dispersed recreation. Both types of recreation are categorized further by the recreation opportunity spectrum. Much of the discussion to follow will use recreation opportunity spectrum to explain components for dispersed recreation.

Developed recreation occurs in settings that have been created or constructed for specific recreational purposes on the national forest, such as overnight campgrounds, picnic sites, downhill ski areas, rental cabins, boat docks, visitor centers, interpretive trails with display panels, organizational camps, and special use permitted recreation residence tracts. Fees may or may not be charged. Some are operated under permit by private enterprises. These locations are usually given site names, inventoried, and categorized in forests' databases with basic capacity information and design features.

Dispersed recreation typically happens across the entire forest without infrastructure beyond trails. Hiking, bird watching, driving for pleasure, rock and ice climbing, boating, hunting, fishing, berry picking, backcountry skiing, horseback riding, and motorized and mechanized transport. "Dispersed camping" means campers select their own areas to camp and they are without provided facilities. There may be a left-over rock fire ring from previous campers, but the agency does not specifically manage that area just for recreation. These areas are sometimes called front country, to others it is just, "the woods."

Recreation special use permits are issued to private businesses, individuals, institutions, other government entities and nonprofit groups to provide for occupancy and use of the national forests beyond what is normally available to the public.

Regulatory Framework

Organic Administration Act of June 4, 1897 (30 Stat. 11, as amended): authorizes the establishment of national forests.

Term Permit Act of March 4, 1915 (Pub. L. 63-293, Ch. 144, 38 Stat. 1101, as amended; 16 U.S.C. 497): provides direction to the National Forest System lands to authorize occupancy for a wide variety of uses through permits not exceeding 30 years.

Multiple-Use Sustained-Yield Act of June 12, 1960 (Pub. L. 86-517, 74 Stat. 215): provides direction to the National Forest System lands to provide access and recreation opportunities. The act states, “The policy of Congress is that national forests are established and administered for outdoor recreation...”

National Forest Roads and Trails Act of October 13, 1964 (Pub. L. 88-657, 78 Stat. 1089, as amended): declares that an adequate system of roads and trails should be constructed and maintained to meet the increasing demand for recreation and other uses. The act authorizes road and trail systems for the national forests. It authorizes granting of easements across National Forest System lands, construction and financing of maximum-economy roads (Forest Service Manual 7705), and imposition of requirements on road users for maintaining and reconstructing roads, including cooperative deposits for that work.

Land and Water Conservation Fund Act of 1965 (Pub. L. 88-578, 78 Stat. 897 as amended; 16 U.S.C. 4601-4604 (note); 4601-4604 through 6a, 4601-4607 through 4601-4610, 4601-4610a-d, 4601-4611): “The purposes of this act are to assist in preserving, developing, and assuring accessibility to all citizens of the United States of America . . . [to] such quality and quantity of outdoor recreation resources . . . [and] providing funds” to States for acquisition, planning, and development of recreation facilities and Federal agencies for acquisition and development of certain lands and other areas.

Architectural Barriers Act of August 12, 1968 (Pub. L. 90-480, 82 Stat. 718 51 U.S.C. 4151-4154, 4154a, 4155-4157): establishes additional requirements to ensure that buildings, facilities, rail passenger cars, and vehicles are accessible to individuals with disabilities. It covers architecture and design, transportation, and communication elements of recreational site planning and development.

National Trails System Act of October 2, 1968 (Pub. L. 90-543, 82 Stat. 919, as amended): establishes the National Trails System and authorizes planning, right-of-way acquisition, and construction of trails established by Congress or the secretary of agriculture.

Rehabilitation Act of September 26, 1973 (Pub. L. 93-112, Title V, 87 Stat. 390, as amended; 29 U.S.C. 791, 793-794, 794a, 794b): requires that programs and activities conducted by Federal agencies and by entities that receive funding from, or operate under a permit from, Federal agencies provide an equal opportunity for individuals with disabilities to participate in an integrated setting, as independently as possible. The only exception to the requirement is when the program would be fundamentally altered if changes were made solely for the purpose of accessibility.

Forest and Rangeland Renewable Resources Planning Act of August 17, 1974 (Pub. L. 93-378, 88 Stat. 476, as amended): declares (per Sec. 10) that “the installation of a proper system of transportation to service the National Forest System... shall be carried forward in time to meet anticipated needs on an economical and environmentally sound basis.”

Federal Land Policy and Management Act of October 21, 1976 (Pub. L. 94-579, 90 Stat. 2742, as amended): declares (per Sec. 102) that “the public lands be managed in a manner that... will provide for outdoor recreation and human occupancy and use.”

Omnibus Parks and Public Lands Management Act of November 12, 1996 (Pub. L. 104-333, Div. I, Title VII, Sec. 701, 110 Stat. 4182; 16 U.S.C. 497c): Section 701 of this act:

- establishes a system to calculate fees for ski area permits issued under the National Forest Ski Area Permit Act of 1986 (16 U.S.C. 497b);

- provides for holders of ski area permits issued under other authorities to elect this permit fee system (Forest Service Handbook 2709.11, sec. 38.03a);
- includes provisions concerning compliance with the National Environmental Policy Act when issuing permits for existing ski areas (Forest Service Manual 2721.61f and Forest Service Handbook 2709.11, sec. 41.61b); and
- withdraws leasable and locatable minerals, subject to valid existing rights (Forest Service Handbook 2709.11, sec. 41.61c).

Secure Rural Schools and Community Self-Determination Act of October 30, 2000 (Pub. L. 106-393, 114 Stat. 1607; 16 U.S.C.500 note): provides provisions to make additional investments in, and create additional employment opportunities through, projects that improve the maintenance of existing infrastructure; implement stewardship objectives that enhance forest ecosystems; and restore and improve land health and water quality.

Federal Lands Recreation Enhancement Act of December 8, 2004 (Pub. L. 108-447, as amended): gives the secretaries of agriculture and interior the authority to establish, modify, charge, and collect recreation fees at Federal recreational lands where a certain level of amenities have been developed.

The Federal Cave Resources Protection Act of 1988 (Pub. L. 101-691): aims to “secure, protect, and preserve significant caves on Federal lands for the perpetual use, enjoyment, and benefit of all people; and to foster increased cooperation and exchange of information between governmental authorities and those who utilize caves located on Federal lands for scientific, education, or recreational purposes.” Specific effects of the act include prohibiting the disclosure of location of significant caves, the removal of cave resources, and vandalizing or disturbing cave resources.

Executive Order 12862, Setting Customer Service Standards: requires information about the quantity and quality of recreation visits for national forest management plans.

Executive Order 11644, as amended: establishes policy and procedure “that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.”

Executive Order 13443, Facilitation of Hunting Heritage and Wildlife Conservation: directs Federal agencies to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

Key Indicators and Measures

Effects to recreation opportunity spectrum settings are measured by determining the acres and percentage of desired summer and winter settings by alternative. The desired recreation opportunity spectrum varies by alternatives in concert with plan land allocations. The differences between alternatives are qualitatively evaluated by considering effects of revised plan direction and how well it supports and benefits people for developed, dispersed, and recreational special use permits.

Methodology and Analysis Process

The desired recreation opportunity spectrum for summer and winter was mapped across the Custer Gallatin for each alternative. The National Recreation Opportunity Spectrum Inventory Mapping

Protocol, April 2018, provided guidance for mapping recreation opportunity spectrum categories. Each alternative was then analyzed for the total number of acres and percentage of the desired recreation opportunity spectrum settings on the Custer Gallatin.

Developed recreation sites were mapped, either as point data or if available as a polygon. Dispersed recreation sites were inventoried over recent years and mapped as point data. The assumption is that not all dispersed sites were mapped, as new ones can develop quickly.

Recreation information is presented at two geographic scales: forestwide and by geographic area. The forestwide scale provides information on relevant Forest Service process and policy and overall direction for recreation. Recreation information by geographic area is more detailed and allows a reader interested in a specific area to find more area-specific information (if it is different from forestwide direction).

Since adoption of the 1986 and 1987 forest plans, recreation activities within the Custer Gallatin have changed. This analysis assumes that changes to recreational use patterns would occur naturally as a result of factors associated with recreation trends, advances in technology, aging population, aging infrastructure, local population increase and decreases, and climatic changes.

The land management plan establishes programmatic level direction. It does not make site-specific travel planning designations, maintenance level determinations, operational choices, or project level decisions. The plan sets broad level context for sustainable recreation and trails management across the vast Custer Gallatin National Forest landscape. If higher level land management allocations result in inconsistencies with travel planning direction, subsequent travel plan amendments or modification may be necessary. In addition to the laws and executive orders listed in the introduction, the Forest Service Manual provides nationwide and regional direction on recreation management topics. Those policies are not repeated in land management plans.

Information Sources

The Custer Gallatin used the best available data relevant to inform the analysis for the revised plan components for recreation settings, recreation opportunities, recreation special uses, and recreation access. Data sources included the latest information from the National Visitor Use Monitoring (NVUM) project. Much of the recreation data used in this analysis comes from the Forest Service infrastructure database (INFRA). This Forest-level database is a collection of web-based data entry forms, reporting tools, and mapping tools (a geographic information system that enables national forests to manage and report accurate information about their inventory of constructed features and land units). Use of the geographic information system allows forest staff to visualize, analyze, interpret, and understand data to reveal relationships and patterns. Site-specific knowledge from forest personnel is also used. The Forest Service uses the special-uses data system to create and administer special-use authorizations. This data is supported by hardcopy files held at the ranger district and forest supervisor's offices.

Analysis Area

The geographic scope of the analysis is the lands administered by the Custer Gallatin National Forest. All lands within the national forest boundary form the geographic scope for cumulative effects, and the temporal scope is the life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

The final environmental impact statement has been supplemented with new information, clarifying language, minor edits, additional analysis of mountain biking suitability in semi-primitive non-motorizing recreation opportunity spectrum settings in alternatives B, C, D, and E, and analysis of alternative F. In addition to minor edits, changes to the revised plan include:

- a clarification that mapping of all primitive recreation opportunity spectrum classification on this national forest is within designated wilderness;
- a revised desired condition (FW-DC-ROS-06) concerning groomed trails;
- changing a suitability statement to a guideline (FW-GDL-ROSSPNM-03) limiting winter road plowing in semi-primitive non-motorized settings;
- a revised guideline to protect wildlife when removing hazard trees in campgrounds (FW-GDL-RECDEV 02);
- broadening a dispersed recreation goal to a general recreation goal to address coordination with all recreation user groups (FW-DC-REC-01);
- new components under general recreation (FW-SUIT-REC-01, 02) and outfitter guides (FW-STD-RECOG-01, 02) to address both restrictions and allowances for recreational use of pack goats;
- removing the commercial filming and photography section and plan components because the direction was not necessary at the national forest level;
- removing emerging technologies draft plan guideline (FW-GDL-RECTECH-01) because it was not considered useful.

Changes to the final EIS after the objection period include additional details regarding application of grazing suitability plan components to permitted recreational livestock in designated wilderness, the wilderness study area, and recommended wilderness; corrections to tables displaying recreation opportunity spectrum class acres and percentages; and additional detail in the analysis of several sections.

3.19.2 Recreation Settings Affected Environment (Existing Condition)

Sustainable recreation settings are the social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. Sustainable recreation settings and opportunities are affected by trends in recreation uses and the mix of outdoor activities chosen by the public, which continuously evolve. Recreation activities on the Custer Gallatin National Forest include, but are not limited to, cross-country and downhill skiing, snowboarding, snowmobiling, dog sledding, hiking, backpacking, horseback riding, mountain biking, camping, hunting, fishing, off-highway vehicle driving or riding, picnicking, swimming, boating, paddle boarding, recreation aviation, wildlife watching, visiting historic sites or scenic areas, participating in interpretive programs or tours, and resort use. The Forest Service utilizes a framework called the recreation opportunity spectrum, which describes different settings across the landscape and attributes associated with those settings. Table 47 defines the recreation opportunity spectrum. Five of the six of the recreation opportunity spectrum classes are found within the Custer Gallatin National Forest; no lands in the urban category are present on the Custer Gallatin.

Table 47. Recreation opportunity spectrum classes and definitions

Recreation Opportunity Spectrum Class	Definition
Primitive	Large, remote, wild, and predominately unmodified landscapes. Areas with no motorized activity and little probability of seeing other people.
Semi-Primitive Non-motorized	Areas of the Custer Gallatin managed for non-motorized transport. Uses include hiking and equestrian trails, mountain bikes and other non-motorized mechanized transport. Rustic facilities and opportunity for exploration, challenge, and self-reliance.
Semi-Primitive Motorized	Backcountry areas used primarily by motorized transport on designated routes. Roads and trails designed for off-highway vehicles and high-clearance vehicles. Offers motorized opportunities for exploration, challenge, and self-reliance. Rustic facilities. Often provide portals into adjacent primitive or semi-primitive non-motorized areas.
Roaded Natural	Often referred to as front country recreation areas, these areas are accessed by open system roads that can accommodate sedan travel. Facilities are less rustic and more developed with campgrounds, trailheads and airfields often present. Provide access points for adjacent semi-primitive motorized, semi-primitive non-motorized, and primitive settings.
Rural	Highly developed recreation sites and modified natural settings. Easily accessed by major highways. Located within populated areas where private land and other land holdings are nearby and obvious. Facilities are designed for user comfort and convenience.
Urban	Areas with highly developed recreation sites and extensively modified natural settings. Often located adjacent to or within cities or high population areas. High probability of seeing large groups of people and opportunities for solitude or silence are few.

3.19.3 Recreation Settings Environmental Consequences

Table 48 and note: *percent do not equal 100% due to rounding.

table 49 describes the percent of each desired recreation opportunity spectrum by alternative for summer and for winter, respectively.

Table 48. Percentage of summer recreation opportunity spectrum classes on the Custer Gallatin National Forest by alternative

Alternative	Primitive (percent)	Semi-Primitive Non-motorized (percent)	Semi-Primitive Motorized (percent)	Roaded Natural (percent)	Rural (percent)
A	34%	23%	29%	11%	3%
B	34%	23%	29%	11%	3%
C	39%	20%	28%	10%	3%
D	58%	4%	25%	10%	3%
E	34%	23%	29%	11%	3%
F*	34%	23%	28%	11%	3%

Note: *Percent do not equal 100% due to rounding.

Table 49. Percentage of winter recreation opportunity spectrum classes on the Custer Gallatin National Forest by alternative

Alternative	Primitive (percent)	Semi-Primitive Non-motorized percent)	Semi-Primitive Motorized (percent)	Roaded Natural (percent)	Rural (percent)
A	34%	20%	33%	10%	3%
B	34%	20%	33%	10%	3%

Alternative	Primitive (percent)	Semi-Primitive Non-motorized (percent)	Semi-Primitive Motorized (percent)	Roaded Natural (percent)	Rural (percent)
C	39%	16%	32%	10%	3%
D	58%	5%	25%	9%	3%
E	34%	23%	29%	11%	3%
F*	34%	20%	33%	9%	3%

Note: *Percent do not equal 100% due to rounding.

Current Plans

Management Direction under the Current Plans

The current plans' summer and winter recreation opportunity spectrum maps were derived using current travel decisions and site-specific knowledge from forest personnel. Recreation opportunity spectrum classification alone would not authorize specific means of travel. Travel plans would continue to provide site-specific direction for where motorized transport could take place. Recreation settings would continue to be managed under the 1986 Custer Forest Plan. Unlike the Gallatin recreation opportunity spectrum classification, the Custer plan does not classify all designated wilderness as primitive. The borders of designated wilderness may be influenced by the buffering effect of adjacent classifications. The recreation opportunity spectrum direction was removed from the 1987 Gallatin Forest Plan and placed in the Gallatin Travel Plan. Table 50 displays the current forestwide summer and winter recreation opportunity spectrum classes. Table 51 and table 52 display the geographic area acres of each desired recreation opportunity spectrum for the current plans for summer and for winter, respectively. Refer to appendix A for maps of the current plans' recreation opportunity spectrum.

Table 50. Forestwide recreation opportunity spectrum settings in acres and percent of the national forest under the current plans

Recreation Opportunity Spectrum Class	Summer Acres	Summer Percentage of National Forest	Winter Acres	Winter Percentage of National Forest
Primitive	1,050,448	34%	1,050,448	34%
Semi-primitive Non-motorized	699,613	23%	604,388	20%
Semi-primitive Motorized	875,861	29%	1,006,640	33%
Roaded Natural	323,159	11%	293,675	10%
Rural	96,884	3%	90,814	3%

Alternative A represents the current plans' future projections if kept.

Table 51. Summer recreation opportunity spectrum settings in acres by geographic area under the current plans

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	122,406	40,683	1,371
Ashland	0	33,578	319,673	82,883	0
Pryor Mountains	0	20,654	43,642	10,770	0
Absaroka Beartooth Mountains	916,599	220,888	116,782	57,948	46,323

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Bridger, Bangtail, and Crazy Mountains	0	103,561	77,252	21,577	2,758
Madison, Henrys Lake, and Gallatin Mountains	133,848	320,932	196,106	109,29	46,432
Total	1,050,448	699,613	875,861	323,159	96,884

Alternative A represents the current plans' future projections if kept.

Table 52. Winter recreation opportunity spectrum settings in acres by geographic area under the current plans

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	122,406	40,683	1,371
Ashland	0	33,578	319,673	82,883	0
Pryor Mountains	0	20,654	43,642	10,770	0
Absaroka Beartooth Mountains	916,599	149,198	217,124	33,676	41,943
Bridger, Bangtail, and Crazy Mountains	0	81,521	99,265	21,599	2,763
Madison, Henrys Lake, and Gallatin Mountains	133,848	319,438	204,529	104,064	44,736
Total	1,050,448	604,388	1,006,640	293,675	90,814

Alternative A represents the current plans' future projections if kept.

Effects of the Current Plans

As shown in table 50 the three largest summer recreation opportunity spectrum classes on the national forest are primitive (34 percent), semi-primitive motorized (29 percent), and semi-primitive non-motorized (23 percent). Combining the two non-motorized classes (primitive and semi-primitive non-motorized), 57 percent of the Custer Gallatin is in a non-motorized setting. This is primarily because of two designated wilderness areas Absaroka Beartooth and Lee Metcalf (combined 1,050,448 acres) and large amounts of inventoried roadless areas (844,040 acres). Combining the three summer motorized classes (semi-primitive motorized, roaded natural, and rural), 43 percent of the Custer Gallatin is in a summer motorized setting. As stated above, the 1986 Custer Forest Plan does not classify all designated wilderness as primitive, allowing the buffers of adjacent recreation opportunity spectrum classifications to flow into wilderness. While the mapping effect is not reflected in changes in wilderness management, it is reflected in acres of primitive being less than the total acres of designated wilderness under the current plans. Current plans do not provide direction regarding mountain bike use by recreation opportunity spectrum classes.

As shown in table 50, the three largest winter recreation opportunity spectrum settings on the Custer Gallatin are primitive (34 percent), semi-primitive motorized (33 percent), and semi-primitive non-motorized (20 percent). Also shown in table 50, there is only a slight change in recreation opportunity spectrum settings between summer and winter.

While recreation opportunity spectrum direction is in the current Custer plan, direction was removed from the current Gallatin plan and placed in the Gallatin Travel Plan. In the current plans, recreation opportunity spectrum direction would continue to be in different documents and be inconsistent with 2012 Planning Rule direction.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The 2012 Planning Rule requires the mapping of desired recreation opportunity spectrum classes and the use of this information in revised plans. The recreation opportunity spectrum classes vary by alternative in concert with the varying plan land allocations. Plan direction on how to manage the settings, opportunities, and access under the does not vary by alternative. For winter recreation opportunity spectrum in all revised plan alternatives, groomed cross-country ski trails occur in a variety of winter recreation opportunity spectrum settings.

Plan components and direction for various recreation uses are described in narratives following the recreation opportunity spectrum discussion. Travel plans would continue to provide site-specific direction for where motorized transport could take place. Additional management direction for recreation may also be provided through recreation special use permits, or, in the cases where recreation uses need to be restricted, through regulatory closure orders outside of travel plans.

Effects Common to the Revised Plan Alternatives

The Custer Gallatin National Forest's management of sustainable recreation opportunities is accomplished in part through the components contained within the recreation opportunity spectrum, (see the suite of components under recreation opportunity spectrum). Revised plan alternatives establish desired recreation opportunity spectrum classes for both summer and winter recreation settings that provide overall guidance and set expectations for the recreation settings on the Custer Gallatin. Desired recreation opportunity spectrum classes would aid in managing both existing and emerging recreation uses. Setting clear expectations and identifying a spectrum of settings for recreation users is important to management in the long term of recreation use on the Custer Gallatin.

Alternative B

Management Direction under Alternative B

In alternative B the winter and summer primitive recreation opportunity spectrum class consists of only designated wilderness. Recommended wilderness is mapped as semi-primitive non-motorized. Table 53 displays the forestwide summer and winter recreation opportunity spectrum classes. Table 54 and table 55 display the geographic area acres of each desired recreation opportunity spectrum for alternative B for summer and for winter, respectively. Refer to appendix A for maps of alternative B recreation opportunity spectrum. Rounding may cause higher or lower than 100 percent in totals. For semi-primitive non-motorized areas, mechanized transport (bicycles) would be suitable on designated routes and areas in semi-primitive non-motorized settings (draft plan FW-SUIT-ROSSPNM-02).

Table 53. Alternative B forestwide recreation opportunity spectrum settings in acres and percent of the national forest

Recreation Opportunity Spectrum Class	Summer Acres	Summer Percentage of National Forest	Winter Acres	Winter Percentage of National Forest
Primitive	1,050,448	34%	1,050,448	34%
Semi-primitive Non-motorized	705,251	23%	608,902	20%
Semi-primitive Motorized	871,219	29%	1,003,672	33%
Roaded Natural	322,539	11%	292,292	10%
Rural	96,509	3%	90,651	3%

Table 54. Alternative B summer recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	121,323	41,766	1,371
Ashland	0	33,577	319,673	82,883	0
Pryor Mountains	0	22,126	42,510	10,430	0
Absaroka Beartooth Mountains	916,599	221,883	116,782	56,976	46,301
Bridger, Bangtail, and Crazy Mountains	0	103,561	77,252	21,577	2,758
Madison, Henrys Lake, and Gallatin Mountains	133,848	324,104	193,679	108,906	46,078
Total	1,050,448	705,251	871,219	322,539	96,509

Table 55. Alternative B winter forestwide recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	121,323	41,766	1,371
Ashland	0	33,578	319,663	82,883	0
Pryor Mountains	0	22,126	42,510	10,430	0
Absaroka Beartooth Mountains	916,599	150,178	216,305	33,676	41,783
Bridger, Bangtail, and Crazy Mountains	0	81,521	99,265	21,599	2,763
Madison, Henrys Lake, and Gallatin Mountains	133,848	321,499	204,595	101,938	44,734
Total	1,050,448	608,902	1,003,672	292,292	90,651

Effects of Alternative B

Compared to the current plans, alternative B acres varies only slightly, resulting from more accurate mapping of the desired recreation opportunity spectrum for each recommended wilderness area. There are no changes to open roads or motorized trails in alternative B compared to the existing condition in the current plans. Within the semi-primitive non-motorized setting forestwide, off-trail use by bikes would not be suitable on 705,251 acres. It is not possible to say how much of an effect this would cause to current mountain bike use, as topography too steep to ride and existing forest restrictions prohibiting damage to natural resources are already restrictive factors.

Alternative C

Management Direction under Alternative C

In alternative C for the winter and summer recreation opportunity spectrum mapping, the primitive classification consists of both recommended and designated wilderness. Table 56 displays the forestwide summer and winter recreation opportunity spectrum classes. Table 57 and table 58 display the geographic area acres of each desired recreation opportunity spectrum for alternative C for summer and for winter, respectively. For semi-primitive non-motorized areas, mechanized transport (bicycles) would be suitable on designated routes and areas in semi-primitive non-motorized areas settings (draft plan FW-SUIT-ROSSPNM-02). Refer to appendix A for maps of alternative C recreation opportunity spectrum.

Table 56. Alternative C forestwide recreation opportunity spectrum settings in acres and percentage of the national forest

Recreation Opportunity Spectrum Class	Summer Acres	Summer Percentage of National Forest	Winter Acres	Winter Percentage of National Forest
Primitive	1,196,222	39%	1,196,222	39%
Semi-primitive Non-motorized	596,763	20%	499,216	16%
Semi-primitive Motorized	840,422	28%	971,068	32%
Roaded Natural	318,308	10%	291,254	10%
Rural	94,251	3%	88,202	3%

Table 57. Alternative C summer recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	121,323	41,766	1,371
Ashland	0	47,040	307,593	81,501	0
Pryor Mountains	6,838	31,136	28,249	8,884	0
Absaroka Beartooth Mountains	918,838	219,621	116,782	56,976	46,324
Bridger, Bangtail, and Crazy Mountains	0	103,561	77,252	21,577	2,758
Madison, Henrys Lake, and Gallatin Mountains	270,587	195,365	189,224	107,643	43,798
Total	1,196,222	596,763	840,422	318,308	94,251

Table 58. Alternative C winter recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	121,323	41,766	1,371
Ashland	0	47,040	307,591	81,501	0
Pryor Mountains	6,797	31,177	28,249	8,844	0
Absaroka Beartooth Mountains	918,838	147,944	216,300	33,676	41,783
Bridger, Bangtail, and Crazy Mountains	0	81,521	99,265	21,599	2,763
Madison, Henrys Lake, and Gallatin Mountains	270,586	191,534	198,340	103,867	42,286
Total	1,196,222	499,216	971,068	291,254	88,202

Effects of Alternative C

Changes in the recreation opportunity spectrum in alternative C result from more recommended wilderness acres than alternatives A and B as well as mapping recommended wilderness areas as primitive. This alternative offers the second highest amount of opportunities for recreation activities (39 percent) seeking remote locations with little managerial presence on the ground, few facilities, and large areas offering solitude. Summer semi-primitive non-motorized decreases from 23 percent to 20 percent from alternatives A and B, which would be a decrease for areas in larger group gatherings, recreation events away from developed or motorized settings, unroaded locations with cabins and other facilities, and less trail infrastructure such as bridges and signs. Within the semi-primitive non-motorized setting forestwide, off-trail use by bikes would not be suitable on 596,763 acres. It is not possible to say how much of an effect this would cause to current mountain bike use, as topography too steep to ride and existing forest restrictions prohibiting damage to natural resources are already restrictive factors.

Alternative D

Management Direction under Alternative D

In alternative D for the winter and summer recreation opportunity spectrum mapping, the primitive classification consists of both recommended wilderness and designated wilderness. Table 59 displays the forestwide summer and winter recreation opportunity spectrum classes. Table 60 and table 61 display the geographic area acres of each desired recreation opportunity spectrum for alternative D for summer and for winter, respectively. For semi-primitive non-motorized areas, mechanized transport (bicycles) would be suitable on designated routes and areas in semi-primitive non-motorized settings (draft plan FW-SUIT-ROSSPNM-02). Refer to appendix A for maps of alternative D recreation opportunity spectrum.

Table 59. Alternative D forestwide recreation opportunity spectrum settings in acres and percentage of the national forest

Recreation Opportunity Spectrum Class	Summer Acres	Summer Percentage of National Forest	Winter Acres	Winter Percentage of National Forest
Primitive	1,761,867	58%	1,761,868	58%
Semi-primitive Non-motorized	152,472	4%	144,606	5%
Semi-primitive Motorized	749,965	25%	773,297	25%
Roaded Natural	315,775	10%	278,201	9%
Rural	92,878	3%	87,992	3%

Table 60. Alternative D summer recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	2,235	119,322	41,532	1,371
Ashland	37,178	8,146	308,732	82,079	0
Pryor Mountains	43,857	26	23,688	7,496	0
Absaroka Beartooth Mountains	1,130,846	39,899	88,080	55,757	43,958
Bridger, Bangtail, and Crazy Mountains	91,889	24,713	64,257	21,531	2,758
Madison, Henrys Lake, and Gallatin Mountains	458,096	50,454	145,887	107,379	44,791
Total	1,761,867	125,472	749,965	315,775	92,878

Table 61. Alternative D winter recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	2,235	119,322	41,532	1,371
Ashland	37,178	8,146	308,732	82,079	0
Pryor Mountains	43,857	26	23,688	7,496	0
Absaroka Beartooth Mountains	1,130,847	35,247	119,047	32,931	40,470
Bridger, Bangtail, and Crazy Mountains	91,889	28,600	60,652	21,248	2,758
Madison, Henrys Lake, and Gallatin Mountains	458,096	70,353	141,857	92,915	43,393
Total	1,761,868	144,606	773,297	278,201	87,992

Effects of Alternative D

The large increase in primitive recreation opportunity spectrum in alternative D is a result of a larger amount of recommended wilderness in this alternative. At 58 percent, this alternative offers the highest amount of opportunities for recreation activities seeking remote locations with little managerial presence on the ground, few facilities, and large areas offering solitude. Summer semi-primitive non-motorized decreases to a very small portion of the Custer Gallatin (five percent), which would limit areas for larger group gatherings, recreation events away from developed or motorized settings, unroaded locations with cabins and other facilities, and less trail infrastructure such as bridges and signs.

Recreation opportunities for summer semi-primitive motorized also are reduced. Within the semi-primitive non-motorized setting forestwide, off-trail use by bikes would not be suitable on 125,427 acres. It is not possible to say how much of an effect this would cause to current mountain bike use, as topography too steep to ride and existing forest restrictions prohibiting damage to natural resources are already restrictive factors

Alternative E

Management Direction under Alternative E

In alternative E for the winter and summer recreation opportunity spectrum mapping, the primitive classification consists of only designated wilderness, as there is no recommended wilderness. Table 62 displays the forestwide summer and winter recreation opportunity spectrum classes. Table 63 and table 64 display the geographic area acres of each desired recreation opportunity spectrum for alternative E for summer and for winter, respectively. For semi-primitive non-motorized areas, mechanized transport (bicycles) is suitable on designated routes and areas in semi-primitive non-motorized areas settings (draft plan FW-SUIT-ROSSPNM-02). Refer to appendix A for maps of alternative E recreation opportunity spectrum.

Table 62. Alternative E forestwide recreation opportunity spectrum settings in acres and percentage of the national forest

Recreation Opportunity Spectrum Class	Summer Acres	Summer Percentage of National Forest	Winter Acres	Winter Percentage of National Forest
Primitive	1,050,448	34%	1,050,448	34%
Semi-primitive Non-motorized	688,341	23%	592,402	23%
Semi-primitive Motorized	883,192	29%	1,015,472	29%
Roaded Natural	323,692	11%	294,099	11%
Rural	100,292	3%	93,544	3%

Table 63. Alternative E summer recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	121,323	41,766	1,371
Ashland	0	33,578	319,663	82,883	0
Pryor Mountains	0	21,510	42,786	10,770	0
Absaroka Beartooth Mountains	916,599	220,664	116,782	58,189	46,306
Bridger, Bangtail, and Crazy Mountains	0	103,377	74,801	20,786	6,184
Madison, Henrys Lake, and Gallatin Mountains	133,848	309,211	207,827	109,297	46,432
Total	1,050,448	688,341	883,192	323,692	100,292

Table 64. Alternative E winter recreation opportunity spectrum settings acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	121,323	41,766	1,371
Ashland	0	33,578	319,663	82,883	0
Pryor Mountains	0	21,510	42,786	10,770	0
Absaroka Beartooth Mountains	916,599	148,988	217,106	33,676	42,171
Bridger, Bangtail, and Crazy Mountains	0	78,423	99,265	21,348	6,112
Madison, Henrys Lake, and Gallatin Mountains	133,848	309,902	215,319	103,655	43,890
Total	1,050,448	592,402	1,015,472	294,099	93,544

Effects of Alternative E

Alternative E has the least amount of primitive recreation opportunity spectrum as there is no recommended wilderness in this alternative. The recreation opportunity spectrum classification in the wilderness study area reflects the recreation opportunity spectrum of the 2006 Gallatin Travel Plan and would allow more semi-primitive motorized opportunity than the current situation or other revised plan alternatives. Wilderness study area direction would be followed unless Congress released the wilderness study area. This alternative offers the least acreage for opportunities offered by a primitive recreation opportunity spectrum setting and the fewest areas offering solitude, self-reliance, and less infrastructure such as facilities and bridges. There would be an increase in the opportunities for recreation opportunities offered by a roaded natural or semi-primitive motorized setting. Within the semi-primitive non-motorized setting forestwide, off-trail use by bikes would not be suitable on 688,341 acres. It is not possible to say how much of an effect this would cause to current mountain bike use, as topography too steep to ride and existing forest restrictions prohibiting damage to natural resources are already restrictive factors.

Alternative F

Management Direction under Alternative F

In alternative F the winter and summer primitive recreation opportunity spectrum class consists of only designated wilderness. Table 65 displays the forestwide summer and winter recreation opportunity spectrum classes. Note: Percentages do not equal 100% due to rounding.

Table 66 and table 67 display the geographic area acres of each desired recreation opportunity spectrum for alternative F for summer and for winter, respectively. Draft plan component FW-SUIT-ROSSPNM-02 is not included in alternative F. In alternative F, cross-country mountain biking suitability is not tied to recreation opportunity spectrum settings. Mountain biking would be suitable only on approved system routes in key linkage areas and in specific backcountry areas (please refer to those sections of the final environmental impact statements). Refer to appendix A for maps of alternative F recreation opportunity spectrum.

Table 65. Alternative F forestwide recreation opportunity spectrum settings in acres and percentage of the national forest

Recreation Opportunity Spectrum Class	Summer Acres	Summer Percentage of National Forest	Winter Acres	Winter Percentage of National Forest
Primitive	1,050,448	34%	1,050,448	34%
Semi-primitive Non-motorized	712,815	23%	618,339	20%
Semi-primitive Motorized	863,628	28%	998,368	33%
Roaded Natural	322,221	11%	288,627	9%
Rural	96,852	3%	90,183	3%

Note: Percentages do not equal 100% due to rounding.

Table 66. Alternative F summer recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	122,406	40,683	1,371
Ashland	0	33,578	319,673	82,883	0
Pryor Mountains	0	27,748	37,307	10,012	0
Absaroka Beartooth Mountains	916,599	221,081	116,782	57,777	46,300
Bridger, Bangtail, and Crazy Mountains	0	103,730	77,083	21,577	2,758
Madison, Henrys Lake, and Gallatin Mountains	133,848	326,671	190,377	109,295	46,423
Total	1,050,448	712,808	863,628	322,228	96,852

Table 67. Alternative F winter recreation opportunity spectrum settings in acres by geographic area

Geographic Area	Primitive acres	Semi-Primitive Non-motorized acres	Semi-Primitive Motorized acres	Roaded Natural acres	Rural acres
Sioux	0	0	122,406	40,683	1,371
Ashland	0	33,578	319,673	82,883	0
Pryor Mountains	0	27,748	37,307	10,012	0
Absaroka Beartooth Mountains	916,599	150,566	220,206	29,391	41,778
Bridger, Bangtail, and Crazy Mountains	0	81,521	99,265	21,599	2,763
Madison, Henrys Lake, and Gallatin Mountains	133,848	324,926	199,511	104,059	44,270
Total	1,050,488	618,339	998,368	288,627	90,183

Effects of Alternative F

Changes in the recreation opportunity spectrum in alternative F result from more recommended wilderness acres than alternatives A and B. This alternative offers the third highest amount of opportunities for recreation activities (35 percent) seeking remote locations with little managerial presence on the ground, few facilities, and large areas offering solitude. There are no changes to open roads or motorized trails in alternative F compared to the existing condition in the current plans.

Consequences to Recreation Settings from Plan Components Associated with other Resource Programs or Management Activities

Effects from Timber Management

All revised plan alternatives establish location where timber production and timber harvest are suitable, not suitable, and available (FW-STD-TIM-01 and FW-GDL-TIM-03). No lands in the primitive recreation opportunity spectrum category are suitable for timber production. Between 6 and 11 percent of lands in the semi-primitive non-motorized recreation opportunity spectrum category are suitable for timber production. Timber production activities would be most noticeable in the semi-primitive motorized, roaded natural, and rural recreation opportunity spectrum settings. The sights and sounds of timber harvest and associated road building activities may temporarily impact non-motorized recreation settings. Areas of active timber sales may have an increase in road maintenance, which could mean less maintenance instead on road systems for specific recreation destinations. The percentage of summer recreation opportunity spectrum classes for lands suitable for timber production is listed by alternative in table 68.

Table 68. Percentage of summer recreation opportunity spectrum classes for lands suitable for timber production, by alternative

Recreation Opportunity Spectrum Class	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Primitive	0%	0%	0%	0%	0%	0%
Semi-Primitive Non-motorized	11%	9%	8%	6%	11%	8%
Semi-Primitive Motorized	58%	60%	60%	62%	59%	60%
Roaded Natural	26%	26%	27%	26%	25%	27%
Rural	5%	5%	5%	6%	5%	5%
Total	100%	100%	100%	100%	100%	100%

Alternative A represents the current plans' future projections if kept.

Effects from Scenery Management

The recreation opportunity spectrum plan components in the revised plan alternatives (see the suite of components under the recreation opportunity spectrum heading) describe the general desired settings appropriate for each class in the immediate recreating environment. However, while the scenery management plan components are complementary to recreation opportunity spectrum, they apply to what viewers see in the foreground to the distant horizons from identified viewing platforms, with no direct correlation to recreation opportunity spectrum). The current plans lack guidance on how to apply scenery plan components in recreation opportunity spectrum settings.

Effects from Minerals Management

Under all alternatives, active mining may occur across all recreation settings within the Custer Gallatin National Forest. New and ongoing mining may affect the recreation settings by creating roads and opening that might not normally be located within certain settings. Additionally, mine reclamation may have impacts on recreation settings, at least in the short term and may restore the setting in the long

term. Plan components address lessening impacts and returning to the original settings as possible (FW-DC-EMIN-01, 02; FW-STD-EMIN-01).

3.19.4 Developed and Dispersed Recreation Affected Environment (Existing Condition)

The Custer Gallatin has a robust developed recreation program that provides a wide range of opportunities appropriate to their recreation settings. Developed recreation opportunities are located at specific locations or sites and have infrastructure or features designed to protect the resources, reduce conflicts, and provide for safety. Depending upon the location and the facilities available, these developed sites may or may not have fees associated with them.

Developed recreation sites provide much of the infrastructure necessary for the enjoyment of a wide variety of recreation activities in the analysis area. Sustainable recreation sites are generally managed on a continuum based on a development scale ranging from 1 to 5. Table 69 shows that the Forest Service definition of a developed recreation site is a recreation site on National Forest System lands that has a development scale of 3, 4, or 5.

Table 69. Recreation site development scales

Development Scale	Definition	Developed or Dispersed	ROS Setting(s)
1	Recreation sites with minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials excluded. Minimum controls are subtle. No obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access not provided or permitted.	Dispersed	Primitive
2	Recreation sites with little site modification. Rustic or rudimentary improvements designed primarily for protection of the site rather than the comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. Little obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access provided or permitted. Primary access over primitive roads. Interpretive services informal.	Dispersed	SPNM and SPM
3	Recreation sites with moderate modification. Facilities about equal for protection of natural site and comfort of users. Contemporary and rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density about three family units per acre. Primary access may be over high standard roads. Interpretive services informal, but generally direct.	Developed	Roaded Natural
4	Recreation sites that are heavily modified. Some facilities designed strictly for comfort and convenience of users. Luxury facilities not provided. Facility design may incorporate synthetic materials. Extensive use of artificial surfacing of roads and trails. Vehicular traffic control usually obvious. Primary access usually over paved roads. Development density about three to five family units per acre. Plant materials usually native. Interpretive services often formal or structured.	Developed	Rural
5	Recreation sites with a high degree of site modification. Not found on the Custer Gallatin National Forest.	Developed	Urban

Note: SPNM is semi-primitive non-motorized; SPM is semi-primitive motorized; ROS is recreation opportunity spectrum.

The 63 developed campgrounds and picnic areas on the Custer Gallatin provide a wide range of settings and levels of development. Most of the picnic areas and campgrounds are located along or near lakes or rivers and are usually in forested settings. In general, these locations developed over time; many after World War II when family camping started to become popular. To protect resources, facilitate camping and picnicking opportunities, and decrease conflicts, the Forest Service developed areas by adding facilities and designed camp and picnic sites, roads, and information boards.

All of the campgrounds on the Custer Gallatin are consistent with the nationally recognized niche of Forest Service campgrounds being on the rustic end of the spectrum. None of the campgrounds on the Custer Gallatin has flush toilets, showers, or constructed playgrounds for children, though some have pressurized water systems or hand pumps. The campgrounds range from very rustic areas with no facilities to large, more developed, sites with amenities such as electrical hookups for recreational vehicles, accessible interpretive trails, and safety features, such as bear-resistant food storage containers.

Two different concessionaires operate and maintain 23 campgrounds and 2 pavilions on the Custer Gallatin National Forest under special use permits (table 70). Concessionaires are privately owned companies that operate and maintain campgrounds and picnic areas under the authority of the Granger Thye Act of 1950. Per the terms and conditions established in the special use authorizations, the concessionaires either pay a predetermined percentage of the revenue collected at each site to the Federal Treasury or can enter into an agreement to invest those funds in the maintenance and improvement of infrastructure at these campground and picnic areas.

Table 70. Number of Forest Service developed campgrounds operated by agency or concessionaire

Geographic Area	Forest Service Operated (No Fee)	Forest Service Operated (Fee)	Concession Operated	Total Number
Sioux	5	0	0	5
Ashland	4	0	0	4
Pryor Mountains	1	0	0	1
Absaroka Beartooth Mountains	2	2	0	4
Bridger, Bangtail, and Crazy Mountains	11	12	10	33
Madison, Henrys Lake, and Gallatin Mountains	5	2	13	20
Total	28	16	23	63

There are 27 recreation rental opportunities, including 25 cabins and 2 lookouts available to the public for rent (table 71). Built primarily in the 1920s and 1930s for use by early forest rangers, the cabins offer visitors a chance to camp in the national forest in a rustic, old-time setting. Some of the cabins have electricity. All have either wood or electric stoves for cooking and heating. Very few have indoor plumbing. Some of the cabins are located right on a road; others require users to hike, ski, or snowmobile to them. Disproportionately located on the west side of the Custer Gallatin National Forest, none are located in the Pryor Mountains or the Sioux District. The condition of the facilities at each of the rental cabins varies widely. Although key investments have been made to resolve critical health and safety issues there is a back log of operational and deferred maintenance work that is not being achieved under current budget scenarios.

The forestwide average rental occupancy rate was about 62 percent in 2019. Rental occupancy by facility varies widely depending on access and popularity, with cabins as low as 18 percent occupancy (Deer Creek Cabin in 2019), while some desirable sites, such as Windy Pass Cabin, have close to 96 percent occupancy. The Custer Gallatin retains and uses a portion of the cabin rental fees to reinvest in the maintenance and operation of these sites under the Federal Lands Recreation Enhancement Act (FLREA) authority. In 2019, the Custer Gallatin collected approximately \$177,000 in rental fees at the twenty-seven cabin rental facilities.

In addition to the cabin, camping, and picnicking opportunities, the Custer Gallatin National Forest offers developed interpretive sites, visitor centers, fishing sites, wildlife observation and viewing sites, fire towers, and many other developed recreation opportunities. Table 72 identifies the number of Forest Service recreation sites on the Custer Gallatin by category of developed recreation sites.

Table 71. Custer Gallatin National Forest recreation rental cabins and lookouts

Geographic Area	Number of Cabins	Number of Lookouts	Total
Sioux	0	0	0
Ashland	1	1	2
Pryor Mountains	0	0	0
Absaroka Beartooth Mountains	6	0	6
Bridger, Bangtail, and Crazy Mountains	4	0	4
Madison, Henrys Lake, and Gallatin Mountains	14	1	15
Total	25	2	27

Table 72. Other developed recreation sites and facilities managed and maintained by the Custer Gallatin National Forest

Geographic Area	Boating Sites	Interpretive Sites	Picnic Areas	Observation Wildlife Viewing	Ski Area Nordic	Trail-heads	Total
Sioux	0	0	1	1	0	0	2
Ashland	0	0	2	0	0	0	2
Pryor Mountains	0	0	1	0	0	0	1
Absaroka Beartooth Mountains	3	9	8	5	0	76	101
Bridger, Bangtail, and Crazy Mountains	0	0	2	3	0	27	32
Madison, Henrys Lake, and Gallatin Mountains	8	9	8	0	1	74	100
Total	11	18	22	9	1	177	238

Trailheads are the most numerous type of developed recreation facility on the Custer Gallatin National Forest. Trailheads range from those having designed, constructed, and surfaced parking, horse facilities, vault toilets, and extensive information and interpretation kiosks, to those with only informal parking areas with a small bulletin board or sign. In addition to specific categories, such as campgrounds or trailheads, the other developed recreation category includes day-use sites such as boat and fishing facilities.

Dispersed recreation opportunities (table 73) include overnight camping at development scales 1 and 2 as described in table 69. Camping along a trail or roadside in a dispersed site is a classic use of the national forest. Most areas are located within roaded natural and semi-primitive motorized recreation opportunity spectrum classifications.

In 2009, the Northern Region began developing a standardized protocol for inventorying and monitoring resource conditions of areas associated with dispersed recreation. The Custer Gallatin began this inventory outside wilderness in 2014. The focus has been primarily adjacent to main forest access routes, with a priority on concentrated use areas, with limited or no infrastructure or facilities outside of the access route and directional signage.

Dispersed inventories completed to date have located over 1,332 individual sites outside wilderness. The Custer Gallatin National Forest’s long-term goal is to have comprehensive information about dispersed recreation use across the Custer Gallatin.

Table 73. Inventoried dispersed recreation sites

Geographic Area	Dispersed Campsites	Wilderness Campsites	Day Use Area	Fishing/River Site	Climbing Area	Total
Sioux	95	0	3	0	0	98
Ashland	92	0	0	0	0	92
Pryor Mountains	21	0	0	0	0	21
Absaroka Beartooth Mountains	696	1,373	55	18	4	2,146
Bridger, Bangtail, and Crazy Mountains	68	0	2	0	0	70
Madison, Henrys Lake, and Gallatin Mountains	114	324	55	105	4	602
Total	1,086	1,697	115	123	8	3,631

There are many dispersed recreation activities that do not include overnight camping. Birdwatching, fishing, hunting, berry picking, rock and ice climbing, hiking, horseback riding, motorcycle riding, viewing wildlife, and photography. These recreational uses span the recreation opportunity spectrum as some are motorized or adjacent to roads while others are not. As accounted by forest recreation managers, the recreational use of pack goats on the Custer Gallatin is currently low, with not a substantial number of users noted. However, there are wildlife management concerns with potential disease transmission to bighorn sheep.

3.19.5 Developed and Dispersed Recreation Environmental Consequences

Effects of All Alternatives

In all alternatives, including no action, natural disturbances, recreation trends and use patterns, and emerging technologies would continue to influence the specific type, amount, and location of recreation opportunities across the Custer Gallatin National Forest. Travel plans would continue to provide site-specific direction for where motorized transport can take place. Dead and dying trees, recent fires and other natural occurrences may impact the location and availability of some areas for recreation use. The

health and safety of the recreating public would continue to influence recreation management, particularly at developed recreation sites where visitor use is concentrated.

Current Plans

Management Direction under the Current Plans

The 1986 Custer Forest Plan contains direction for dispersed recreation opportunities, stating they will be emphasized in response to public needs; signs will be used to guide the public to National Forest System lands. Brochures, maps, etc., will be developed to describe recreation opportunities available; to emphasize minimum impact camping dispersed use will be managed to prevent site deterioration. Generally, no specific campsites will be established or maintained; minimum impact camping techniques will be encouraged through public information. Camping associated with dispersed use will be restricted to at least 100 feet from live streams.

Custer Forest Plan direction for developed recreation facilities states that management of the recreation resource is moderately intensive and developed recreation sites will be operated at a full-service level. There will be some additions to existing facilities to accommodate the increased need for developed recreation on the Custer Gallatin. These additions would be to enlarge existing facilities across the national forest and develop sites on the Ashland Ranger District and possible expansion of the Red Lodge Mountain Ski Area. Management area F is specific to developed recreation and the access corridors to those sites. It proposed to consider impacts from other management activities on recreation sites and not allow detrimental effects, accomplish operation and maintenance according to standards, close facilities if safety and sanitation cannot be provided; bring sites up to design capacity if demand warrants. To prevent overuse and crowding, limitations will be applied to campground stays, and possibly a permit system will be implemented.

Both current plans provide dispersed recreation and developed sites direction in various recreation opportunity spectrum settings, although the settings are not specifically mapped. The two current plans include some restrictions for dispersed recreation, which is not found in the revised plan alternatives, including restricting camping within 100 feet of a live stream, and using limits of acceptable change (LAC) as the method to monitor dispersed campsites.

The 1987 Gallatin Forest Plan management area direction tends to associate the level of dispersed recreation expected with lands suitable or not suitable for timber harvest, and ease of road access. For example, dispersed recreation opportunities will be provided at a low level of investment that focuses primarily on travel planning and trail maintenance and, in the event of disruption from timber harvest activities, trail relocation. Management activities will be oriented toward reducing the impacts associated with recreation activities on other resource values, including protection of soil and water quality. Much of the dispersed recreation components were changed by amendment to the Gallatin Travel Plan. There is still direction for cooperative efforts with interested clubs, organizations, and other public agencies will be continued to provide for a wide variety of dispersed recreation activities. Cooperators will be encouraged to assist with development, operation, and maintenance of both summer and winter trail systems. Dispersed recreation use will be managed to provide users with a wide range of opportunities to meet increasing demand while protecting forest resources.

The 1987 Gallatin plan's developed recreation direction includes more emphasis on the maintenance of developed recreation sites and new recreation facility development where there is an increase in public

need. There is a plan component to keep individual camping units away from shorelines. The Custer Gallatin's administrative cabin rental program will be continued and facilities for those with disabilities will be considered when recreation sites are being constructed or upgraded. The private sector will be encouraged to provide facilities and services on private land where needed to serve the public. Management area 1 areas include all developed recreation sites, such as campgrounds, picnic areas, boat ramps, visitor information sites, airfields, recreation residence tracts, and recreation rental cabins. Goals are to maintain these sites and facilities for the safety and enjoyment of users, and to provide additional facilities where analysis shows the need.

Gallatin Forest Plan Amendment 51 limits construction of new developed recreation sites within the grizzly bear recovery zone or primary conservation area as outlined in the Greater Yellowstone Area Grizzly Bear Conservation Strategy. There is no mention of a wildlife food storage order in either existing plan, although the Custer Gallatin does have an existing closure order for all ranger districts excluding the Ashland and Sioux. The current plans have no prohibitions on the recreational or outfitter use of pack goats.

Effects of the Current Plans

As both current plans use the limits of acceptable change for monitoring dispersed recreation sites, the effect of this is that there is an ongoing monitoring system and documentation of location and current site conditions for many dispersed recreation sites across the Custer Gallatin, using a standard protocol. The current plan components limiting camping within 100 feet of a live stream is only in the current plans. The recreational or outfitter use of pack goats is allowed.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan direction for developed and dispersed recreation does not vary in the revised plan alternatives. Developed recreation components state that recreation opportunity spectrum design criteria would be followed (FW-DC-RECDEV-03), hazard tree removal would involve consulting wildlife managers for restrictions (FW-GDL-RECDEV-02); timber production and commercial harvest is not suitable (FW-SUIT-RECDEV-01); grazing permit use avoids the recreation operating season (FW-GDL-RECDEV-03); and extraction of saleable mineral materials are not allowed in developed recreation sites (FW-STD-RECDEV-01). Additionally, partnerships would be sought to provide general capacity to meet the desires of the public (FW-GO-RECDEV-01 and FW-DC-RECDEV-04). There is direction to address the ability to respond or anticipate changes necessary due to potential changes in climate as it would affect developed recreation sites (FW-DC-RECDEV-09). New developed recreation facilities should not be constructed within riparian zones, unless no alternatives exist, for example, boat launches (FW-GDL-FAC-03).

Dispersed recreation management issues are also included with the components for different classifications of the recreation opportunity spectrum. There is a desire to provide a wide variety of settings for the public use (FW-DC-ROS-01). The Custer Gallatin has a goal to engage with all recreational user communities developing solutions to issues as they arise (FW-GDL-REC-01).

Under alternatives B and C, recreational use of pack goats would not be suitable within the Madison, Henrys Lake, Gallatin Mountains; the Absaroka Beartooth Mountains; or the Pryor Mountains Geographic Areas. Under alternative D, recreational use of pack goats would not be suitable forestwide. Alternative E would not restrict recreational use of pack goats. Under alternative F, recreational use of

pack goats would be suitable with conditions in the Pryor Mountain; Absaroka Beartooth Mountains; and Madison, Henrys Lake, and Gallatin Mountains Geographic Areas (FW-SUIT-REC-02) without special authorization. Recreational use of pack goats would be suitable in the Bridger, Bangtail, Crazy Mountains; Ashland; and Sioux Geographic Areas; and once occupied by bighorn sheep, recreational use of pack goats in these geographic areas would remain suitable under conditions outlined in FW-SUIT-REC-02 (FW-SUIT-REC-01).

Effects of the Revised Plan Alternatives

The effects of the revised plan alternatives include implementing a combined recreation niche of the previous two national forests into one (FW-DC-RECDEV-01), which provides more cohesive vision for management. The Custer Gallatin National Forest follows plan direction (FW-DC-ROS-01) and (FW-DC-RECDEV-03) under recreation opportunity spectrum to follow sustainable recreation practices in the management of recreation facilities. Goal FW-GDL-REC-01, encourages the Custer Gallatin engage with all recreational user communities as topics of interest emerge. In accordance with plan direction, the season of use for recreation facilities will be adaptable to changing climates (FW-DC-DEVREC-09), which may result in longer or shorter operating seasons. The emphasis on integrating a universal design for accessible recreation facilities and maintaining facilities to full standards for sustainability components will result in more developed recreation facilities having greater accessibility (FW-DC-RECDEV-02). The Custer Gallatin staff will seek partnerships that may result in other sectors filling the role of expanded recreation capacity for national forest users (FW-DC-RECDEV-04) and (FW-GO-RECDEV-01). Public safety is emphasized in developed recreation settings (FW-GDL-RECDEV-01). Saleable mineral materials will not be removed from developed recreation sites (FW-STD-RECDEV-01). Developed recreation sites are not suitable for timber production, but vegetation management, including timber harvest, may be suitable for purposes such as public safety, fuels reduction, restoration or wildlife habitat enhancement (FW-SUIT-RECDEV-01).

Consequences to Developed and Dispersed Recreation from Plan Components Associated with other Resource Programs or Management Activities

Effects from Vegetation and Timber Management

Timber production is not suitable in developed recreation sites, but timber harvest may be suitable for purposes such as public safety, fuels reduction and restoration (FW-SUIT-REVDEV-01). Timber management activities taking place outside of developed recreation sites may be noticeable from within developed recreation sites. Dispersed recreation sites may be located within or very near timber harvest units and may cause visitors to relocate until activities are completed.

Plan components provide for hazard tree removal, including coordination with wildlife manager's involvement, in developed recreation sites to provide for visitor safety, even where timber production is not suitable (FW-GDL-RECDEV-02). Dispersed recreation areas typically do not have systematic hazard tree removal.

Effects from Fire and Fuels Management

Wildland fires would continue to affect the ecological processes, in the long term, across recreation settings and may impact the location and availability of recreation opportunities on the Custer Gallatin. Fire could create a temporary loss of vegetation, reduction in water quality due to sedimentation, reduction in recreation access to some recreation opportunities, and air pollution which could cause

displacement of some forest visitors to other areas on the Custer Gallatin or to other national forests in the region.

Fire and fuels plan components envision vegetation conditions that would support low-intensity fire adjacent to infrastructure to reduce negative impacts to values at risk such as developed recreation sites (FW-DC-FIRE-02, 03). Fuels could be treated in areas around developed recreation facilities to reduce likelihood of loss during wildfires (FW-GDL-FIRE-02).

Effects from Watershed, Riparian, and Aquatic Management

Plan components and activities related to watershed, riparian, or aquatic habitat improvements may affect new developed and dispersed recreation opportunities, especially riparian management zone plan components (FW-GDL-FAC-01 and 03). The revised plan alternatives riparian management zones are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Many developed and dispersed recreation sites are in riparian management zones and near sources of water across the Custer Gallatin. Construction of new developed recreation sites, including considerations for outhouse location and water systems, would need to meet more stringent requirements (FW-GDL-FAC-01). Vegetation management in the riparian management zones within recreation areas would also need to meet plan components (FW-STD-RMZ-01, FW-GDL-RMZ-06 through 09). Where possible new recreation sites and facilities would be located outside of riparian management zones (FW-GDL-FAC-03). Plan components in the revised plan encourage the removal or relocation of recreation facilities, including dispersed sites, which are currently within riparian management zones if they are degrading aquatic or riparian resources. (FW-OBJ-REC-01).

In summary, the revised plan alternative riparian management zone direction may limit or restrict the development of certain recreation opportunities or facilities within these zones and over time may decrease the number of recreation facilities found in those areas.

Effects from Wildlife Management

All revised plan alternatives continue current forest plans' direction requiring food storage orders, (excluding Ashland and Sioux Geographic Areas), and would provide for public safety when sharing areas with bears and other wildlife (FW-STD-WL-01). Standard FW-STD-WLPD-02 would constrain construction of new trails or permanent facilities within 100 feet of white-tail prairie dog colonies in all revised plan alternatives.

Key linkage area components in alternatives B, C, D, and F would restrict future new developed recreation facilities unless needed to address ongoing or imminent resource issues within the key linkage area (FW-GDL-WL-03). Recreation events that take place at night would not be allowed in key linkage areas (FW-STD-WL-02). Mountain bike use would only be suitable on approved system mountain biking routes (FW-SUIT-WL-01).

In alternatives B through E, construction of new developed recreation sites would be limited within the Greater Yellowstone Area Grizzly Bear Conservation Strategy Recovery Zone boundaries. The number and capacity of developed sites must be maintained at or below 1998 baseline levels; that is, it limits the number of new developed recreation sites (including overnight campsites) that may be built as well as expansion of existing sites, to the number and capacity that existed in 1998, (FW-DC-WLGB-01). This hinders the ability to provide more capacity for overnight camping in forest areas where population pressures and tourism are expected to increase. Lack of additional overnight developed recreation sites

in popular locations may move campers to dispersed camping, where encounters with bears may be more likely and there are no food storage facilities or interpretive signing to educate visitors on camping in bear prone areas. For developed recreation sites inside the grizzly bear recovery zone and primary conservation area, there are numerous limitations on new infrastructure that would increase capacity (draft revised plan FW-STD-WLGB-04, 05).

In alternative F, within the Greater Yellowstone Area Grizzly Bear Conservation Strategy Recovery Zone boundaries, the number of developed sites must be maintained at or below 1998 baseline levels; but additional human capacity for administrative and public use may be allowed within the authorized footprint of a site that existed in 1998 or the area within 300 meters of a primary road that existed in 1998 (FW-STD-WLGB-04, 05). Compared to alternatives B through E, alternative F would provide opportunity to increase overnight camping capacity within existing developed recreation sites in forest areas where population pressures and tourism are expected to increase.

To provide secure habitat for reproductive wolverines, there would be no increase in special use authorizations or designation of winter routes in maternal habitat for wolverines during the reproductive denning season (FW-GDL-WLWV-01). This may affect expansion of designated routes for winter recreation opportunities.

As a safeguard on possible disease transmission from domestic goats to bighorn sheep, in alternatives B and C recreational use of pack goats would not be suitable within the Madison, Henrys Lake, and Gallatin Mountains; the Absaroka Beartooth Mountains; or the Pryor Mountains Geographic Areas. Under alternative D, recreational use of pack goats would not be suitable forestwide. The current plans and alternative E would not restrict recreational use of pack goats. Under Alternative F recreational use of pack goats would be suitable within the Madison, Henrys Lake, and Gallatin Mountains; the Absaroka Beartooth Mountains; and the Pryor Mountains Geographic Areas, when following specific conditions. (FW-SUIT-REC-02) and would be suitable without conditions on the remainder of the forest (if newly occupied by bighorn sheep the conditions of FW-SUIT-REC-02 would apply). Forest managers on the Custer Gallatin have noted few instances of current recreational use of pack goats; therefore, alternatives B, C, D, and F would likely affect a limited number of recreationists.

Effects of Plan Land Allocations

The effects of recommended wilderness plan components on developed and dispersed recreation varies by alternative. Some recommended wilderness areas contain developed recreation sites, such as the Windy Pass rental cabin in alternatives B, C, D, and F, as well as the Yellow Mule and Deer Creek cabins in alternative D. In alternatives B, D, and F, the use of cabins as public rental facilities would no longer be suitable in recommended wilderness and the cabins would be evaluated for removal (FW-SUIT-RWA-05). The rental use of the Windy Pass cabin would continue to be suitable under alternative C. In all alternatives where public rental use of Windy Pass or other cabins would no longer be suitable, visitors may still use other cabins in the rental program. Some visitors may no longer visit these specific areas overnight as they may want the comforts provided by a cabin rather than camping. Given the high percentage of days that the Windy Pass cabin in particular has been rented each year, visitor use to that area may decrease. The Custer Gallatin would no longer receive rental fees for the cabins, which could affect future maintenance of these historic structures. Motorized and mechanized transport would no longer be suitable in recommended wilderness areas in alternatives C, D, and F (FW-SUIT-RWA-02).

In all alternatives, new recreation developments would not be allowed in recommended wilderness areas (FW-STD-RWA-04). In the revised plan alternatives, new recreation events would not be allowed in recommended wilderness areas and the Buffalo Horn and West Pine backcountry areas (FW-STD-RWA-05), (MG-STD-BHBCA-02), (MG-STD-WPBCA-02); new recreation events are not limited in the current plans or other backcountry areas in the revised plan alternatives.

In the revised plan alternatives, new developed recreation facilities would not be allowed in backcountry areas (FW-STD-BCA-03), while the current plans allow some new recreation development in low development areas. Motorized transport and mountain biking use would no longer be suitable in the Big Pryor and Punch Bowl Backcountry Areas in alternative C (draft plan PR-SUIT-PBCA-01). Mechanized transport would no longer be suitable in the Bad Canyon Backcountry Area in alternatives C and F, other than use of game carts (AB-SUIT-BCBCA-01). New developed recreation facilities would not be allowed within research natural areas (Forest Service Manual 4063).

Effects from Permitted Livestock Grazing and Management

Several developed recreation sites, especially campgrounds and rental cabins, are already either surrounded by fencing to exclude permitted livestock or the fenced allotments do not encompass developed recreation sites. The revised plan guideline FW-GDL-GRAZ-04 states “In order to improve livestock distribution and reduce livestock attraction to special habitats or sites, salt and supplement placement should not be within 0.25 mile of water developments, recreational developments, groundwater-dependent ecosystems, streams, aspen stands, woody draws, etc., other special habitats or population of at-risk-plant species that are susceptible to livestock impacts.” This will reduce the impacts to recreation sites by not attracting grazing animals to those locations. In addition, should permitted livestock frequently enter unfenced recreation sites where they cause problems for the recreation activities or facilities, plan component (FW-GDL-RECDEV-03) directs adaptive management strategies to help resolve the issues.

However, within or near less-developed recreation sites, fences are not as common, but livestock usually do not create conflicts for recreation activities or facilities. Dispersed recreationists may choose to camp or recreate away from areas of active grazing.

Effects from Cultural, Historic, and Tribal Resource Management

Many of the recreation residences and resorts on the Custer Gallatin National Forest are historic and need to be managed for their historic values in addition to their recreational values. Future expansion and remodeling of these requires additional planning and approval to ensure that historic values are not damaged. Within the Pryor Mountains Geographic Area, new recreation opportunities would need to be designed and managed to not interrupt ongoing Crow traditional cultural activities (PR-GDL-TRIBAL-01).

Effects from Road Access and Infrastructure

Most developed and dispersed recreation sites are accessed from open roads and trails. Infrastructure, usually buildings and constructed campsites, tables, and fire rings are generally found at the most developed recreation sites. Plan components concerning deferred maintenance are described as facilities and recreation sites age, by stating that facilities will meet required maintenance standards. Travel plans establish where motorized transport can or cannot take place and support and help maintain recreation opportunity spectrum settings for both summer and winter. All revised plan alternatives have plan components (the suite of components under (FW-RT) that provide future direction

for road access and the construction or reconstruction and maintenance of infrastructure across the Custer Gallatin. In alternatives B, C, and F component FW-OBJ etc. would annually maintain sixty percent of administrative facilities based on budgets, compared to alternatives D and E where the objective would be forty percent annually. The effect is that there would be higher visitor satisfaction with better maintained recreation facilities, such as backcountry rental cabins, visitor centers, and developed campgrounds under alternatives B, C, and F, than alternatives D and E.

3.19.6 Recreation Special Uses Affected Environment (Existing Condition)

Recreation special use permits are issued to private businesses, individuals, institutions, and nonprofit groups to provide for occupancy and use of the national forest beyond what is normally available to the public. Permitted recreation uses provide specific recreational opportunities to the public and deliver economic benefits to rural economics. Examples of commercial enterprises requiring permits include ski resorts, outfitting and guiding service, resorts, and organizational camps. Noncommercial recreation uses are those that require special use specific groups, such as clubs, or are used by individuals and single families, such as recreation residences. The Forest Service issues these permits under the authority of a variety of specific laws. Table 74 displays recreation special uses by type and area.

Approximately 177 outfitter and guide permittees operate on the Custer Gallatin (table 74). The six operators on the Ashland and Camp Crook Districts exclusively provide hunting services. The remaining 171 operators provide a wide range of year-round services. There are currently no outfitters authorized for use of pack goats. However, there are wildlife management concerns with potential disease transmission from domestic goats to bighorn sheep. Permitted outfitter and guide opportunities as of 2015 are listed in table 75.

Table 74. Recreation special uses by type and area

Geographic Area	Outfitter and Guide*	Recreation Residences	Alpine and Nordic Ski Areas	Organization Camps	Recreation Resorts	Shooting Ranges	Recreation Events	Total
Sioux	4	0	0	1	0	0	0	5
Ashland	2	0	0	0	0	0	1	3
Pryor Mountains	0	0	0	0	0	0	0	0
Bridger, Bangtail, Crazy Mountains	9	0	2	0	0	0	10	21
Absaroka, Beartooth Mountains	42*	126	1	5	0	0	0	174
Madison, Henrys, Gallatin Mountains	120*	167	1	1	3	1	40	333
Total	177	293	4	7	3	1	51	536

*Outfitter number includes average annual temporary and priority permit holders.

Table 75. Permitted outfitter and guide opportunities as of 2015

Permitted Activity Type	Approximate Authorized Days, 2015
Backpacking	2,500
Boating/Rafting	28,000
Biking	110
Dog Sledding	350
Yurt/Camping	300
Environmental/Adventure Education	6,000
Fishing	4,250
Hiking	3,100
Horseback Trail Rides	32,500
Hunting	5,600
Shuttles/Livery	500
Mountaineering	500
Rock Climbing	5,750
Ice Climbing	725
Skiing	1,500
Snowmobiling	11,000
Snowshoeing	150
Wagon Rides	50
2015 Authorized Days	102,885

Recreation residences are privately owned cabins located on National Forest System land, authorized by special use permits which last 20 years. Permit holders pay an annual fee for their permit. On the Custer Gallatin, there are 293 recreation residences, which is the greatest number of all Northern Region national forests. Table 76 displays the number of recreation residences by ranger district.

Table 76. Recreation residence locations by ranger district

Ranger District	Number of permitted recreation residences
Ashland	0
Beartooth	96
Bozeman	86
Gardiner	0
Hebgen	80
Sioux	0
Yellowstone	31
Total Permits	293

Two alpine ski areas and two Nordic ski areas currently operate under special use permit on the Custer Gallatin. Ski area resorts and visitation numbers are listed in table 77 by year from 2014 to 2018.

Table 77. Ski area resorts and visitation numbers by year from 2014 to 2018

Ski Area	Geographic Area	Location	2014–2015 visitation	2015–2016 visitation	2016–2017 visitation	2017–2018 visitation
Red Lodge Mountain	Absaroka, Beartooth Mountains	Located along the eastern front of the Beartooth Mountains, approximately 6 miles west of the town of Red Lodge.	87,805	66,914	82,498	92,837
Bridger Bowl	Bridger, Bangtail, Crazy Mountains	Located approximately 15 miles north of Bozeman in the Bridger Mountains. With the base operations on private property accessing a variety of ski terrain on the Custer Gallatin National Forest.	204,501	244,916	227,777	244,464
Total Visitation	not applicable	not applicable	292,306	311,830	310,275	337,301

Crosscut Mountain Sports Center Ski Area is located approximately 18 miles north of Bozeman, in the Bridger Mountains. Two trails and approximately 8 kilometers are located on the Custer Gallatin National Forest; 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.

There are three commercial, privately owned resorts located on the Custer Gallatin National Forest. All are located on the Hebgen Ranger District in West Yellowstone. These commercial resorts are permitted under 20-year special use permits. Per the terms on their permits, any changes to the land or the exterior of their buildings must be submitted to the Forest Service for analysis of potential resource impacts. Table 78 lists the resorts within the Custer Gallatin and the services offered through the special use permit.

Table 78. Custer Gallatin recreation resorts

Resort Name	Location	Services
Camp Fire Lodge	Madison River	Cabins, camping, water access, food, laundry, etc.
Covered Wagon Ranch	Highway 191 at the mouth of the Taylor Fork drainage	Cabins, food, fishing, horse and hunting trips (authorized by a separate outfitter and guide permit)
Madison Arm Resort	Hebgen Lake	Cabins, campground, marina, activities

Seven organizational camps currently operate in the Custer Gallatin National Forest (table 79) under the most recent authority of the National Forest Organizational Camp Fee Improvement Act of 2003, which authorized the use and occupancy of National Forest System land for the purposes of organizational camps.

Table 79. Custer Gallatin organization camps

Organization Camp Name	Geographic Area	District
Camp Needmore	Sioux	Sioux
Hyalite Junior Camp	Madison, Henrys Lake, Gallatin Mountains	Bozeman
Mimanagish Camp	Absaroka Beartooth	Yellowstone
Templed Hills Camp	Absaroka Beartooth	Yellowstone
Timber Crest Girl Scout Camp	Absaroka Beartooth	Beartooth
Westminster Spires	Absaroka Beartooth	Beartooth
Billings Lions Club	Absaroka Beartooth	Beartooth

Finally, there are approximately 50 permits annually for recreation and competitive events on the Custer Gallatin National Forest, including activities from endurance racing to national ski competitions. These events largely occur on the Hebgen Lake and Bozeman Ranger Districts around the communities of West Yellowstone and Bozeman respectively.

3.19.7 Recreation Special Uses Environmental Consequences

Current Plans

Management Direction under the Current Plans

Forestwide direction in the 1986 Custer Forest Plan applied to special use permits for outfitter and guide services. Permits are to be issued as necessary to meet recreation objectives, not result in greater restrictions to the public to use and enjoy the national forests, not result in substantial conflict with other permitted outfitters and guides, and consider other resources.

New organization camps are to be considered and assessed for compatibility with forest direction; special recreation-oriented events are to be analyzed for compatibility with forest direction including public safety and sanitation.

The 1986 Custer plan management area R includes that portion of the West Fork of Rock Creek drainage that is outside of the Absaroka-Beartooth Wilderness and the developed recreation sites along the creek, and is the source of drinking water for the city of Red Lodge. Two standards focused on specific requirements for recreation special use permittees.

Wilderness management direction in the Absaroka Beartooth Management Plan in appendix II of the Custer plan) contains fairly extensive direction for permitting outfitter guides.

The 1987 Gallatin Forest Plan includes forestwide direction such as permitted special uses or concession arrangements on national forest lands will be relied on to meet demand; authorization of most existing recreation residences will continue into the foreseeable future. An assessment of the continuance of a recreation residence permit will be based upon the need for a higher public use. Recreation residences will generally not exceed 1,500 square feet of roofed or enclosed floor space.

Outfitter guide direction authorized a limit to hunting outfitter and guide activity levels not to exceed 10,758 total service days. Gallatin Forest Plan appendix F contains the Absaroka-Beartooth Wilderness management direction, with fairly extensive direction for permitting outfitter guides. Recreation events,

resorts, and organizational camps are not addressed in the current Gallatin plan. The current plans have no specific prohibitions on permitted use of pack goats.

Expansion of Bridger Bowl, Big Sky, and the potential development of Ski Yellowstone Ski Areas will be given priority before any new proposals for downhill ski areas are approved.

Special use proposals will be evaluated on a case-by-case basis. Preference will be given to special use proposals that offer service or benefit to the public over single purpose or private uses. Under the current plans and alternative E there are no plan components for key linkage areas that promote wildlife connectivity.

Effects of the Current Plans

Plan components provide direction for the administration of the Custer Gallatin's recreational special uses program. In some cases, the current plans provides more site-specific direction than the revised plan alternatives. For example, they set a limit on total number of service days for all outfitter guide use under the Gallatin Forest Plan.

In all alternatives, natural disturbances, recreation use patterns, and emerging technologies would continue to influence the need for recreation special use permits across the Custer Gallatin. Vegetative conditions can seriously impact the location and infrastructure of recreation special uses. Additionally, the condition of aging infrastructure can have effects to permit holders in both the short and long term. Emerging technologies as well as shifts and changes in recreational interests can influence the kinds and location of special uses on the landscape.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components for the revised plan alternatives do not vary by alternative. Recreation special uses direction includes desired conditions and goals for all permits, then further direction is addressed for outfitter guides, recreation residences, ski areas, recreation events, organizational camps and finally noncommercial group use. Specific plan components for outfitter guides contained within the current plans for wilderness are not carried forward in the revised plan alternatives. To protect wilderness character, new special use authorizations shall only be authorized as consistent with the Wilderness Act, and as maintains the state of existing wilderness zones (FW-STD-DWA-12). New permitted recreational livestock use (per plan definition of permitted grazing) would be limited in designated wilderness, the wilderness study area, and recommended wilderness (FW-SUIT-DWA-04, MG-SUIT-WSA-03, and FW-SUIT-RWA-04). Permits for recreation events would not be issued for the Buffalo Horn (MG-STD-BHBCA-02) and West Pine Backcountry Areas (MG-STD-WPBCA-02) in any alternative in which they are proposed. All recommended wilderness areas would also prohibit new recreation events (FW-STD-RWA-05).

Under alternatives B and C, outfitter use of pack goats would be prohibited within the Madison, Henrys Lake, Gallatin Mountain; the Absaroka Beartooth; and the Pryor Mountains Geographic Areas. In the other geographic areas, a risk assessment of disease transmission to bighorn sheep would be needed prior to issuing a permit.

In alternative D, outfitter use of pack goats would be prohibited forestwide.

In alternative E, forestwide, a risk assessment of disease transmission to bighorn sheep would be needed prior to issuing new special use permits for outfitter use of pack goats.

In alternative F, the 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 (FW-STD-RECOG-01). Use of pack goats under new special use permits may be permitted in the Madison, Henrys Lake, Gallatin Mountain, the Absaroka Beartooth; and the Pryor Mountains Geographic Areas (and in the Bridger, Bangtail, and Crazy Mountains; Ashland; and Sioux Geographic Areas if these areas become newly occupied bighorn sheep) 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 and subject to specific conditions (FW-STD-RECOG-02).

Effects Common to the Revised Plan Alternatives

As described in the current plans, in all revised plan alternatives, natural disturbances, recreation use patterns, emerging technologies, vegetative conditions, and aging infrastructure would continue to influence the need for recreation special use permits across the Custer Gallatin.

The effect of fewer specific plan components for outfitter guides in wilderness would be added flexibility in specific circumstances, where additional authorizations would contribute to social and ecological conditions in designated wilderness (FW-DC-DWA-04) and (FW-GDL-DWA-05). These plan components also provide a pathway for considering different types of use within the allocated days (FW-STD-DWA-12).

Outfitters currently have not requested use of pack goats. However, if a new use was requested, permitting this use would be subject to a risk assessment and specific conditions depending on geographic area and alternative.

Consequences to Recreation Special Uses from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

All revised plan alternatives provide more detailed direction and guidance than the current plans for the management of recreation special uses to protect watershed, riparian, and aquatic habitats, most specifically within riparian management zones. Many special use permits require access to areas located within riparian zones. Where possible new recreation special uses would be located outside of these zones. Plan components for riparian zones may limit road construction and vegetation management activities that could occur in association with special use permits (see the suite of watershed, aquatic and riparian management revised plan components). New developed recreation facilities should not be constructed in riparian management zones (FW-GDL-FAC-01), which has the potential to affect new requests for special use permits involving new construction.

Effects from Fire and Fuels Management

Unplanned and prescribed fires would continue to affect the long-term ecological processes across the Custer Gallatin National Forest. Plan components for fire would not stop a temporary loss of vegetation, reduction in water quality due to sedimentation, reduction in recreation access to some areas, and air

pollution, which could cause displacement of some forest visitors to other areas on the national forest or to other national forests in the region. However, these effects are part of natural, ecological processes. Fire and fuels plan components envision vegetation conditions that would support low-intensity fire adjacent to infrastructure to reduce negative impacts to values at risk (FW-DC-FIRE-02, 03). Fuels could be treated to limit the intensity of fire in areas around locations used under special use permit (FW-GDL-FIRE-02).

Effects from Wildlife Management

For all alternatives, activities related to wildlife improvements and management would affect recreation special uses across the Custer Gallatin National Forest. There is direction where 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, (FW-STD-WL-01) and these areas will include many outfitter camps. New recreation development designed for the purpose of increasing recreation use should not be allowed within key linkage areas (FW-GDL-WL-03). Recreation events that take place at night would not be allowed in key linkage areas (FW-STD-WL-02). New recreation developments may be constructed to address on-going or imminent ecological resource concerns within the key linkage area, including but not limited to, degradation of wildlife habitat connectivity (FW-GDL-WL-03). For all revised plan alternatives, wildlife plan components for wolverine could restrict future special use permits, and new groomed winter snowmobile or cross-country ski routes (FW-GDL-WLWV-01). Also in the revised plan alternatives, the guideline (FW-GDL-RECEVENT-02), written to minimize potential conflicts between grizzly bears and humans inside the recovery zone and primary conservation area, would restrict issuing special use permits for “activities that involve people traveling by foot, horse or non-motorized vehicle, during the hours between sunset and sunrise. This guideline only applies during the grizzly bear non-denning season of March 1 through November 30.” For all revised plan alternatives, the effect of this would be to limit areas open to issuing permits for 24 hour runs and other such events to places outside of the grizzly bear recovery zone. In addition, added capacity at existing resorts that operate under special use permit shall not exceed ten percent increase over use authorized in 1998 (FW-STD-WLGB-04b).

Given other limitations on recreation events in designated wilderness, recommended wilderness areas, and wilderness study areas, event organizers would be required to obtain a special use permit and would find choices of locations more limited than under the current plans.

Effects of Designated Areas and Plan Land Allocations

Plan components in all revised plan alternatives for recommended wilderness area may have specific effects on various special use permits. New recreation events and construction of new developed recreation facilities would not be authorized in recommended wilderness (FW-STD-RWA-04 and 05). This may result in relocation or cancelation of events such as races that have been held permits on the Custer Gallatin for years, as the term of those existing permits expire between one and five years, after which a new permit would be required. Alternative D has over 700,000 acres of recommended wilderness area, the largest amount of all alternatives. Due to this large amount of acres in recommended wilderness in alternative D, there would be much smaller number of remaining areas still open to recreation events, filming locations, as well as communication towers, powerlines, and other special use permitted infrastructure not suitable in recommended wilderness.

In alternatives B, C, and F, prohibiting permitted recreation events in the Buffalo Horn and West Pine Backcountry Areas (MG-STD-BHBCA-02) and (MG-STD-WPBCA-02) would reduce wildlife conflicts with large gatherings, and maintains those areas for quiet recreation. Those events would be displaced to other areas of the national forest or to off-forest locations. For all backcountry areas, new special uses shall be compatible with management of the backcountry area character (FW-STD-BCA-05).

In research natural areas multiple plan components limit recreation events (FW-STD-RNA-02) along with new special use permits-allowing some exceptions (FW-STD-RNA-04 and 05).

Effects from Permitted Livestock Grazing Management

The revised plan alternatives provide direction for the management of grazing within developed recreation sites including summer homes (FW-GDL-GRAZ-04). In grazing management, suitable areas are capable areas minus areas chosen to be unacceptable to graze to minimize conflicts with areas such as campgrounds, other developed recreation sites, research natural areas, fenced rights-of-way, or other areas closed by decision. Therefore, when recreation special uses are within a developed setting, livestock grazing would not cause an effect. However, if the special use permit was granted for areas open to grazing, then participants may encounter cattle, fencing, water developments etc.

Per plan definition of permitted grazing, while FW-SUIT-DWA-04, MG-SUIT-WSA-03, and FW-SUIT-RWA-04 would limit new permitted recreational livestock use in designated wilderness, the wilderness study area, and recommended wilderness, effects to permitted recreational livestock would be limited because more recreational livestock is currently authorized than is being used.

Effects from Cultural, Historic, and Tribal Resource Management

Many of the recreation residences and resorts on the Custer Gallatin National Forest are historic and have a need to be managed for their historic values in addition to their recreational values. Future expansion and remodeling of these requires additional planning and approval to ensure that historic values are not damaged.

3.19.8 Cumulative Effects for Recreation Settings, Opportunities, and Access

It is expected that recreational uses on national forest lands will continue to increase, as more people nationwide continue to look for places to recreate. As more people venture onto public lands, differing societal desires and ideas of the recreation opportunities public lands should provide will continue to influence public land management policy.

Developed recreation sites and the dispersed recreational activities offered by the Custer Gallatin National Forest are part of the huge variety of recreational opportunities in the state of Montana, with proportionately much less offered in the South Dakota segment of the Custer Gallatin. The recreational front country opportunities outside of wilderness on the Custer Gallatin are part of a network offered by other public land management agencies. Coordination with other agencies and organizations to provide recreation opportunities would continue to be necessary to meet public demands.

Construction of new developed recreation sites within the recovery zone boundaries would be limited by the Greater Yellowstone Area Grizzly Bear Conservation Strategy. This hinders the ability to provide more capacity for overnight camping in forest areas where population pressures and tourism are expected to increase. There has also been concern that lack of additional overnight developed recreation campsites

in popular locations moves campers to dispersed camping, where encounters with bears may be more likely and there are no food storage facilities or other interpretive signing to educate visitors on camping in bear prone areas. Existing mitigation factors in the recovery zone, may allow additional facilities in limited scenarios if the actions benefits bears, such as consolidation or elimination of existing facilities.

Within the assumptions on population growth near the Custer Gallatin, there are some likely limits to the recreational activities offered under special use permit. New locations for ski area developments, resorts, summer camps are not currently proposed. Nationally, there are approximately 14,000 permitted recreation residences on National Forest System lands, and program will not expand due to national direction. Depending on decisions about new recommended wilderness, there may be displacement of some large, traditional recreation events, which may cause organizers to look at other locations, both off Forest Service managed lands or on other national forests.

3.19.9 Conclusion for Recreation Settings, Opportunities, and Access

In the current plans, recreation opportunity spectrum direction would continue to be in different documents and be inconsistent with 2012 Planning Rule direction to incorporate recreation opportunity spectrum into the revised plan.

The recreation opportunity spectrum classifications vary by alternative by the locations of recommended wilderness areas. In alternative E, the recreation opportunity spectrum classification in the wilderness study area reflects the 2006 Gallatin Travel Plan and would allow more motorized opportunity than the current situation or other revised plan alternatives.

As a means of ensuring a sustainable recreation program, revised plan alternatives map desired recreation opportunity spectrum settings as per the intent of the 2012 Planning Rule. All of the revised plan alternatives would establish guidance and desired recreation opportunity spectrum classes for both summer and winter recreation settings and set expectations for the recreation settings on the Custer Gallatin. Desired recreation opportunity spectrum classes would aid in managing both existing and emerging recreation uses. Setting clear expectations and identifying a spectrum of settings for recreation users is important to the long-term management of recreation use on the Custer Gallatin. Travel plans would continue to provide the site-specific direction for where motorized transport can and cannot occur.

Plan components, in addition to Forest Service manual direction, provide direction to manage the recreation special uses program in conjunction with other forest resources.

The revised plan alternatives plan components provide direction for the management of dispersed recreation, the management of cabin and lookout rentals and to limit the construction of new recreation sites in riparian areas. By providing the plan components outlined in the revised plan alternatives, the Custer Gallatin National Forest would, ensure that recreation opportunities are ecologically, economically, and socially sustainable for present and future generations.

3.20 Scenery

3.20.1 Introduction

Scenery provides important sense-of-place backdrops, settings, and character-defining elements that can be valued and enjoyed by forest visitors and people in adjacent communities, contributing their

recreation experience. The spectacular scenery of the Custer Gallatin is a national driver for tourism, recreation, and the economy, especially in the Greater Yellowstone Area. The importance of this scenery was emphasized by comments offered during the public plan revision meetings, as well as the recognition of how expectations for the scenery represent a range.

While many of the benefits of the national forest scenery are intangible, there are very real quantifiable economic benefits that contribute to local economies and communities. Movies filmed partly on national forest land or with national forest land providing a backdrop, such as “A River Runs Through It” and “A Horse Whisperer” produced what the Montana State Film Office (Meyers 2003) referred to as “a stunning love affair with the state.” Another newspaper article entitled “Reflecting on the film “A River Runs Through It” and how it changed Montana” stated “the film boosted the local fly-fishing and real estate industries, attracted tourists to Montana, and drew attention to the state’s beauty and beloved rivers” (Flandro 2012).

Regulatory Framework

The National Environmental Policy Act of 1969 (42 U.S.C. 4321): directs the Federal Government to “(2) assure for all Americans... healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, [or] risk to health...; (4) preserve important historic, cultural, and natural aspects” of our environment. It further directs agencies to “ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man’s environment.” This act directs agencies to develop methods and procedures “which will insure that [scenery and other] unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations.”

The Wild and Scenic Rivers Act of 1968: stipulates that the outstandingly remarkable scenic values of rivers that are determined to be eligible or suitable for inclusion in the system be managed to avoid negative effects to the scenery of the river corridor.

National Forest Management Act of 1976: directs that the preservation of aesthetic values be analyzed at all planning levels. Part 219.21 requires visual resources to be inventoried and evaluated as an integral part of evaluating alternatives in the forest planning process, addressing both the landscape’s visual attractiveness and the public’s visual expectation. It also requires that “esthetic” impacts be assessed for projects. In addition, it stipulates “cut blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain.”

Title 36 of the Code of Federal Regulations, Part 219, Subpart A, National Forest System Land and Resource Management Planning (36 CFR part 219, subpart A): regulates the scenic resources of National Forest System lands. Requirements include the consideration, treatment, and protection of intangible resources such as scenery and aesthetics.

Public Rangelands Improvement Act of 1978: states “unsatisfactory conditions on public rangelands reduce the value of such lands for recreational and aesthetic purposes.”

The 2012 Land Management Planning Rule: requires the Forest Service to take into account the contribution of the national forest scenery to the social and economic sustainability of the national forest. The Planning Rule also requires the Forest Service to identify and evaluate existing information relevant to the national forest for sustainable recreation settings and scenic character. Taken together,

these requirements direct the Forest Service to evaluate the scenery in such a way that considers the views of National Forest System land for people who are recreating and viewing scenery from inside the national forest as well as for those who are viewing National Forest System land from outside the national forest. This emphasizes the distinction that the national forest scenery is not solely a component of the recreation experience on the national forest, but a resource that is enjoyed and appreciated by people who are not even visiting the national forest.

Forest Service Manual (FSM) 2380: outlines Forest Service policy and direction for the management of scenic resources. Section 2380.3 describes Forest Service policy with regard to the scenic resources. The four components of the policy are listed below:

- Inventory, evaluate, manage, and, where necessary, restore scenery as a fully integrated part of the ecosystems of National Forest System lands and of the land and resource management and planning process
- Employ a systematic, interdisciplinary approach to scenery management to ensure the integrated use of the natural and social sciences and environmental design
- Ensure scenery is treated equally with other resources
- Apply scenery management principles routinely in all National Forest System activities

Forest Service Manual 2380.11b directs the Forest Service to integrate “aesthetic principles and the environmental design arts...” and to “use the knowledge, skills, and abilities of landscape architects to meet the goals of aesthetics, scenery management, and environmental integrity on National Forest System lands.”

Forest Service Manual section 2380.31: requires the use of the basic concepts, elements, principles, and variables defined in Agriculture Handbook 701, Landscape Aesthetics: A Handbook for Scenery Management (U.S. Department of Agriculture 1995) referred to as the **Scenery Management System (SMS)**. The Scenery Management System replaced the 1974 Forest Service Visual Management System (VMS). Both systems provide systematic approaches for inventorying, analyzing and determining the relative value and importance of national forest scenery. Both systems establish overall scenery goals and objectives for proactive or reactive management and monitoring. The Scenery Management System retains many of the same basic inventory elements, but introduced some new vocabulary, along with some key concepts:

The scenery management system recognizes that the landscape and scenery are dynamic, and that especially the vegetative components are affected by a variety of natural disturbance processes such as insects, disease, wind throw, fires, and droughts; and thus, have varied and evolved over time. The scenery management system recognizes that a dynamic landscape creates scenery that is not a static image. This means that the application of the scenic integrity objectives does not relate to a static scenic character description but to a description that considers dynamic and changing landscape processes.

The overall goal of the Scenery Management System, as well as of the Visual Management System, is to recognize the value of a natural-appearing national forest landscape. However, the Scenery Management System recognizes that some human-introduced visual elements in a predominantly natural setting may add value and meaning to the scenic character, such as historic, cultural, agricultural, or ranching-related features (even reservoirs).

Forest Service Handbooks provide guidance for the management of scenic resources are:

- U.S. Department of Agriculture, Forest Service. National Forest Landscape Management, Volume 2:
- Chapter 2: "Utilities" Agriculture Handbook 478.
- Chapter 3: "Range" Agriculture Handbook 484
- Chapter 4: "Roads" Agriculture Handbook 483
- Chapter 5: "Timber" Agriculture Handbook 559
- Chapter 6: "Fire" Agriculture Handbook 608
- Chapter 7: "Ski Areas" Agriculture Handbook 617
- Chapter 8: "Recreation" Agriculture Handbook 666

Key Indicators and Measures

The key indicators for analyzing the alternatives are the scenic integrity objectives (SIOs), as displayed in the maps and the acreage tables for the different alternatives. It is important to understand that while scenic integrity objectives incorporate the word "objective," the scenic integrity objectives almost always serve as upper thresholds of allowable visual dominance created by new landscape modifications or disruptions that contrast with or detract from the valued scenic character, in terms of line, form, color, texture, pattern, harmony, size, and scale. In other words, the scenic integrity objectives describe the lowest allowable levels of scenic integrity that the visible results of all new on-the-ground management actions must meet, based upon the visibility described in the Custer Gallatin plan in table 19.

Management activities may result in increasing, decreasing or not changing the integrity of the scenic character.

Methodology and Analysis Process

The scenic integrity objectives in each of the alternatives analyzed here were determined by following the process described by Forest Service Handbook 701, the Scenery Management System.

- Scenic character descriptions were developed for each geographic area based upon field visits. Those are included in the final scenery assessment report (Ruchman 2017).
- Inherent scenic attractiveness ratings for all Custer Gallatin National Forest landscapes were determined and mapped, based upon field visits, satellite aerial photos, and the methodology described in the Agriculture Handbook 701. Refer to the final scenery assessment report (Ruchman 2017) for more details, descriptions, and maps.
- Viewsheds and critical viewing platforms (travelways and viewpoints) were prioritized through internal and public discussions, including through a series of public meetings at multiple locations across the region served by the Custer Gallatin. The critical viewing platforms include travelways and viewpoints within the national forest as well as outside the national forest, to recognize that the national forest scenery is valued by visitors to the national forest as well as by people in neighboring communities and areas. Critical viewing platforms for viewers within the national forest also include rivers or segments of rivers determined to be eligible for inclusion under the 1968 Wild and Scenic Rivers Act with an outstanding remarkable value of scenery.
- Scenic Classes were developed through a GIS visibility and modeling process that overlaid the above information.

- Scenic integrity objectives (SIOs), from very high to very low, for each alternative were developed based upon the scenic classes along with other resource and mission issues.
- The Scenic integrity objectives, along with the critical viewing platforms, were mapped, by geographic area and by alternative (the assigned scenic integrity objectives and critical viewing platforms are shown in the scenery management maps in appendix A.

The scenic integrity objectives proposed for each alternative assume that the vegetation would continue to be affected by various factors such as fire, insects, drought, and disease and that the wildland-urban interface areas would continue to expand and become more developed, which may increase the need to address fuels and may impact overall viewsheds. Examples of scenic integrity levels are shown photographically in figure 17 through figure 21.



Figure 17. Example of very high scenic integrity level where there are only minute, if any, deviations from the scenic character (photo in the Absaroka-Beartooth Wilderness)



Figure 18. Example of high scenic integrity level where deviations are not evident and the scenic character appears intact (photo from the Beartooth Scenic Byway looking up the Rock Creek drainage)



Figure 19. Example of moderate scenic integrity level where the landscape appears slightly altered, deviations from or disruptions to the scenic character resulting from management activities are discernible but visually subordinate to the scenic character (photo in the Madison Mountains)

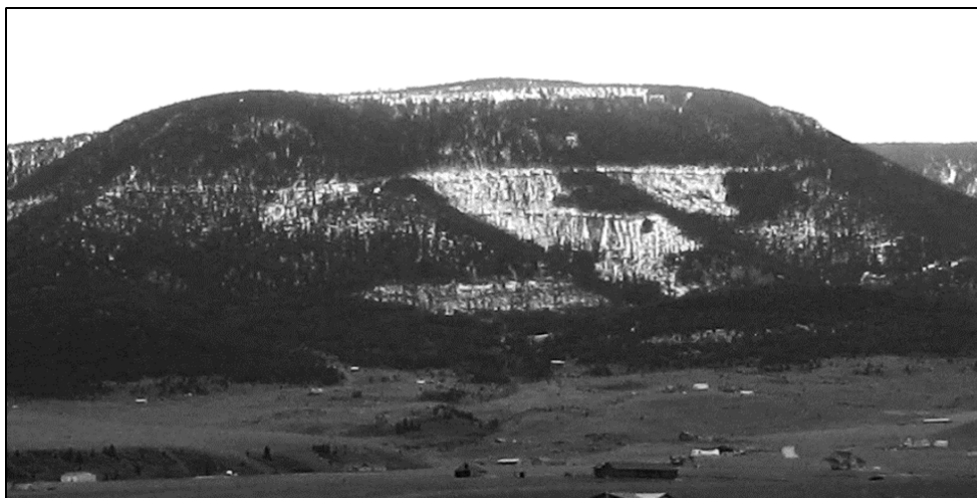


Figure 20. Example of Low scenic integrity – where the landscape appears altered, deviations begin to dominate the scenic character (photo north of the Gallatin Range)

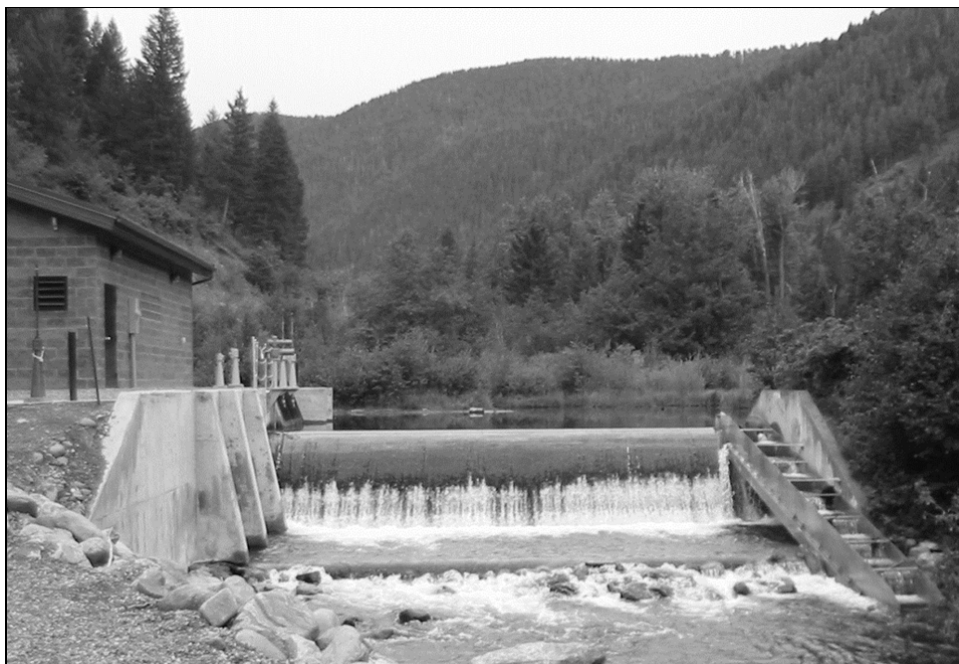


Figure 21. Example of Very Low scenic integrity – where the landscape appears heavily altered, deviations may strongly dominate (photo in the north Gallatin Mountains)

Information Sources

The Forest Service Scenery Management System information, assumptions, and process guided the development of the forestwide scenic integrity objectives in the alternatives and the plan components for the revised plan. Existing geographic information system (GIS) layers were used for information such as locations of national forest trails, roads, recreation sites, state and county roads, and communities. That system is described in more detail in the “Regulatory Framework” section of this report.

Analysis Area

The area analyzed includes all land and viewsheds within the Custer Gallatin National Forest as well as viewsheds in which Custer Gallatin National Forest land is visible from viewing platforms located on neighboring non-national forest land. This area applies to the analysis for indirect, direct, and cumulative effects. The temporal scope is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

In addition to supplementing the final environmental impact statement with clarifying language, minor edits, and analysis of alternative F, the notable changes in the revised plan include:

- changing draft plan guideline FW-GDL-SCENERY-02 to revised plan standard FW-STD-SCENERY-01 to be comparable to timber standard FW-STD-TIM-08,
- streamlining draft plan guideline FW-GDL-SCENERY-05 (revised plan guideline FW-STD-SCENERY-04),
- moving draft plan guideline FW-GDL-SCENERY-08 to Management Approaches since the guideline involved how to do environmental analysis,

- changing the scenic integrity objective of the northern portion of the Chalk Buttes from low to moderate to better reflect the scenery inventory, public comments and management intention.

3.20.2 Affected Environment (Existing Condition)

Scenic Character

The affected environment for the scenery resource is partly portrayed by a description of the scenic character. The 2012 Planning Rule defines scenic character as “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.” For the Custer Gallatin National Forest, one overall scenic character description is inadequate because from west to east, the national forest sweeps across roughly 450 miles. The Custer Gallatin has an incredible diversity of landscapes, from high alpine, glacially scoured peaks and lakes, across the valleys of southwestern and south-central Montana to buttes, dramatically eroded cliffs, pine savannas, and rolling prairie grasslands of eastern Montana and northwestern South Dakota. Across the entire forest, the vegetation has been, and continues to be, affected by a variety of natural elements, from large fires to entire stands of trees killed by insects. The final scenery assessment report (Ruchman 2017) provides broad scenic character descriptions for each geographic area.

The scenic character also incorporates a description of the context and ways the scenery is viewed and experienced, as well as associations that viewers have based upon visible historic elements, such as the Historic OTO Dude Ranch and the Historic Main Boulder Ranger Station. Viewing platforms that are recognized nationally for their outstanding scenery include the Beartooth National Forest Scenic Byway, also awarded All American Road status, and the Continental Divide National Scenic Trail. Topography plays an important role in how viewers experience the scenery of the Custer Gallatin National Forest. In the Greater Yellowstone Area, (from West Yellowstone to Red Lodge), the Custer Gallatin land is comprised of some major mountain ranges, steep ridges, hillsides, and peaks. All of these features are visible from numerous vantage points outside the national forest and help define the striking setting and sense of place enjoyed by neighboring residents and visitors. In the Ashland and Sioux geographic areas, the topography is more subtle and not as frequently or easily visible from the surrounding small communities and ranchlands. Regardless, residents and other viewers care about the national forest scenery, as viewed from within and from outside, and have articulated and prioritized those viewing platforms felt to be most critical.

Inherent Scenic Attractiveness

Inherent scenic attractiveness is a classification of how visually unique, distinctive, and thus valued, specific scenery is and refers to enduring visual qualities of the landscape that do not generally change, even as elements (such as an unusually large fire may change the scenic character; or roads, mines or timber harvest) may lower the condition of the scenery. Inherent scenic attractiveness ratings are based upon commonly held perceptions of beauty related to land forms and rock features, vegetation patterns and composition, water features and their characteristics, along with concepts such as uniqueness, variety (including seasonal), mystery, and vividness of the line, form, color and texture of the scenery. Sometimes positive cultural features, such as log cabins, fences, historic mining features, or ghost towns that have become valued over time add to the inherent scenic attractiveness.

To avoid comparing the more subtle beauty of Ashland or Sioux Districts’ pine savanna landscapes to more overtly spectacular alpine scenery of the Absaroka Beartooth, Madison, or Crazy Mountains, inherent scenic attractiveness ratings were conducted within ecological land units, of which the Custer Gallatin National Forest spans three. For more details about the geographic frames of reference used to determine the inherent scenic attractiveness ratings and to see the mapped ratings, the final scenery assessment report (Ruchman 2017). The distribution of inherent scenic attractiveness across the Custer Gallatin is shown in table 80.

Table 80. Acreage and percentage of areas with inherent scenic attractiveness in each geographic area¹

Geographic Area	A – Distinctive Areas of unusual visual attributes of vividness, patterns, unique or outstanding variety of rock, water, topographical, and vegetation forms	B – Typical Areas that provide positive yet common vividness, patterns and rock, water, topographical, and vegetation forms	C – Indistinctive Landscapes with little to no visual variety, uniqueness, or vividness in rock, water, topographical, or vegetation forms
Sioux	137,286 acres 83%	27,173 acres 17%	0 acres 0%
Ashland	236,453 acres 54%	164,415 acres 38%	35,265 acres 8%
Pryor Mountains	51,665 acres 69%	19,548 acres 26%	3,853 acres 5%
Absaroka Beartooth Mountains	768,415 acres 57%	548,246 acres 40%	36,634 acres 3%
Bridger, Bangtail, Crazy Mountains	49,663 acres 24%	125,762 61%	296,606 14%
Madison, Henrys Lake, Gallatin Mountains	209,670 acres 18%	446,622 acres 62%	150,107 acres 20%
Forestwide Totals	1,445,705 acres 48%	1,338,205 acres 44%	255,465 acres 8%

1. Acres are based upon hand-digitized, one-half inch = 1-mile scale, 1980s hand-drawn maps. Acres for land lost or acquired since then are not included.

Existing Scenic Integrity (Existing Condition)

Existing scenic integrity refers to the current condition of the scenery as it has been influenced or changed by human modifications or constructed features, such as roads, mines, or timber harvest, that are generally not considered to be valued components of the national forest scenery. Existing scenic integrity indicates the degree of intactness and wholeness of the landscape character, or conversely, it measures the degree of visible disruption.

The most recent comprehensive assessment of the existing scenic integrity for both the Custer National Forest and the Gallatin National Forest was done at a very coarse scale for the entire Forest Service Northern Region in 2010. It was entirely a geographic information system-generated product, with no ground verification, using available data at the time that has not been verified on the ground from key observation travel routes and points. The resulting product rated the existing scenic integrity of the scenery on National Forest System land at the time into one of five levels: very high, high, moderate, low, and unacceptably low. For more detailed information about that process and the factors it considered

and protocols it applied, refer to the final scenery assessment report (Ruchman 2017). Forestwide results from that analysis are shown in table 81.

Table 81. Existing scenic integrity for the Custer Gallatin National Forest

Existing Scenic Integrity (existing condition of the scenery)	Acres of National Forest Land in 2010 ¹	Percentage of National Forest Land (2016 acreage)
Very High: Scenery appears unaltered	1,035,675	34%
High: Scenery appears unaltered and any visual disturbances are unnoticed	1,761,614	58%
Moderate: Scenery appears slightly altered but any disturbances are visually subordinate	58,566	2%
Low: Scenery appears moderately altered and disturbances may start to dominate.	180,797	6%
Unacceptably Low	0	0%
Totals	3,036,652	100%

1. Acres were based upon very coarse 2010 Regional-level parameters. Levels were not verified from viewpoints on the ground. Acres do not include lands lost or acquired since that time.

On-the-ground monitoring shows that some of the most obvious visual disruptions that had locally lowered the scenic integrity, have now improved through time or through restoration efforts. Examples of notable, extensive, and successful restoration work include the New World Mining District (northeast of Cooke City, in the Absaroka Beartooth Geographic Area), the extensive on-going Riley Pass reclamation work in the North Cave Hills Unit of the Sioux Geographic Area, and restoration of 1980s cable-harvest clearcuts, visible to the south from many parts of the Gallatin Valley in the north end of the Gallatin Mountains.

3.20.3 Environmental Consequences

Current Plans

Management Direction under the Current Plans

The current forest plans followed the information and process described by the Forest Service Visual Management System to manage the scenery resource.

Under the current Gallatin Forest Plan, all National Forest System land was assigned a visual quality objective that had been derived from a visual management inventory.

Table 82 shows the acreage for the visual quality objectives assigned by the Gallatin plan. This table also shows the comparable scenic integrity objectives of the Scenery Management System terminology.

Under the current Custer Forest Plan, a full visual management system inventory was not conducted, and visual quality objectives were not assigned to National Forest System land. Instead, the Custer plan assigned a range of visual quality objectives to each management area and directed that any proposed projects go through a project-specific analysis to determine the appropriate project area visual quality objectives. Some management areas that comprise specific plan land allocations such as wilderness, the Beartooth Scenic Byway and the National Natural Landmarks were assigned a single visual quality objective. The Custer plan included management standards regarding scenery for certain specific

activities such as minerals and geology (regarding selecting locations and using earth tone colors) and timber production and overhead power poles (minimizing visual impacts). For the Beartooth Scenic Byway, the Custer plan assigned the visual quality objective of “retention” to all areas seen from the byway, excluding the highly developed recreation area along the creek. For management areas where mining activities were either anticipated or already ongoing, the plan incorporated a stipulation that the scenery objectives were “subject to valid existing rights.”

Table 82. Current Gallatin Forest Plan visual quality objectives (definitions and acreage) with the newer, comparable scenery management system (SMS) terminology

Visual Quality Objectives and Definitions	Total Acres for Gallatin National Forest Land in 1987	Crosswalk to Comparable SMS Scenic Integrity Objectives
Preservation: Only ecological changes are allowed to alter the natural landscape.	747,771 acres = 44% of the Gallatin National Forest in 1987 This applies to designated Wilderness areas.	Very High: landscape character is intact with only minute if any deviations
Retention: Human activities are not evident to the casual Forest visitor.	385,267 = 22% of the Gallatin National Forest in 1987	High: Deviations are not evident, do not dominate the scenic character
Partial Retention: Human activities may be evident, but must remain subordinate to the characteristic landscape.	397,370 acres = 23% of the Gallatin National Forest in 1987	Moderate: appears slightly altered, deviations must remain visually subordinate to the scenic character
Modification: Human activity may dominate the characteristic landscape but must, at the same time, utilize naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in the middle-ground or background.	167,874 acres = 9% of the Gallatin National Forest in 1987	Low: appears altered, deviations begin to dominate the scenic character
Maximum Modification: Human activity may dominate the characteristic landscape, but should appear as natural when viewed as background.	4,657 acres = <1% of the Gallatin National Forest in 1987 This applies to the New World and East Boulder mining areas.	Very Low: appears heavily altered, deviations may strongly dominate

Because of the differences between visual management approaches of the current Custer and Gallatin Forest Plans, it is not possible to display the existing total acres and percentages of the visual quality objectives for the entire, now-combined national forest.

Effects of the Current Plans

In the current plans, the national forest scenery and visual impacts of new projects would continue to be managed using the visual management direction in the existing Custer and Gallatin Forest Plans. This would not be consistent with the purpose and need of having a consistent approach to scenery management across the Custer Gallatin National Forest. It would also make future planning more difficult because every time a project is initiated on the former Custer side of the national forest, a scenery inventory and an appropriate project-specific visual quality objective would need to be determined.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The distribution of the scenic integrity objectives in the revised plan alternatives reflects a range in priorities across the Custer Gallatin, from viewsheds where managing and maintaining the scenic integrity is most important, to areas where achieving other goals or meeting other resource values may be a higher priority. The assigned scenic integrity objectives vary across alternatives only due to the different locations and amounts of recommended wilderness, where the scenic integrity objective of very high is assigned.

- Scenery guidelines provide direction related to meeting the scenic integrity objectives, applying the critical viewing platforms and the timeframes in which to achieve the scenic integrity objectives. In addition, specific guidance is provided for:
- scenery management for facilities in developed sites,
- the process for deviating from meeting the scenic integrity objectives in research natural areas, except in designated wilderness,
- scenery management for new permitted livestock grazing activities in wilderness and recommended wilderness, and
- the allowance for deviating from meeting the scenic integrity objectives for new hard rock mining activities associated with valid existing or statutory rights and the considerations in developing mitigations to meet the scenic integrity objectives.
- Considering potential effects to the scenery on national forest land within the context of the appropriate viewshed.

Effects Common to all Revised Plan Alternatives

The scenic integrity objectives proposed in all of the revised plan alternatives, along with the other plan components for scenery, would provide management direction for all new activities that modify the landscape, including installation of facilities such as utility lines, mining facilities, administrative or recreation facilities, or roads, as well as vegetation management such as fuel reduction or timber harvest.

Specifically, the assigned scenic integrity objectives and the associated plan components that structure the application of the scenic integrity objectives would serve to maintain and manage for the condition of the scenery in a sustainable way that reflects the relative value, importance, and viewing context of all the Custer Gallatin National Forest land, as well as the dynamic nature of vegetation over time.

However, for minerals projects associated with valid existing or statutory rights, negative impacts to the scenic integrity may result where mitigations to meet the assigned scenic integrity objective are considered technically or economically infeasible, or where the negative impacts would be short-term or minimal

As such, the scenic integrity objectives and associated plan components would not directly prohibit any on-the-ground work, but may influence the design or the location of projects to meet or exceed the lowest allowable level of scenic integrity. The scenic integrity objective of very low is not assigned to any land areas in any of the revised plan alternatives.

Most of the suitable timber base across the national forest has been assigned a scenic integrity objective of Moderate or Low. Suitable timber base does not include any areas that are within wilderness, recommended wilderness, or inventoried roadless areas. Furthermore, not all the land within the suitable timber base, regardless of assigned scenic integrity objective, is visible from critical viewing platforms. Only a very small portion of the suitable timber base is assigned the scenic integrity objective of High. While it is more challenging, a scenic integrity objective of High can be met for logging operations by applying unit-specific appropriate design features, in the necessary locations, for views from the applicable critical viewing platforms.

The scenic integrity objectives in desired condition (FW-DC-SCENERY-02). Guideline (FW-GDL-SCENERY-01) are management constraints that describe the lowest allowable integrity levels of the scenic character that the visible results of all new management actions must meet. While the scenic integrity objectives are used as constraints for new project actions, the national forest also may seek opportunities to improve the condition of the scenery, improve resilience or accomplish restoration, especially where the existing condition of scenery visible from critical viewing platforms is lower than assigned scenic integrity objective.

Plan direction for scenery management for all land within the national forest, including special designations such as recreation emphasis areas, backcountry areas, the Continental Divide National Scenic Trail, the Beartooth Scenic Byway and segments of rivers determined to eligible for consideration as Wild and Scenic with an outstandingly remarkable values of scenery, is covered in the revised plan's scenery section along with the associated scenery management maps. The scenery management maps also list the critical viewing platforms from which the viewsheds must be considered and the intention of the assigned scenic integrity objectives met by any new project work, at all viewing distances, in all viewing directions.

The application of the scenic integrity objectives is not subjective, but there may be some variability in interpretation. For that reason, the Forest Service involves landscape architects and others who are trained to integrate the "environmental design arts" in project analysis and implementation. Forest Service Manual 2380.11b directs the Forest Service to integrate "aesthetic principles and the environmental design arts..." and to "use the knowledge, skills, and abilities of landscape architects to meet the goals of aesthetics, scenery management, and environmental integrity on National Forest System lands."

Effects of Alternative B

The scenic integrity objectives would be assigned to national forest land as shown in the following tables (table 83 for the entire national forest, and table 84 broken out by geographic area). The locations of the assigned scenic integrity objectives, along with the critical viewing platforms are shown in the scenery management maps in appendix A.

Table 83. Alternative B scenic integrity objectives (lowest allowable scenic integrity levels) forestwide

Forestwide Scenic Integrity Objectives (lowest allowable levels)	Acres	Percentage of Custer Gallatin National Forest Land
Very High	1,160,659	38%
High	64,261	2%

Forestwide Scenic Integrity Objectives (lowest allowable levels)	Acres	Percentage of Custer Gallatin National Forest Land
Moderate	1,394,366	45%
Low	426,667	14%
Very Low	0	0%

Table 84. Alternative B scenic integrity objectives (lowest allowable scenic integrity levels) by geographic area, acres, and percentage of geographic area

Geographic Area Scenic Integrity Objectives (lowest allowable levels)	Very High	High	Moderate	Low	Very Low
Sioux	0 acres 0%	6,555 acres 4%	82,187 acres 50%	75,718 acres 46%	0 acres 0%
Ashland	0 acres 0%	0 acres 0%	291,696 acres 67%	144,428 acres 33%	0 acres 0%
Pryor Mountains	6,797 acres 9%	11,928 acres 16%	52,198 acres 70%	4,136 acres 6%	0 acres 0%
Absaroka Beartooth Mountains	918,947 acres 68%	34,225 acres 3%	363,587 acres 27%	41,767 acres 3%	0 acres 0%
Bridger, Bangtail, Crazy Mountains	0 acres 0%	0 acres 0%	163,968 acres 80%	41,162 acres 20%	0 acres 0%
Madison, Henrys Lake, Gallatin Mountains	234,907 acres 29%	11,554 acres 1%	440,712 acres 55%	119,456 acres 15%	0 acres 0%

Effects of Alternative C

The scenic integrity objectives would be assigned to national forest land as shown in the following tables (table 85 for the entire national forest, and table 86 broken out by geographic area). The locations of the assigned scenic integrity objectives, along with the critical viewing platforms are shown in the scenery management maps in appendix A.

Table 85. Alternative C scenic integrity objectives (lowest allowable scenic integrity levels) forestwide

Forestwide Scenic Integrity Objectives (lowest allowable levels)	Acres	Percentage of Custer Gallatin National Forest Land
Very High	1,193,237	39%
High	63,591	2%
Moderate	1,369,246	45%
Low	419,877	14%
Very Low	0	0%

Table 86. Alternative C scenic integrity objectives (lowest allowable scenic integrity levels) by geographic area, acres and percentage of geographic area

Geographic Area Scenic Integrity Objectives (lowest allowable levels)	Very High	High	Moderate	Low	Very Low
Sioux	0 acres 0 percent	6,555 acres 4%	82,187 acres 50%	75,718 acres 46%	0 acres 0%

Geographic Area Scenic Integrity Objectives (lowest allowable levels)	Very High	High	Moderate	Low	Very Low
Ashland	0 acres 0%	0 acres 0%	291,696 acres 67%	144,428 acres 33%	0 acres 0%
Pryor Mountains	6,804 acres 9%	11,928 acres 16%	52,198 acres 70%	4,134 acres 6%	0 acres 0%
Absaroka Beartooth Mountains	918,948 acres 68%	33,554 acres 2%	363,811 acres 27%	42,216 acres 3%	0 acres 0%
Bridger, Bangtail, Crazy Mountains	0 acres 0%	0 acres 0%	163,968 acres 80%	41,162 acres 20%	0 acres 0%
Madison, Henrys Lake, Gallatin Mountains	267,485 acres 33%	11,554 acres 1%	415,369 acres 51%	112,221 acres 14%	0 acres 0%

Effects of Alternative D

The scenic integrity objectives would be assigned to national forest land as shown in the following tables (table 87 for the entire forest, and table 88 broken out by geographic area). The locations of the assigned scenic integrity objectives, along with the critical viewing platforms are shown in the scenery management maps in appendix A.

Table 87. Alternative D scenic integrity objectives (lowest allowable scenic integrity levels) forestwide

Forestwide Scenic Integrity Objectives (lowest allowable levels)	Acres	Percentage of Custer Gallatin National Forest Land
Very High	1,738,009	57%
High	29,940	1%
Moderate	925,286	30%
Low	352,717	12%
Very Low	0	0%

Table 88. Alternative D scenic integrity objectives (lowest allowable scenic integrity levels) by geographic area, acres and percentage of geographic area

Geographic area Scenic Integrity Objectives (lowest allowable levels)	Very High	High	Moderate	Low	Very Low
Sioux	0 acres 0%	6,555 acres 4%	82,187 acres 50%	75,718 acres 46%	0 acres 0%
Ashland	38,882 acres 9%	0 acres 0%	255,607 acres 59%	141,635 acres 32%	0 acres 0%
Pryor Mountains	44,043 acres 59%	992 acres 1%	27,131 acres 36%	2,901 acres 4%	0 acres 0%
Absaroka Beartooth Mountains	1,131,393 acres 83%	15,960 acres 1%	191,438 acres 14%	19,736 acres 2%	0 acres 0%
Bridger, Bangtail, Crazy Mountains	92,447 acres 45%	0 acres 0%	82,175 acres 40%	30,525 acres 15%	0 acres 0%
Madison, Henrys Lake, Gallatin Mountains	431,244 acres 53%	6,434 acres 1%	286,749 acres 36%	82,203 acres 10%	0 acres 0%

Effects of Alternative E

The scenic integrity objectives would be assigned to national forest land as shown in the following tables (table 89 for the entire forest, and table 90 broken out by geographic area). The locations of the assigned scenic integrity objectives, along with the critical viewing platforms are shown in the scenery management maps in appendix A.

Table 89. Alternative E scenic integrity objectives (lowest allowable scenic integrity levels) forestwide

Forestwide Scenic Integrity Objectives (lowest allowable levels)	Acres	Percentage of Custer Gallatin National Forest Land
Very High	1,050,459	35%
High	67,159	2%
Moderate	1,488,451	49%
Low	428,885	14%
Very Low	0	0%

Table 90. Alternative E scenic integrity objectives (lowest allowable scenic integrity levels) by geographic area, acres and percentage of geographic area

Geographic Area Scenic Integrity Objectives (lowest allowable levels)	Very High	High	Moderate	Low	Very Low
Sioux	0 acres 0%	6,555 acres 4%	82,187 acres 50%	75,718 acres 46%	0 acres 0%
Ashland	0 acres 0%	0 acres 0%	291,696 acres 67%	144,428 acres 33%	0 acres 0%
Pryor Mountains	0 acres 0%	13,527 acres 18%	57,403 acres 76%	4,136 acres 6%	0 acres 0%
Absaroka Beartooth Mountains	916,599 acres 67%	35,524 acres 3%	362,207 acres 27%	44,197 acres 3%	0 acres 0%
Bridger, Bangtail, Crazy Mountains	0 acres 0%	0 acres 0%	163,986 acres 80%	41,162 acres 20%	0 acres 0%
Madison, Henrys Lake, Gallatin Mountains	133,860 acres 17%	11,554 acres 1%	541,972 acres 67%	119,244 acres 15%	0 acres 0%

Effects of Alternative F

The scenic integrity objectives would be assigned to national forest land as shown in the following tables (table 91 for the entire Custer Gallatin, and table 92 broken out by geographic area). The locations of the assigned scenic integrity objectives, along with the critical viewing platforms are shown in the scenery management maps in appendix A.

Table 91. Alternative F scenic integrity objectives (lowest allowable scenic integrity levels) forestwide

Forestwide Scenic Integrity Objectives (lowest allowable levels)	Acres	Percentage of Custer Gallatin National Forest Land
Very High	1,189,882	39%
High	64,716	2%
Moderate	1,371,720	45%
Low	419,633	14%
Very Low	0	0%

Table 92. Alternative F scenic integrity objectives (lowest allowable scenic integrity levels) by geographic area, acreage, and percentage of geographic area

Geographic Area Scenic Integrity Objectives (lowest allowable levels)	Very High	High	Moderate	Low	Very Low
Sioux	0 acres 0%	6,555 acres 4%	82,187 acres 50%	75,718 acres 46%	0 acres 0%
Ashland	0 acres 0%	0 acres 0%	291,696 acres 67%	144,428 acres 33%	0 acres 0%
Pryor Mountains	18,830 acres 25%	11,084 acres 15%	41,038 acres 55%	4,116 acres 5%	0 acres 0%
Absaroka Beartooth Mountains	917,398 acres 68%	35,524 acres 3%	361,407 acres 27%	44,197 acres 3%	0 acres 0%
Bridger, Bangtail, Crazy Mountains	9,619 acres 5%	0 acres 0%	155,344 acres 76%	40,184 acres 19%	0 acres 0%
Madison, Henrys Lake, Gallatin Mountains	244,037 acres 30%	11,554 acres 1%	440,048 acres 55%	110,991 acres 14%	0 acres 0%

Consequences to Scenery from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. Plan components aimed at protecting watersheds and reducing sedimentation complement scenery goals. They usually affect scenic integrity positively in the long term, especially where the implementation would involve closing roads or restoring wetlands that degrade scenic integrity in critical viewsheds.

Effects from Timber Management

The plan components in the revised plan alternatives have detailed desired condition descriptions aimed at maintaining resilience, sustainability, and diversity; whereas the existing plan components in the current plans include sustainability as a general goal, but are not as specific as to how to achieve it. Several plan components in the revised plan alternatives are complimentary with desired conditions for scenery, such as maintaining old growth, large tree structure and meadows that are open and clear of conifer encroachment. Timber management standard (FW-STD-TIM-03) in the revised plan alternatives states that silvicultural treatments would not be based solely on economic or timber output. Timber management standard (FW-STD-TIM-05) states that timber harvests units would be shaped and blended as much as possible with the terrain.

The exception in the revised plan alternatives to the restocking standard (FW-STD-TIM-10) that allows for openings for scenic vistas is consistent with the goal of contributing to the enjoyment of the scenery by forest and area visitors, as long as the operational remnants, such as stumps, slash, edge treatments, and shapes of the openings are consistent with the scenic integrity objectives.

In contrast to the current plans, the revised plan alternatives standard (FW-STD-TIM-09) allows exceptions to the maximum opening size of 40 acres and do not consider existing natural openings as part of the 40 acres. Depending upon the viewing context and areas adjacent to a proposed unit, new

openings may be designed to meet scenery goals, such as to visually flow into existing adjacent openings to replicate natural patterns or appear to have occurred naturally.

Timber standard (FW-STD-TIM-03) and scenery standard (FW-STD-SCENERY-01) that require timber harvest units to be shaped and blended with the natural terrain to the extent practicable may exceed the SIOs, especially where the timber harvest units would not be visible from any critical viewing platforms.

Effects from Fire and Fuels Management

The fire and fuels management plan components in the revised plan alternatives are complementary with scenery management, including the guideline to use utilize minimum impact suppression techniques forestwide, with only a few exceptions to protect human life, private property or infrastructure (FW-GDL-FIRE-03). In contrast, there is no mention of this in the current plans.

Effects from Recreation Management

In all alternatives, the recreation opportunity spectrum classes are complementary but not redundant with scenery management because the recreation opportunity spectrum descriptors and the scenery management objectives serve two different purposes. The recreation opportunity spectrum descriptors of naturalness apply only to the immediate recreation settings for someone on National Forest System land and in some areas may require a higher or lower degree of naturalness for the recreation setting than required by the scenic integrity objectives which often should be met from critical viewing platforms that may even be outside the national forest.

Recreation opportunity spectrum also complements scenery management in terms of the visual appearance of the level of development at recreation sites such as campgrounds or resorts, however the recreation opportunity spectrum applies to what recreationists experience and see within recreation sites themselves, including: the materials, colors, density and type of facilities and signage. The scenery management plan components generally apply to how the surrounding foreground, middle-ground and background of the National Forest System land appear to viewers who are within the recreation sites as well as how recreation sites appear to viewers from a distance, as viewed within the context of the surrounding scenery.

Effects from Plan Land Allocations

In all alternatives, allocating some areas as recommended wilderness and backcountry areas (low development areas in the current plans) would most likely mean that management would be more directed at sustaining natural processes. This may result in natural dynamic elements that can visibly affect vegetation, such as fire, insects and disease, becoming more evident across the scenery. This would just represent a change in the vegetation component of the scenic character and is neither a positive nor negative effect in terms of scenery. Some of the plan components, such as a prohibition of new energy or utility corridors or facilities in recommended wilderness areas and backcountry areas (FW-STD-RWA-02, FW-STD-BCA-02), may exceed the requirements of the assigned scenic integrity objectives resulting in more protected scenery.

Areas allocated as recreation emphasis areas in the revised plan alternatives may ultimately host more users, who may end up being vectors of scenery modifications in the viewing foreground, such as soil compaction and social trails, along with the transitory, but consistent increase in visible numbers of people and vehicles. Targeted vegetation management (such as maintaining the overstory for shade and some structures for site privacy) may become more discernible in recreation emphasis areas to provide

for more user safety and sustainability of recreation settings. This may mean that vegetation plantings, revegetation, hazard tree removal, cyclical overstory replacement, and fuel management may become more visible and common. More recreation facilities to accommodate increased use may also become more visible and in places, visually dominant. However, because this would be part of the expected view by visitors within concentrated parts of the recreation emphasis areas, this would be consistent with scenery management.

Effects from Wildlife Management

Plan objectives to improve wildlife habitat standard FW-STD-TIM-03 would have little to no negative effect on scenic integrity. In all alternatives, restoration of aspen can have a positive long-term effect on scenery because aspen stands add variety, visual interest, and exciting seasonal color to the scenery. Habitat restoration that involves removing conifers would need to incorporate design features necessary to meet or exceed the assigned scenic integrity objectives (lowest allowable scenic levels) from the critical viewing platforms, appropriate to each viewing context, setting and vegetation types.

Effects from Minerals Management

In all alternatives, reclamation plans are required for new mineral and energy management activities (FW-STD-EMIN-01), and the Forest Service works to reclaim areas of past mining activity. Further, FW-STD-EMIN-01 requires new mineral and energy management activities to be authorized only when the reclamation plan is sufficient to return the site to pre-operational site conditions or to conditions comparable to adjacent lands. This is especially important for scenery where new developments would be visible from critical viewing platforms. The minerals desired condition FW-DC-EMIN-01, in the revised plan alternatives, that states that abandoned mine lands and areas impacted by past mining are returned to a pre-mining state, is complementary with and beneficial to scenery management.

However, in all alternatives, negative impacts to the scenic integrity may result where valid existing rights are involved and mitigations to meet the assigned scenic integrity objectives are considered unreasonable.

Cumulative Effects

Except when viewers are well inside the national forest boundary and viewing only Custer Gallatin National Forest land, viewsheds often include land that is not Custer Gallatin National Forest land. Because the scenery experienced by viewers is not compartmentalized by land ownership or the managing entities, viewers' experience of Custer Gallatin National Forest scenery may be affected by land that is next to, in front of, or behind the national forest. Where Custer Gallatin National Forest land is viewed interspersed with private land or land managed by other public entities, actions on that other land can positively or negatively affect National Forest System land. This is addressed by the guideline that recognizes that the national forest scenery is often viewed as part of an overall viewshed.

Land adjacent to Custer Gallatin National Forest includes land that is managed or owned by various entities, including other national forests, Montana State, municipalities, such as City of Bozeman, Bureau of Land Management, National Park Service, and private entities. All these entities may manage scenery differently than the Custer Gallatin National Forest. Therefore, visitors may perceive a difference in the scenic quality among the different jurisdictions. As private land becomes more and more developed in the foreground and middle-ground, viewsheds that are currently fairly natural appearing now may

become more visibly fragmented and encroached. In the Greater Yellowstone Area, this includes some of the fastest-growing counties in the country where residential growth is booming.

Current, past, and reasonably foreseeable actions on land adjacent to Custer Gallatin National Forest land that could cumulatively impact scenery or projects on national forest land include the following:

- Residential Development. Increasing residential development especially in areas that appear adjacent to or mistakenly part of the national forest. Examples of activities that could negatively impacts scenery include roads, colorful houses, lights visible at night, and sun reflecting on windows and other surfaces, especially during the mornings and evenings when the sun is angled.
- Fuel reduction. As the wildland-urban interface becomes more developed, owners may implement more actions to reduce fuels around their structures and other investments, further reducing the visual buffer of what is now forested land.
- Timber harvest. Landowners or managers may harvest trees for a variety of reasons, using a variety of harvest techniques.

Other activities such as mineral, oil and gas extraction, communication towers, wind or solar energy generation, and roads may negatively affect viewsheds in which there is National Forest System land.

Given these past, present, and reasonably foreseeable actions, combined with the revised plan direction, the Custer Gallatin National Forest land would still provide an overall scenic backdrop and sense of place as viewed from surrounding communities and travelways, and a pleasing visual setting for visitors that meets general expectations.

Conclusion

The current plans would not resolve the reasons for needing to change scenery management across the Custer Gallatin because there would still be an inconsistent and unpredictable approach to scenery management and neither of the two existing approaches comply with current Forest Service directives.

All revised plan alternatives would resolve the need for change and would meet the 2012 Land Management Planning Rule requirements to consider the contribution of the national forest scenery to the social and economic sustainability of the Custer Gallatin. All of the revised plan alternatives, the mapped scenic integrity objectives, and the plan components would result in the Custer Gallatin's scenery being managed in a way that recognizes the public's expectations and desire to enjoy the scenery, especially in critical viewsheds and would allow for managing for scenic sustainability, within the context of dynamic landscapes.

A comparison of the scenic integrity objectives proposed in the revised plan alternatives shows how they vary from alternative to alternative based upon the amount and locations of recommended wilderness (table 93). Alternative D has the most amount of land assigned a scenic integrity objective of very high and alternative E has the least. This difference corresponds to the greater amount of land recommended as wilderness in alternative D and none in alternative E. Except for differences among the revised plan alternatives regarding the amount and locations of recommended wilderness with a scenic integrity objective of very high, the assignments of all of the other remaining scenic integrity objectives are the same across all of the revised plan alternatives. No land in any of the revised plan alternatives was assigned a scenic integrity objective of very low.

Table 93. Percentage of scenic integrity objectives (lowest allowable scenic integrity levels) in the revised plan alternatives, by geographic area and forestwide

Geographic area	Scenic Integrity Objective	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Sioux	Very High	0%	0%	0%	0%	0%
	High	4%	4%	4%	4%	4%
	Moderate	49%	49%	49%	49%	50%
	Low	48%	48%	48%	48%	46%
Ashland	Very High	0%	0%	9%	0%	0%
	High	0%	0%	0%	0%	0%
	Moderate	67%	67%	59%	67%	67%
	Low	33%	33%	32%	33%	33%
Pryor Mountains	Very High	9%	9%	59%	0%	24%
	High	16%	16%	1%	18%	15%
	Moderate	70%	70%	36%	76%	55%
	Low	6%	6%	4%	6%	6%
Absaroka Beartooth Mountains	Very High	68%	68%	83%	68%	68%
	High	3%	2%	1%	3%	3%
	Moderate	26%	26%	13%	26%	27%
	Low	4%	4%	2%	4%	3%
Bridger, Bangtail, Crazy Mountains	Very High	0%	0%	45%	0%	5%
	High	0%	0%	0%	0%	0%
	Moderate	80%	80%	40%	80%	75%
	Low	20%	20%	15%	20%	20%
Madison, Henrys Lake, Gallatin Mountains	Very High	30%	33%	54%	17%	29%
	High	1%	1%	1%	1%	1%
	Moderate	54%	53%	10%	67%	55%
	Low	15%	14%	15%	15%	15%
Total percentage for the entire forest (rounded to whole number)	Very High	38%	39%	57%	34%	38%
	High	2%	2%	1%	2%	2%
	Moderate	45%	45%	30%	49%	45%
	Low	14%	14%	12%	15%	14%

3.21 Designated Areas

3.21.1 Introduction

The term “designated area” refers to a specific area on a landscape that has been established by statute, regulation, or policy. Once established, the designation continues until a subsequent decision by the appropriate authority removes the designation. Designated areas within the Custer Gallatin National Forest have been given permanent designation to maintain their unique special character or purpose. Some designated areas were established by statute or law while others were established through other administrative processes. Certain purposes and restrictions are usually established for designated areas, particularly for those areas that have been designated by law.

This section analyzes the effects of a range of alternatives to current designated areas. The following existing designated areas are covered in this section:

- designated wilderness areas
- wilderness study areas
- Cabin Creek Recreation and Wildlife Management Area

- inventoried roadless areas
- designated wild and scenic rivers
- research natural areas
- special areas
- national natural landmarks
- Pryor Mountain Wild Horse Territory
- Earthquake Lake Geologic Area
- Continental Divide National Scenic Trail
- Nez Perce National Historic Trail
- national recreation trails
- Beartooth National Scenic Byway/All American Road

Regulatory Framework

Wilderness Act of September 3, 1964 (16 U.S.C. 1131-1136): provides the statutory definition of wilderness and management requirements for these congressionally designated areas. The act established a National Wilderness Preservation System to be administered in such a manner as to leave these areas unimpaired for future use and enjoyment as wilderness.

National Forest Management Act of 1976, as amended (16 U.S.C. 1600): provides that management direction for wilderness be incorporated into plans and sets minimum standards for the content of the plans.

Forest Service Manual 2320: provides direction for the management of wilderness.

2012 Planning Rule (36 CFR 219.7): states that in developing a proposed plan revision, the responsible official shall identify existing designated areas and determine whether to recommend any additional areas for wilderness designation. Plans must include components for appropriate management of existing or proposed designated areas.

36 CFR Part 219 sec. 219.7: requires (during revision) the identification and evaluation of lands that may be suitable for inclusion in the National Wilderness Preservation System.

36 CFR Part 251 sec. 23: requires the identification and evaluation of lands that may be suitable for inclusion in the research natural area system.

36 CFR 293: Wilderness-primitive areas: defines a wilderness-primitive area and provides direction on objectives; control of uses; maintenance of records; establishment, modification, or elimination of a wilderness area; commercial enterprises, roads, motor vehicles, etc.; grazing of livestock; permanent structures and commercial services; and other topics.

36 CFR 261.18: states the following are prohibited in national forest wilderness: (a) possessing or using a motor vehicle, motorboat, or motorized equipment except as authorized by Federal law or regulation; (b) possessing or using a hang glider or bicycle; (c) landing of aircraft, or dropping or picking up of any material, supplies, or person by means of aircraft, including a helicopter.

The Lee Metcalf Wilderness Act (Public Law 98-140) (October 31, 1983): established both the Lee Metcalf Wilderness and the Cabin Creek Recreation and Wildlife Management Area by public law 98-140. Cabin Creek Area “shall be managed to protect the wildlife and recreational values of these lands...”

Absaroka-Beartooth Wilderness Act of 1978 Public Law 95-249): designated the Absaroka-Beartooth Wilderness Area.

The Montana Wilderness Study Act of 1977 (Public Law 95-150): created eight wilderness study areas in Montana, including the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area, for review by the agency for their suitability for preservation as wilderness. The Montana Wilderness Study Act of 1977 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.”

FSM 2320 (R 1 Supplement): provides direction for the management of wilderness study areas.

Forest Service Handbook (FSH) 1909.12 Chapter 70 Wilderness Recommendation: contains the framework for the wilderness recommendation process.

2001 Roadless Area Conservation Rule (36 CFR 294 Subpart B): establishes prohibitions on road construction and road reconstruction, and limitations on timber cutting, sale or removal within 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 in the context of multiple-use management.

36 CFR Part 219 sec. 219.10(b)(1)(v): requires plan components (during revision) to provide protection of designated wild and scenic rivers as well as management of rivers found eligible or determined suitable for the national wild and scenic river system to protect the values that provide the basis for their suitability for inclusion in the system.

Forest Service Manual 4063: directs management of research natural areas as part of a national network of ecological areas allocated in perpetuity for research and education and/or to maintain biological diversity on National Forest System lands. Research natural areas are co-managed by the appropriate national forest and United States Forest Service research station.

Forest Service Manual 4063.03: Plans shall include analysis of, and recommendations for, the establishment of any proposed research natural areas.

Establishment Records, Decision Notices, and Designation Orders for the following Research Natural Areas: Poker Jim (U.S. Department of Agriculture 1974f); Line Creek Plateau (U.S. Department of Agriculture 2000); Lost Water Canyon (U.S. Department of Agriculture 1994b;c;a;d;2004); Decision Notice and Designation Order for the Black Butte (U.S. Department of Agriculture 1974a), East Fork Mill Creek (U.S. Department of Agriculture 1974b), Obsidian Sands (U.S. Department of Agriculture 1974c), Palace Butte (U.S. Department of Agriculture 1974d), Passage Creek (U.S. Department of Agriculture 1974e), Sliding Mountain (U.S. Department of Agriculture 1974g), and Wheeler Ridge Research Natural Areas (U.S. Department of Agriculture 1974h). These records provide information on the natural features, plant communities, and species present in each research natural area, as well as management decisions and guidance.

36 CFR 219.19: special areas are administratively designated areas, which are defined as an area identified and managed to maintain its unique special character or purpose.

Forest Service Manual 2370 and applicable National Environmental Policy Act decisions and designation orders: provide management guidance for these areas.

Decision Notices, and Designation Orders for the Special Areas: Decision Notice and Designation Order for the Black Sand Springs Special Area (U.S. Department of Agriculture 1998) and Decision Notice and Finding of No Significant Impact and Designation Order for the establishment of the Bangtail Botanical and Paleontological Special Interest Area (U.S. Department of Agriculture 2007a). These records provide information on the natural features, plant communities, and species present in each special area, as well as management decisions and guidance.

Multiple Use-Sustained Yield Act of June 12, 1960 (P.L. 86-517, 74 Stat. 215, 16 U.S.C. 528-531): established the policy and purpose of the national forests to provide for multiple-use and sustained yield of products and services.

Wild Free-Roaming Horses and Burros Act of December 15, 1971 (P.L. 92-195, 85 Stat. 649, as amended; 16 U.S.C. 1331-1340): directs Federal management of wild horses and burros on Bureau of Land Management (BLM) and National Forest System lands. The act declares wild horses and burros to be “living symbols of the historic and pioneer spirit of the West.” Under the law, the BLM and Forest Service manage herds in their respective jurisdictions within areas where wild horses and burros were found roaming in 1971 at the time of the passage of the act.

36 CFR 222: provides regulations to protect, manage, and control wild free-roaming horses on National Forest System lands. Directs that if wild horses also use lands administered by the Bureau of Land Management as a part of their habitat, the Forest Service is fully to cooperate with the Bureau of Land Management in administering the animals.

National Forest Management Act of October 22, 1976 (P.L. 94-588, 90 Stat. 2949, as amended; 16 U.S.C. 472a, 476, 500, 513-516, 518, 521b, 528 (note), 576b, 594-2 (note), 1600 (note), 1601 (note), 1600-1602, 1604, 1606, 1608-1614): reorganized, expanded, and otherwise amended the Forest and Rangeland Renewable Resources Planning Act of 1974, which called for the management of renewable resources on National Forest System lands. The National Forest Management Act requires the secretary of agriculture to assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the national forest. It is the primary statute governing the administration of national forests.

Public Rangelands Improvement Act of October 25, 1978 (92 Stat. 1803, 43 U.S.C. 1752-1753, 1901-1908): establishes a national policy and commitment to improve the conditions on public rangelands; requires a national inventory and consistent Federal management policies, and provides funds for range improvement projects. It also amends the Wild Free-Roaming Horses and Burros Act.

Forest Service Manual 2260: provides policy guidance for this area.

Pryor Mountain Wild Horse Range/Territory Environmental Assessment and Herd Management Plan (Bureau of Land Management, Forest Service, National Park Service, (2009)) and Decision Notice (Forest Service, (2009b)): provides management guidance for this area.

The Madison River Canyon Earthquake Area (aka Earthquake Lake Geologic Area): is a 37,800-acre geological area, designated under the authority of the secretary of agriculture as a special geological area in 1960. The area was intended to allow the natural processes in this area to continue while providing for its use in conjunction with the safety and enjoyment of visitors.

National Trails System Act (Public Law 90-543): signed into law by President Lyndon B. Johnson on October 2, 1968. The purpose of the act was "to promote the preservation of public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the nation." This act authorized three types of trails: 1) national scenic trails, 2) national recreation trails, and 3) connecting-and-side trails. In 1978, national historic trails were also added to the national trail system. National scenic trails and national historic trails may only be designated by Congress. National recreation trails may be designated by the secretary of interior or the secretary of agriculture. Through designation, these trails are recognized as part of the American National Trail System.

FSM 2380.13 (1) Scenic Trails and Byways: authorizes the secretary of agriculture to administer and manage national scenic trails "for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass."

Executive Order 13195, Trails for America (2001): addressed development and management of national scenic and historic trails by protecting trail corridors.

T S.2660 - 95th Congress (1977-1978) Continental Divide National Scenic Trail Act: A law that amends the National Trails System Act to establish the Continental Divide National Scenic Trail within Federal lands located in Montana, Idaho, Wyoming, Colorado, and New Mexico. Directs the secretary of agriculture to consult with relevant state and Federal officials in the administration of the lands designated under this act.

Trails for America in the 21st Century (Executive Order 13195): Signed by President Clinton in 2001 to achieve the common goal of better establishing and operating the American national system of trails.

The Continental Divide National Scenic Trail Comprehensive Plan (2009a): as amended and conforming directives (FSM 2353.01d and FSM 2353.4)

The Nez Perce (Nimípuu or Nee-Me-Poo) National Historic Trail Public Law No (99-44510/06/1986): added to the national trails system by Congress as a national historic trail.

Beartooth National Forest Scenic Highway February 8, 1989: the Chief of the Forest Service, United States Department of Agriculture, designates a route traversing National Forest System lands as national forest scenic byways.

Beartooth Highway All American Road (June 13, 2002): Federal Highway Administration, 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.

The Beartooth Highway Comprehensive Road Corridor Management Plan (2002): The Beartooth Highway is governed by a comprehensive road corridor management plan that includes the 53-mile Beartooth All-American Road, the Beartooth Highway National Forest Scenic Byway, and undesignated portions of the route.

Key Indicators and Measures

The differences between alternatives will be evaluated by:

- Considering effects of plan direction and how well it supports and protects the values associated with designated areas.
- The amount of overlap of other allocations, as applicable, and whether the overlapping allocations are compatible with the subject designation.

Methodology and Analysis Process

The analysis included a review of rules and regulations for the designated areas and an evaluation of the compatibility of the alternatives on designated areas.

It is assumed that designated areas are retained and the Custer Gallatin will be managed according to enabling laws, regulations, and policy, as well as by plan components. The analysis assumes that there will be no changes to inventoried roadless area boundaries or direction for the life of the plan. Under all alternatives, it is assumed that when designations and plan land allocations overlap, management activities would follow the management direction for each allocation, with the most restrictive direction applying when direction conflicts.

Information Sources

Data sources included geographic information systems for mapping, the latest information from the National Visitor Use Monitoring project, information stored in the corporate database, research natural area guidance, a number of studies conducted on the Pryor Mountain Wild Horse Territory, and site-specific knowledge from forest personnel.

Analysis Area

The geographic scope of the analysis is the lands administered by the Custer Gallatin. The scope for cumulative effects is described in the cumulative effects section of each designated area and the temporal scope is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

The final environmental impact statement was supplemented with clarifying language, minor edits, and analysis of alternative F. Additional wildlife information was added to final environmental impact statement appendix D (Recommended Wilderness Analysis) as was information on the recommended wilderness areas in alternative F. Notable changes to the plan include:

Designated Wilderness: draft plan desired conditions FW-DC-DWA-01, 02, and 03 were consolidated into desired condition FW-DC-DWA-01. A number of plan components were reworded for clarity, including FW-DC-DWA-05, 07, and 12, FW-GDL-DWA-01 and 05, as well as several desired conditions for wilderness zones. Management approaches for designated wilderness were added to plan appendix A.

Continental Divide National Scenic Trail: Draft plan guideline MG-GDL-CDNST-01 was removed because it provided guidance on constructing new segments or relocation of the existing trail, and the trail is entirely in place and constructed on this national forest with no new construction still pending. Draft plan guideline MG-GDL-CDNST-08 was removed because it was redundant with fire and fuels guideline FW-GDL-FIRE-03. Additional information was added to the introduction for this area. A management

approach regarding establishment of a carrying capacity was deleted as unnecessary for the 31-mile segment of the trail on this national forest.

Research natural areas: Draft revised plan components for research natural areas that repeated Forest Service policy for management of research natural areas have been removed: FW-DC-RNA-01, FW-GO-RNA-02, FW-STD-RNA-01, 03, 04, 08, 11, 12, 13, 14, and 15. Guidelines FW-GDL-RNA-01 and 02 were combined, but do not alter the direction. Removing these draft plan components would not affect management of research natural areas, since the Forest Service would still be required to follow the direction of Forest Service policy.

Special areas: Two plan components were added to protect the spring source of Black Sand Springs Special Area, MG-GO-BSSSA-01 and MG-STD-BSSSA-05.

There were no either no changes, or no substantial changes to plan components for Cabin Creek Recreation and Wildlife Management Area, inventoried roadless areas, wilderness study area, research natural areas, national natural landmarks, designated wild and scenic rivers, Pryor Mountain Wild Horse Territory, Earthquake Lake Geologic Area, Nez Perce National Historic Trail, the National Recreation Trails, or the Beartooth Highway National Forest Scenic Byway and All-American Road.

Changes to the final EIS after the objection period include additional detail regarding application of grazing suitability plan components to permitted recreational livestock in designated wilderness and the wilderness study area; corrections to tables displaying recreation opportunity spectrum class within inventoried roadless areas; and additional detail in the analysis of several sections.

3.21.2 Designated Wilderness

Affected Environment (Existing Condition)

Wilderness areas provide a wide variety of user opportunities for exploration, solitude, natural environment, risk, challenge, and primitive and unconfined recreation; it represents the highest concentration of quiet places on the Custer Gallatin (where the sights and sounds of human presence are relatively unnoticeable). Many visitors use outfitter and guide services (operating under Forest Service special-use permits) in wilderness areas to part take in hiking, horseback riding, hunting, fishing, floating, and rafting.

Nationally, the Forest Service oversees 193 million acres of national forest and grasslands, of which 37 million acres (approximately 19 percent) are wilderness.

The Custer Gallatin National Forest manages substantial portions of the Absaroka-Beartooth Wilderness, with 916,599 acres in Forest Service ownership (with another 878 acres of non-federal lands) and the Lee Metcalf Wilderness with 133,848 acres located on this national forest. Congressionally designated wilderness comprises almost 35 percent of the Custer Gallatin.

The National Visitor Use Monitoring program is used across the entire National Forest System (NFS); every five years each forest monitors their use through exit surveys. The monitoring data displayed below is for designated wilderness on the Custer Gallatin (it cannot be disaggregated by individual wilderness area or subunit). The Custer National Forest was surveyed in 2008 and 2013, the Gallatin National Forest was surveyed in 2009 and 2014. More recent surveys from 2018 and 2019 did not have results tabulated in time to use in this analysis.

Table 94 shows the number and percentage of visits to the wilderness areas within the Custer Gallatin. More than half of all visits to the designated wilderness in the Custer Gallatin were men (about 58 percent). People aging from 20 to 29 make up the largest group of visitors to the Custer Gallatin wilderness (roughly 30 percent) with an additional 45 percent of wilderness visitors distributed aging from 30 to 59.

Table 94. Forest and wilderness visits

Year	Total National Forest Visits	Visits within Designated Wilderness	Visits in Designated Wilderness (percent)
2013, 2014	3,100,000	440,000	15%
2008, 2009	1,900,000	201,000	11%

Absaroka-Beartooth Wilderness

Congress designated the Absaroka Beartooth (AB) as a Wilderness Area in 1978 (PL 95-249), encompassing 943,626 acres. The Montana portion contains 916,599 acres of national forest (plus 878 acres of other ownership) within the Custer Gallatin and the Wyoming portion contains 23,283 acres located on the Shoshone National Forest.

The Absaroka Beartooth consists of active glaciers, sweeping tundra plateaus (one of the largest expanses of tundra habitat over 10,000 feet in elevation in the lower 48 states), deep canyons, sparkling streams, and hundreds of alpine lakes; making it one of the most outstanding wilderness areas in America. Granite Peak (the tallest peak in Montana) towers at 12,799 feet in the middle of the Absaroka-Beartooth Wilderness.

The Absaroka Mountains are characterized by vegetative cover, including dense forests and broad mountain meadows, and meandering streams. The mountain wildlife includes bighorn sheep, mountain goats, elk, deer, moose, marmots, coyotes, black bears, wolves, and a substantial grizzly bear population. The harsher Beartooth Mountains are characterized by rocks and ice and have a less diverse wildlife population.

With over 700 miles of trails, the Absaroka-Beartooth Wilderness is a hiking, backpacking, and equestrian heaven. Hiking and backpacking are more popular in the Beartooth Mountains, while traditional stock supported pack trips and hunting adventures are more common in the Absaroka Mountains. The nearly one million acres of wilderness provide many opportunities for primitive unconfined recreation and solitude, though many portions of the area are untrailed and rarely traveled.

Eight allotments (three active and five vacant) which make up about 2,650 acres of primary rangeland within the Absaroka-Beartooth Wilderness. Section (4)(d)(4)(2) of the Wilderness Act allows livestock grazing where established prior to the designation of wilderness.

Lee Metcalf Wilderness

Congress passed the Lee Metcalf (LM) Wilderness bill in 1983, designating a total of 254,288 acres, all in the state of Montana; divided among the Custer Gallatin and Beaverhead-Deerlodge National Forests, as well as the Bureau of Land Management lands. Of those acres, 133,848 occur on the Custer Gallatin.

This wilderness consists of four separate units in the Madison Mountain Range. There are approximately 140 miles of trail within the wilderness units with additional trails linking four units together. Large

populations of deer, elk, moose, mountain lions, mountain goats, black bears, wolves, and grizzly bears live in these units. Additionally, the lakes and streams are home to cutthroats, graylings, rainbows, and brook trout. Popular recreation activities in the units consist of day hiking, backpacking, horseback riding, hunting, and fishing.

Landscapes vary from a huddle of high peaks rising above 10,000 feet and subalpine meadows, to the arid river corridor in Bear Trap Canyon managed by the Bureau of Land Management. As the Bureau of Land Management's first wilderness designation, it manages all of the Bear Trap Canyon Unit (approximately 6,000 acres), a stretch of wild canyon country along the Madison River.

The Monument Mountain Unit (lying on the northwest boundary of Yellowstone National Park) make up 32,408 acres of Custer Gallatin lands. This isolated area contains a diverse abundance of wildlife, including grizzly bears, and is lightly visited by humans.

The Spanish Peaks Unit encompass 68,060 acres of Custer Gallatin lands with steeply rugged, glaciated peaks rising more than 11,000 feet above scenic cirques and gem-like lakes. This heavily used area hosts a well-developed trail system and many popular destinations that are favorites of local and regional visitors.

The Taylor-Hilgard Unit consists of 33,380 acres of the Custer Gallatin. This unit runs along the crest of the Madison Range and has several peaks that exceed 11,000 feet above the Hilgard Basin. It is characterized by high mountain meadows and lakes surrounded by snowcapped summits. This unit is jointly managed by the Custer Gallatin and Beaverhead-Deerlodge National Forests.

One active grazing allotment is within the Lee Metcalf Wilderness with approximately 1,310 acres of primary rangeland. Section (4)(d)(4)(2) of the Wilderness Act allows livestock grazing where established prior to the designation of wilderness.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The Wilderness Act of 1964 (Public Law 88-577) set up a system of wilderness areas across the United States and defined wilderness as a place,

in contrast with those areas where man and his own works dominate the landscape... where earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain... an area of undeveloped Federal lands retaining its primeval character and influences, without permanent improvements or human habitation, which is protected and managed to preserve its natural condition.

Direction for the management of designated wilderness can be found in the 1964 Wilderness Act, subsequent area specific legislation, Forest Service Handbook and Manual 2320, and in the Custer and Gallatin Forest Plans. The Wilderness Act of 1964 governs human use of designated wilderness. Project-specific proposals within designated wilderness are also evaluated through plan direction and a minimum requirement analysis to evaluate how the proposal may affect wilderness values. Commercial uses of wilderness are controlled by special-use permits and the plans of operation that are required under the special-use permit.

The Gallatin National Forest had been delegated as the lead forest by the Northern Region, regional forester for both the Absaroka Beartooth and Lee Metcalf Wilderness. The Gallatin Forest Plan (U.S. Department of Agriculture 1987) advised how managers should update direction for solitude and primitive or unconfined recreational opportunities in wilderness. The Custer Forest Plan incorporated similar language.

The Draft Wilderness Management Plans have not been finalized as a comprehensive management plan to date. Elements of wilderness management have been imbedded in other forest level planning efforts. The Gallatin Travel Plan addressed trail-based recreation and opportunity, the Gallatin Fire Amendment incorporated language for the management of wildland fire in the wilderness and the 2005 Gallatin National Forest Noxious Weed Management Environmental Impact Statement speaks to the management of weeds with the wilderness.

The process prescribed for updating the Wilderness Management Plans is the Limits of Acceptable Change System for wilderness planning. The Absaroka Beartooth and Lee Metcalf Wilderness managers began an agency-driven version of this planning process in the mid-1990s. Inventory and monitoring work has been ongoing since to validate the original Limits of Acceptable Change polygons, and to support a final version of the LAC zones and associated standards and guidelines.

Three opportunity classes were defined and mapped for the Absaroka Beartooth and Lee Metcalf as an inventory. The three zones are a subset of the “primitive” recreation opportunity spectrum classification applied to all designated wilderness on the Custer Gallatin.

Effects of the Current Plans

There is no change in the amount of designated wilderness under the current plans. A primitive experience and wilderness character would be maintained for both wilderness areas under the current plans and the direction for designated wilderness management detailed in laws, regulations, and agency policy.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components address management to maintain wilderness character including natural quality, opportunities for solitude, unconfined recreational use, and undeveloped and untrammeled landscapes.

The plan components developed for designated wilderness are the same in all revised plan alternatives. These plan components provide overarching direction that also set the stage for site-specific regulations to implement management direction which at times includes closures. In addition, direction for the management of designated wilderness can be found in the 1964 Wilderness Act, subsequent area specific legislation, and in the Forest Service Handbook and Manual 2320.

In all revised plan alternatives, any future wilderness management plans would exist outside of the plan. This allows the Custer Gallatin to provide additional direction for each individual wilderness area (often using wilderness zoning). These wilderness management plans would still adhere to the plan components of the revised plan.

Effects Common to the Revised Plan Alternatives

There is no change in the amount of designated wilderness and the effects, as a result of the revised plan, are the same in all alternatives. Because direction for designated wilderness management is detailed in laws, regulations, agency policy, and specific management plans, management under the four revised plan alternatives would not differ. The suite of designated wilderness revised plan components would increase the Custer Gallatin's ability to respond to changes or threats to wilderness character. Plan components provide opportunities for solitude and primitive recreation, maintain character, and maintain the ecological values such as protection from weeds and protection of water and wildlife.

A primitive experience would be maintained for both wilderness areas under all alternatives. Natural ecological processes and disturbances are the primary forces affecting the composition, structure, and patterns of vegetation. All alternatives would continue to manage and to protect and maintain their wilderness character.

Consequences to Designated Wilderness from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones (which are greater in size from the riparian zones currently identified) for streams east of the Continental Divide. Revised plan alternative plan components and objectives for aquatic ecosystems would promote the ecological integrity of watersheds, riparian areas, and aquatic habitats (see the suite of plan components for watershed, aquatics and riparian management zones).

Effects from Fire and Fuels Management

The current plans' fire suppression direction from the 1993 Absaroka-Beartooth Wilderness Fire Management Guidebook and the Gallatin Forest Plan is similar to the revised plan alternatives by permitting fire to play its natural ecological role on the landscape. Revised plan direction for natural, unplanned ignitions would continue the long-term ecological processes in these areas (FW-DC-FIRE-01, FW-OBJ-FIRE-02, and FW-GDL-FIRE-01). These could lead to a temporary loss of vegetation, reduction in water quality due to sedimentation, or air pollution; however, these effects are part of the natural ecological processes. Some wildfires may be actively suppressed, based on factors evaluated at the time. Nevertheless, when natural fires are suppressed in fire adapted ecosystems, there could be detrimental effects to ecosystem processes, wildlife habitat, and biodiversity (Keane et al. 2002). Fire and fuels plan components call for minimum impact suppression tactics in designated wilderness (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Wildlife Management

The revised plan alternatives have explicit wildlife plan components which address education of visitors on how to travel and camp in grizzly bear territory which are not included in the current plans (FW-DC-WLGB-03). 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 (FW-STD-WL-01).

Effects of Plan Land Allocations

Designated wilderness may contain other allocations, such as designated or eligible wild and scenic river corridors or research natural areas. Where plan land allocations overlap, the more protective direction applies; therefore, wilderness management components and regulations would typically prevail.

Effects from Access and Recreation Management

Wilderness may be affected by recreational use. Visitors to the wilderness may affect others' solitude, and camping may negatively affect vegetation and water quality through site compaction and improper disposal of human waste. In all alternatives, plan components are provided to protect the wilderness character from these potential effects as the suite of forestwide plan components for resource protection will also apply in wilderness. Plan components that limit areas of stock use (FW-STD-DWA-02 and 03), stock party size (FW-STD-DWA-05 and 06), grazing by recreational livestock, (FW-STD-DWA-01, 03, FW-SUIT-DWA-04), hiking group size (FW-STD-DWA-07), and new designated campsites (FW-DC-DWA-07, 10 and 11) would help protect water quality and reduce potential noxious weed introductions. Existing Forest Service regulations prohibit motorized and mechanized transport within wilderness, except for the mobility impaired.

Effects from Scenery Management

In all alternatives, the scenery of designated wilderness is protected by plan components. In the current plans, the Gallatin Plan assigned a visual quality objective of preservation (equivalent to a very high scenic integrity objective) and the Custer Plan assigned a visual quality objective of retention (equivalent to a high scenic integrity objective). In the revised plan alternatives, the scenic integrity objective is very high for all designed wilderness and in this respect, the revised plan alternatives are more protective of scenery in designated wilderness than the current plans (see Scenery Management Maps for relevant geographic areas in appendix A). To meet national direction for permitted livestock activities inside designated wilderness and to be consistent with that direction, 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 (FW-GDL-SCENERY-02).

Effects from Permitted Livestock Grazing Management

Permitted livestock use would be suitable only in those portions of wilderness where grazing had been established prior to the area's wilderness designation (FW-SUIT-DWA-04) and new range improvements associated with existing allotments would be authorized only for the purpose of enhancing wilderness character or for resource protection (FW-STD-DWA-13). While FW-SUIT-DWA-04 would limit new permitted recreational livestock (per plan definition of permitted grazing), effects would be limited because more recreational livestock is currently authorized than is being used. While livestock grazing itself has the potential to degrade plant communities through invasive plant spread and damage to riparian areas, revised plan alternative plan components emphasize the maintenance of resilient native plant communities as well as desirable riparian area conditions. The suite of forestwide plan components in the revised plan alternatives provide more detailed guidance than the current plans for resilient native plant communities (PRISK, VEGF AND VEGNF) and riparian areas that would help protect the ecological integrity of designated wilderness.

Cumulative Effects

Population growth and development increases the need for public open space. Growth in Yellowstone, Gallatin, and Park Counties is likely to increase recreational use of the Custer Gallatin, which may include an increase in wilderness use. Increased recreational use may impact the wilderness character, particularly the opportunities for solitude and natural quality. Examples of potential impacts include increased opportunity for crowding in high use areas, soil compaction or erosion, and threats to native plant species from the spread of noxious weeds from sources outside the wilderness. The effects of urbanization and population growth on wilderness use and resource conditions are likely to be gradual and to extend well beyond the planning period. These areas may be affected by management of adjacent lands, such as sights or sounds from vegetation treatments, motorized transport, or private development.

There are currently about 110,005,000 acres of designated wilderness in the United States and are managed by four Federal agencies. Currently, the Custer Gallatin National Forest manages approximately one percent of the National Wilderness Preservation System and 30 percent of the 3,501,410 acres of designated wilderness within Montana and manages none in South Dakota.

Conclusion

Since only Congress can establish wilderness areas, the acres and locations of designated wilderness would not vary in any of the alternatives, including the current plans. The revised plan alternatives plan components provide management direction for existing designated wilderness areas on the Custer Gallatin, including the protection and preservation of existing wilderness character and plan components for the management of facilities, trails, and outfitter and guide permits within designated wilderness. By providing the plan components outlined in the revised plan alternatives, the Custer Gallatin revised plan would meet the purpose and need of ensuring that designated wilderness areas are managed in ways that are ecologically and socially sustainable for present and future generations. Plan components and individual wilderness management plans would provide for the ongoing protection and preservation of the character in designated wilderness on the Custer Gallatin National Forest.

3.21.3 Wilderness Study Area

Affected Environment (Existing Condition)

The Custer Gallatin National Forest manages one congressionally designated wilderness study area, the approximately 155,000 (total inclusive acres) Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. This area is located in the core of the Gallatin Range, stretching from Hyalite Canyon in the north to the Yellowstone National Park boundary in the south. This wilderness study area is approximately 36 miles long by 4 to 12 miles wide and contains 144,064 of lands managed by the Custer Gallatin and 11,513 acres in other ownerships.

The Montana Wilderness Study Act of 1977 (Public Law 95-150) created eight wilderness study areas in Montana, including the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area, for review by the agency for their suitability for preservation as wilderness. The Montana Wilderness Study Act of 1977 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."

The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area's topography is highly variable. The northern portion of the study area contains jagged peaks, U-shaped valleys, and cirque basins. A more moderate topography is found in the remainder of the wilderness study area. Elevations range from approximately 5,500 feet to over 10,300 feet. The City of Bozeman is dependent on the Bozeman and Hyalite drainages for municipal water, and the headwaters of both are partially contained within the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area.

The wilderness study area supports diverse vegetation communities. At the lowest elevation grasslands are found, which then transition into Douglas-fir and limber pine stands. At higher elevations, lodgepole pine, spruce, and subalpine forests are found. The highest elevations contain whitebark pine and, beyond the timberline, alpine tundra or alpine turf. Forested portions of the wilderness study area are affected by mountain pine beetle epidemics, dwarf mistletoe, spruce budworm, and white pine blister rust.

The variety of habitats within this wilderness study area provide for a wide range of wildlife species. Important species found here include bighorn sheep, Rocky Mountain elk, grizzly bear, moose, wolverine, Arctic grayling, westslope cutthroat trout, Yellowstone cutthroat trout, and whitebark pine.

Unlike the wilderness inventory and evaluation process used during a plan revision, the wilderness study area boundaries drawn by Congress included miles of roads, private lands, timber harvest units and other facilities. In 1977, there were approximately 50,000 to 56,000 acres of private inholdings within the boundaries of the National Forest System lands included in the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. These private lands were arranged in a checkerboard pattern across the wilderness study area. Since then, the Forest Service has acquired over 37,000 acres of this private land. The acquisition of these lands increased the number of public access points from 9 to 16 trailheads.

There have been a number of other changes in Hyalite-Porcupine-Buffalo Horn Wilderness Study Area use, rights, and facilities since 1977. Permitted livestock grazing has been reduced. Two range allotments have been closed and one allotment has been rested since the Fridley Fire in 2001. Across active allotments, the number of permitted livestock has been reduced. Only two of three cabins present in 1977 remain. Snow survey sites have been reduced from four to two. No new trails have been constructed; only reconstruction or reroutes of failed existing trails have occurred and 1.5 miles of road were converted to trail via a restoration project. Six miles of road in the West Pine drainage were recontoured and reseeded. Many old logging roads have grown-in with trees and ground cover, although satellite imagery (in about 2003) showed 34 miles of remaining, visible old road within the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area.

The 1985 Hyalite-Porcupine-Buffalo Horn Wilderness Study Report indicated that visitor uses primarily included hiking, camping, hunting, snowmobiling, motorcycle riding, horseback riding, collecting specimens from the Gallatin Petrified Forest, and cross-country skiing (U.S. Department of Agriculture 1985). Big game hunting, trout and grayling fishing, and activities provided by outfitters, guides, and dude ranches were also popular. By 2003, Hyalite-Porcupine-Buffalo Horn Wilderness Study Area recreation uses had shifted. Combined with population increases in Gallatin and Park Counties, this shift resulted in notable increases in mountain biking, motorcycle and all-terrain vehicle use, snowmobiling, and ice climbing (Schlenker 2003, Clark et al. 2012).

Environmental Consequences

All Alternatives

Management Direction under All Alternatives

The wilderness study area on the Custer Gallatin National Forest is governed by the terms of the Montana Wilderness Study Act (Public Law 95-150) which is designed to protect and retain wilderness character until Congress makes a final decision about this area. The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area boundary can only be altered by Congressional action. Therefore, this boundary would remain under all alternatives. The entire wilderness study area is also inventoried roadless area, which this analysis assumes to remain in place for the life of the plan. Plan direction for both wilderness study area and inventoried roadless area allocations are in place for all alternatives.

Table 95 summarizes the plan land allocations, and uses allowed that would be in place under each of the alternatives, both with the wilderness study area in place and if the wilderness study area were released by Congress; assuming Congress would follow the recommendations presented. The total acreage shown (144,064) is for lands within the wilderness study area that are managed by the Custer Gallatin National Forest. Plan components for the various allocations would provide management direction for the acres shown in the table by alternatives. Summer recreation opportunity spectrum acreage within the wilderness study area is shown by alternative in table 96, and winter recreation opportunity spectrum within the wilderness study area by alternative in table 97.

Table 95. Hyalite-Porcupine-Buffalo Horn Wilderness Study Area (WSA) plan land allocations and designations, and management direction by alternative (acres or miles)

Plan Land Allocations / Designations and Management Direction*	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Inventoried roadless area (acres)	144,064	144,064	144,064	144,064	144,064	144,064
Research natural area (acres)	1,280	1,280	1,280	1,280	1,280	1,280
Recommended wilderness (acres)	0	66,655	79,635	142,456	0	77,102
Backcountry area (acres)	0	21,539	59,131	0	144,064	45,910
Recreation emphasis area (acres)	0	12,606	0	0	0	12,500
Key linkage area (acres)	0	0	0	0	0	1,938
Eligible wild and scenic river (acres)	12	5,533	5,533	5,533	5,533	5,533
No additional allocation other than inventoried roadless area (current management area acres in alternative A)	142,784	42,873	5,298	1,608	0	6,614
Motorized trail suitable (miles)	39.44	39.44	39.44	0	39.44	39.44
Trail no longer suitable for motorized transport (miles)	0	0	0	39.44	0	0
Mechanized transport trail suitable (miles)	20.56	20.56	20.56	0	20.56	20.56
Trail no longer suitable for mechanized transport (miles)	0	0	0	20.56	0	0

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Plan Land Allocations / Designations and Management Direction*	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Under WSA direction, acres where new roads allowed	0	0	0	0	0	0
If WSA released, acres where new roads allowed	0	0	0	0	0	0
Under WSA direction, acres where new motorized trails are suitable	0	0	0	0	0	0
If WSA released, acres suitable for motorized summer travel.	22,162	19,721	16,575	946	33,811	18,538
If WSA released, acres suitable for motorized winter over-snow vehicle transport	9,208	9,208	8,102	57	19,491	8,742
Under WSA direction, acres where new mechanized trails are suitable	0	0	0	0	0	0
If WSA released, acres suitable for new mechanized transport trails.	142,784	76,129	63,149	1,608	142,784	65,682
Under WSA direction, acres suitable for timber production or harvest (other than limited hazard tree removal)	0	0	0	0	0	0
If WSA released, forested acres suitable for timber production	0	0	0	0	0	0
If WSA released, forested acres unsuitable for timber production but where timber harvest may occur for other purposes; subject to Roadless Rule	101,134	57,236	20,018	777	101,134	50,519
Under WSA direction, acres where new developed recreation sites, energy and utility corridors, commercial communication sites allowed	0	0	0	0	0	0
If WSA released, acres where new developed recreation sites, energy and utility corridors, commercial communication sites allowed, if roads not needed	142,784	54,590	5,298	1,608	0	19,772
Under WSA direction, acres where extraction of saleable minerals allowed	0	0	0	0	0	0
If WSA released, acres where extraction of saleable minerals allowed, if roads not needed	142,784	52,341	5,298	1,608	0	17,914
Under WSA direction, acres where new recreation events allowed	0	0	0	0	0	0

Plan Land Allocations / Designations and Management Direction*	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
If WSA released, acres where new recreation events allowed	142,784	54,590	25,046	1,608	142,784	25,898
Under WSA direction, acres where new recreational airfields allowed.	0	0	0	0	0	0
If WSA released, acres where new recreational airfields would be suitable.	7,806	7,287	6,001	0	15,456	5,774

*Note: Some allocations/ designations overlap. Alternative A represents the current plans' future projections if kept.

Table 96. Acreage of summer recreation opportunity spectrum classes within the wilderness study area by alternative

Recreation Opportunity Spectrum Class	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Rural	639	636	501	37	639	636
Roaded Natural	966	884	159	891	966	966
Semi-Primitive Motorized	20,558	18,201	15,916	17	32,207	16,936
Semi-Primitive Non-motorized	121,902	124,343	47,520	662	110,253	125,526
Primitive	0	0	79,969	142,456	0	0

Alternative A represents the current plans' future projections if kept.

Table 97. Acreage of winter recreation opportunity spectrum classes within the wilderness study area by alternative

Recreation Opportunity Spectrum Class	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Rural	389	389	251	30	389	386
Roaded Natural	139	139	139	7	139	131
Semi-Primitive Motorized	8,680	8,680	7,712	20	18,963	8,225
Semi-Primitive Non-motorized	134,856	134,856	134,856	1,551	124,573	135,322
Primitive	0	0	79,969	142,456	0	0

Alternative A represents the current plans' future projections if kept.

Current Plans

Management Direction under the Current Plans

Unlike designated wilderness, wilderness study areas may still permit some activities and uses that are precluded from designated wilderness (as long as these activities do not degrade wilderness character as it is known to have existed in 1977, per the Montana Wilderness Study Act of 1977).

In the early 1980s, the Forest Service studied the suitability of the area for inclusion in the wilderness preservation system, and recommended that it not be designated wilderness at that time. The

checkerboard ownership pattern was largely responsible for the conclusion that the area was unsuitable for wilderness designation. Since then, nearly 37,000 acres of private land have been acquired as national forest within the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area boundary.

National forest-level management direction for the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area in the Gallatin Forest Plan and the travel management plan reiterate the need to manage the area consistent with the Montana Wilderness Study Act of 1977. The act specified, “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). National forest-level management direction for the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area can be found in the 1987 Gallatin plan, forestwide standards, the Gallatin travel management plan, and two management areas, which reiterate the need to manage the area consistent with the Montana Wilderness Study Act.

In 2006, the Gallatin National Forest published its Record of Decision for the Final Travel Management Plan. The decision established summer and winter travel management direction across the entire Gallatin National Forest, including the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. This decision received 113 appeals in 2007 and was subsequently upheld by the regional forester. In response, Citizens for Balanced Use filed suit on the travel management plan in its entirety, and the Montana Wilderness Association, Greater Yellowstone Coalition, and The Wilderness Society challenged the wilderness study area’s management direction. All complaints were joined and addressed in District Court. The court ruled on these complaints in September 2009, upholding the Travel Management Plan Decision in all areas other than the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. Within the wilderness study area, the travel decision was enjoined, and in its place the Gallatin National Forest implemented interim summer and winter travel orders further restricting mechanized and motorized travel therein. This winter interim order was promptly challenged in District Court by Citizens for Balanced Use. Shortly after the 2009 District Court ruling, the Forest Service and Citizens for Balanced Use appealed the District Court Decision to the 9th Circuit Court.

In December 2011, the 9th Circuit Court ruled that the 2006 Travel Plan Decision within the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area did not adequately protect wilderness character. On June 25, 2012, District Court Judge Haddon found that the Citizens for Balanced Use subsequent suit had been “squarely resolved” by the 9th decision in the case of Russell Country Sportsmen v. United States Forest Service and granted the defendants motion for summary judgment.

Effects of the Current Plans

Current Gallatin Forest Plan direction would continue for the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area; it would continue to be managed consistent with the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule (Roadless Rule). The following tables list mechanized (bicycle, table 98) and motorized (motorcycle, table 99) trails within the wilderness study area under the current Gallatin plan.

Table 98. Bicycle trails within the wilderness study area under the current plan

Trail Name	Miles
Blackmore	3.58

Trail Name	Miles
Donahue	3.62
First Creek Cutoff	0.97
History Rock	1.46
North Dry Divide	1.47
South Cottonwood	4.43
Storm Castle Ridge	2.82
Twin Cabin	0.38
West Pine	1.82
Bicycle Trail Total	20.56

Table 99. Motorcycle trails within the wilderness study area under the current plan

Trail Name	Miles
Buffalo Horn	3.24
East Fork Hyalite	4.70
Hidden Lake Cutoff	0.75
Hidden Lake Divide	4.56
Hyalite Creek	4.64
Porcupine Creek	3.84
Porcupine Meadows	7.17
Ramshorn Lake	5.65
Storm Castle Creek	4.89
Motorcycle Trail Total	39.44

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The revised plan alternatives include plan components that would provide direction for the management of the wilderness study area including the protection and preservation of existing wilderness character and guidelines for the management of facilities, utilities, trails, and outfitter and guide permits within the wilderness study area. The wilderness study area would not be suitable for recreational and commercial drone launching and landings (MG-SUIT-WSA-01); no new roads, energy or utility corridors, nor commercial communication sites would be allowed (MG-STD-WSA-01, 02, 03). There would no new construction of developed recreation sites ((MG-STD-WSA-04). There would be no new recreation events (MG-STD-WSA-05), nor extraction of saleable mineral materials (MG-STD-WSA-06). To maintain the wilderness study area as when established, restoration activities (such as prescribed fire, active weed management) would protect or enhance the wilderness character of these areas (MG-SUIT-WSA-02). Permitted livestock use and infrastructure maintenance would be suitable in those portions of the wilderness study area where grazing had been established prior to the area’s wilderness study area designation (MG-SUIT-WSA-03). Monitoring question MON-WSA-01 would monitor whether the aggregate trend in mountain bike and motorized recreation use would allow for the maintenance of wilderness character as required by the 1977 Montana Wilderness Study Act.

If the wilderness study area were released by Congress, the entire area would continue to be managed as an inventoried roadless area with restrictions on roads and timber harvest. Inventoried roadless area allocation alone does not rule out mechanized and motorized transport.

If the wilderness study area were released by Congress, the revised plan provides an array of potential management options. In all alternatives, the wilderness study area is subject to the requirement of the 2001 Roadless Area Conservation Rule.

Alternative B

Effects of Alternative B

The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area would continue to be managed consistent with the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule. Under alternative B, if the wilderness study area were released by Congress, 66,655 acres would become recommended wilderness area, 21,539 acres would become backcountry area, and 12,606 acres would become recreation emphasis area. In alternatives B through F, all or portions of six eligible wild and scenic rivers, totaling 5,533 acres, would be within the wilderness study area. In alternative B, all but 391 of these acres would overlap another plan land allocation. These areas would have management direction for those allocations in addition to direction for inventoried roadless areas. Another 42,873 acres would have no additional direction beyond inventoried roadless area direction. See the narratives for each of those allocations for explanation of effects under direction for alternative B.

Within this alternative, the boundaries for recommended wilderness do not include any of the portions of current trails suitable for mechanized or motorized transport as shown in table 98 and table 99 and these uses remain suitable in recommended wilderness in alternative B. As a result, current recreation trail suitability would not change. Backcountry area and recreation emphasis area allocations also continue current recreation trail suitability in alternative B.

Alternative C

Effects of Alternative C

The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area would continue to be managed consistent with the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule. Under alternative C, if the wilderness study area were released by Congress, 79,635 acres would become recommended wilderness area and 59,131 acres would become backcountry area. In alternatives B through F all or portions of six eligible wild and scenic rivers, totaling 5,533 acres, would be within the wilderness study area. In alternative C all of these acres would overlap another plan land allocation. These areas would have management direction for those allocations, in addition to inventoried roadless area direction. All but about 5,300 acres of the area within the boundary of the wilderness study area would have a recommended wilderness area or backcountry area allocation. See discussion for each of those allocations for effects of management.

Within this alternative, the boundaries for recommended wilderness do not include any of the portions of current trails suitable for mechanized or motorized transport as shown in table 98 and table 99, so current recreation trail suitability would not change. The backcountry area allocation also continue current recreation trail suitability in alternative C.

Alternative D

Effects of Alternative D

The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area would continue to be managed consistent with the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule. If the wilderness study area were released by Congress, the entire wilderness study area would continue to be managed as an inventoried roadless area. Under alternative D, if the wilderness study area were released by Congress, all but about 1,600 acres of the wilderness study area would become recommended wilderness area. In alternatives B through F all or portions of six eligible wild and scenic rivers, totaling 5,533 acres, would be within the wilderness study area. In alternative D all of these acres would overlap recommended wilderness area. As listed in table 100 and table 101, under alternative D existing motorized and mechanized transport would no longer be suitable on the following trails.

Table 100. Trails no longer suitable for mechanized transport in alternative D

Trail Name	Total Miles
Blackmore	3.55
Donahue	2.96
First Creek Cutoff	0.53
History Rock	1.46
North Dry Divide	1.47
South Cottonwood	4.43
Storm Castle Ridge	2.82
Twin Cabin	0.38
West Pine	1.82
Bicycle Trails Total	19.42

Table 101. Trails no longer suitable for motorized transport in alternative D

Trail Name	Total Miles
Buffalo Horn	1.52
East Fork Hyalite	4.70
Hidden Lake Cutoff	0.75
Hidden Lake Divide	4.56
Hyalite Creek	4.63
Porcupine Creek	3.84
Porcupine Meadows	7.17
Ramshorn Lake	3.71
Storm Castle Creek	4.89
Motorcycle Trails Total	35.77

Alternative E

Effects of Alternative E

The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area would continue to be managed consistent with the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule. Under alternative E, if the wilderness study area were released by Congress, the entire wilderness study area would become the Buffalo Horn Backcountry Area. In alternatives B through F all or portions of six eligible wild and scenic rivers, totaling 5,533 acres, would be within the wilderness study area. In alternative E all of these acres would overlap the backcountry area. In alternative E, the Buffalo Horn Backcountry Area would be suitable for mechanized transport and motorized transport on existing motorized routes, and for new motorized and mechanized transport in semi-primitive motorized recreation corridors. There would be an increase in mechanized and motorized recreation opportunities because a larger amount of the area would be suitable for those uses on designated trails in semi-primitive motorized recreation corridors. Under this alternative, the current motorized and mechanized transport on trails listed in table 98 and table 99 would continue.

Alternative F

Effects of Alternative F

The Hyalite-Porcupine-Buffalo Horn Wilderness Study Area would continue to be managed consistent with the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule. Under alternative F, if the wilderness study area were released by Congress, 77,102 acres would become recommended wilderness area, 45,910 acres would become backcountry area, and 12,500 acres would become recreation emphasis area. In addition, 1,938 acres of the wilderness study area would be managed as wildlife key linkage area in alternative F. In alternatives B through F all or portions of six eligible wild and scenic rivers, totaling 5,533 acres, would be within the wilderness study area. In alternative F all of these acres would overlap another plan land allocation. Another 6,614 acres would have no additional direction beyond inventoried roadless area direction. Within this alternative, the boundaries for recommended wilderness do not include any of the portions of current trails suitable for mechanized or motorized transport as shown in table 98 and table 99, so current trail recreation suitability would not change. Backcountry area and recreation emphasis area allocations also continue current trail recreation suitability in alternative F.

Consequences to Wilderness Study Area from Plan Components Associated with other Resource Programs or Management Activities

Effects from Vegetation and Timber Management

Plan direction states the wilderness study area is not suitable for timber production or timber harvest in any alternative, although the area is suitable for limited hazard tree removal (MG-SUIT-WSA-01).

Effects from Fire and Fuels Management

Current fire plan direction is comparable to the revised plan alternatives by permitting fire to play its natural ecological role on the landscape. Revised plan alternatives fire and fuels plan direction would encourage an appropriate management response to wildfires that may occur within wilderness study areas, and provide opportunities for natural fire to promote or enhance the wilderness character of these areas (FW-DC-FIRE-01, FW-OBJ-FIRE-02, and FW-GDL-FIRE-01). Fire and fuels management plan

components also specify the use of minimum impact strategies and tactics to manage wildland fire within wilderness study areas, which would further protect wilderness characteristics (FW-GDL-FIRE-03). Some wildfires may be actively suppressed, based on factors evaluated at the time. However, when natural fires are suppressed in fire adapted ecosystems, there could be detrimental effects to ecosystem processes, wildlife habitat and biodiversity (Keane et al. 2002).

Effects from Wildlife Management

Plan objectives that provide for restoration of wildlife habitat would enhance the wilderness character of the wilderness study area (FW-OBJ-WL-01 and 02).

Effects from Permitted Livestock Grazing Management

Under the revised plan alternatives, permitted livestock use and infrastructure maintenance would be suitable in those portions of the wilderness study area where grazing had been established prior to the area's wilderness study area designation (MG-SUIT-WSA-03). While this plan component would limit new permitted recreational livestock (per plan definition of permitted grazing), effects would be limited because more recreational livestock is currently authorized than is being used. While livestock grazing itself has the potential to degrade plant communities through factors such as invasive plant spread and damage to riparian areas, plan components emphasize the maintenance of resilient native plant communities as well as desirable riparian area conditions (see the suite of components for terrestrial vegetation, invasive species and permitted livestock grazing).

Effects from Energy and Minerals Management

The Hyalite/Porcupine-Buffalo Horn Wilderness Study Area would be managed and regulated according to the Montana Wilderness Study Act of 1977 and the 2001 Roadless Area Conservation Rule. According to plan components and minerals regulations, this area would continue to be not available for mineral leasing and salable mineral materials based on the provision in the law requiring this area to be managed to maintain its wilderness character (MG-STD-WSA-06). As stated in Montana Wilderness Study Act of 1977 PUBLIC LAW 95-150—NOV. 1, 1977. SEC. 3. (a) Except as otherwise provided by this section, and 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.

Potential impacts would be reduced by the revised plan alternatives direction that mineral and energy resource development consider other resource values, and that land be returned to a productive capacity after mineral or energy activity (FW-DC-EMIN-01).

Cumulative Effects

Population growth and development increases the need for public open space. Growth in areas surrounding the national forest is likely to increase recreational use of the Custer Gallatin National Forest, including an increase in wilderness study area use. The effects of urbanization and population growth on wilderness study area use and resource conditions are likely to be gradual and extend well beyond the planning period.

Conclusion

Since the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area is congressionally designated, the acres and boundaries of the wilderness study area do not vary in any of the alternatives, including the current plans. In all alternatives, the wilderness study area will continue to be managed consistent with the Montana Wilderness Study Act of 1977. The revised plan components ensure that the wilderness study area is managed to retain the 1977 character until Congressional action occurs. Plan components retain the 1977 character by not permitting new permanent or temporary roads; new energy or utility structures or new commercial communication sites; new developed recreation sites or new recreation events; authorized extraction of saleable mineral materials, timber production, or timber harvest. Monitoring question MON-WSA-01 would monitor whether the aggregate trend in mountain bike and motorized recreation use would allow for the maintenance of wilderness character as required by the 1977 Montana Wilderness Study Act. In all alternatives, the wilderness study area also must meet guidance of the Inventoried Roadless Conservation Area Rule and plan components for inventoried roadless areas.

The revised plan alternatives provide a variety of potential allocations should Congress release the wilderness study area, assuming Congress adopts the recommendation of the alternative analyzed, which range from nearly all of the wilderness study area as recommend wilderness area (alternative D), to all of the wilderness study area as a backcountry area (alternative E), with alternatives B, C, and F providing a mix of recommend wilderness area, backcountry area, and recreation emphasis area. In addition, a small portion of the wilderness study area is in a key linkage area in alternative F.

3.21.4 Cabin Creek Recreation and Wildlife Management Area

Affected Environment (Existing Condition)

Located entirely on the Hebgen Lake Ranger District, the 36,752-acre Cabin Creek Recreation and Wildlife Management Area was designated by the Lee Metcalf Wilderness Act. On October 31, 1983, public law 98-140 established the Cabin Creek area for the purpose of protecting and enhancing wildlife (specifically grizzly bears and elk) while providing for existing recreational uses. The area encompasses Upper Wapiti Creek, Carrot Basin, and Cabin Creek drainages. The primary conservation area for grizzly bears encompasses the Cabin Creek Recreation and Wildlife Management Area. There is an extensive system of both motorized single-track trails and non-motorized trails. Three major trailheads open mid-summer and provide access for up to 30 miles of single-track motorized transport use. The Cabin Creek Cabin is a popular rental located near the southern boundary and provides the public with an opportunity to stay overnight in a historic facility. The fall season focuses on elk hunting where a large number of outfitter guide services are present and motorized retrieval of big game is allowed. During the winter season snowmobile use is active, with both marked routes, groomed trails, and many open areas and bowls provide riding areas. The portions of three grazing allotments located within the Cabin Creek Recreation and Wildlife Management Area have been closed and a very small portion of a fourth allotment is within this area.

Under the enabling legislation, this area “shall be hereby withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and geothermal leasing...”

Environmental Consequences

Current Plans

Management Direction under the Current Plans

Under the 1987 Gallatin Forest Plan (management area 20), the staff is directed to manage the Cabin Creek Recreation and Wildlife Management Area consistent with the legislation, which are for the purposes of grizzly bears, big game, and recreation. Management restrictions of recreational activities are allowed to protect wildlife. Fish and wildlife habitat improvements, existing grazing, and prescribed fire are allowed if consistent with area goals. The 2006 Gallatin Travel Plan decision allows broad use of the Cabin Creek area by several different types of recreation users, such as retrieving animals killed during hunting season on motor bikes or snowmobiles. Chainsaws may be used for maintenance work.

Based on legislation, the plan classified the area as unsuitable for timber production, therefore, no timber harvest will occur. However, vegetation or fire treatments to enhance wildlife habitat or wilderness character are allowed.

Effects of the Current Plans

In general, recreation use is expected to increase over the lifetime of the plan, including in the Cabin Creek Recreation and Wildlife Management Area, as population growth in the surrounding area increases. The activities for both motorized and non-motorized trail use, elk hunting, snowmobiling, and the cabin rental program will likely continue to be popular. Per the current direction, recreation will continue to manage existing wilderness character, protect wildlife, and to enhance the area to support grizzly bear and elk habitat. The removal of two grazing allotments will allow natural processes to restore the areas.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components for the Cabin Creek Recreation and Wildlife Management Area are the same for all revised plan alternatives and follow the requirements of the implementing legislation public law 98-140. Big game and grizzly bear habitat provide foraging and security to allow wildlife to coexist with human use of the area (MG-DC-CCRW-01). Wilderness character is present in concert with the recreation opportunities provided for in the legislation (MG-DC-CCRW-02). Also, to be consistent with the enabling legislation, new recreation special uses should not detract from wildlife protection and wilderness character (MG-GDL-CCRW-01). Plan components limit uses such as new roads, utility corridors, commercial communication sites, new developed recreation sites, extraction of saleable mineral materials, recreational and commercial drone launching and landings, and new permitted livestock grazing allotments (MG-STD-CCRW-01, 02, 03, 04, 05, MG-SUIT-CCRW-02, 03). While the Cabin Creek Recreation and Wildlife Management Area is not suitable for timber production, it is suitable for vegetation management consistent with Public Law 98-140 (MG-SUIT-CCRW-01). In addition, the area is legislatively withdrawn from mining and oil and gas leasing.

Effects of the Revised Plan Alternatives

All revised plan alternatives would follow legislative direction that established the Cabin Creek Recreation and Wildlife Management Area.

Consequences to Cabin Creek Recreation and Wildlife Management Area from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components and objectives for aquatic ecosystems would complement the overall management of the Cabin Creek Recreation and Wildlife Management Area by promoting the ecological integrity of watersheds, riparian areas, and aquatic habitats (see the suite of components for watershed, aquatics and riparian management zones).

Effects from Vegetation and Timber Management

In all alternatives, plan direction and the enabling legislation state the Cabin Creek Recreation and Wildlife Area is not suitable for timber production. Restoration projects that benefit wilderness character, grizzly bears, and big game wildlife are allowed in all alternatives. Under the current plans, no timber harvest is suitable, while in the revised plan alternatives, vegetation management is suitable consistent with Public Law 98-140 (MG-SUIT-CCRW-01). Therefore, the revised plan alternatives provide more avenues for projects that benefit the natural character of the area. This, coupled with vegetation components for ecological diversity, resilience, and sustainability may enhance the resilience of the Cabin Creek Recreation and Wildlife Management Area (see suite of plan components for PRISK, VEGF and VEGNF).

Effects from Fire and Fuels Management

Under the current plans fire plan direction is similar to the revised plan alternatives by permitting fire to play its natural ecological role on the landscape. Revised plan alternative plan direction for natural, unplanned ignitions would continue the long-term ecological processes in these areas (FW-DC-FIRE-01, FW-OBJ-FIRE-02, and FW-GDL-FIRE-01). Fires could lead to a temporary loss of vegetation, reduction in water quality due to sedimentation, or air pollution; however, these effects are part of the natural ecological processes. Some wildfires may be actively suppressed based on factors evaluated at the time. However, when natural fires are suppressed in fire adapted ecosystems, there could be detrimental effects to ecosystem processes, wildlife habitat, and biodiversity (Keane et al. 2002). Revised plan alternative fire and fuels plan components call for minimum impact suppression tactics in sensitive areas (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Wildlife Management

In all alternatives, this area is entirely within the grizzly bear recovery zone and primary conservation area and wildlife plan direction is based on the conservation strategy for the bears in the Greater Yellowstone ecosystem. Among other things, this direction is designed to maintain an adequate amount of secure habitat, which limits disturbances from motorized access. It also sets limits on the amount and capacity of developed sites, as well as the amount of area affected by permitted livestock grazing. The management direction for grizzly bear provides habitat protections for a variety of wildlife species sensitive to human disturbance or affected by livestock. See the suite of plan components for wildlife-grizzly bear which address areas within the recovery zone and primary conservation area.

Effects of Designated Area of Inventoried Roadless Area

In all alternatives, all 36,752 acres are deemed an inventoried roadless area, which constrains management actions especially for timber production and new road construction to conform to that 2001 Roadless Area Conservation Rule; the enabling legislation also has similar constraints.

Effects from Access and Recreation Management

In all alternatives, new road access is prohibited under enabling legislation, plan direction (MG-STD-CCRW-01) and the fact this is within an inventoried roadless area. Current motorized trail access is authorized as directed under the 2006 Gallatin Travel Plan.

Within the legislation, recreation management allows for current uses as long as they do not adversely impact grizzly bears and big game, or create other unacceptable levels of resource damage. Recreation opportunity spectrum classifications are the same in all alternatives. The revised plan alternatives explicitly limit new developed recreation facilities (MG-STD-CCRW-04), and recreational and commercial drone launching and landings (MG-SUIT-CCRW-02). The current plans do not explicitly limit these uses. To be consistent with the enabling legislation, new recreation special uses should not detract from wildlife protection and wilderness character (MG-GDL-CCRW-01).

Effects from Land Uses Management

As this area is managed to maintain existing wilderness character and protect wildlife habitat, revised plan alternative plan components state new utility or energy corridors and new commercial communication sites shall not be allowed (MG-STD-CCRW-02, 03). Potential new facilities would be required to locate elsewhere which might result in increased costs or limits to optimum communication facility sightings. The current plans do not explicitly limit new utility or energy corridors or new commercial communication sites; however, those would be incompatible with wilderness character.

Cumulative Effects

Management activities generally have taken place and will continue to take place mostly outside of the Cabin Creek Recreation and Wildlife Management Area. It is unlikely they would have an effect on the areas due to the distance of management activities from the areas and various plan components that protect soils, water, and other resource values forestwide.

Control of invasive weeds is an action that may have occurred in the past within the area and is the most likely management activity to occur in the future. This would likely have a positive effect on the area by controlling invasive weeds and preventing their spread. There may be other vegetation treatments for restoration purposes, such as non-commercial removal of small diameter woody fuels, which would be constrained by the Cabin Creek Recreation and Wildlife Management Area because it is also an inventoried roadless area. These fuel reduction actions may be desirable to reduce the severity of potential future fires, protecting the values associated both with and adjacent to the area. These restoration activities are not expected to result in detrimental effects to the values in the area.

Conclusions

In the current plans, Cabin Creek Recreation and Wildlife Management Area would continue to be managed as per guidance under Public Law 98-140. Plan direction provided for the Cabin Creek Recreation and Wildlife Management Area in the 1987 Gallatin Forest Plan would continue in the revised plan, which provides plan components that supports the enabling legislation.

3.21.5 Designated Wild and Scenic Rivers

Affected Environment (Existing Condition)

Congress passed the National Wild and Scenic Rivers System Act in 1968 (Pub. L. 90-542; 16 U.S.C. 1271 et seq.) for the purpose of preserving rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The act is recognized for safeguarding the special character of these rivers while also allowing for their appropriate use and development. The act promotes river management across political boundaries and public participation in developing goals for river protection.

For wild and scenic rivers, the designated management boundaries generally average 0.25 mile on each bank in the lower 48 states. The purpose of this 0.25-mile management corridor is to protect river-related values. For management purposes, river segments are classified as wild, scenic, or recreational.

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

There is currently one congressionally designated Wild and Scenic River, East Rosebud Creek, on the Custer Gallatin National Forest. On August 2, 2018, Public Law 115-229 was signed by the president designating East Rosebud Creek as part of the National Wild and Scenic River System:

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.”

This creek became the first designated wild and scenic river in the Montana since 1976 and is the only designated river on the Custer Gallatin National Forest. Located in Carbon County, Montana, the East Rosebud Creek flows through the Absaroka-Beartooth Wilderness into the Stillwater River and eventually into the Yellowstone River. There are approximately 20 total river miles and 6,400 total acres within the ½-mile corridor of the East Rosebud Wild and Scenic River management corridor. None of this designated stretch of river is within inventoried roadless areas.

The East Rosebud grazing allotment occurs within the corridor’s recreational segment, with approximately 935 acres. There is approximately ¼ mile of allotment fence within the corridor and no water developments. The East Rosebud allotment is permitted with cow and calf pair with variable numbers and dates between September 1 and November 1, not to exceed 150 animal unit months.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

There are no plan components in the current 1986 Custer Forest Plan for the designated East Rosebud Wild and Scenic River, as it was still an eligible river at that time. Pending the completion of the revised plan and a river management plan, management guidance for the East Rosebud Creek designated Wild and Scenic River is provided through the enabling legislation and agency-wide policy and regulations. Until the river management plan is completed, this management direction applies for the ½ mile corridor (1/4 mile from the ordinary high-water mark on either side of the river). The designation and management direction only apply to National Forest System lands.

The outstandingly remarkable values (ORVs) are scenic, recreational, and geologic. The river is classified as wild for 13 miles in the Absaroka-Beartooth Wilderness Area and as recreational for 7 miles downstream of the wilderness. Regulatory direction is to protect or enhance the listed outstandingly remarkable values and the classification status of each segment, along with protecting the free-flowing nature of the creek.

Effects of the Current Plans

While there are no plan components in the current Custer Forest Plan for a designated river, the regulatory direction to protect or enhance the listed outstandingly remarkable values and the classification status of each segment, along with protecting the free-flowing nature of the creek, would apply to the current plans.

Revised Plan Alternatives

Management direction under the Revised Plan Alternatives

The river designated as a wild and scenic river does not change by any revised plan alternative. Plan components in all revised plan alternatives protect the river's free-flowing nature, classification, and outstandingly remarkable values (FW-DC-DWSR-01). Plan components provide direction for topics such as timber production (FW-SUIT-DWSR-01), prohibition of saleable mineral materials (FW-STD-DWSR-01) and fish barrier construction (FW-GDL-DWSR-01) in the designated wild and scenic river corridor.

Until the final wild and scenic river boundary is established, plan direction applies to the area within the designated wild and scenic river interim boundary (1/4 mile from the ordinary high-water mark on each side of the designated river segments, unless otherwise specified in statute). Once the final boundary is established in accordance with Section 3(b) of the Wild and Scenic Rivers Act, this management direction will apply within the final established boundary of the wild and scenic river.

None of the East Rosebud Creek's designated corridor is within an inventoried roadless area.

Effects of all Revised Plan Alternatives

Under all revised plan alternatives, the identified designated wild and scenic river (and area within ¼ mile on either side of each river's high-water mark) would be managed to protect its free-flowing condition and to preserve and enhance the outstandingly remarkable values for which it was identified, as well as protect the segment's classifications.

Some of the designated river corridor lands are also within designated wilderness, where the increased protection of a designated river is an addition to existing wilderness management. As protection or enhancement of listed outstandingly remarkable values for the river segment are called for, along with retaining the classification, designated river corridors should remain in a similar or improved condition for the current and foreseeable future.

Consequences to Designated Wild and Scenic Rivers from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Plan components and activities related to watershed, riparian, or aquatic habitat improvements would have a protective effect to designated wild and scenic rivers, as they would to all rivers on the Custer Gallatin. The area influenced by riparian plan components (up to 200 feet, depending on water body) is a shorter distance than the ¼ mile area on either side of the high-water mark of the stream where wild and scenic components apply, but provide very detailed protection (see the suite of forestwide plan components for watershed, aquatics and riparian management zones).

Effects from Vegetation and Timber Management

In all alternatives, designated wild classified rivers are not suitable for timber production (FW-SUIT-DWSR-01). As the wild segments are typically within designated wilderness, vegetation management tree cutting would only be suitable when needed in association with a primitive recreation experience, to protect users, or to protect identified outstandingly remarkable values. Examples of such exceptions include activities to maintain trails (such as building a log bridge) or suppress wildfires. For designated scenic and recreational rivers there is a range of vegetation management and timber harvest practices which are suitable by agency policy as well as revised plan direction, if these practices are designed to protect users, or protect, restore, or enhance the river environment, including the scenic character in the long term (FW-SUIT-DWSR-01).

Effects from Fire and Fuels Management

Both natural and management-ignited fires could change the outstandingly remarkable values present in a river segment such as scenery resources.

The current plans' fire suppression directions are a range of responses. To minimize resource damage, the revised plan alternatives fire and fuels plan components call for minimum impact suppression tactics in sensitive areas such as designated wild and scenic rivers, which would reduce resource impacts from the suppression effort itself (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Natural, unplanned ignitions and prescribed fires are used as tools to maintain ecological conditions within river corridors. These fire and fuels management components may be used so long as they maintain the outstandingly remarkable values (ORVs) and free-flowing nature of the identified rivers. In a designated river segment, wildland fires managed to meet resource objectives may be used to restore or maintain ORVs. In the revised plan alternatives, plan components for fire and fuels management would encourage an appropriate management response to wildfires and provide opportunities for natural fire

to promote and enhance the characteristics of these areas (FW-DC-FIRE-01, FW-OBJ-FIRE-02, FW-STD-FIRE-01, and FW-GDL-FIRE-01).

Effects from Wildlife and Fisheries Management

For all river classifications, construction of minor structures and vegetation management to protect and enhance wildlife and fish habitat should harmonize with the wild segment's essentially primitive character, the scenic rivers largely undeveloped character, and the recreational segments identified river values. Any portion of a proposed wildlife or fisheries restoration or enhancement project that has the potential to affect the river's free-flowing character must be evaluated as a water resources project. For example, fish barriers would be evaluated as a water resource project to ensure free-flowing waters are not affected, but also that construction of the shoreline development does not affect the classification (FW-GDL-DWSR-01).

Effects of Plan Land Allocations

For all alternatives, where a designated river segment is within another designation that has stricter components, those stricter management components take precedence. This may occur when a designated river segment is in wilderness, recommended wilderness, inventoried roadless areas, research natural areas, and special areas etc.

Effects from Energy and Minerals Management

In all alternatives, the portion of the East Rosebud designated wild and scenic river classified as "wild" is withdrawn from mineral entry. In the revised plan alternatives, the portion classified as "recreational" would not be available for saleable mineral material extraction (FW-STD-DWSR-01); there are no plan components to restrict this use in the current Custer Plan. In all alternatives, leasable and locatable mineral development is allowable within the "recreational" segment. Potential impacts would be reduced by the revised plan alternatives direction that mineral and energy resource development consider other resource values, and that land be returned to a productive capacity after mineral or energy activity (FW-DC-EMIN-01).

Cumulative Effects

Cumulative effects are the potential impacts to designated wild and scenic rivers from the alternatives when combined with past, present, and reasonably foreseeable actions.

The designation as a wild and scenic river means that no dams would be built on this river segments and it would remain free flowing. Management activities generally take place outside of designated wild and scenic rivers unless an action is needed to help protect or preserve the identified outstandingly remarkable value. For example, if invasive weeds were discovered in a designated river corridor, there might be a need to take some action (hand pulling, herbicide application) to eradicate or prevent further spread. An ongoing grazing allotment in the recreational segment of the river would be managed to maintain it as a compatible use without impacts to outstandingly remarkable values or classification or the free-flowing status.

There may be an increase in recreational use of the designated river, as the publicity of designation itself may call attention to the river as a destination.

Less than 1 percent of Montana's river miles are protected under the Federal act. The sections of four rivers currently protected are a 149-mile stretch of the Upper Missouri River, and 219 miles of the North,

Middle, and South Forks of the Flathead River, and East Rosebud Creek. Nationally, less than 0.25 percent or 12,734 miles of the country's river miles are protected under the wild and scenic designation.

Conclusion

The addition of this designated river and 6,400 acres within the ½-mile river corridor means that the Custer Gallatin National Forest for the first time will manage those acres for the values of a designated wild and scenic river. There are management requirements within the legislation as well as agency policy and regulations. New plan components for rivers managed as designated for the national wild and scenic river system will protect or enhance the outstandingly remarkable values, keep the rivers free flowing, and maintain the classifications for each river segment.

3.21.6 Inventoried Roadless Areas

Affected Environment (Existing Condition)

Inventoried roadless areas are designated under the 2001 Roadless Area Conservation Rule 36 CFR 294.13. There are approximately 844,040 acres of national forest lands established as official inventoried roadless areas across the national forest, per Custer Gallatin GIS data. These roadless areas constitute approximately 28 percent of the lands administered by the Custer Gallatin National Forest (table 102).

The following values or features often characterize inventoried roadless areas:

- High quality or undisturbed soil, water, and air. These three key resources are the foundation upon which other resource values and outputs depend.
- Sources of public drinking water. National Forest System lands contain watersheds that are important sources of public drinking water.
- Diversity of plant and animal communities. Roadless areas are more likely than roaded areas to support greater ecosystem health, including the diversity of native and desired nonnative plant and animal communities due to the absence of disturbances caused by roads and accompanying activities.
- Habitat for threatened, endangered, proposed, candidate, and for those species dependent on large, undisturbed areas of land. Roadless areas function as biological strongholds and refuges for many species.
- Primitive, semi-primitive non-motorized, and semi-primitive motorized recreation opportunity spectrum classes of dispersed recreation. Roadless areas often provide outstanding dispersed recreation opportunities such as hiking, camping, picnicking, wildlife viewing, hunting, fishing, cross-country skiing, and canoeing. While they may have many wilderness-like attributes, unlike wilderness, the use of mountain bikes, and other mechanized and motorized transport is often suitable. These areas can also take pressure off heavily used wilderness areas by providing solitude and quiet, and dispersed recreation opportunities.
- Natural appearing landscapes with high scenic quality. High quality scenery, especially scenery with natural-appearing landscapes, is a primary reason that people choose to recreate.
- Traditional cultural properties and sacred sites. Traditional cultural properties are places, sites, structures, art, or objects that have played an important role in the cultural history of a group.

- Other locally identified unique characteristics. Inventoried roadless areas may offer other locally identified unique characteristics and values.

While roads exist in some inventoried roadless areas, the overall setting of these areas is generally roadless. Compared to other National Forest System lands, roads in inventoried roadless areas are rare. During the 2001 roadless area evaluation process some areas were included as roadless even though a road, or portion of a road, was present. In most cases, the road was determined to not substantially detract from the areas roadless characteristic or potential. However, in some instances, practical management boundaries or geographic features favored including small sections of roads in inventoried roadless areas rather than drawing the boundary to exclude the road section. There were also cases where mapping technology at the time simply resulted in a road being inside a boundary when the intent was to be outside. For the most part, however, roadless areas are primarily without roads and therefore provide uniquely different ecological and social values and opportunities as compared to other National Forest System lands. Maintaining these characteristics is the overall intent of the roadless rule.

According to current GIS mapping, a total of 114.40 miles of Forest Service roads are within Custer Gallatin Inventoried Roadless Areas, as well as 11.46 miles of decommissioned roads. Roads within inventoried roadless areas include:

- 4.21 miles of State/Federal highway,
- 2.40 miles of county jurisdiction roads,
- 90.68 miles of National Forest Service maintenance level 2 roads designed for high clearance,
- 20.83 miles of Forest Service maintenance level 3 roads suitable for passenger cars,
- 2.89 miles of maintenance level 4 roads suitable for a moderate degree of user comfort.

The boundaries of inventoried roadless areas cannot be changed through plan revision. Boundary modification is a separate process that would require rulemaking through the Forest Service Chief's office. The Roadless Area Conservation Rule generally prohibits construction or reconstruction of roads in inventoried roadless areas, but with some exceptions. The Roadless Area Conservation Rule allows the Forest Service line officer to authorize construction or reconstruction of a road in an inventoried roadless area if he or she determines it is needed for one of the following reasons:

- To protect public health and safety;
- To conduct environmental response under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to conduct a restoration action under CERCLA, the Clean Water Act, or the Oil Pollution Act;
- To allow for reserved or outstanding rights or as provided for by statute or treaty;
- To prevent irreparable resource damage under certain circumstances;
- To implement a road safety improvement project under certain circumstances;
- When the secretary of agriculture has determined that a Federal aid highway project is in the public interest or is consistent with the purposes for which the land was reserved or acquired, and no other reasonable and prudent alternative exists;
- When a road is needed in conjunction with mineral leases on lands that were under lease as of January 12, 2001, and were immediately extended upon the expiration of the leases.

The Roadless Area Conservation Rule generally prohibits the cutting, selling, or removal of timber in inventoried roadless areas of the National Forest System, but with some exceptions. The 2001 Roadless Area Conservation Rule allows Forest Service line officers to authorize the cutting, sale, or removal of generally small diameter timber when needed for one of the following purposes and the activity will maintain or improve roadless area characteristics:

- To improve endangered, proposed, or sensitive species habitat;
- To maintain or restore the characteristics of the ecosystem.
- The cutting, sale, or removal of timber is incidental to another activity that is not otherwise prohibited. The cutting, sale, or removal of timber is needed and appropriate for personal or administrative use; or
- The roadless characteristics of the area have already been substantially altered by road construction and timber cutting within certain parameters described in the 2001 Roadless Area Conservation Rule.

Table 102. Inventoried roadless area acreage by geographic area

Inventoried Roadless Area Name	Geographic Area	Acres
Cook Mountain	Ashland	9,674
King Mountain	Ashland	12,138
Tongue River Breaks	Ashland	17,520
Ashland Total Acreage	Ashland Total Acreage	39,332
Lost Water Canyon	Pryor Mountains	9,250
Lost Water Canyon RNA	Pryor Mountains	561
Mt. Gmt Area H	Pryor Mountains	611
Pryor Mountain Total Acreage	Pryor Mountains Total Acreage	10,422
Beartooth	Absaroka Beartooth Mountains	6,257
Black Butte	Absaroka Beartooth Mountains	864
Burnt Mountain	Absaroka Beartooth Mountains	10,682
Chico Peak	Absaroka Beartooth Mountains	10,761
Fishtail Saddleback	Absaroka Beartooth Mountains	16,429
Line Creek Plateau	Absaroka Beartooth Mountains	24,817
Mt Gmt Area H	Absaroka Beartooth Mountains	716
North Absaroka	Absaroka Beartooth Mountains	179,027
Proposed Line Creek PRNA	Absaroka Beartooth Mountains	391
Red Lodge Creek Hellroaring	Absaroka Beartooth Mountains	17,203
Reef	Absaroka Beartooth Mountains	2,478
Republic Mountain	Absaroka Beartooth Mountains	813
Rock Creek	Absaroka Beartooth Mountains	100
West of Woodbine	Absaroka Beartooth Mountains	1,836
Absaroka Beartooth Mountains Total Acreage	Absaroka Beartooth Mountains Total Acreage	272,373
Box Canyon	Bridger, Bangtail, Crazy Mountains	2,306
Bridger	Bridger, Bangtail, Crazy Mountains	44,387

Inventoried Roadless Area Name	Geographic Area	Acres
Crazy Mountain	Bridger, Bangtail, Crazy Mountains	80,862
Bridger, Bangtail, Crazy Mountains Total Acreage	Bridger, Bangtail, Crazy Mountains Total Acreage	127,554
Cabin Creek Wildlife Management Area	Madison, Henrys Lake, Gallatin Mountains	35,046
Dry Canyon	Madison, Henrys Lake, Gallatin Mountains	3,248
Gallatin Fringe	Madison, Henrys Lake, Gallatin Mountains	51,458
Hyalite-Porcupine-Buffalo Horn WSA	Madison, Henrys Lake, Gallatin Mountains	143,908
Lionhead	Madison, Henrys Lake, Gallatin Mountains	33,469
Madison	Madison, Henrys Lake, Gallatin Mountains	127,230
Madison, Henrys Lake, Gallatin Mountains Total Acreage	Madison, Henrys Lake, Gallatin Mountains Total Acreage	394,359
Total Forest Acreage	(no data)	844,040

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The 1986 Custer and the 1987 Gallatin Forest Plans were written before the 2001 Roadless Area Conservation Rule. Under the current plans, the 2001 Roadless Area Conservation Rule provides current direction.

Effects of the Current Plans

The inventoried roadless areas would continue to be managed under the requirements of the 2001 Roadless Area Conservation Rule and compatible direction from the current plans. Table 103 through percentage column does not equal 100% due to rounding. table 106 display the acreages and percentage of inventoried roadless areas that are within other plan land allocations and designations; some acreage of inventoried roadless areas does not have additional allocations.

Table 103. Under the current plans, land allocations within inventoried roadless areas

Current Plans Land Allocation	Acres of inventoried roadless area within each allocation	Percentage of inventoried roadless areas within each allocation
Recommended Wilderness	33,741	4
Eligible Wild and Scenic River Corridors ½ mile buffer	8,423	0
backcountry areas	not applicable	not applicable
Recreation Emphasis Areas	not applicable	not applicable
Stillwater Complex	not applicable	not applicable

Table 104. Under the current plans, designations within inventoried roadless areas

Current Plans Designation	Acres of inventoried roadless area within each designated area	Percentage of inventoried roadless area within each designated area
Wilderness Study Area	143,235	17
Cabin Creek Recreation and Wildlife Management Area	35,048	4
Research Natural Areas	21,542	3
Special Areas	none	none
National Natural Landmarks	none	none
Pryor Mt Wild Horse Territory	3,100	0.37
Earthquake Lake Geologic Area	27,866	3
Continental Divide National Scenic Trail ½ mile buffer	2,565	0.30
Designated Wild and Scenic River Corridors	none	none
Alternative A Low Development Areas	39,236	5
Inventoried Roadless Areas with no other designations	431,929	51

Table 105. Under the current plans, summer recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	591,997	70
Semi-Primitive Motorized	183,920	22
Roaded Natural	36,836	4
Rural	31,287	4
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 106. Under the current plans, winter recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	464,032	55
Semi-Primitive Motorized	318,700	38
Roaded Natural	33,593	4
Rural	27,715	3
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The inventoried roadless areas would continue to be managed under the requirements of the 2001 Roadless Area Conservation Rule and a revised plan desired condition for semi-primitive non-motorized and semi-primitive motorized recreation settings (FW-DC-IRA-01).

Inventoried roadless areas may also have other designations, such as wilderness study area or research natural area. The location of inventoried roadless areas with respect to designations such as wilderness study area or research natural area does not change by any of the alternatives. Where allocations overlap, the more protective components would apply. All overlapping allocations and designations are shown in the tables below.

Effects of the Revised Plan Alternatives

Inventoried roadless areas may be overlain with plan land allocations that vary by alternative. Table 107 through percentage column does not equal 100% due to rounding.

Table 126 displays the acreages and percentage of inventoried roadless areas that are within other allocations by revised plan alternative. All revised plan alternatives have some acreage of inventoried roadless areas that do not have additional allocations. Where allocations overlap, the more protective components would apply. Due to overlapping allocations and rounding, percentages may exceed 100 percent.

Table 107. Alternative B plan land allocations within inventoried roadless area

Alternative B Plan Land Allocations	Acres of inventoried roadless area within each allocation	Percentage of inventoried roadless area within each allocation
Recommended Wilderness	111,586 acres	13
Eligible Wild and Scenic River Corridors ½ mile buffer	21,745 acres	3
Backcountry areas	81,240 acres	10
Recreation Emphasis Areas	48,838 acres	6
Stillwater Complex	57,563 acres	7

Table 108. Alternative B designations within inventoried roadless area

Alternative B Designations	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Wilderness Study Area	143,235 acres	17
Cabin Creek Recreation and Wildlife Management Area	35,048 acres	4
Research Natural Areas	21,542 acres	3
Special Areas	none	None
National Natural Landmarks	none	None
Pryor Mt Wild Horse Territory	3,100 acres	0.37
Earthquake Lake Geologic Area	27,866	3
Continental Divide National Scenic Trail ½ mile buffer	2,565 acres	0.30
Designated Wild and Scenic River Corridors	none	None

Alternative B Designations	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Inventoried Roadless Areas with no other allocations	265,613 acres	31

Table 109. Alternative B summer recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	597,129	71
Semi-Primitive Motorized	180,607	21
Roaded Natural	35,275	4
Rural	31,030	4
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 110. Alternative B winter recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	466,250	55
Semi-Primitive Motorized	316,866	38
Roaded Natural	33,378	4
Rural	27,548	3
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 111. Alternative C plan land allocations within inventoried roadless areas

Alternative C Plan Land Allocation	Acres of inventoried roadless area within each allocation	Percentage of inventoried roadless area within each allocation
Recommended Wilderness	142,848 acres	17
Eligible Wild and Scenic River Corridors ½ mile buffer	21,745 acres	3
Backcountry areas	192,827 acres	23
Recreation Emphasis Areas	65,602 acres	8
Stillwater Complex	57,563 acres	7

Table 112. Alternative C designations within inventoried roadless areas

Alternative C Designation	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Wilderness Study Area	143,235 acres	17
Cabin Creek Recreation and Wildlife Management Area	35,048 acres	4
Research Natural Areas	21,542 acres	3
Special Areas	none	None
National Natural Landmarks	none	None

Alternative C Designation	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Pryor Mt Wild Horse Territory	3,100 acres	0.37
Earthquake Lake Geologic Area	27,866 acres	3
Continental Divide National Scenic Trail ½ mile buffer	2,565 acres	0.30
Designated Wild and Scenic River Corridor	none	None
Inventoried Roadless Areas with no other allocations	106,443 acres	13

Table 113. Alternative C summer recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	142,445	17
Semi-Primitive Non-motorized	474,681	56
Semi-Primitive Motorized	164,613	20
Roaded Natural	32,842	4
Rural	29,460	4
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 114. Alternative C winter recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	142,445	17
Semi-Primitive Non-motorized	344,839	41
Semi-Primitive Motorized	299,050	35
Roaded Natural	31,874	4
Rural	25,833	3.1
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 115. Alternative D plan land allocations within inventoried roadless areas

Alternative D Plan Land Allocation	Acres of inventoried roadless area within each allocation	Percentage of inventoried roadless area within each allocation
Recommended Wilderness	623,797 acres	88
Eligible Wild and Scenic River Corridors	21,745	3
Backcountry areas	none	none
Recreation Emphasis Areas	8,703 acres	1
Stillwater Complex	not applicable	not applicable

Table 116. Alternative D designations within inventoried roadless areas

Alternative D Designation	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Wilderness Study Area	143,235 acres	17

Alternative D Designation	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Cabin Creek Recreation and Wildlife Management Area	35,048 acres	4
Research Natural Areas	21,542 acres	3
Special Areas	none	None
National Natural Landmarks	none	None
Pryor Mt Wild Horse Territory	3,100 acres	0.37
Earthquake Lake Geologic Area	27,866 acres	3
Continental Divide National Scenic Trail	2,565 acres	0.30
Designated Wild and Scenic River Corridors	none	none
Inventoried Roadless Areas with no other allocations	169,536 acres	20

Table 117. Alternative D summer recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	623,898	74
Semi-Primitive Non-motorized	68,786	8
Semi-Primitive Motorized	90,026	11
Roaded Natural	33,299	4
Rural	28,031	3
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 118. Alternative D winter recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	623,898	74
Semi-Primitive Non-motorized	51,361	6
Semi-Primitive Motorized	119,936	14
Roaded Natural	23,476	3
Rural	25,370	3
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 119. Alternative E plan land allocations within inventoried roadless areas

Alternative E Plan Land Allocation	Acres of inventoried roadless area within each allocation	Percentage of inventoried roadless area within each allocation
Recommended Wilderness	not applicable	not applicable
Eligible Wild and Scenic River Corridors	21,745 acres	3
backcountry areas	172,278 acres	20
Recreation Emphasis Areas	39,307 acres	5
Stillwater Complex	57,563 acres	7

Table 120. Alternative E designations within inventoried roadless areas

Alternative E Designation	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Wilderness Study Area	143,235 acres	17
Cabin Creek Recreation and Wildlife Management Area	35,048 acres	4
Research Natural Areas	21,542 acres	3
Special Areas	none	None
National Natural Landmarks	none	None
Pryor Mt Wild Horse Territory	3,100 acres	0.37
Earthquake Lake Geologic Area	27,866 acres	3
Continental Divide National Scenic Trail	2,565 acres	0.30
Designated Wild and Scenic River Corridors	none	None
Inventoried Roadless Areas with no other allocations	494,339	58

Table 121. Alternative E summer recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	580,702	69
Semi-Primitive Motorized	194,355	23
Roaded Natural	36,959	4
Rural	32,024	4
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 122. Alternative E winter recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	454,608	54
Semi-Primitive Motorized	328,160	39
Roaded Natural	33,182	4
Rural	28,090	3
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 123. Alternative F plan land allocations within inventoried roadless areas

Alternative F Plan Land Allocation	Acres of inventoried roadless area within each allocation	Percentage of inventoried roadless area within each allocation
Recommended Wilderness	126,392 acres	15
Eligible Wild and Scenic River Corridors ½ mile buffer	21,745 acres	3
Backcountry areas	154,341 acres	18
Recreation Emphasis Areas	51,952 acres	6
Stillwater Complex	57,624 acres	7

Table 124. Alternative F designations within inventoried roadless areas

Alternative F Designation	Acres of inventoried roadless area within each designation	Percentage of inventoried roadless area within each designation
Wilderness Study Area	143,235 acres	17
Cabin Creek Recreation and Wildlife Management Area	35,048 acres	4
Research Natural Areas	21,542 acres	3
Special Areas	none	None
National Natural Landmarks	none	None
Pryor Mt Wild Horse Territory	3,100 acres	0.37
Earthquake Lake Geologic Area	27,866 acres	3
Continental Divide National Scenic Trail ½ mile buffer	2,565 acres	0.30
Designated Wild and Scenic River Corridor	none	None
Inventoried Roadless Areas with no other allocations	368,268	44

Table 125. Alternative F summer recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	599,706	71.1
Semi-Primitive Motorized	176,778	20.9
Roaded Natural	36,301	4.3
Rural	31,256	3.7
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Table 126. Alternative F winter recreation opportunity spectrum class within inventoried roadless areas

Recreation Opportunity Spectrum (ROS) Class	Acres	Percent
Primitive	0	0
Semi-Primitive Non-motorized	472,662	56.0
Semi-Primitive Motorized	312,428	37.0
Roaded Natural	31,935	3.8
Rural	27,016	3.2
Total	844,040	100

Percentage column does not equal 100% due to rounding.

Consequences to Inventoried Roadless Areas from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components and objectives for aquatic ecosystems would complement the overall management of the inventoried roadless areas by promoting the ecological integrity of watersheds, riparian areas, and aquatic habitats (see the suite of components under watershed, aquatics, and riparian management zones).

Effects from Vegetation and Timber Management

As outlined in the 2001 Roadless Area Conservation Rule in all alternatives, inventoried roadless areas are not suitable for timber production, but timber harvest and vegetation management may occur for other resource purposes (FW-SUIT-IRA-01). Forest wide plan components associated with timber harvest would ensure that all resource protection measures are met (FW-STD-TIM-01 to 10, FW-GDL-TIM-01 and 02).

Effects from Fire and Fuels Management

In all alternatives, plan components for fire and fuels management would encourage an appropriate management response to wildfires that may occur within inventoried roadless areas, and provide opportunities for natural fire to promote and enhance the ecological attributes of these areas (FW-DC-FIRE-01, FW-OBJ-FIRE-02, FW-STD-FIRE-01, and FW-GDL-FIRE-01).

Effects from Wildlife Management

In alternatives B, C, D, and F (where located within inventoried roadless areas) plan components for key linkage areas would add additional restrictions to activities otherwise allowed Low level helicopter flights may also be restricted, which is not addressed in the Roadless Area Conservation Rule (FW-GDL-WL-05). Current plans and alternative E are not restricted by key linkage areas. Inventoried roadless areas are suitable for restoration activities that can be accomplished consistent with the 2001 Roadless Area Conservation Rule (FW-SUIT-IRA-03).

Effects from Access Management

In all alternatives, plan components related to road access and infrastructure would have little effect on inventoried roadless areas, because these areas are generally unroaded. However, where roads do occur, road maintenance activities may occur and would be guided by road access and infrastructure plan components which include protections for other resources. The 2001 Roadless Area Conservation Rule further guides and constrains road construction or reconstruction (FW-SUIT-IRA-02).

Effects from Recreation Management

In all alternatives, the suite of plan components for recreation settings, opportunities, and access would complement the management of inventoried roadless areas. In the revised plan alternatives, inventoried roadless areas have a semi-primitive motorized or non-motorized recreation opportunity spectrum setting, except for fringe areas where there is an effect from adjacent buffers. These classifications would

ensure that potential recreation activities would be consistent with inventoried roadless area desired conditions.

Effects from Permitted Livestock Grazing Management

While livestock grazing has the potential to degrade plant communities, through factors such as invasive plant spread and damage to riparian areas, revised plan alternative plan components emphasize the maintenance of resilient native plant communities as well as desirable riparian area conditions (PRISK, VEGF, VEGNF, RMZ). The revised plan alternatives provide more detailed guidance than the current plans for resilient native plant communities and riparian areas that should help protect the ecological integrity of inventoried roadless areas.

Effects from Energy and Minerals Management

All inventoried roadless areas on the Custer Gallatin were established as a part of the 2001 Roadless Area Conservation Rule. Roadbuilding for leasable and salable mineral development would not be allowed in these areas. However, locatable mineral development is allowable within inventoried roadless areas, which could affect the generally low development character of these areas. Potential impacts would be reduced by the revised plan alternatives direction that mineral and energy resource development consider other resource values, and that land be returned to a productive capacity after mineral or energy activity (FW-DC-EMIN-01).

Cumulative Effects

Approximately 844,040 acres of inventoried roadless areas on the Custer Gallatin are part of a nationwide system of 58.5 million acres of inventoried roadless areas. When combined with designated wilderness, the 844,040 acres of inventoried roadless areas contribute to about two thirds of the Custer Gallatin allocated to roadless character. Inventoried roadless areas continue to provide opportunities for many types of resource restoration projects, along with motorized and mechanized trails.

Conclusion

The inventoried roadless area boundaries and acreages are established as a part of the 2001 Roadless Area Conservation Rule and would not change in any alternative. These lands would continue to be managed under the guidance established by the 2001 Roadless Area Conservation Rule, with more restrictive guidance provided by additional designations or plan land allocations.

3.21.7 Research Natural Areas

Affected Environment (Existing Condition)

The Custer Gallatin contains 10 established research natural areas, which total about 28,800 acres. All are administratively designated areas, which are defined as an area identified and managed to maintain its unique special character or purpose (36 CFR 219.19). The existing conditions and effects by alternative for these designated area categories are discussed in this section.

Research natural areas are permanently established to represent the range of vegetation types and areas of special ecological significance on national forest lands. These protective designations are made with the goal of maintaining natural ecosystem components and processes. The RNAs are identified and administratively designated by the regional forester with concurrence of the research station director, and serve as baseline areas for non-manipulative research, education, and the maintenance of

biodiversity. In some cases, stewardship management is needed to maintain or restore the target plant communities in research natural areas, including actions such as invasive weed control or prescribed fire. These management activities are also coordinated between the national forests and the research station.

The Code of Federal Regulations (36 CFR 251.23) directs the Forest Service to establish research natural areas typifying important forest, shrubland, grassland, alpine, and aquatic ecosystems. In addition to their value as reference areas for research and monitoring, research natural areas help maintain biological diversity. This is done by conserving assemblages of common and rare species, plant communities relatively undisturbed by human actions and unique landscape features. The 1983 Northern Region Guide (U.S. Department of Agriculture 1983) included a matrix of habitat types, community types, and aquatic features targeted for inclusion in the Northern Region's Research Natural Area system. Major revision of this 1983 regional guide for research natural areas was completed in 1996 (Chadde et al. 1996), giving new targeted plant communities and other features for inclusion in research natural areas (plan, appendix A). No new research natural areas are proposed in the revised plan.

Designated research natural areas are those that have been formally established by a decision signed by the regional forester, with concurrence of the research station director, after being vetted through the national forest and Rocky Mountain Research Station via forest planning, during revision or by amendment. Proposed research natural areas have been vetted through the Custer Gallatin National Forest and Rocky Mountain Research Station via forest planning (either in revision or by amendment), but they have not been established by a regional forester decision. Candidate research natural areas have not been fully vetted by the Custer Gallatin and Rocky Mountain Research Station and have not been included in a plan decision.

The Custer Gallatin National Forest has 10 designated research natural areas and 2 candidate research natural areas (table 127).

Table 127. Location, status, and acreage of research natural areas (RNAs)

Name	Geographic Area	Status	Acres
Black Butte RNA	Madison, Henrys Lake, Gallatin Mountains	Designated in 1998	510
Obsidian Sands RNA	Madison, Henrys Lake, Gallatin Mountains	Designated in 1997	390
Palace Butte RNA	Madison, Henrys Lake, Gallatin Mountains	Designated in 1997	1,280
Wheeler Ridge RNA	Madison, Henrys Lake, Gallatin Mountains	Designated in 1997	640
East Fork of Mill Creek RNA	Absaroka Beartooth Mountains	Designated in 1997	882
Passage Creek RNA	Absaroka Beartooth Mountains	Designated in 1997	1,097
Sliding Mountain RNA	Absaroka Beartooth Mountains	Designated in 1997	1,459
Line Creek Plateau RNA (Custer Gallatin National Forest Beartooth RD, MT) (Shoshone NF Clark's Fork RD, WY)	Absaroka Beartooth Mountains	Designated in 2008	22,422 (19,369 acres Custer Gallatin) (3,053 acres Shoshone NF)
Lost Water Canyon	Pryor Mountains	Designated in 1994	2,809

Name	Geographic Area	Status	Acres
Poker Jim RNA	Ashland	Designated in 1974	363
Deer Draw	Sioux	Candidate	Undetermined – approx. 15 acres
White Rock Springs	Sioux	Candidate	Undetermined - approx. 60 acres
Total Designated RNA Acres	Not applicable	Not applicable	29,650 Custer Gallatin NF acres

Note: RD = ranger district; NF = national forest.

Black Butte Research Natural Area

The Black Butte Research Natural Area is located on the Hebgen Lake Ranger District. This research natural area is characterized by large, sometimes multiple-stemmed whitebark pine, dry subalpine fir, and Idaho fescue habitat types. Elevation ranges from about 6900 to 8,900 feet.

Obsidian Sands Research Natural Area

The Obsidian Sands Research Natural Area is located on the Hebgen Lake Ranger District. This research natural area is characterized by lodgepole pine, bitterbrush habitat type on obsidian sand benchland. Elevation ranges from about 6,560 to 6,600 feet. Most of the research natural area experienced stand replacing wildfire with moderate soil burn severity from the 2007 Madison Arm Fire.

Palace Butte Research Natural Area

The Palace Butte Research Natural Area is located on the Bozeman Ranger District. This research natural area is characterized by subalpine wetlands, waterfalls, geologic features, subalpine forest, and meadows. Nearly all of the forested area of the research natural area is within the subalpine fir and spruce habitats. Various shrub and herbaceous species occupy riparian sites such as wet meadows. Elevation ranges from about 7,200 to 10,300 feet.

Wheeler Ridge Research Natural Area

The Wheeler Ridge Research Natural Area is located on the Bozeman Ranger District. The research natural area features upland forests dominated by subalpine fir and old growth whitebark pine. Elevation ranges from about 7,800 to 8,700 feet.

East Fork of Mill Creek Research Natural Area

The East Fork of Mill Creek Research Natural Area is located on the Yellowstone Ranger District. This research natural area is characterized by Engelmann spruce and Douglas-fir with whitebark pine understory. Elevation ranges from about 5,900 to 8,200 feet. The eastern half of the research natural area experienced moderate to high burn severity from the 2007 Wicked Creek Fire.

Passage Creek Research Natural Area

The Passage Creek Research Natural Area is located on the Yellowstone Ranger District. This research natural area is characterized by Engelmann spruce, Douglas-fir, and subalpine fir upland and riparian forests. Elevation ranges from about 6,400 to 8,900 feet. About two thirds of the research natural area experienced moderate to high burn severity from the 2007 Wicked Creek Fire.

Sliding Mountain Research Natural Area

The Sliding Mountain Research Natural Area is located on the Yellowstone Ranger District. This research natural area is characterized by watersheds of two first-order drainages. Most of the research natural area is forested, primarily by spruce, subalpine fir, lodgepole pine, and Douglas-fir. 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. Elevation ranges from about 6,300 to 9,300 feet.

Line Creek Plateau Research Natural Area

The Line Creek Plateau Research Natural Area was established as a landscape scale research natural area and consists of lands managed by the Custer Gallatin and Shoshone National Forests. This research natural area is characterized by extensive areas of alpine tundra vegetation, a cirque basin with alpine lakes and ponds, and many unique plant species. It is the easternmost, warmest alpine plateau in the Beartooth Mountains. The area is composed of alpine snowbeds, alpine wetlands, alpine turf, alpine cushion plants (compact, low growing, mat forming plants), alpine grasslands, conifer forests, and shrublands. Of the 21 vegetation types, 17 meet research natural area network-targeted vegetation types (nine alpine, seven coniferous, and one shrubland). There are several rare plant species and many plant species that are disjunct from the main portion of their range in the arctic. Sorted stone circles and stripes, frost hummocks, frost boils, and solifluction terraces exist from freeze-thaw processes. Elevation ranges from about 7,400 to 10,900 feet. Most of the forested portions on the east flank of the research natural area experienced high burn severity from the 2011 Hole-in-the-Wall Fire.

An area-wide restriction within the Line Creek Plateau Research Natural Area (outside of Highway 212, 250-foot centerline easement and Line Creek Trailhead) prohibits all motorized transport, including snowmobiles. However, snowmobile access to play areas outside of the research natural area (for example, Gardner Headwall, Top of the World, and Cooke City area) is allowed through the Highway 212 250-foot centerline easement.

Lost Water Canyon Research Natural Area

The Lost Water Canyon Research Natural Area is located on the Beartooth Ranger District. The primary objectives of the research natural area are to maintain its plant communities, rare plant populations, and geologic features in a natural condition. The research natural area may serve as a baseline area for monitoring long-term ecological changes, especially in those communities dominated by Douglas-fir, found here near its eastern limit, and in subalpine grasslands. The research natural area serves as an intact watershed for study of limestone bedrock hydrology, featuring an interrupted stream system. The research natural area also provides a protected site for long-term monitoring of a large population of the regionally endemic plant *Shoshonea pulvinata*, subalpine forest and meadows and depauperate Douglas-fir habitats. Elevation ranges from about 5,100 to 8,700 feet. This research natural area changed in 2004 to 2,809 acres.

Poker Jim Research Natural Area

The Poker Jim Research Natural Area is located on the Ashland Ranger District. This research natural area is characterized by a mixture of ponderosa pine, sagebrush-grass, and grassland habitat types. Elevation ranges from about 3,500 to 5,100 feet.

White Rock Springs Candidate Research Natural Area

White Rock Springs on the Montana portion of the Sioux Ranger District was listed in the 1986 Custer Forest Plan as a candidate research natural area to represent beaver pond aquatic type in Montana. This candidate research natural areas was not pursued for designation. No records have been located for this candidate area. In addition, White Rock Springs was not identified in the Northern Region 1996 review of underrepresented types (Chadde et al. 1996). The category of “ponds” is the current classification in which beaver ponds fit. There are currently 19 Northern Region Research Natural Areas that have ponds less than 20 acres (Chadde et al. 1996). White Rock Springs is recommended for removal as a candidate research natural area during plan revision.

Deer Draw Candidate Research Natural Area

Deer Draw on the South Dakota portion of the Sioux District was originally proposed as a candidate research natural area in 1982 to protect the habitat of two small mammal (white-footed mouse and meadow jumping mouse) as indicated in the 1986 Custer Forest Plan showing “special faunal populations” as being the targeted element of interest. This candidate research natural area was not pursued for designation. Currently the state of South Dakota does not consider either species as rare and neither species is a Northern Region sensitive species. Since then, Deer Draw candidate Research Natural Area was reviewed for community types as targeted in the 1993-1996 regional review of underrepresented community types. The targeted community types include green ash forest and woodland alliance, ponderosa pine forest, and mixed-grass pine savanna, all of which occur in the Deer Draw. The Deer Draw area is in the road draw allotment which has received livestock use since the turn of the 20th century and conditions are not considered pristine or near pristine which is a selection criteria for research natural areas. There are currently no Forest Service natural area examples of the Green Ash Forest & Woodland Alliance, but sites dominated by green ash are present in several United States Fish and Wildlife Service Research Natural Areas along the Missouri River in eastern Montana (Chadde et al. 1996). Deer Draw is recommended for removal as a candidate research natural area during plan revision.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

Management direction for Custer Research Natural Areas is found under management area L and other overlapping management areas such as H and I, and for Gallatin Research Natural Areas direction is found under management area 21. The management goal for research natural areas is to provide non-manipulative research, observation, and study of undisturbed ecosystems which typify important forest, shrubland, grassland, alpine, and aquatic communities.

The following standards apply to both forest plan’s research natural area management areas: management of research natural areas in wilderness will be consistent with wilderness and recommended wilderness goals. Wildlife habitat improvements are not permitted. Generally, permitted livestock grazing is not allowed, however, where establishment records or decision orders indicate, incidental grazing may be tolerated. Research natural areas are classified as unsuitable for timber production. No measures will generally be undertaken for insect and disease management unless epidemic populations exist and adjacent lands are severely threatened. Recreation use is generally not

encouraged and can be restricted or prohibited if such use threatens or interferes with the purposes for which the research natural area was established. New trails will not be constructed within these areas. Applications for special use permits will be evaluated on a case-by-case basis. No special use occupancy will be permitted. No new range improvement construction will be permitted except along the research natural area boundary. One or more fire management strategies may be considered and implemented for any unplanned wildland fire to achieve a variety of resource management objectives, while minimizing negative effects to life, investments and valuable resources. Fire management strategies for unplanned wildland fire will be responsive to the goals and objectives described for each management area as specified in the plan. Prescribed fire may be used to perpetuate the natural diversity of plant communities.

Effects of the Current Plans

Both current plans limit most management activities from occurring in these areas, with the exception of prescribed fire and invasive plant control with concurrence from Rocky Mountain Research Station Director. Expected effects to the research natural area are minimal. Most of the research natural areas are remote with few to no trails. Recreational hiking or horseback use varies by research natural area.

Line Creek Plateau Research Natural Area specifically restricts motorized vehicle use to only Highway 212 and to Line Creek Trailhead (Road 2124) parking area; restricts snowmobile use to only the 250 centerline easement of Highway 212; limits mountain biking to use to only system trails; prohibits hitching, tethering, or picketing horses or other recreational livestock within 200 feet of a stream or other free-flowing water; and prohibits camping (including building a fire, other than fires confined to liquid fuel stoves) within 200 feet of any lakeshore or 100 feet of any live stream or free-flowing water.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Research natural area management direction under alternatives B through F would essentially be the same as the current plans (see above). Revised plan components protect ecological processes that support drive the functional and structural patterns of research natural area ecosystems (FW-DC-RNA-01). Specific plan components for decisions made for the Line Creek Plateau Research Natural Area that go beyond forestwide plan components are found in the Absaroka Beartooth Geographic Area section (AB-STD-RNA-01-02; AB-SUIT-RNA-01-06).

Effects of the Revised Plan Alternatives

Under the revised plan alternatives, all ten research natural areas would be retained as currently established. Deer Creek and White Rock Springs candidate research natural areas would be removed as candidate research natural areas under all revised plan alternatives due to less than pristine conditions as well as their features being represented in other established research natural areas. Woody draws represent several United States Fish and Wildlife Service research natural areas along the Missouri River in eastern Montana and 19 Northern Region research natural areas have pond features (Chadde et al. 1996). New candidate research natural areas meeting selection criteria could be considered in the future based upon local knowledge of vegetation types or identified rare elements and features. Revised plan alternatives encourage coordination 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 (FW-GO-RNA-01).

The desired condition for research natural areas is to maintain ecological processes to support sustainability and resiliency in order to provide opportunities for research and observation (FW-DC-RNA-01). These desired conditions are supported by a suite of standards (FW-STD-RNA-01 to 07) and guideline (FW-GDL-RNA-01) that protect research natural areas from management actions that could degrade these areas including recreation development, forest product collection, livestock grazing, fire suppression activities, and infrastructure development. Research natural areas are not suitable for timber production (FW-SUIT-RNA-01). Plan components are consistent with Forest Service Manual 4063 and applicable National Environmental Policy Act decisions and research natural areas establishment records which continue to provide management guidance for these areas. Management direction for the research natural areas would be the same as in the existing plans and there would be no notable difference in potential effects, which is the protection of the values associated with the research natural areas.

Consequences to Research Natural Areas from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats (FW-DC-RMZ-01 and 02, FW-STD-RMZ-01 to 05, FW-GDL-RMZ-01 to 09, FW-DC-WTR-01 to 12, FW-STD-WTR-01 to 05, FW-GDL-WTR-01 to 06). The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components and objectives for aquatic ecosystems would complement the overall management of the research natural area by promoting the ecological integrity of watersheds, riparian areas, and aquatic habitats.

Under all revised plan alternatives, the following conservation watershed network watersheds are within research natural areas:

- 1,280 acres of the Upper Hyalite Creek Conservation Watershed Network are within the Palace Butte Research Natural Area
- 882 acres of the East Fork Mill Creek Conservation Watershed Network are within the East Fork Mill Creek Research Natural Area
- 1,112 acres of the Passage Creek Conservation Watershed Network are within the Passage Creek Research Natural Area
- 2,809 acres of the Lost Water Canyon Creek Conservation Watershed Network are within the Lost Water Canyon Research Natural Area

Activities related to conservation watershed networks must meet applicable standards and guidelines for research natural areas. Within the restrictions of revised plan alternative plan components and policy direction, the expected effects are minimal.

Activities related to watershed, riparian, or aquatic habitat would generally not occur in research natural areas, and there would be little to no effect related to the management of these resources.

Effects from Vegetation and Timber Management

Under all alternatives, research natural areas are not suitable for timber production (FW-SUIT-RNA-01). Timber harvest, firewood gathering, and other vegetation management activities (such as prescribed fire) may only be suitable to maintain or achieve the desired conditions and purpose for the research natural area. The existing forest plans prohibit timber harvest for any purpose in these areas, and therefore timber management should have no effect. Timber harvest activities that occur on the broader landscape could influence the type and severity of wildfire that enters research natural areas.

Vegetation management activities may occur as guided and restricted by plan components, regulation, and policy. These measures are expected to protect all qualities associated with these areas and to achieve desired conditions per forest manual direction.

In the revised plan alternatives, some vegetation treatments could occur where consistent with site establishment records and plans. Within research natural areas, the research station director (with the concurrence of the national forest supervisor) may authorize management practices that are necessary for invasive weed control or to preserve the vegetation for which the research natural areas was created (Forest Service Manual 4063.3). As stated in the manual, limited use of vegetation management may occur within research natural areas, in situations where the vegetative type would be lost or degraded without management. The criterion states management practices must provide a closer approximation of the naturally occurring vegetation and the natural processes governing the vegetation than would be possible without management. These practices may include prescribed burning. Vegetation management, including timber harvest, may occur in the research natural areas if needed for restoration, study, or research purposes. Timber harvesting for other purposes (for example fuel reduction or salvage) may also occur in research natural areas, but must be coordinated and agreed upon with the Rocky Mountain Research Station.

Any activities that may occur would have minimal impact to vegetation conditions, or be designed to maintain or restore natural conditions (Forest Service Manual 4063). Timber harvest and other vegetation management activities that occur on the broader landscape could influence the type and severity of wildfire that enters research natural areas.

Effects from Fire and Fuels Management

Desired conditions for research natural areas in the revised plan alternatives state these lands are generally natural appearing, with natural processes (including fire) functioning naturally with limited human influences. One of the purposes of research natural areas are to serve as baseline areas for the study of these processes and their effects on ecosystems. Management of wildland fire in or near research natural areas would be guided by these revised plan alternatives components. Additional guidance would come from each individual research natural area's establishment record, the Forest Service manual, other regulatory documents, and consultation with Rocky Mountain Research Station scientists.

Plan components for wildland fire could affect research natural areas. Fire is a primary natural ecosystem process, and all alternatives emphasize the importance of allowing such processes to occur (FW-DC-FIRE-01, FW-OBJ-FIRE-02, and FW-GDL-FIRE-01). Prescribed fire and fire suppression tactics would adhere to site establishment records and Forest Service manual 4063, which ensure that natural fires are allowed to burn only within a prescription designed to accomplish objectives specific to the research natural

area. Further, fires that occur on the broader landscape could influence the type and severity of wildfire that enters research natural areas.

Fire suppression direction from the Custer Plan is to confine, contain, and control wildfires at research natural areas. The Gallatin Plan considers multiple fire management strategies. Revised plan alternative plan components for fire and fuels management would encourage an appropriate management response to wildfires that may occur in research natural areas, and provide opportunities for natural fire to alter the vegetation condition of the landscape (FW-DC-FIRE-01, FW-OBJ-FIRE-02, FW-STD-FIRE-01, FW-GDL-FIRE-01). Fire on the landscape would generally complement the desire for natural ecological processes within these areas. Plan components are in place to ensure that minimum impact suppression tactics or other tactics appropriate for the protection of the values are used (FW-GDL-FIRE-03).

If the values associated with the research natural area are at risk of degradation or loss due to fire, fire management strategies would likely include measures aimed at protecting those values, if possible (FW-DC-FIRE-03, FW-STD-FIRE-01). On the other hand, fire as a natural process may be desired and allowed to occur within a research natural area to perpetuate the natural functioning of the ecosystem. In either case, the effects from fire and fire management strategies are expected to have a positive effect on the condition and perpetuation of the ecological values associated with the research natural areas.

Effects of Plan Land Allocations

Obsidian Sands and East Fork Mill Creek Research Natural Areas do not overlap with any wilderness areas, wilderness study areas, or recommended wilderness areas under any alternative. All other established research natural areas have some level of overlap with these areas, and varies by alternative. Black Butte, East Fork Mill Creek, Passage Creek, and Sliding Mountain Research Natural Areas do not overlap with any inventoried roadless areas, eligible wild and scenic rivers, backcountry areas, or recreation emphasis areas under any alternative. All other established research natural areas have some level of overlap with these areas, which varies by alternative (table 128 and table 129).

When research natural areas fall within congressionally designated areas, such as designated wilderness areas or wilderness study areas, research natural area activities must meet the applicable congressionally designated area statutory mandates (FSM 4063.32 and FSM 1920) and plan direction. Similarly, research natural area activities would meet revised plan alternative components for recommended wilderness areas.

Activities related to other plan land allocations that vary by alternative (such as backcountry areas and recreation emphasis areas) must meet applicable standards and guidelines for research natural areas.

Where plan land allocations overlap, the more restrictive guidance would apply. There would be little to no effect from research natural areas activities in overlapping wilderness areas, wilderness study areas, or recommended wilderness areas. As such, the overlapping research natural areas would be compatible with the designated wilderness areas, wilderness study areas, and recommended wilderness areas and the remaining overlapping allocations would be compatible with the established research natural areas. The following two tables list plan land allocation overlaps with established research natural areas under all alternatives.

Table 128. Overlapping plan land allocations where research natural area (RNA) activities must also meet other allocation plan constraints

RNA Name	Current Plans	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Black Butte RNA (510 Acres)	The entire research natural area is within the Lee Metcalf Wilderness Area	The entire research natural area is within the Lee Metcalf Wilderness Area	The entire research natural area is within the Lee Metcalf Wilderness Area	The entire research natural area is within the Lee Metcalf Wilderness Area	The entire research natural area is within the Lee Metcalf Wilderness Area	The entire research natural area is within the Lee Metcalf Wilderness Area
Palace Butte RNA (1,280 Acres)	The entire research natural area is within the Hyalite – Porcupine - Buffalo Horn Wilderness Study Area.	The entire research natural area is within the Hyalite – Porcupine - Buffalo Horn Wilderness Study Area.	The entire research natural area is within the Hyalite – Porcupine - Buffalo Horn Wilderness Study Area.	The entire research natural area is within the Hyalite – Porcupine - Buffalo Horn Wilderness Study Area. The entire research natural area is within the Gallatin Recommended Wilderness Area.	The entire research natural area is within the Hyalite – Porcupine - Buffalo Horn Wilderness Study Area.	The entire research natural area is within the Hyalite – Porcupine - Buffalo Horn Wilderness Study Area.
Wheeler Ridge RNA (640 Acres)	N/A	N/A	N/A	The entire research natural area is within the Gallatin Recommended Wilderness Area.	N/A	N/A
Passage Creek RNA (1,112 Acres)	About 720 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.	About 720 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.	About 720 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.	About 720 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.	About 720 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.	About 720 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.
Sliding Mountain RNA (1,459 Acres)	The entire research natural area is within the Absaroka-Beartooth Wilderness Area.	The entire research natural area is within the Absaroka-Beartooth Wilderness Area.	The entire research natural area is within the Absaroka-Beartooth Wilderness Area.	The entire research natural area is within the Absaroka-Beartooth Wilderness Area.	The entire research natural area is within the Absaroka-Beartooth Wilderness Area.	The entire research natural area is within the Absaroka-Beartooth Wilderness Area.

Chapter 3. Affected Environment and Environmental Consequences

RNA Name	Current Plans	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Line Creek Plateau RNA (CGNF 19,369 Acres) (SNF 3,053 Acres)	About 1,321 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area. About 392 acres of the research natural area is within the Line Creek Plateau Recommended Wilderness Area.	About 1,321 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area. About 392 acres of the research natural area is within the Line Creek Plateau Recommended Wilderness Area.	About 1,321 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area. About 392 acres of the research natural area is within the Line Creek Plateau Recommended Wilderness Area.	About 1,321 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area. About 16,127 acres of the research natural area is within the Line Creek Plateau Recommended Wilderness Area.	About 1,321 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.	About 1,321 acres of this research natural area is within the Absaroka-Beartooth Wilderness Area.
Lost Water Canyon RNA (2,809 Acres)	The entire research natural area is within the Lost Water Canyon Recommended Wilderness Area.	The entire research natural area is within the Lost Water Canyon Recommended Wilderness Area.	The entire research natural area is within the Lost Water Canyon Recommended Wilderness Area.	The entire research natural area is within the Lost Water Canyon Recommended Wilderness Area.	N/A	The entire research natural area is within the Lost Water Canyon Recommended Wilderness Area.
Poker Jim RNA (363 Ac)	N/A	N/A	N/A	The entire research natural area is within the Tongue River Breaks Recommended Wilderness Area.	N/A	N/A

Table 129. Overlapping plan land allocations where other allocation activities must also meet research natural area (RNA) plan constraints

RNA Name	Current Plans	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Obsidian Sands RNA (390 Ac)		390 acres of the Hebgen Winter Recreation Emphasis Area are within the research natural area.	390 acres of the Hebgen Winter Recreation Emphasis Area are within the research natural area.	N/A	390 acres of the Hebgen Winter Recreation Emphasis Area are within the Research natural area.	390 acres of the Hebgen Winter Recreation Emphasis Area are within the research natural area.
Palace Butte RNA (1,280 Acres)	About 242 and 18 acres of the Hyalite Creek and Maid of the Mist Creek eligible Wild and Scenic River ("scenic" classification), respectively. Are within the research natural area. 1,280 acres of the 2001 Hyalite – Porcupine – Buffalo Horn Inventoried Roadless Area are within the research natural area.	About 242 and 18 acres of the Hyalite Creek and Maid of the Mist Creek eligible Wild and Scenic River ("scenic" classification), respectively. Are within the research natural area. 1,280 acres of the 2001 Hyalite – Porcupine – Buffalo Horn Inventoried Roadless Area are within the research natural area. About 1,272 acres of the Hyalite Recreation Emphasis Area are within the research natural area.	About 242 and 18 acres of the Hyalite Creek and Maid of the Mist Creek eligible Wild and Scenic River ("scenic" classification), respectively. Are within the research natural area. 1,280 acres of the 2001 Hyalite – Porcupine – Buffalo Horn Inventoried Roadless Area are within the research natural area. 1,280 acres of the Hyalite Backcountry Area are within the research natural area.	A portion of the research natural area is within Hyalite Creek and Maid of the Mist Creek eligible Wild and Scenic River with a classification of "scenic", about 242 and 18 acres, respectively. 1,280 acres of the 2001 Hyalite – Porcupine – Buffalo Horn Inventoried Roadless Area are within the research natural area.	1,280 acres of the Buffalo Horn Backcountry Area would be within the research natural area. A portion of the research natural area overlap with Hyalite Creek and Maid of the Mist Creek eligible Wild and Scenic River with a classification of "scenic", about 242 and 18 acres, respectively. 1,280 acres of the 2001 Hyalite – Porcupine – Buffalo Horn Inventoried Roadless Area are within the research natural area.	About 242 and 18 acres of the Hyalite Creek and Maid of the Mist Creek eligible Wild and Scenic River ("scenic" classification), respectively are within the research natural area. 1,280 acres of the 2001 Hyalite – Porcupine – Buffalo Horn Inventoried Roadless Area are within the research natural area. About 1,272 acres of the Hyalite Recreation Emphasis Area are within the research natural area.
Wheeler Ridge RNA (640 Acres)	N/A	N/A	N/A	N/A	N/A	The entire research natural area is within the South Cottonwood Backcountry Area.

Chapter 3. Affected Environment and Environmental Consequences

RNA Name	Current Plans	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Line Creek Plateau RNA (CGNF 19,369 Acres) (SNF 3,053 Acres)	About 18,089 acres of the 2001 Line Creek Plateau Inventoried Roadless Area are within the CGNF portion of the research natural area.	About 18,089 acres of the 2001 Line Creek Plateau Inventoried Roadless Area are within the CGNF portion of the research natural area.	About 18,089 acres of the 2001 Line Creek Plateau Inventoried Roadless Area are within the CGNF portion of the research natural area.	About 18,089 acres of the 2001 Line Creek Plateau Inventoried Roadless Area are within the CGNF portion of the research natural area.	About 18,089 acres of the 2001 Line Creek Plateau Inventoried Roadless Area are within the CGNF portion of the research natural area.	About 18,089 acres of the 2001 Line Creek Plateau Inventoried Roadless Area are within the CGNF portion of the research natural area.
Lost Water Canyon RNA (2,809 Acres)	2,809 acres of the 2001 Lost Water Canyon Inventoried Roadless Area are within the research natural area.	2,809 acres of the 2001 Lost Water Canyon Inventoried Roadless Area are within the research natural area. The Lost Water Canyon Creek eligible Wild and Scenic River ("wild" classification) is within the research natural area.	2,809 acres of the 2001 Lost Water Canyon Inventoried Roadless Area are within the research natural area. The Lost Water Canyon Creek eligible Wild and Scenic River ("wild" classification) is within the research natural area.	2,809 acres of the 2001 Lost Water Canyon Inventoried Roadless Area are within the research natural area. The Lost Water Canyon Creek eligible Wild and Scenic River ("wild" classification) is within the research natural area.	2,809 acres of the 2001 Lost Water Canyon Inventoried Roadless Area are within the research natural area. The Lost Water Canyon Creek eligible Wild and Scenic River ("wild" classification) is within the research natural area.	2,809 acres of the 2001 Lost Water Canyon Inventoried Roadless Area are within the research natural area. The Lost Water Canyon Creek eligible Wild and Scenic River ("wild" classification) is within the research natural area.
Poker Jim RNA (363 Acres)	363 acres of the 2001 Tongue River Breaks Inventoried Roadless Area are within the research natural area.	363 acres of the 2001 Tongue River Breaks Inventoried Roadless Area are within the research natural area.	363 acres of the 2001 Tongue River Breaks Inventoried Roadless Area are within the research natural area.	363 acres of the 2001 Tongue River Breaks Inventoried Roadless Area are within the research natural area.	363 acres of the 2001 Tongue River Breaks Inventoried Roadless Area are within the research natural area.	363 acres of the 2001 Tongue River Breaks Inventoried Roadless Area are within the research natural area and Tongue River Breaks Backcountry Area.

Note: Custer Gallatin National Forest is "CGNF" in this table.

Effects from Minerals Management

Per Forest Service manual 4063, proposals to offer Federal mineral, oil, and gas leases would be evaluated by the regional forester, with concurrence of the station director, using standards set forth in Forest Service manual 2820. The recommendation proposals are forwarded by the regional forester to the Forest Service Chief for the final decision. Mineral management within restrictions of policy and plan components for all revised plan alternatives would have minimal impact.

Effects from Permitted Livestock Grazing Management

The current plans and the revised plan alternatives allow for incidental grazing to occur where consistent with site establishment records and plans. However, generally, site records would preclude this; therefore, grazing would have minimal impact. A plan component (PR-STD-WHT-05) ensures that new range improvements shall not attract horses into the Lost Water Canyon Research Natural Area.

Effects from Access and Recreation Management

Non-motorized and motorized recreational use revised plan alternative plan components do not differ from decisions made in the 1986 and 1987 forest plans, as amended.

Non-motorized travel and recreational use is allowed within research natural areas. However, Line Creek Plateau Research Natural Area specifically limits mountain biking to only system trails (AB-SUIT-RNA-03); Hitching, tethering, picketing horses, or other recreational livestock within 200 feet of a stream or other free-flowing water is not suitable (AB-SUIT-RNA-02); nor is camping (including building a fire, other than fires confined to liquid fuel stoves) within 200 feet of any lakeshore or 100 feet of any live stream or free-flowing water (AB-SUIT-RNA-02). Non-motorized recreational use is expected to cause minimal to no impact to the values associated with the research natural areas.

Motorized over-snow vehicle use is suitable on specific routes and areas as identified on the motorized over-snow vehicle use maps for the Custer Gallatin and in the Line Creek Plateau Research Natural Area Decision Order. Per AB-SUIT-RNA-04, motorized vehicle use is suitable only on Highway 212 and to Line Creek Trailhead (Road 2124) parking area in the Line Creek Plateau Research Natural Area. Snowmobile use is suitable only on the 250-foot centerline easement of Highway 212 (AB-SUIT-RNA-05). Recreational uses are not expected to impact the values associated with these areas under any of the alternatives.

Managing for primitive or semi-primitive non-motorized recreation opportunities would not result in substantial impacts to the natural vegetation and natural processes in these areas. Additionally, managing for semi-primitive motorized or roaded natural opportunities would not result in substantial impacts to the natural vegetation and natural processes in these areas because activities (in these recreation opportunity spectrum settings) are required to meet research natural area plan components. Acreages of motorized recreation opportunity spectrum classes in research natural areas are due to the influence of roads near the boundary of research natural areas and do not mean that motorized routes can be built in land designations such as research natural areas where they are not allowed.

Effects from Scenery Management

The scenery direction under the all alternatives do not prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic

integrity objective, which describes the lowest threshold of visual dominance and deviation from the surrounding scenic section.

To meet research natural area designation direction to facilitate research, revised plan alternative plan components allows a deviation in areas of very high scenic integrity objective (where research natural areas overlap with designated or recommended wilderness) and allows minor infrastructure or landscape alterations for research activities (FW-GDL-SCENERY-06). This direction is not expected to impact the desired conditions for the research natural areas.

Research natural areas located within areas assigned a scenic integrity objective 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. This direction is not expected to impact the desired conditions for the research natural areas.

Effects from Road Access and Infrastructure

All revised plan alternatives are similar in terms of plan components for road access and infrastructure. New road and trail construction, or other infrastructure and facilities, would not generally occur in research natural areas under any alternative, because Forest Service manual 4063 prohibits new roads, trails, fences, or signs on an established RNAs unless they contribute to the objectives or protection of the area.

Cumulative Effects

Under all alternatives, the network of research natural areas would contribute to the understanding of key ecosystems and plant communities by being part of the broader array of sites that are designated across other national forests in the region. This network would continue to contribute to the conservation of biological diversity, and provide for research and educational opportunities in the Custer Gallatin. Similar designations are not known to occur on lands of private ownership, nor on state lands in the area, increasing the importance of maintaining them on National Forest System lands.

The existing vegetation conditions within the designated areas reflect the contributions of past management actions and ecological processes. Management activities are very limited within research natural areas; restricted to management activities needed to maintain the features for which the research natural area established. Management activities would generally continue to take place outside of the existing research natural areas, and it is unlikely that these activities would have an effect.

Conclusion

In all alternatives, plan components would be sufficient to maintain the characteristics of the designated research natural areas. Overlapping plan land allocations would be compatible with research natural area activities. All alternatives provide for a network of research natural areas across the Custer Gallatin, by including the existing designations of ten research natural areas. All alternatives are consistent with the site establishment record and standards in Forest Service manual 4063.

3.21.8 Special Areas

Affected Environment (Existing Condition)

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. There is one botanical “candidate” special area in the Pryor Mountains that warrants further evaluation prior to determining if it should be a proposed or established special area by the regional forester. There are currently no proposed special areas, though other areas may be identified in the future. Designated special areas are those that have been formally established by a decision signed by the regional forester, after being vetted through the Custer Gallatin and forest planning, during revision or by amendment. Proposed special areas have been vetted through the national forest via forest planning (either in revision or by amendment), but they have not been established by a regional forester decision. Candidate special areas have not been fully vetted by the Custer Gallatin and regional forester and have not been included in a plan as proposed or established.

Each 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. The existing conditions and effects by alternative for these designated area categories are discussed in this section.

The purpose of special areas is to provide long-term protection to an area for scientific research and interpretation opportunities.

Purposes for the establishment of special areas include area protection and, where appropriate, to foster public use and enjoyment of areas with scenic, historical, geological, botanical, zoological, paleontological, or other special characteristics. The objectives also include classifying areas that possess unusual recreation and scientific values so that these special values are available for public study, use, or enjoyment.

The two established special areas on the Custer Gallatin are designated for the purpose of conserving biodiversity, conducting research and monitoring, and fostering education. A candidate botanical special area has been identified in the Pryor Mountains. Since not fully vetted by the Custer Gallatin or region as a proposed or designated special area, related plan components for conserving the botanical values for the Pryor Mountains are addressed in the Pryor Mountains geographic area section.

Table 130 lists established and candidate special areas on the Custer Gallatin, with a brief description of each following the table. Refer to appendix A for maps displaying the locations of the established special areas.

Table 130. Established and candidate special areas, geographic area, establishment status, and acreage

Name	Geographic Area	Status	Designated Acres
Black Sand Spring Botanical Special Area	Madison, Henrys Lake, Gallatin Mountains	Established	407
Bangtail Botanical and Paleontological Special Area	Bridger, Bangtails, Crazy Mountains	Established	3,366
Pryor Mountain Candidate Botanical Special Area	Pryor Mountains	Candidate	Undetermined
Total Acres – Designated Special Areas			3,773

Bangtail Botanical and Paleontological Special Area

The 3,366-acre Bangtail Botanical and Paleontological Special Area was established in 2007 and is located on the Bozeman Ranger District. This special area is characterized by mountain meadow and subalpine ecosystems and important paleontological resources. The area is unique as it represents

landscapes that extend from central Wyoming to northern Montana, and is comparable to bunchgrass ecosystems of Asia and the Andes Mountains. It is also unique because it is accessible and has supported thirty years of research, thus providing valuable baseline data for present and future studies. Elevation ranges from about 7,000 to 8,000 feet.

Black Sands Spring Botanical Special Area

The 407-acre Black Sands Spring Botanical Special Area was established in 1997 and is located on the Hebgen Lake Ranger District. This special area is characterized by spring creek riparian vegetation. This 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. Various shrub and herbaceous species occupy riparian sites such as wet meadows. Elevation ranges from about 6,500 to 6,600 feet.

Pryor Mountains Candidate Botanical Special Area

The Pryor Mountains candidate botanical Special Area is located on the Beartooth Ranger District. The candidate special area (undetermined location and acreage) has not been fully vetted by the Custer Gallatin or regional forester and is not included as a proposed or established special area under the revised plan alternatives. This candidate special area is characterized by a unique and diverse assemblage of botanical resources and plant associations within a relatively small area. 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. Many rare endemic and peripheral plant species in the Pryor Mountains are associated with the Madison limestone geology of the area. This candidate special area provides value to the overall conservation of the ecological integrity of the Pryor Mountains. Elevation ranges from 4,400 to 8,800 feet.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

Management direction for special areas is found under management area 21 of the 1986 Gallatin Forest Plan. The management goal for Bangtail Special Area is to protect unique botanical and paleontological values for study and public enjoyment. The management goal for Black Sand Springs Special Area is to protect unique botanical values for study and public enjoyment.

In the current plans, wheeled motorized transport on designated roads and trails and over-snow transport is allowable in the Bangtail Special Area. Wheeled motorized transport on designated roads and trails is suitable in the Black Sand Springs Special Area. A portion of the Black Sand Springs Special Area is open to over-snow transport and a portion is not open.

Effects of the Current Plans

The current Gallatin Plan limits most management activities from occurring in these areas, with the exception of prescribed fire and invasive plant control. Permitted grazing is allowed within the Bangtail Special Area, while the Black Sands Spring Special Area is not suitable for permitted grazing. These

special areas are not suitable for timber production, but vegetation management activities are allowed. Within the restrictions of plan components and policy direction, the expected effects are minimal.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

All revised plan alternatives have the same plan components for designated special areas. New improvements would only be allowed when they are necessary to maintain, restore, or enhance the values for which the special area was designated (FW-GDL-SA-01, BC-STD-BSA-01, BC-STD-BSA-05, MG-DC-BSSSA-01, BC-DC-BSA-01, and PR-DC-VEGNF-01). Vegetation management activities such as prescribed fire, forest vegetation management, and invasive species treatment would be limited to actions that perpetuate the natural diversity of plant communities (FW-GDL-SA-02, MG-STD-BSSSA-03, and BC-STD-BSA-04). To protect the water source of Black Sand Springs, new special use permits that withdraw water, reduce water quantity or adversely impact water quality of the spring would not be authorized in Black Sand Springs Special Area (MG-STD-BSSSA-05).

Wheeled motorized transport on designated roads and trails and over-snow transport would be allowable in the Bangtail Special Area. The revised plan alternatives would restrict summer and winter motorized vehicle and over-snow transport to the existing road in the Black Sand Springs Special Area (MG-STD-BSSSA-01).

To help maintain or restore resilient ecosystems for the biological diversity and conservation values of the Pryor Mountains and not to foreclose options for future special area designation, plan components in the Pryor Mountain geographic area section would place an emphasis on weed prevention, detection, and control (PR-DC-VEGNF-01, PR-DC-VEGNF-02) and require management activities to protect locations of regional endemic and peripheral plant occurrences (PR-STD-VEGNF-01).

Effects of the Revised Plan Alternatives

Management direction for the designated special areas is similar to the existing plan, although the revised plan alternatives provide more specific restrictions on new management activities in these areas. There are no notable differences in potential effects, which are to protect the values associated with the special area.

Plan components direct management to support the long-term protection of special areas and the reasons for which they were established (BC-DC-BSA-01, MG-DC-BSSSA-01, FW-DC-SA-01, and FW-DC-SA-02). All management activities must restore or enhance the values for which the special area was designated (FW-GDL-SA-01, FW-GDL-SA-02, BC-STD-BSA-05, MG-STD-BSSSA-02, MG-STD-BSSSA-03, and MG-STD-BSSSA-04). Recreation and travel would be managed in a way that protects special areas from potential negative effects (MG-STD-BSSSA-01, and MG-SUIT-BSSSA-02). Plan components also ensure that research and activity in Bangtail Special Area is consistent with the 2007 Bangtail Botanical and Paleontological Special Area applicable National Environmental Policy Act decision, thereby protecting the area for scientific research opportunities on mountain meadow and subalpine ecosystems, and to provide research sites for important paleontological resources (BC-STD-BSA-01-07). Black Sand Springs, plan components would protect the water source of the spring by not allowing special use permits that reduce water quantity or adversely impact water quality of the spring (MG-STD-BSSSA-05). To further protect the spring source, the Custer Gallatin would strive to secure instream water rights for Black Sand Springs (MG-GO-BSSSA-01).

The revised plan alternatives would have a beneficial effect on the special areas by bringing greater recognition of the role these areas play in education and research and retaining opportunities for management of the Custer Gallatin in these areas (FW-DC-SA-01, FW-DC-SA-02, BC-DC-BSA-01, and MG-DC-BSSSA-01).

The Pryor Mountain geographic area plan components under all revised plan alternatives would not foreclose opportunity for future potential designation of as a botanical special area (PR-DC-VEGNF-01). Plan components for all revised plan alternatives emphasize control of aggressive invasive plants and other conservation guidelines (PR-STD-VEGNF-01). Within the restrictions of plan components and policy direction, the expected effects would be minimal. In addition, alternatives vary regarding protective plan land allocations such as recommended wilderness areas or backcountry areas, and may offer further protections for botanical features.

Consequences to Special Areas from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, Aquatic and Soil Management

The majority of the Bangtail Special Area overlaps with the Canyon Creek, Bangtail Creek, and Willow Creek Conservation Watershed Networks under all revised plan alternatives. The Pryor Mountains candidate botanical special area overlaps with the Lost Water Canyon Conservation Watershed Network under all revised plan alternatives. Activities related to Conservation Watershed Networks must meet applicable standards and guidelines for special areas. Within the restrictions of plan components and policy direction, the expected effects are minimal.

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats (FW-DC-RMZ-01 and 02), FW-STD-RMZ-01 to 05), FW-GDL-RMZ-01 to 09, FW-DC-WTR-01 to 12), FW-STD-WTR-01 to 05, FW-GDL-WTR-01 to 06). The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components and objectives for aquatic ecosystems would complement the overall management of the designated and candidate special areas by promoting the ecological integrity of watersheds, riparian areas, and aquatic habitats.

Activities related to watershed, soil, riparian, or aquatic habitat would generally not occur in special areas unless to help restore ecosystems supporting values for which the special areas were designated, and there would be little to no effect related to the management of these resources (FW-GDL-SA-01, FW-GDL-SA-02).

Effects from Vegetation and Timber Management

Forested habitats occur in the Bangtail Special Area and are negligible in the Black Sands Special Area. It is expected that vegetation management activities could have role in affecting the condition of forested habitats even though they are not considered suitable for timber production. Under all alternatives, special areas are not suitable for timber production (BC-SUIT-BSA-01, MG-SUIT-BSSSA-01), therefore timber management for timber production should have no effect. In all alternatives, timber harvest, firewood gathering, and other vegetation management activities (such as prescribed fire) may only be suitable to maintain or achieve the desired conditions and purpose for the special area, such as restoration, study, or research. Vegetation management could maintain or improve forested conditions

for resilient ecosystems compatible with the values for which the special areas were established. Timber harvest and vegetation management activities that occur on the broader landscape could influence the type and severity of wildfire that enters special areas.

Control of invasive weeds in special areas would have a positive effect through the control of invasive weeds or prevention of their spread and would not result in any change to designations or preclude designation of the Pryor Mountain candidate botanical special area in the future.

Effects from Fire and Fuels Management

In all alternatives, desired conditions for special areas are lands where natural processes (including fire) can function naturally. Management of unplanned ignitions (wildfire) in or near special areas would be guided by plan components as well as direction provided in each individual special area's decision record, the Forest Service Manual, and consultation with scientists and other partners.

If the values associated with the special area are at risk of degradation or loss due to fire, fire management strategies would likely include measures aimed at protecting those values, if possible (FW-DC-FIRE-03, FW-STD-FIRE-01, and MG-STD-BSSSA-02). On the other hand, fire as a natural process may be desired and allowed to occur within a special area to perpetuate the natural functioning of the ecosystem (FW-DC-FIRE-01). In either case, the effects from fire and fire management strategies are expected to have a positive effect on the condition and perpetuation of the ecological and recreational values.

Effects of Plan Land Allocations

Hebgen Lake Winter Recreation Emphasis Area overlaps with Black Sand Springs Botanical Special Area under alternatives B, C, E, and F. Because general recreation is managed in such a way that ecological values of the special area are maintained and motorized vehicle or snowmobile use is to be restricted to the existing road (off-road motorized transport is not allowed), the overlap is projected to have little to no effect to Black Sand Spring Botanical Special Area. There would be no overlapping plan land allocations with the Bangtail Special Area in any alternative.

Effects from Access, Infrastructure, and Recreation Management

Non-motorized travel and recreational use is allowed within special areas and limited motorized transport is permitted to meet administrative, research, and educational objectives. This use is expected to cause minimal to no impact to the values associated with the special area. Summer motorized transport is allowed on designated routes within special areas. Motorized over-snow vehicle transport is suitable on specific routes and areas as identified on the motorized over-snow vehicle use maps for the Custer Gallatin; and all revised plan alternatives specifically limit summer and winter motorized vehicle and over-snow transport to the existing road in the Black Sand Springs Special Area (MG-SRD-BSSSA-01). These uses are not expected to impact the values associated with these areas under any of the alternatives.

Under all alternatives, the winter and summer recreation opportunity spectrum setting for Black Sands Spring Special Areas is roaded natural. Under all alternatives, the winter and summer recreation opportunity spectrum setting for Bangtail Special Areas is roaded natural on the north portion and semi-primitive motorized on the southern portion. These uses are compatible with special area management guidance.

A variety of summer and winter recreation opportunity spectrum settings vary by alternative in the Pryor Mountains. Areas of the Pryor Mountains that have summer or winter recreation opportunity spectrum settings of semi-primitive motorized, or roaded natural are compatible with general special areas management policy and guidance. However, less may be done to protect the desired characteristic of the area than the primitive or semi-primitive non-motorized recreation opportunity spectrum settings.

All revised plan alternatives are similar in terms of plan components for road access and infrastructure. New road and trail construction, or other infrastructure and facilities, would not generally occur in special areas under any alternative. Forest Service manual 2370 prohibits new roads, trails, fences, or signs on an established special area unless they contribute to the objectives or protection of the area.

Effects from Scenery Management

The current plans would continue to incorporate the visual quality objectives prescribed for special areas are preservation or retention (comparable to a very high or high scenic integrity objectives) and would have negligible impact on special areas.

The plan scenic integrity objectives under the revised plan alternatives do not prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest threshold of visual dominance and deviation from the surrounding scenic character.

Under the revised plan alternatives, about half Black Sands Spring and Bangtail Special Areas are each assigned a scenic integrity objective of low and half classified as moderate. Landscape alterations should meet the assigned scenic integrity objective as viewed from the listed critical viewing platforms. There may be more management flexibility in the revised plan alternatives than the current plans because of lower scenery requirements. Those areas classified as low may allow more flexibility in the type of management actions that could benefit special area activities than those classified as moderate. However, across all alternatives, it is unlikely that plan components related to scenery managements would restrict or effect the conservation or management of special areas.

Effects from Permitted Livestock Grazing Management

The no action and revised plan alternatives allow for grazing in Bangtail Special Area, but grazing is not suitable in the Black Sands Spring Special Area (MG-SUIT-BSSSA-02). Grazing within restrictions of plan components for all revised plan alternatives would have minimal impact on the Bangtail Special Area.

In the revised plan alternatives, new allotment infrastructure should be located to minimize livestock impacts on regional endemic and peripheral plant occurrences that are susceptible to livestock impacts (PR-GDL-VEGNF-02). This restriction would help ensure options for future special area designation in the Pryor Mountains.

Effects from Minerals Management

Special Areas are available for minerals activities. However, proposals to offer Federal mineral, oil, and gas leases would be evaluated by the regional forester, using standards set forth in Forest Service Manual 2820. Mineral management within restrictions of policy and plan components for all revised plan alternatives would have minimal impact on special areas.

In the revised plan alternatives, removal of saleable mineral material would not be allowed within regional endemic and peripheral plant occurrences (PR-STD-VEGNF-02). Mineral exploration and development activities would be managed to minimize impacts to these plants in the Pryor Mountains. These restrictions would help ensure options for future special area designation in the Pryor Mountains.

Cumulative Effects

The existing vegetation conditions within the designated areas reflect the contributions of past management actions and ecological processes. Management activities will generally continue to take place outside of the existing special areas, and it is unlikely that these activities would have an effect on these areas.

Conclusion

In all alternatives, plan components and regulatory framework would be sufficient to maintain the characteristics of the designated special areas. Overlapping plan land allocations would be compatible with special areas. All alternatives provide plan components that conserve these areas for the values for which they were designated. Alternatives B through F would include the addition of one candidate botanical special area in the Pryor Mountains that would need further evaluation. Plan components for all alternatives are consistent with the area decision record and direction in Forest Service Manual 2370.

3.21.9 National Natural Landmarks

Affected Environment (Existing Condition)

The National Natural Landmarks Program was established in 1962 by administrative action and relied on authority provided in the Historic Sites Act of 1935. Three other laws subsequently referenced the program. The first national natural landmarks were designated by the secretary of the interior in 1964.

The National Natural Landmarks Program recognizes and encourages the conservation of sites that contain outstanding biological and geological resources. Sites are designated by the secretary of the interior for their condition, illustrative character, rarity, diversity, and value to science and education. The National Park Service administers the program and works cooperatively with landowners, managers, and partners to promote conservation and appreciation of our nation's natural heritage.

The goals of the National Natural Landmarks Program are 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, 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 on the Sioux District, and Middle Fork Canyon National Natural Landmark in the Bridger Mountains.

The Middle Fork Canyon National Natural Landmark, designated in 1977, includes 960 acres, of which only eighty acres is on National Forest. The national natural landmark illustrates rocks deformed by the Earth's 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.

The Capital Rock National Natural Landmark includes 244 acres and was designated in 1976 for uniqueness of geologic formation due to uplift and erosion within the surrounding prairie environment. The area is a remnant of the once continuous blanket of tertiary deposits that covered much of the Great Plains. Late Cretaceous, Paleocene, Oligocene, and Miocene (different geographic periods) are well displayed.

The Castles National Natural Landmark on the Sioux Ranger District includes 940 acres and was designated in 1976 for the area's 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 contain exposed rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene Ages. Cretaceous and Tertiary beds contain a variety of flora and fauna fossils. The boundary of the Castles National Natural Landmark was adjusted in 2017 to remove the portion of the landmark north of Highway 20.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

No direction currently exists in the 1987 Gallatin Forest Plan, so management of the Middle Fork Canyon National Natural Landmark in the Bridger Mountains has relied on direction contained within enabling authority. The 1986 Custer Forest Plan provides direction to protect the unique geological and scenic features of the national natural landmarks and to provide a recreation opportunity. Coordination with the National Park Service on any proposed projects is part of the ongoing management within the landmarks.

Effects of the Current Plans

Coordination of management actions with the National Park Service as required by designation has been ongoing, including updating interpretative displays.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components are the same for all revised plan alternatives. The Custer Gallatin would coordinate with the National Park Service on new development and management activities (FW-GO-NNL-01). New energy and utility corridors or facilities would not be located in national natural landmarks (FW-STD-NNL-01) and national natural landmarks would not be suitable for timber production timber harvest may be suitable for purposes such as fuels reduction, restoration or wildlife habitat enhancement (FW-SUIT-NNL-01).

Effects of the Revised Plan Alternatives

Plan components will protect the National Natural Landmarks in coordination with the National Park Service.

Consequences to National Natural Landmarks from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components which restore or maintain ecosystem functions would complement National Natural Landmarks. See the suite of plan components for watershed, aquatics and riparian management zones.

Effects from Vegetation and Timber Management

In all alternatives, National Natural Landmarks are not suitable for timber production. Under the current plans, trees may be cut to remove diseased material and to provide for public safety. Under the revised plan alternatives, timber harvest would be suitable in more circumstances, such as fuels reduction, restoration or wildlife habitat enhancement, which when coupled with vegetation components for ecological diversity, resilience, and sustainability, may enhance the resilience of National Natural Landmarks (FW-SUIT-NNL-01).

Effects from Fire and Fuels Management

Both natural and management-ignited fires could change the scenery surrounding the landmarks, including charred vegetation in the short term as well as re-growth in the longer term. The current plans fire suppression direction from the Custer Plan is to contain and control wildfires at the landmarks, while the Gallatin Plan considers multiple fire management strategies. To minimize resource damage, revised plan alternative fire and fuels plan components call for minimum impact suppression tactics in sensitive areas, which would reduce scenic impacts from the suppression effort itself (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Access and Recreation Management

National natural landmarks contribute unique geological and scenic features and offer a recreation opportunity. In all alternatives, plan components require new facility proposals to be coordinated with the National Park Service and do not alter the special features that allowed the designations (FW-GO-NNL-01).

Effects from Scenery Management

National natural landmarks contribute unique geological and scenic features. In all alternatives, the scenery of the landmarks is protected by the scenery plan components. In the current plans, the landmarks are assigned a visual quality objective of retention (equivalent to a high scenic integrity objective). In the revised plan alternatives, the landmarks are assigned a moderate scenic integrity objective which will ensure that management activities at the landmarks will be subordinate to the surrounding landscape.

Cumulative Effects

The Custer Gallatin National Natural Landmarks are among the ten National Natural Landmark sites within the state of Montana, and the thirteen National Natural Landmark sites located entirely or partially within the state of South Dakota. Sites are designated by the secretary of the interior, with landowner concurrence, and to-date, nearly 600 landmarks have received the National Natural Landmarks designation within the United States, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands.

Under all alternatives, the three National Natural Landmark sites would contribute to the preservation of unique geology as an integral part of the areas. Management activities will generally be limited to those that enhance restoration of the area while permitting recreational use, which is focused on interpretation.

Conclusion

Plan components protect and enhance National Natural Landmarks by protecting unique geological and scenic features and by offering recreation opportunities.

3.21.10 Pryor Mountain Wild Horse Territory

Affected Environment (Existing Condition)

The Pryor Mountain Wild Horse Territory (about 4,396 acres) is the Custer Gallatin's portion of the overall multi-jurisdictional Pryor Mountain Wild Horse Range. This area is a refuge for the Pryor Mountain herd of free-roaming wild horses. The overall range is approximately 42,000 acres and consists of Bureau of Land Management-managed lands, National Forest System lands, Bighorn Canyon National Recreation Area (National Park Service-managed) lands, and a small amount of private lands, with the Bureau of Land Management as the lead agency.

Wild horses are managed in accordance with the Wild Free Roaming Horses and Burros Act of 1971, as amended. For managing the range, the act requires minimum feasible management (wild horses are only to be managed where "presently found" at the time of the passage of the act (as per 1971)), ensuring a thriving natural ecological balance, and maintaining multiple-use relationships. The act, as amended, requires that appropriate management levels be determined and excess wild horses be removed immediately until a thriving natural ecological balance and multiple-use relationship exists. The goal in the long term is to have healthy wild horses on healthy rangelands.

Pryor Mountain Wild Horse Range and the Herd

The Forest Service and Bureau of Land Management manage, protect, and control wild horses and burros under the authority of the 1971 Wild Free-Roaming Horses and Burros Act, as amended. This law authorizes the agencies to remove excess wild horses from the range to sustain the health and productivity of the public lands. The agencies also manage the nation's public lands for multiple uses, in accordance with the 1976 Federal Land Policy and Management Act. Wild horses are part of this multiple-use mandate. Locally, the Bureau of Land Management is the lead agency for managing the Pryor Mountain Wild Horse Herd and rangelands. The Forest Service supports the Bureau of Land Management's management efforts under a Service First Agreement for the Forest Service Pryor Mountain Wild Horse Territory. The Pryor Mountain Wild Horse Territory is primarily administered for

protecting and managing wild horses, ecological conditions, wildlife, watershed, recreation, cultural, and scenic values.

The Pryor Mountain Wild Horse Range varies in elevation from 3,850 to 8,800 feet. Annual precipitation varies with elevation with 6 inches of precipitation in the lower elevations to upwards of 20 inches in the subalpine high elevation. The national forest portion of the Pryor Mountain Wild Horse Range is termed “wild horse territory.” The territory ranges from about 6,000 feet to about 8,800 feet elevation. Many of the Pryor wild horses’ primary bloodline descends from Spanish Barbs and the horses exhibit primitive markings such as dorsal stripes, transverse stripes across the withers, and horizontal “zebra” stripes on the back of the forelegs.

The Lost Water Canyon recommended wilderness and research natural area is adjacent to the western portion of the Pryor Mountain Wild Horse Territory and features a deep canyon with limited access opportunities because of the steep walls. Bureau of Land Management’s Burnt Timber Canyon, Pryor Mountain, and Big Horn Tack-On Wilderness Study Areas, and Bighorn Canyon National Recreation Area are adjacent to the territory on the south and east sides. The Pryor Mountain Wild Horse Territory is not currently identified for recommended wilderness.

Appropriate Management Level

The Forest Service and Bureau of Land Management work to achieve the “appropriate management level” (the point at which wild horse herd populations are consistent with the land’s capacity to support them). In the context of the multiple-use mission, the appropriate management level is the level at which wild horses can thrive in balance with other public land uses and resources, including vegetation and wildlife.

This type of rangeland management is different from management of wildlife, which are controlled by hunters and natural predators, or livestock, which are controlled by grazing permits. Because of Federal protection and a lack of natural predators, wild horse and burro herds can double in size about every four years.

The appropriate management level is a range of low to maximum levels that allows for population growth over a four- to five-year period. It was established based on several years of rangeland resource and population data. Those evaluations look at information relating to vegetation, soils, and climate.

The appropriate management level for the overall Pryor Mountain Wild Horse Range is 90 to 120 horses (excluding the current year’s foal crop) (U.S. Department of the Interior et al. 2009, U.S. Department of the Interior 2016). The population is managed using a combination of population-control techniques including gathers, fertility control, natural means, or a combination of prescriptions. When the appropriate management level is exceeded, the excess animals are scheduled to be removed and prepared for adoption or sent to off-range pastures.

The currently available fertility control vaccine, known as porcine zona pellucida, is limited in the duration of its effectiveness—up to 22 months for a formulation that must be hand-injected into a wild horse. A second formulation of the vaccine can be deployed with ground darting, but is effective for up to only one year. This formulation is a viable fertility-control option for the Pryor wild horse herd because the animals are accustomed to human proximity and the herd size and size of range is small enough to locate and track individual horses.

Limitations of the Territory Boundary

There have been some requests for range expansion onto other National Forest System lands to increase the appropriate management level to allow for an increase in the population. The Wild Free-Roaming Horses and Burros Act, enacted December 15, 1971, directs that wild horses can be managed only on areas of National Forest System and Bureau of Land Management lands where they were known to exist in 1971, at the time of the passage of the act. For the Forest Service, these areas are known as “territories” and for the Bureau of Land Management, they are known as “herd areas.” Under section 1339 “Limitation of Authority,” the Wild and Free-Roaming Horses and Burros Act of 1971 states, “nothing in this act shall be construed to authorize the secretary to relocate wild free-roaming horses or burros to areas of the public lands where they do not presently exist.” Until a change in the law allows for expanding the Pryor Mountain Wild Horse Range onto additional National Forest System or Bureau of Land Management lands that are outside of the existing territory and herd area, the agencies have a legal obligation to follow the law to the greatest extent possible.

Comprehensive agency inventories (Hall 1972), assessments, public involvement, and decisions (U.S. Department of the Interior and U.S. Department of Agriculture 1973, U.S. Department of Interior and U.S. Department of Agriculture 1974) provided the basis for the Bureau of Land Management herd area and Forest Service territory boundaries per the 1971 Act. Subsequent land use planning efforts in 1987 by the Forest Service, and 1984 and 2015 by the Bureau of Land Management validated the same areas as being a wild horse territory and herd management area, respectively. If opportunities for private land purchase or lease present themselves, the agencies would consider them, especially if they involve winter range. Winter range is recognized by both agencies as being the limiting factor for overall population size. The 2009 Herd Management Area and Territory Plan environmental assessment provides a detailed history about the wild horses in this area, and how boundaries were delineated.

Herd Management Area and Territory Plan

The 2009 Herd Management Area and Territory Plan was developed to improve management practices that would lead to healthy wild horses and protect the range from deterioration. Decisions from the territory plan environmental assessment updated the appropriate management level, developed prescriptions for habitat limitations, identified opportunities for improvement, and emphasized stabilization of ecological conditions. It serves as the primary wild horse management plan for all ownerships of the Pryor Mountain Wild Horse Range. The objectives of the territory plan are to improve wild horse and habitat management consistent with the Bureau of Land Management resource management plan and Custer Forest Plan. The territory plan supersedes previously identified direction (for example, the 1984 and 1992 plans).

The Bureau of Land Management, Forest Service, and National Park Service work cooperatively in the long-term management of the Pryor Mountain Wild Horse Range. Each agency has certain decision-making authorities related to their respective roles and jurisdictions in managing the range. This includes the Forest Service and Bureau of Land Management’s population management, habitat conditions, and monitoring, as well as each agency’s ability to manage development (such as fencing, water developments, prescribed fire and fuels reduction, vegetation management, and native seeding).

Territory Condition

Rangeland Condition: Historic records show that severe overgrazing occurred at the turn of the 20th century on the higher elevations of the range, resulting in reduced soil and vegetative productivity. The

allotment was closed to grazing after 1961, due to the severe sheet erosion and recovery needs (mechanical terracing and seeding) in the long term for shallow subalpine rangeland. Historically, the mid-elevation area had limited to no water and was not part of a grazing allotment. The other portions of the wild horse range on Bureau of Land Management and National Park Service lands had similar historical use.

The Natural Resource Conservation Service conducted a rangeland health study in 2004. The study found the wild horse territory on National Forest System lands to be approximately 45 percent similar to reference conditions at the mid elevations and about 30 percent similar to reference conditions in high elevations. This similarity index estimates the state of succession at a given site by measuring composition and comparing it to the composition of the historic climax plant community (Ricketts 2004). The Pryor Mountain Wild Horse Territory contains no riparian areas and has limited water; snowmelt catchment areas occur, with the main water source located on nearby Bureau of Land Management and leased private lands.

Actions under the decisions for the 2009 Herd Management Area and Territory Plan and subsequent fertility control and gathers were designed to help stabilize ecological conditions. However, ecological condition on many portions of the Pryor Mountain Wild Horse Range would likely only slowly improve due to site capability that changed from historic unmanaged grazing.

Invasives: Fewer than 5 acres of spotted knapweed occurs (sporadically along the Burnt Timber Road #2849) within the national forest portion of the range. Other exotics on adjacent lands, such as cheatgrass, halogeton, and mustards are generally distributed in the lower elevations of the Pryor Mountain Wild Horse Range. Forest Service and Bureau of Land Management field crews continue to monitor and treat noxious weeds along the length of the Burnt Timber Road #2849 and adjacent rangelands or any new infestations.

The Influence of Fire: Historic wildland fire occurrence has been documented in a fire history study (Sneed and Winterowd 2006). The study, while not extensive enough to develop a picture of wildland fire history over the entire Pryor Mountain range, gives insight into the historic role of fire in the range ecosystem. This study characterizes the high-altitude subalpine fir habitat types as functioning within a normal range of variability exhibiting a low-frequency, high-severity fire regime. The Douglas-fir stands indicate a moderately frequent, mixed fire regime. Limber pine stands are characterized as having a frequent, low-intensity fire regime. Most surface fires after the mid-1950s were probably quickly and effectively suppressed. The middle to upper levels of Douglas-fir/limber pine forested areas have developed a closed canopy, ladder fuels, and dead and down material with interspersed bare rocky areas. Fire modeling and historical evidence indicate that wildland fires are of two types: slow-spreading ground fire, and high-intensity fast-moving crown fires.

At-Risk Plants: Wild horses have been identified as a potential threat to Shoshonea (*Shoshonea pulvinata*), a Forest Service at-risk plant species. Information on Shoshonea from a trend report (Heidel 2001) indicated there were not sufficient data nor observations to support or refute impacts occurring from wild horses. No direct evidence of grazing was observed.

Wildlife: The primary big game species found in the Pryor Mountain Wild Horse Range are mule deer, Rocky Mountain bighorn sheep, elk, and black bear. Mule deer are the most abundant and widely distributed, and they rely on the sagebrush in the southern foothills during the winter. The bighorn sheep estimated populations range from 100 to 160, with the bulk of the distribution within the Bighorn

Canyon National Recreation Area. Elk do not use the area on a regular basis. Black bear are abundant in the north-central portions of the range where terrain is rugged and forested. Additional wildlife observations include mountain lions, upland game birds (including blue grouse), and a diverse bat population.

Recreational Use: Visitor logs maintained at Penn's Cabin, located on top of East Pryor Mountain, indicate an increase in visitor use, both foreign and domestic. An independent 2003 survey of approximately 277 people indicated the Pryor Mountain Wild Horse Range has become a destination for local, national, and international visitors. The Bureau of Land Management has monitored and documented recreation from 2003 to the present. Since 2003, use has been steady or increasing (U.S. Department of the Interior et al. 2008). The majority of the national forest portion of the range is accessible by four-wheel-drive vehicles.

Recreation opportunities are primarily wild horse viewing during warmer months of the year, especially during foaling season. Other opportunities include, but are not limited to hunting (bear, deer, and small game), hiking, and snowmobiling. Motorized transport is limited to designated roads. The area is largely managed for dispersed recreation. Hiking opportunities in the Pryor Mountains are excellent; however, there are no maintained trails for hiking or off-highway vehicle use. Other uses include camping, horseback riding, photography, sightseeing, wildlife viewing, as well as exploring large caves.

Demands for recreational opportunities and visitation within the Pryor Mountain Wild Horse Range continue to increase. People visit the Pryor Mountain Wild Horse Range to view wild horses and to enjoy other recreational opportunities. Motorized transport is continually increasing, along with camping, hunting (especially for bear), hiking, sightseeing, amateur botany, and the experience of visiting open country.

Heritage Resources: The area has a rich prehistoric and historic archaeological record including, but not limited to quarries, rock art, rock shelters and caves, vision quest sites, lithic scatters, rock cairns and rock alignments, tepee rings, drive sites, occupation sites, hunting-related sites, wooden structure habitations (cabins), historic trails, and horse traps. Contemporary traditional cultural primary use sites, such as the Dryhead Overlook and Sykes Ridge, are found throughout the area. Generations of Crow Tribal members have used these areas for traditional uses, ceremonies, and vision quest sites. Wild horses have potential to impact artifacts, and increased visitation to view wild horses may also increase the potential for vandalism of these resources, which could interfere with Tribal members' contemporary traditional use.

Climate: Climate trends may have the potential to affect grazing capacity in both the short and long term. Changes in forage production may result from predicted shifts in precipitation patterns and increased temperatures.

Uncertainty about climate projections is much greater at the local and regional scales. Ecological response to climate-related changes is difficult to model accurately at local scales. Though there is uncertainty based on modeling, it does not imply a complete lack of understanding regarding climate change and grazing lands. Planning analyses that incorporate modeling with uncertainty and strategies in the short and long term that focus on enhancing ecosystem resistance and resilience will help manage the range. The Forest Service and Bureau of Land Management can also take actions to help ecosystems and resources move in synchrony with ongoing changes in climate and the environment. Flexibility to address the inherent uncertainty about local effects of climate change could be achieved through

enhancing the resiliency of rangelands. Efforts to address existing stressors would address current management needs, and potentially reduce the future interactions of these stressors with climate change (U.S. Department of Agriculture 2010).

The future bioclimatic setting within the wild horse territory is uncertain due to the ecosystem sensitivity to grazing pressure and the threshold for degradation changes within the bioclimatic setting (resulting in lower sustainability in very dry and very humid ecosystems) (Asner et al. 2004). It is likely that as future average temperatures increase, snowpack would be reduced and snowmelt run-off and peak flows would occur earlier in the year (U.S. Department of Agriculture 2010). In addition, with increased atmospheric carbon, primary production is expected to increase, particularly on semi-arid rangelands (Derner et al. 2005).

Environmental Consequences

Effects Common to All Alternatives

Managing wild horse habitat through direction by law, policy, and plan components would have a long-term positive impact on erosion reduction and water-holding capacity of soils, resulting in healthier plant communities and forage availability. Reduction in herd size or maintaining appropriate management level to meet plan standards and guidelines would impact individual animals, requiring removal, gather operations, or other population controls (for example, fertility and demographics).

Current Plans

Management Direction under the Current Plans

The 1986 Custer Forest Plan outlined management area direction for the Pryor Mountain Wild Horse Territory and reaffirmed the Bureau of Land Management as the lead administrating agency (forest plan management area Q, p. 89; forest plan final environmental impact statement, pp. xi, 125, and 338; forest plan appendix C, pp. 194 and 196; forest plan record of decision, pp. 21 and 31). The current Herd Management Area Plan was developed jointly by the Bureau of Land Management, Forest Service, and Park Service. In addition to the forest plan, this document guides the management of public lands within the Pryor Mountain Wild Horse Range.

The 1986 Custer Plan goal for the wild horse territory (management area Q) is to “provide for improved habitat conditions, including range and watershed, and for a healthy viable wild horse population.” Management area Q directs that the Forest Service will cooperate with the Bureau of Land Management on the following: monitoring needs, livestock will not be permitted, wildlife habitat will be maintained or enhanced in a manner that is compatible with wild horses and overall habitat conditions, prescribed fire may be used to enhance rangeland conditions for wild horses, new range improvements can be constructed (provided they do not attract horses into the Forest Service Lost Water Canyon recommended wilderness), and the two study enclosures and the Tillett Ridge horse trap would be retained. In addition, it is Forest Service policy (Forest Service Manual 2260.3) to confine wild free-roaming horses to managed horse territories as established pursuant to the 1971 Act, to the extent possible.

Effects of the Current Plans

The Bureau of Land Management, Forest Service, and National Park Service will continue to work cooperatively in the long-term management of the Pryor Mountain Wild Horse Range. Each agency will

retain their own management and decision-making authorities related to their respective roles and jurisdictions in the management of the range.

As lead agency, the Bureau of Land Management, in consultation with the Forest Service, will continue to manage wild horses within a population range of the established appropriate management level, while maintaining genetic diversity, age structure, and sex ratios.

The current appropriate management level for the overall Pryor Mountain Wild Horse Range is 90 to 120 horses (excluding the current year's foal crop) (U.S. Department of the Interior et al. 2009) and (U.S. Department of the Interior 2016). Since wild horse herds can double in size about every four years, the population will continue to be managed using a combination of population-control techniques including gathers, fertility control, natural means, or a combination of prescriptions. When the appropriate management level is exceeded, the excess animals are to be removed and then prepared for adoption or sent to off-range long-term holding pastures.

Permitted livestock grazing has not occurred in the territory since the early 1960s, and it is not suitable in the wild horse territory.

Increased visitation to the Pryor Mountain Wild Horse Range is anticipated along with increased marketing to view wild horses. Commercial activity requests are anticipated to increase. With increased visitation, the potential for vandalism of cultural resources and interference with Tribal members' contemporary traditional use of this area is higher.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

As in the current plans, the wild horse territory would not be suitable for timber production in the revised plan alternatives but vegetation management, including timber harvest or fuels management, would be suitable to achieve desired conditions such as for public safety, wild horse habitat enhancement, or ecological restoration (PR-SUIT-WHT-01). Permitted livestock grazing would continue to not be suitable in this area.

Under the revised plan alternatives, none of the following would be permitted: new roads or trails, new developed recreation sites, extraction of saleable mineral materials, new energy or utility structures, or new range improvements that attract horses into the adjacent the Lost Water Canyon Research Natural Area or the Lost Water Canyon Recommended Wilderness Area (PR-STD-WHT-01 through 05).

Under alternative D, an expanded Lost Water Canyon Recommended Wilderness Area overlaps about 98 percent (4,311 acres) of the wild horse territory. In alternative D, the recommended wilderness area portion of the territory would not be suitable for timber production or timber harvest (FW-SUIT-RWA-01). Under alternative D, new recreation events would not be allowed in the recommended wilderness area portion of the territory (FW-STD-RWA-05) unlike the current plans and alternatives B, C, E, and F, where they would be allowed.

Effects of the Revised Plan Alternatives

Management direction for the wild horse territory under alternatives B, C, E, and F would be the same as in the current plan. It is expected that vegetation management activities could have a role in improving

the condition of forested habitats even though they are not considered suitable for timber production. Wheeled motorized transport on designated roads would continue to be suitable.

Under alternative D, management direction for the wild horse territory is the same as in the current plan, and as described under alternatives B, C, E, and F, except that Lost Water Canyon recommended wilderness would overlap with the territory. Effects are described in the Effects of Plan Land Allocations section.

Consequences to the Pryor Mountain Wild Horse Territory from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Soil, Riparian, and Aquatic Management

Activities related to watershed, soil, riparian, or aquatic habitat would generally not occur in the territory because there are no riparian management zones, and there would be little to no effect related to the management of these resources.

Effects from Vegetation and Timber Management

Under all alternatives, the Pryor Mountain Wild Horse Territory is not suitable for timber production (PR-SUIT-WHT-01). Timber harvest, firewood gathering, and other vegetation management activities (such as prescribed fire), would be suitable to maintain or achieve the desired conditions under the current plans and alternatives B, C, E, and F, and in only about 85 acres in alternative D (PR-SUIT-WHT-01). Timber harvest activities that occur on the broader landscape could influence the type and severity of wildland fire that enters the territory and influence the potential temporary displacement of wild horses.

Vegetation management activities may occur as guided and restricted by plan components, regulation, and policy under all revised plan alternatives except D. Plan component measures are expected to protect all qualities associated with these areas and to achieve desired conditions.

Any activities that may occur would have minimal impact to vegetation conditions, or be designed to maintain or restore natural conditions. Vegetation management activities that occur on the broader landscape could influence the type and severity of wildland fire that enters the territory and influence the potential temporary displacement of wild horses.

Effects from Fire and Fuels Management

Fire is a primary natural ecosystem process, and all alternatives emphasize the importance of allowing such processes to occur. Prescribed fire and fire suppression tactics would adhere to the Pryor Mountain Wild Horse Territory environmental assessment, decision notice, and the 2009 herd management plan as well as Forest Service Manual 2260. Further, fires that occur on the broader landscape could influence the type and severity of wildland fire that enters the territory and influence the potential temporary displacement of wild horses.

The current plans' direction is to contain, control, or confine wildland fires in the territory. Revised plan alternative plan components for fire and fuels management would encourage an appropriate management response to wildfires that may occur in the territory, and provide opportunities for natural fire to alter the vegetation condition of the landscape (FW-DC-FIRE-01, FW-OBJ-FIRE-02, FW-STD-FIRE-01, and FW-GDL-FIRE-01).

If the values associated with the territory are at risk of degradation or loss due to fire, fire management strategies would likely include measures aimed at protecting those values, if possible (FW-DC-FIRE-03, FW-STD-FIRE-01). However, wildland fire as a natural process may be desired and allowed to occur within the territory to perpetuate the natural functioning of the ecosystem. Effects from fire and fire management strategies are expected to have a positive effect on the condition and perpetuation of the ecological values associated with the wild horse territory.

Effects from Invasive Species Management

Control of invasive weeds has occurred in the past and is expected to occur in the future. Plan components for invasive plant species would have a positive effect on wild horse habitat maintenance through the control of invasive weeds or prevention of their spread.

In all alternatives, treatment of noxious weeds ensures that rangelands' productivity would not be reduced or eliminated, thus benefiting wild horses by retaining the forage species upon which they are dependent. Controlling expansion of invasive species can occur through managing the appropriate management level requiring removal of wild horses or maintenance of the appropriate management level. In alternative D, increased administrative oversight for compatibility with recommended wilderness could increase the cost to control and manage invasive weeds.

Effects from Permitted Livestock Grazing Management

Permitted livestock grazing is not suitable in the Pryor Mountain Wild Horse Territory in any alternative, and there would be no effect related to livestock grazing (PR-SUIT-WHT-02). This would also result in less competition for forage and water resources.

Effects of Plan Land Allocations

Recommended wilderness areas are lands that have the potential to become designated as official wilderness through future legislation. The current plans and revised plan alternatives B, C, E, and F do not have overlapping recommended wilderness areas with the territory. Under alternative D, about 4,311 acres of the Lost Water Canyon recommended wilderness would overlap the territory (98 percent of the territory), leaving the Burnt Timber Road #2849 to bisect the recommended wilderness area.

Currently, routine wild horse management includes bait trapping, immuno-contraception darting, population counts, gathers, periodic administrative off-route weed control, administrative access to maintain wild horse infrastructure (such as water guzzlers and fences), rangeland utilization and condition monitoring, research, and infrastructure maintenance.

Under alternative D, over all but 85 acres of the territory, the Forest Service would need to determine how to continue administrative motorized, mechanized, or low-altitude aircraft transport for management activities needed for wild horses and weed control with the least impact to wilderness characteristics. Cost and labor of routine management needs could be affected in 4,311 acres of the territory where the recommended wilderness area overlaps.

Lack of vegetation management through activities such as timber harvest or fuels management could place the herd in danger of large-scale severe or high-intensity wildfire. Improvement of forage resources from limited stand treatments would not be realized.

Within the recommended wilderness contained in the wild horse territory under alternative D, there are two enclosures (for range studies) retained for wild horse monitoring needs. A historic wild horse trap structure located along the Burnt Timber Road #2849 is considered part of the historical and cultural landscape of the area. One proposed tank with a fence development around a snow catchment area that was approved in the 2009 Territory and Horse Management Area Plan Decision Notice would only be implemented within the recommended wilderness area under alternative D if it were determined not to impact the wilderness characteristics of the area.

About 200 acres of the Lost Water Creek eligible wild and scenic river corridor (wild classification) overlaps the territory. For eligible rivers, on either bank a 0.25-mile-wide corridor would be managed and protected. This small overlap occurs along the Lost Water Canyon rim in the southwestern portion of the territory. Wild horse management would be compatible with the purposes of the wild classification for the Lost Water Creek eligible wild and scenic river corridor with little to no impact for wild horse management. However, vegetation management within the 200 acres of overlap would preclude timber harvest as a tool under all revised plan alternatives.

Effects from Access and Recreation Management

Recreational use is anticipated to increase, particularly viewing wild horses. Burnt Timber Road 2849 provides motorized access. Non-motorized travel and recreational use is allowed elsewhere within the territory. Unrestricted recreation activities could result in a situation where wild horses are impacted by visitation.

Issuance of filming permits has little effect on the wild horses. However, increased visitation from viewers of these commercial products results in higher visitation and public awareness. The wild horses and their habitat are expected to experience more disturbance during certain times of year such as in the spring during foaling.

If harassment of wild horses from recreationists occurs, seasonal road or area closures could be used or citations could be issued, under 36 CFR 261.23(b), which prohibits harassment or inhumane treatment of wild horses.

Summer and Winter Recreation Opportunity Spectrum: About 1,781 acres of semi-primitive, non-motorized and 2,616 acres of semi-primitive, motorized summer and winter recreation opportunity spectrum settings are within the territory under the current plans and alternatives B, C, E, and F. About 4,221 acres of primitive and 176 acres of semi-primitive motorized summer and winter recreation opportunity spectrum settings are within the territory under alternative D.

Managing for primitive or semi-primitive non-motorized recreation opportunities would not result in substantial impacts to wild horses or their habitat in these areas because administrative access for wild horse management and other multiple-use management needs such as weed control would not be limited. Managing for semi-primitive motorized opportunities would not result in substantial impacts to wild horses or their habitat and other multiple uses in these areas, given plan component direction.

Effects from Scenery Management

The current plans would continue the visual quality objective of retention (comparable to a high scenic integrity objective) prescribed for the territory, which would have a small impact on activities in the territory.

The plan scenic integrity objectives under the revised plan alternatives do not prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible from the listed critical viewing platform (Burnt Timber Road). Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest threshold of visual dominance and deviation from the surrounding scenic character.

Under alternatives B, C, E, and F, the territory is located within an area assigned a scenic integrity objective of high. Wild horse management-related infrastructure or landscape alterations should meet the assigned scenic integrity objective as viewed from the listed critical viewing platform (Burnt Timber Road). These alternatives allow more flexibility in the type of management actions that could benefit wild horses than under alternative D.

Under alternative D, due to recommended wilderness, the assigned scenic integrity objective of very high may provide less flexibility than the current plans or alternatives B, C, E, or F, relative to wild horse management actions.

Cumulative Effects

The entire multi-jurisdictional Pryor Mountain Wild Horse Range boundary forms the geographic scope for cumulative effects. The overall Pryor Mountain Wild Horse Range is unique because a large portion of it was established under two secretarial orders in 1968 and 1969 on Bureau of Land Management and National Park Service lands prior to the Wild Free-Roaming Horses and Burros Act of 1971. Pursuant to the 1971 act, the Forest Service territory was identified and the Bureau of Land Management herd areas were expanded as areas occupied by wild horses at the time the act was passed.

Under all alternatives, the Pryor Mountain Wild Horse Territory would contribute to the recognition of wild horses as an integral part of the area, along with other multiple-use considerations. Management activities will generally continue to take place within the territory, and it is unlikely that these activities would have an effect on the management of wild horses and associated multiple uses. The exception is under alternative D, which could limit management flexibility, increase management oversight, and increase costs in wild horse management in 98 percent of the territory (4,311 acres).

The adjacent Bureau of Land Management's Burnt Timber Canyon, East Pryor, and Bighorn Tack-On Wilderness Study Areas provide protection from commercial development. The requirements for management to not impair the wilderness characteristics limits wild horse and habitat management. Installation of projects to benefit wild horses and rehabilitation of impaired lands are limited. Because of these Bureau of Land Management land allocations, there are periodic Bureau of Land Management requests for administrative motorized access on wild horse territory National Forest System lands to access their infrastructure (such as water guzzlers) for maintenance needs.

Conclusion

Plan components would be sufficient to maintain wild horses and their habitat in the designated Pryor Mountain Wild Horse Territory. All alternatives are consistent with the 1971 Wild and Free-Roaming Horses and Burros Act, 36 CFR 222, and direction in Forest Service Manual 2260.

Territory activities that overlap with Lost Water Canyon recommended wilderness areas in alternative D would be compatible with these areas. However, to be compatible with recommended wilderness area plan components under alternative D, management actions may have greater administrative oversight, such as bait trapping, census efforts, immuno-contraception darting, weed treatment, installation of

additional water source structures such as guzzlers, access to other lands for the purposes of wild horse management, and multiple-use consideration. Alternative D would also reduce the area where vegetation management for wild horse habitat improvement could be conducted to only about 2 percent of the territory (85 acres).

Other overlapping plan land allocations (such as eligible wild and scenic river corridors) would be compatible with the territory. All alternatives provide for continuation of the territory to be used by wild horses and other multiple uses.

3.21.11 Earthquake Lake Geologic Area

Affected Environment (Existing Condition)

In August 1959, an earthquake triggered a massive landslide, blocking the Madison River and forming Earthquake Lake. This earth-changing event, known as the Hebgen Lake earthquake, measured 7.5 on the Richter scale. At the time, it was the second largest earthquake to occur in the lower 48 states in the 20th century. Twenty-eight people lost their lives in the event.

The Madison River Canyon Earthquake Area was designated as a 37,800-acre geological area under the authority of the Secretary of Agriculture in 1960. Locally the name Earthquake Lake Geologic Area is more commonly used. The area was intended to allow the natural processes in to continue while providing for its use in conjunction with the safety and enjoyment of visitors. Much of this area (27,866 acres or 74 percent) is also within Inventoried Roadless Area.

The Earthquake Lake Visitor Center, located 27 miles northwest of West Yellowstone, Montana, was constructed in 1967 and is key in meeting the purposes of the designation to interpret and provide education about the 1959 earthquake, related events, and national forest resource management. The complex hosts exhibits, films, presentations, and interpretive trails focused on earthquakes, plate tectonics, and a working seismograph. In 2015, there were over 40,000 visitors at this site.

The natural attractions and the easily seen effects of the strongest earthquake in the Rocky Mountains made this area one of the outstanding scenic and geological study areas in the west.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The 1987 Gallatin Forest Plan has components that state the Madison River Canyon Earthquake Area was designated as a special geological area in 1960.

The plan components state the Madison River Canyon Earthquake Area will be managed to allow the natural processes in this area to continue while providing for its use in conjunction with the safety and enjoyment of visitors. It also encourages multiple use of this area consistent with the first statement and interpret the 1959 earthquake, related events, and national forest resource management for visitors through operation of the Quake Lake Visitor Information Center.

Effects of the Current Plans

Current direction provides for multiple use management, where accommodated by existing inventoried roadless area boundaries, while allowing for visitor use, a focus on education, and interpretation through operation of the visitor center and public safety.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components for the Earthquake Lake Geologic Area do not vary by alternative. These components maintain the same management as in the current plans, which is reflective of the designating language for the area. They provide for visitor education and interpretation, the operation of the visitor center and ensuring public safety (MG-DC-ELGA-01 and 02) and (MG-GO-ELGA-01). The area remains suitable for other multiple use projects, where outside of inventoried roadless, while addressing the needs to retain the area for recreation and education.

Effects of the Revised Plan Alternatives

Similar to the current plans, the Earthquake Lake Geologic Area would continue to be managed for multiple use while providing for visitor use, a focus on education and interpretation through operation of the visitor center and public safety.

Consequences to Earthquake Lake Geologic Area from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components for aquatic resources would ensure any multiple use projects that occur in the geologic area would allow the natural processes in this area to continue as directed in the designation (see the suite of plan components for watershed, aquatics and riparian management zones).

Effects from Timber Management

As seventy-four percent of the designated geologic area is within inventoried roadless, there are limits placed by the 2001 Roadless Rule on timber harvest.

Effects from Fire and Fuels Management

Both natural and management-ignited fires could change the scenery visible from the Earthquake Lake Visitor Center and interpretive sites, including charred vegetation in the short term as well as re-growth in the longer term. The current plans' fire management direction are to consider multiple fire management strategies. To minimize resource damage, revised plan components for fire and fuels call for minimum impact suppression tactics in sensitive areas, which would reduce scenic impacts from the suppression effort itself (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Access and Recreation Management

Revised plan components, including visitor education, would help to manage this geologic area to meet the direction for the designated area (MG-DC-ELGA-01 and 02; MG-GO-ELGA-01). In alternatives B, C, D, and F much of the area is also proposed as a recommended wilderness area.

Effects from Scenery Management

The geologic area which is outside of Inventoried Roadless area has a Scenery Integrity Objective of moderate, which will have that plan direction on permissible actions (see the suite of scenery plan components).

Cumulative Effects

The effects of growing populations, trends of increased recreational use, and recently demonstrated increased visitation to nearby Yellowstone National Park may predict an increase visitation to Earthquake Lake Geologic Area within the lifetime of the plan. The effect of this would be likely reflected in increased maintenance and staffing costs.

Conclusion

The current plans and the revised plan alternatives provide plan components for the Earthquake Lake Geologic Area that support the Secretary of Agriculture's designation by establishing guidance and direction to provide for education and the continued operation of the visitor center and surrounding interpretation.

The designation's direction of allowing the area's natural processes to continue while providing for the safety and enjoyment of visitors is accomplished. This includes the ongoing operation of the Earthquake Lake Visitor Center. The area remains suitable for other multiple use projects where not within inventoried roadless, while addressing the needs to retain the area for recreation and education.

3.21.12 Continental Divide National Scenic Trail

Affected Environment (Existing Condition)

The Continental Divide National Scenic Trail, also known as the Continental Divide Trail, is a national scenic trail that runs 3,100 miles between Mexico and Canada. The trail was designated by Congress in 1978 and follows the Continental Divide of the Americas along the Rocky Mountains, traversing through five U.S. states: Montana, Idaho, Wyoming, Colorado, and New Mexico. Nationally, the trail is a combination of dedicated trails and roads.

The Continental Divide National Scenic Trail is managed according to the National Trails Act, the Continental Divide National Scenic Trail Study Reports and final environmental impact statement, and the Continental Divide National Scenic Trail Comprehensive Plan (as amended) for the purpose of providing:

A continuous, appealing trail route, designed for the hiker and horseman, but compatible with other land uses and access for hikers and stock into the diverse country along the Continental Divide in a manner which will assure a high-quality recreation experience while maintaining a constant respect for the natural environment.

Approximately 28 miles of the Continental Divide National Scenic Trail is located within the Custer Gallatin National Forest on the Hebgen Ranger District in the Madison, Henrys Lake, and Gallatin

Geographic Area abutting the Caribou-Targhee National Forest. The Continental Divide Trail on the Custer Gallatin is comprised of five trails: Two Top Divide 116, Lionhead Mountain Continental Divide National Scenic Trail 115, Mile Creek 214, Watkins Creek 215, and Mile Creek Face 219. The Continental Divide National Scenic Trail right-of-way is yet to be selected by the Chief of the Forest Service, but it is expected that the existing travel route location on Custer Gallatin National Forest will be contained within the selected corridor (FSM 2353.04b, part 4). Law requires selection of a “right-of-way” and publishing in the Federal Register. As that has yet to be done, the corridor mapped in forest plans would likely serve as the basis for the right-of-way. The trail is completed across this national forest, without any gaps in segment construction.

The Continental Divide Trail is viewed as a stand-alone resource and opportunity that attracts visitors to the national forest who want to travel this trail. The trail provides for high-quality scenic, primitive hiking and horseback riding opportunities in the context of conserving the natural, historic, and cultural resources along its corridor.

The segment of trail on the Custer Gallatin is open to mountain bikes and the Gallatin Forest Travel Plan allows winter snowmobile use across and near the trail.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The 1987 Gallatin Plan only referred to this route as a proposed trail. Current forest direction to manage the Continental Divide Trail is in accordance with the “Continental Divide National Scenic Trail Comprehensive Management Plan.”

Approximately six miles of the route passes through the Lionhead Recommended Wilderness Area where plan components for that allocation apply. Mountain biking is allowed on the trail in the current plans. In the current plans, the recreation opportunity spectrum classification for the Continental Divide National Scenic Trail is semi-primitive non-motorized, year-round in the Lionhead Recommended Wilderness Area. Outside of the recommended wilderness area the trail corridor includes roaded natural and semi-primitive motorized as mapped by distance from roads.

Effects of the Current Plans

The Custer Gallatin would continue following the guidance in the Continental Divide National Scenic Trail Comprehensive Plan. A variety of experiences are available on the trail on the Custer Gallatin. The six miles of trail within recommended wilderness are managed for wilderness characteristics, providing a semi-primitive non-motorized recreation opportunity spectrum experience. However, mountain biking on this segment of trail is allowed. Outside the recommended wilderness area, winter snowmobile use is allowed near and over the trail.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The plan components apply to one half mile on each side of the trail (or less where near the national forest boundary) and do not vary by alternative, except for suitability MG-SUIT-CDNST-04. The

Continental Divide National Scenic Trail would be suitable for mountain biking (MG-SUIT-CDNST-04), except where the trail is within recommended wilderness area in alternative D. The trail would not be suitable for timber production (MG-SUIT-CDNST-01). The trail would be suitable for summer motorized transport 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 would be authorized (MG-SUIT-CDNST-02). The Continental Divide National Scenic Trail would be suitable for winter snowmobile use over and around the trail (MG-SUIT-CDNST-03).

Scenery protection measures would be in place for any long-term impacts, achieving scenic integrity objectives of high or very high within the foreground of the trail (up to one half mile on either side). New motorized recreation events, new constructed, permanent overnight shelters, and extraction of saleable mineral materials would not be allowed on the Continental Divide National Scenic Trail (MG-STD-CDNST-01, 02, 03).

Guidelines in all revised plan alternatives would require that:

- road and motorized trail crossings and other signs of modern development should be avoided to the extent possible (MG-GDL-CDNST-01),
- the trail should not be permanently relocated onto routes open to motor vehicle use (MG-GDL-CDNST-02),
- 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 (MG-GDL-CDNST-03),
- 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 (MG-GDL-CDNST-04),
- use of the Continental Divide National Scenic Trail for landings or as a temporary road for any purpose should not be allowed (MG-GDL-CDNST-05),
- 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 (MG-GDL-CDNST-06).

Effects of the Revised Plan Alternatives

In 2009, the amended Comprehensive Plan described the nature and purposes of the Continental Divide National Scenic Trail: The nature and purposes of the trail are to provide for high-quality scenic, primitive hiking and horseback riding opportunities and to conserve natural, historic, and cultural resources along the trail corridor. According to the 2009 plan:

Both the Forest Service and the Bureau of Land Management are required to develop land and resource management plans that are designed to integrate all resource management activities that may occur within a land use unit into a coordinated system that reflects the interaction of management activities in achieving long-range objectives and goals for public land management.

This will be accomplished through the development of a series of synergetic management prescriptions developed for specific management areas. Land and resource management plans are to provide for the development and management of the Continental Divide National Scenic Trail as an integrated part of the overall land and resource management direction for the land area through which the trail passes. The management direction given in... is to be used in the development of specific land and resource management prescriptions.

The revised plan components would manage the Continental Divide National Scenic Trail within the parameters reached through the coordination of multiple forests and jurisdictions that the route crosses, and consistent with the 2009 Continental Divide National Scenic Trail Comprehensive Plan. The thirty-one miles of trail on this national forest would generally be reflective of overall Continental Divide trail management, with some of the allowed variations such as mountain bike use. Plan components were formulated to provide for maintaining the scenic quality by assigning a scenic integrity objective of High, providing hiking and horseback trail opportunities, as well as mountain biking and snowmobiling and with multiple components which address the cultural and natural resources found along the trail. As stated in the 2009 Continental Divide National Scenic Trail Comprehensive Plan, while the trail is designed for the hiker and horseman, it is compatible with other land uses, such as mountain biking.

A portion of the trail is within a recommended wilderness area in alternative D and a portion is within a backcountry area in alternatives E and F. The trail is also included within the Hebgen Winter Recreation Emphasis Area (outside of the recommended wilderness area) in alternatives B, C, E, and F. The recreation opportunity spectrum classification for the trail in the Lionhead area would be semi-primitive non-motorized in the winter and summer in alternatives B, C, E, and F, and would be primitive in winter and summer in alternative D. Outside of the Lionhead area, the winter and summer recreation opportunity spectrum classifications would be classified as roaded natural and semi-primitive motorized based on the distance from existing roads. However, the national forest's travel management plan would be the authorizing document for allowed travel uses, not the classification of the recreation opportunity spectrum. Locations where snowmobiling is suitable would be semi-primitive motorized in the winter. It should be noted that the trail corridor is not identifiable on the ground while under snow in the winter. Mountain biking would continue to be suitable on the entire Custer Gallatin portion of the trail in alternatives B, C, E and F. Mountain biking would no longer be a suitable use on the trail in alternative D within the recommended wilderness area, and would continue to be suitable use outside of recommended wilderness area in alternative D.

Plan components provide guidance to protect the desired character of the Continental Divide National Scenic Trail in a manner consistent with the length of the trail corridor and for the nature and purposes described in the 2009 Comprehensive Plan.

Consequences to Continental Divide National Scenic Trail from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Vegetation and Timber Management

The current plans' components call for timber harvest consistent with trail management. In all revised plan alternatives, the trail corridor would not be suitable for timber production and vegetation management, including timber harvest, may be suitable for purposes such as fuels reduction, restoration, or wildlife habitat enhancement (MG-SUIT-CDNST-01). Approximately 4,419 acres are within inventoried roadless area where timber production is not suitable. Outside of inventoried roadless area, another

6,618 acres within the 11,147-acre trail corridor would not be suitable for timber production due to the trail corridor plan component. The revised plan alternatives provide more specific trail protections for timber harvest than the current plans by providing plan components that limit use of the trail corridor as a road or landing, and limit hauling or skidding materials across or near the trail (MG-GDL-CDNST-06).

Effects from Fire and Fuels Management

Both natural and management-ignited fires could change the scenery visible from the Continental Divide National Scenic Trail, including charred vegetation in the short term as well as re-growth in the longer term. The current plans' fire management direction are to consider multiple fire management strategies. To minimize resource damage, revised fire and fuels plan components call for minimum impact suppression tactics in sensitive areas, such as the Continental Divide National Scenic Trail corridor, which would reduce scenic impacts from the suppression effort itself (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Access and Recreation Management

In all alternatives, recreation opportunity spectrum sets guidance that is appropriate for the trail corridor (FW-GDL-ROS-01).

Effects from Plan Land Allocations

The trail is partially within recommended wilderness area in alternative D and partially within backcountry area in alternatives E and F. There are 4,419 acres in the corridor that are also within inventoried roadless area. Where there are overlapping allocations, the stricter guidance from plan components or agency policy and direction would apply.

Effects from Scenery Management

In revised plan alternatives, a scenic integrity objective of high would apply to one half mile on each side of the trail, except in alternatives where the trail is in recommended wilderness and the scenic integrity objective would be very high. In the Gallatin Forest Plan, scenery components state that the Continental Divide National Scenic Trail would follow whichever management area the trail is passing through.

In all alternatives, the revised plan scenic integrity objectives do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground minerals and energy projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest maximum threshold of visual dominance and deviation from the surrounding scenic character.

Effects from Minerals Management

The current plans have no specific minerals direction for the trail; there would be no saleable mineral material removal allowed in alternatives B through F (MG-STD-CDNST-03).

Cumulative Effects

The 28 miles of the Continental Divide National Scenic Trail on the Custer Gallatin contribute to the experience of the entire 3,100-mile trail, in coordination with other managers of the trail, as it traverses various jurisdictions across a five-state route. Most of the plan components resulted from previous coordination across the various national forests which the trail crosses.

The trail is bordered to the west by private land and to the south by the Caribou-Targhee National Forest. The Caribou-Targhee manages the Henrys Lake Mountains/Lionhead area as recommended wilderness, where existing trail uses, such as mountain biking, may continue. Further south adjacent to the Custer Gallatin, the Caribou-Targhee manages the land as grizzly bear habitat (area 2.6.1(a)), where mountain biking is allowed. The trail is partially within recommended wilderness area in alternative D and partially in backcountry area in alternatives E and F. Alternatives A, B, C, E and F manage the Continental Divide National Scenic Trail consistent with the Caribou Targhee, which allows mountain biking on the Continental Divide Trail in the Henrys Lake Mountains. In alternative D, the proposed Lionhead Recommended Wilderness Area would not allow consistent mountain bike management on the Continental Divide Trail as the Caribou Targhee.

Conclusion

Plan components provide for maintaining the scenic quality of the Continental Divide National Scenic Trail by assigning a scenic integrity objective of High, providing hiking and horseback trail opportunities, as well as mountain biking and snowmobiling and with multiple components which address the cultural and natural resources found along the trail. As stated in the 2009 Continental Divide National Scenic Trail Comprehensive Plan, while the trail is designed for the hiker and horseman, it is compatible with other land uses, such as mountain biking.

Plan components are sufficient to provide for high-quality, scenic, and primitive hiking and horseback riding opportunities and to conserve the natural, historic, and cultural resources for the designated Continental Divide National Scenic Trail, consistent with the 2009 Continental Divide National Scenic Trail Comprehensive Plan.

3.21.13 Nez Perce National Historic Trail

Affected Environment (Existing Condition)

The Nez Perce National Historic 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 (Nimíipuu or Nee-Me-Poo) National Historic Trail stretches from Wallowa Lake, Oregon, to the Bear Paw Battlefield near Chinook, Montana.

The Nez Perce Trail is interpreted along the Autotour Route; however, the Autotour Route is not necessarily the physical location of the Nez Perce Trail. Designated by Congress in 1986, the entire Nez Perce National Historic Trail stretches 1,170 miles from the Wallowa Valley of eastern Oregon to the plains of north-central Montana. The trail includes a designated corridor encompassing 4,161 miles of roads, trails, and routes. The auto route consists of three-season, all-weather roadways ranging from high-standard gravel segments to portions of Interstate 15 and 90. Nez Perce National Historic Trail signs have been erected along the primary auto route and two alternate segments.

The Nez Perce Auto Route on the Custer Gallatin can be found in two locations. The first section follows State Highway 20 from Targhee Pass to Yellowstone National Park, accounting for approximately 8 miles of the segment (from Leadore and Island Park to Yellowstone). The second section follows State Highway 212, from the Northeast Entrance of Yellowstone National Park, for approximately 8 miles, through Cooke City where it leaves the Custer Gallatin.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The Nez Perce National Historic trail was listed as a proposed addition to the National Trail System in the 1987 Gallatin Plan with direction to protect the integrity of the trail and provide the traveler with a wide variety of visual experiences.

Effects of the Current Plans

Under the current plans, management would continue to provide for the integrity of the trail.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan components are the same for all revised plan alternatives. Revised plan alternatives provide more specific direction for interpretative materials for all eight segments of the route and coordinated management of the trail with other jurisdictions through which it passes (FW-DC-NRT-01).

Effects of the Revised Plan Alternatives

Plan components protect and enhance Nez Perce National Historic Trail Auto Route by providing for interpretive materials and coordinated route management.

Consequences to Nez Perce National Historic Trail from Plan Components Associated with other Resource Programs or Management Activities

Effects from Access and Recreation Management

The revised plan alternatives provide plan components for visitor education and interpretation that would help assure quality materials are available for this auto route and which provide an accurate historical overview of the setting (MG-DC-NRHT-01). The current plans do not provide this direction.

Effects from Scenery Management

In all alternatives, the revised plan scenic integrity objectives (visual quality objectives in the current plans) do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible. The Nez Perce auto tour route on Highway 20, between Targhee Pass and the Yellowstone National Park boundary, is listed as a critical viewing platform as well as the portion of Highway 212, Beartooth Highway. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the maximum threshold of visual dominance and deviation from the surrounding scenic character.

Cumulative Effects

The 16 miles of the Nez Perce National Historic Trail Auto Route on the Custer Gallatin contribute to the experience of the entire 4,100-mile trail, in coordination with other managers of the trail.

Conclusion

Plan components protect and enhance Nez Perce National Historic Trail Auto Route by providing for interpretive materials and coordinated route management.

3.21.14 National Recreation Trails

Affected Environment (Existing Condition)

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. National recreation trails provide a variety of outdoor recreation uses. Table 131 displays the trails by name, mileage on the national forest, and changes to uses by alternative.

Table 131. Custer Gallatin national recreation trails, current use, and changes to use by alternative

Trail Name	Rounded Miles ¹	Current Motorized/Mechanized Transport Allowed	Changes to Uses by Alternative
Basin Lakes National Recreation Trail	4	Mountain Bike	Portions no longer suitable for Mountain Bikes in alternative D
Big Sky Snowmobile Trail National Recreation Trail	55	Motorized transport	No longer motorized trail in alternative D
Boulder River Natural Bridge National Recreation Trail	0.25	Mountain Bike	None
Gallatin Riverside National Recreation Trail	2.5	Mountain Bike	None
Garnet Mountain National Recreation Trail	4	Mountain Bike	None
Palisade Falls National Recreation Trail	0.6	No- foot only	None
Parkside Ski Touring National Recreation Trail	2.5	No	None
Refuge Point X-C Ski National Recreation Trail	5	No	None
Silver Run Ski Touring National Recreation Trail	5	No	None
Two Top Snowmobile National Recreation Trail	28	Motorized transport	None
Wild Bill's Lake National Recreation Trail	0.5	Mountain Bike	None
Bridger Foothills Trail National Recreation Trail	20	Portions Motorcycle, entire length Mountain Bike	Portions no longer suitable for motorized/mechanized transport in alternative D
Total	127.35	(no data)	(no data)

1. Mileage taken from more accurate and updated infra trail layers may be slightly different than forest plan or designated miles. A small piece of the U.S. Fish and Wildlife Service-managed Drinking Horse Trail crosses the national forest for less than 100 feet.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The Gallatin Forest Plan management area 23 provides direction for the existing and proposed national recreation and scenic trails on the Gallatin National Forest. The forest plan goal is to protect the integrity

of the trails and provide the traveler with a wide variety of visual experiences. Most other plan components were moved to the Gallatin National Forest Travel Management Plan. The 1986 Custer Forest Plan did not include any national recreation trails direction.

Effects of the Current Plans

Current management components provide for protection and ongoing use of national recreation trails. Other agency-wide direction is provided in the Forest Service Trail Manual.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

One plan component is specific to national recreation trails in the revised plan alternatives and provides for public opportunities (such as interpretation and education) which do not impair the feature(s) or values for which the individual trail was established (FW-DC-NRT-01).

Effects of the Revised Plan Alternatives

Plan components do not vary by revised plan alternative, nor do the location of trails vary by alternatives. Under the revised plan alternatives, the national recreation trails would meet the purpose of the National Trails System Act, which is "to promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation."

The use of three national recreation trails would change in alternative D as a result of recommended wilderness area allocations. Portions of the Bridger Foothills National Recreation and Basin Lakes National Recreation Trails would no longer be suitable for motorized or mechanized transport in alternative D. In addition, the Big Sky Snowmobile trail would no longer be suitable for winter motorized transport.

Consequences to National Recreation Trails from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. Plan components and activities related to aquatic would generally have little effect to national recreation trails. Where the trails cross or parallel streams, plan components related to riparian management zones would help maintain the natural character of those areas, and therefore complement the management of the trail (FW-GDL-RT-03 and 08).

Effects from Timber Management

Some stretches of the trails may be in areas where timber harvest is suitable. The 1987 Gallatin Plan components call for timber harvest consistent with trail management; the 1986 Custer Plan has no specific guidance for national recreation trails. The layout and design of timber harvest near or adjacent to national recreation trails would be addressed primarily through the Scenery Management System.

Effects from Fire and Fuels Management

Both natural and management-ignited fires could change the scenery visible from the trails, including charred vegetation in the short term as well as re-growth in the longer term. The current plans' fire management direction are to consider multiple fire management strategies. To minimize resource damage, revised fire and fuels plan components call for minimum impact suppression tactics in sensitive areas such as national recreation trails, which would reduce scenic impacts from the suppression effort itself (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Access, Infrastructure and Recreation Management

In all alternatives, recreation opportunity spectrum settings are specified that are consistent with the desired conditions of the trails (FW-DC-ROS-01).

Effects from Scenery Management

In all alternatives, the revised plan scenic integrity objectives do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible from any of the listed critical viewing platforms. In those cases, design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the maximum threshold of visual dominance and deviation from the surrounding scenic character.

Cumulative Effects

The twelve national recreation trails on the Custer Gallatin contribute to a system of over 1,200 individual national recreation trails in all 50 states. National recreation trails benefit from the prestige and increased visibility of being a part of the National Trail System. National recreation trails can often compete well for additional funding or for state or Federal grant opportunities. A management approach listed in appendix A of the revised plan suggests the Custer Gallatin could evaluate all currently listed National Recreation Trails to ensure they are being managed under the correct designation. If implemented, this action may change the number of national recreation trails if they are determined to not be the correct designation.

Conclusion

Under alternatives A, B, C, E, and F, the twelve national recreation trails would remain suitable for current uses and would continue to be managed for the values for which they were designated. In alternative D portions of the Bridger Foothills and Basin Lakes national recreation trails and winter snowmobile use on the Big Sky Snowmobile trail would no longer be suitable for motorized or mechanized transport.

3.21.15 Beartooth Highway National Forest Scenic Byway and All-American Road

Affected Environment (Existing Condition)

The 68-mile Beartooth Highway (U.S. 212) starts at the Yellowstone National Park boundary in Montana, extends southeast into Wyoming, then ascends northeast toward the town of Red Lodge, Montana. A 1989 designation of National Forest Scenic Byway covers 60 of those miles. About 9 miles of the scenic byway on the west end, and about 15 miles on the east end are within the Custer Gallatin. 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. Approximately 2 miles on the west end and 15 miles on the east end are within the Custer Gallatin

The Beartooth Highway is the highest elevation highway in Wyoming (10,947 feet) and Montana (10,350 feet), and is the highest elevation highway in the northern Rocky Mountains. It is known as one of the most scenic drives in the United States. The route features breathtaking views of the Absaroka and Beartooth Mountains, and open high alpine plateaus dotted with countless glacial lakes, forested valleys, waterfalls, and wildlife. Surrounded by national forest and wilderness, visitors to the Beartooth Highway are provided the unique opportunity to witness and explore pristine, untouched alpine and montane landscapes. Visitors in the Beartooth Corridor have ample access to recreation. Visitors can access skiing, hiking, wildlife viewing, fishing, camping, and snowmobiling in winter.

In 1931, Congress passed the Park Approach Act, which authorized the secretary of the interior to approve and construct national approach highways. The Beartooth Highway is the only road constructed under this act.

Since its completion in 1936, the highway has provided millions of visitors a rare opportunity to see the transition from a lush forest ecosystem to alpine tundra in the lower 48 states, with 20 peaks reaching over 12,000 feet in elevation space of just a few miles. In the surrounding mountains, glaciers are found on the north flank of nearly every mountain peak over 11,500 feet high. The Beartooth Highway generally receives the highest levels of vehicle traffic between Cooke City and the intersection of the U.S. 212 and Wyoming 296. This can be attributed to the convergence of travelers from both Red Lodge, Montana, via U.S. 212 and from Cody, Wyoming, via WY 296 west of the intersection of the two highways. Highest use is in August.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

There is no specific direction in the Custer or Gallatin Forest Plans for management of the Beartooth Highway Scenic Byway or All-American Road resource.

The Beartooth Corridor is primarily rural and is managed by the Custer Gallatin National Forest and the Shoshone National Forest. The land is managed for a variety of uses, but primarily for recreation and wildlife habitat. Much of the Beartooth Highway is protected from development by a 250-foot 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.

The Beartooth All-American Road Corridor Management Plan (2002) articulates a vision of the communities for the scenic byway and represents a commitment to conserve and enhance its intrinsic qualities; it covers only the 53 miles of the All-American Road. It specifies the actions, procedures, operational and administrative practices, and strategies to maintain the natural, scenic, recreational, historic, cultural, and archaeological qualities of the byway corridor while recognizing the primary transportation role of the highway.

The Corridor Management Plan is a working document, therefore, it will be continually reviewed and revised as new information arises. The Corridor Management Plan is intended to be secondary, but consistent with national forest land management plan direction. The rest of the Beartooth Highway is also a national scenic byway with no management plan direction in the current plans.

Effects of the Current Plans

Under the current plans, the Beartooth Corridor will continue to be managed for its resource qualities, recreation, and transportation, as outlined in the Corridor Management Plan, Travel Plans, and Forest Service Manual Direction for management of national scenic byways.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

Plan direction does not vary by alternatives. The desired condition envisions 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 (AB-DC-NSB-01).

Effects of all Revised Plan Alternatives

Plan components demonstrate that the roadway would be managed for the values of a scenic byway.

Consequences to Beartooth Highway National Forest Scenic Byway and All-American Road from Plan Components Associated with other Resource Programs or Management Activities

Effects from Timber Management

In the current plans, timber harvest is limited to post, poles, and firewood as long as scenery is protected. The revised plan alternatives do not limit timber harvest, but would be guided by scenery management along the highway.

Effects from Fire and Fuels Management

Both natural and management-ignited fires could change the scenery visible from the Beartooth Scenic Byway, including charred vegetation in the short term as well as re-growth in the longer term. The current plans' fire suppression plan directions are to contain, control, and confine wildfires on the Beartooth Scenic Byway. To minimize resource damage, the revised fire and fuels plan components call for minimum impact suppression tactics in sensitive areas such as the Beartooth Scenic Byway (FW-GDL-FIRE-03). This would reduce scenic impacts from the suppression effort itself. Exceptions may occur when a more direct attack is needed to protect human life, private property or infrastructure.

Effects from Access and Recreation Management

In all alternatives, much of the Beartooth Highway is protected from development by a 250-foot 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.

Effects from Scenery Management

In all alternatives, the scenery of the Beartooth Highway is protected by the scenery plan components. In the current plans, the highway is assigned a visual quality objective of retention (equivalent to a high

scenic integrity objective). In the revised plan alternatives, scenic integrity objectives of high or moderate apply one half mile on each side of the highway, protecting the scenery in the foreground.

In all alternatives, the revised plan scenic integrity objectives do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground minerals and energy projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest maximum threshold of visual dominance and deviation from the surrounding scenic character.

Cumulative Effects

Growing populations, the increase in tourism to Yellowstone National Park and the increase in the activity labeled “driving for pleasure,” all demonstrate a likelihood for increasing travel demands on the Beartooth Highway. The age of the roadway would likely show the need for increasing reconstruction of crucial infrastructure. The road is located at very high elevations and winter damage is often a factor. The costs of operating this route would also likely increase in coming years. The towns of Cooke City and Red Lodge are very dependent on this road for summer tourism. Longer seasons of keeping the road open benefits local economies, warming temperature may result in longer operating seasons.

Conclusion

Plan components would ensure the roadway on the Custer Gallatin would be managed for the values of this scenic byway. The Beartooth All-American Road Corridor Management Plan coordinates management with the Shoshone National Forest, Montana Highway Department, Red Lodge Chamber of Commerce, and Carbon County Planning Department. This allows more site specific and seasonal discussions to be held concerning decisions about the road’s operation and maintenance.

3.22 Plan Land Allocations

3.22.1 Introduction

Plan land allocations are developed in the forest planning process; these allocations are not designated by statute, regulation, or policy. This section analyzes the effects of a range of alternatives for recommended wilderness areas, eligible wild and scenic rivers, backcountry areas, recreation emphasis areas, and Stillwater Complex.

Two of these allocations are potential future congressional designations. The 2012 Planning Rule requires all land management plans undergoing a plan revision to conduct an evaluation and determine if there are areas of the national forest that should be recommended to Congress as wilderness. The rule also calls for an evaluation of all named rivers on the national forest to see if they meet the eligibility status under the Wild and Scenic Rivers Act.

The wilderness recommendation process occurs in four primary steps: inventory, evaluation, analysis, and recommendation. All plan revisions must complete this process before the responsible official determines whether to recommend lands within the national forest to Congress for wilderness designation.

For a river to be identified as eligible for wild and scenic river designation it must (1) be free-flowing, and (2) possess at least one outstandingly remarkable value. Once identified, a corridor of ¼ mile on either side of the high-water mark of the eligible river and river segment is identified for the protection and

management of the wild and scenic river-related values. For management purposes, identified eligible wild and scenic river segments are assigned a preliminary classification as wild, scenic, or recreational. Pending congressional action to designate additional rivers, the plan land allocation would manage these as eligible rivers, under all revised plan alternatives.

Regulatory Framework

36 CFR 219.7 – Planning Rule: states that in developing a proposed plan revision, the responsible official shall identify existing designated areas and determine whether to recommend any additional areas for designation. Plans must include components for appropriate management of existing or proposed designated areas.

36 CFR 219 sec. 219.7: requires the following during revision of a plan: identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands for wilderness designation.

Forest Service Handbook 1909.12 chap. 70: contains the framework for the wilderness recommendation process. It states in part “All plan components applicable to a recommended area must protect and maintain the social and ecological characteristics that provide the basis for wilderness recommendation.”

36 CFR Part 219 sec. 219.10(b)(1)(v): requires plan components to provide protection of designated wild and scenic rivers as well as management of rivers found eligible or determined suitable for the national wild and scenic river system.

Forest Service Handbook (FSH) 1909.12 Chapter 80 Wild and Scenic River Eligibility: provides additional guidance for conducting a wild and scenic rivers eligibility study for the national forest.

Forest Service Manual 2350: provides direction on the management of wild and scenic rivers.

Wild and Scenic Rivers Act of October 2, 1968 (Pub. L. 90-542, 82 Stat. 906, as amended): establishes the national wild and scenic rivers system with three classes of river systems: wild, scenic, and recreational. The purpose of the act is to protect the river “for the benefit and enjoyment of present and future generations.”

Key Indicators and Measures

- Acres and percent of recommended wilderness
- Acres of inventoried roadless area within recommended wilderness
- Acres no longer suitable for motorized over-snow vehicle transport in recommended wilderness
- Miles of trails no longer suitable for wheeled motorized transport in recommended wilderness
- Miles of trails no longer suitable for mechanized transport in recommended wilderness
- Miles of eligible wild and scenic rivers
- Acres and percent of backcountry areas
- Acres and percent of Recreation Emphasis Areas
- Acres and percent of Stillwater Complex

Methodology and Analysis Process

The analysis evaluated potential changes to existing uses and potential new uses that would not be allowed in proposed plan land allocations. The analysis also measured the overlap of existing inventoried roadless areas with proposed allocations to display the degree to which some uses are already limited in some proposed allocations.

The analysis assumed that if Congress acted on some recommended wilderness areas, those not designated as wilderness would retain a plan land allocation of recommended wilderness area. Also, that if Congress acted on some eligible wild and scenic rivers, those not designated as a wild and scenic river would retain a plan land allocation of eligible wild and scenic rivers. The analysis assumed areas designated as inventoried roadless areas will remain so for the lifetime of the revised plan.

Information Sources

Information sources include the Custer Gallatin's GIS data, INFRA database, the National Visitor Use Monitoring program, land management plans of adjacent federal agencies, and site-specific knowledge from forest personnel.

The use of modern-day geographic information system (GIS) mapping technology resulted in a refinement of acres for the current forest plans' recommended wilderness areas. Plan revision calculations resulted in a difference of 1 to nearly 100 acres from the current plans acreages. During analysis, where the actual boundaries have not changed, these calculation differences were treated as no change from existing condition.

A comprehensive spatial layer of authorized special uses does not currently exist on the Custer Gallatin National Forest. These uses were individually evaluated for appropriateness of remaining in recommended wilderness areas upon completion of the plan revision.

Analysis Area

The geographic scope of the analysis is the lands administered by the Custer Gallatin. The scope for cumulative effects is described in the cumulative effects section of each plan land allocation, and the temporal scope is the anticipated life of the plan.

Notable Changes between the Draft and Final Environmental Impact Statements

The final environmental impact statement includes analysis of modified alternatives (changes to the Hyalite Recreation Emphasis Area and Hyalite Backcountry Area in alternative C, mountain biking in the Bad Canyon Backcountry Area is suitable in alternative B, but not in alternative C (the reverse of the draft plan alternatives), alternatives vary in whether mountain biking is suitable only on approved system routes in certain backcountry areas). The final environmental impact statement corrects analysis of impacts to the Big Sky Snowmobile Trail in alternative D. The final environmental impact statement is supplemented with clarifying language, corrected analysis, minor edits, and analysis of alternative F. Notable changes to the plan include:

- Recommended wilderness areas: The name of the Red Lodge Creek Hell Roaring area was changed to Timberline Recommended Wilderness Area as the name is more geographically accurate and less cumbersome.

- Eligible Wild and Scenic Rivers: Scenery was added as an Outstandingly Remarkable Value to Cave Creek and Cabin Creek (these rivers were already determined eligible). A discrepancy in the boundary description of the wild and recreational segments of the Clark's Fork of the Yellowstone River was resolved to map the recreational segment from the wilderness boundary to the confluence with Broadwater Creek.
- Backcountry areas: plan components concerning new permanent or temporary roads, trails, and use of mountain bikes, game carts and motorized transport were customized to each backcountry area.
- Recreation emphasis areas: each recreation emphasis area has area specific plan components. A forestwide guideline concerning outfitter guides and under-represented communities, youth, seniors, and veterans was removed, and plan components for outfitter guides are included in the direction for each recreation emphasis area. A definition of "high density recreation development" was added.
- In response to objections, plan components for the Big Pryor and Punch Bowl Backcountry Areas were separated into two sections, providing more accurate representation of plan direction for the Punch Bowl Backcountry Area; and plan component FW-SUIT-RWA-07 was modified to allow continued suitability of existing passive reflector sites in recommended wilderness areas. (Other plan changes in response to objections are listed in final EIS Chapter 2).
- Changes to the final environmental impact statement after the objection period include additional detail regarding application of grazing suitability plan components to permitted recreational livestock in recommended wilderness areas and additional detail in the analysis of several sections.

3.22.2 Recommended Wilderness Areas

Affected Environment (Existing Condition)

Recommended wilderness areas are lands that contain wilderness characteristics and have potential for inclusion in future wilderness designations if Congress takes action to introduce and pass legislation. These lands are generally free from roads and other constructed features and have high potential to provide solitude and primitive, unconfined recreation. Recommended wilderness areas are also important for species diversity, protection of threatened and endangered species, protection of watersheds, scientific research, and various social values.

Environmental Consequences

Recommended wilderness areas are drawn from lands in the wilderness inventory prepared for plan revision. Appendix D of the 2018 Proposed Action displays the lands in the wilderness inventory as well as an evaluation of these lands.³ There may be ongoing management activities on the lands in the wilderness inventory; these activities do not preclude the consideration of these lands as recommended wilderness.

Table 132 displays the recommended wilderness areas and their acreage in each alternative.

³ [Appendix D of the 2018 Proposed Action](#)

Table 132. Acreage of recommended wilderness areas by alternative

Name	Geographic Area	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F
Cook Mountain	Ashland	0	0	0	9,794	0	0
King Mountain	Ashland	0	0	0	10,502	0	0
Tongue River Breaks	Ashland	0	0	0	16,883	0	0
Bear Canyon	Pryor Mountains	0	0	0	10,366	0	10,662
Big Pryor	Pryor Mountains	0	0	0	12,737	0	0
Lost Water Canyon	Pryor Mountains	6,804	6,797	6,797	12,992	0	8,168
Punch Bowl	Pryor Mountains	0	0	0	7,766	0	0
Burnt Mountain	Absaroka Beartooth Mountains	3,917	0	0	0	0	0
Chico Peak	Absaroka Beartooth Mountains	0	0	0	7,036	0	0
Deckard Flats	Absaroka Beartooth Mountains	0	0	0	935	0	0
Deer Creek	Absaroka Beartooth Mountains	0	0	0	85,444	0	0
Dome Mountain	Absaroka Beartooth Mountains	0	0	0	9,540	0	0
East Rosebud to Stillwater	Absaroka Beartooth Mountains	0	0	0	17,422	0	0
Emigrant Peak	Absaroka Beartooth Mountains	0	0	0	15,829	0	0
Knowles Peak	Absaroka Beartooth Mountains	0	0	0	1,223	0	0
Line Creek Plateau	Absaroka Beartooth Mountains	809	801	801	26,605	0	0
Mount Rae	Absaroka Beartooth Mountains	0	0	0	2,839	0	0
Mystic	Absaroka Beartooth Mountains	247	247	247	136	0	0
North Fork	Absaroka Beartooth Mountains	0	0	0	36	0	0
Phelps Creek	Absaroka Beartooth Mountains	0	0	0	3,177	0	0
Red Lodge Creek	Absaroka Beartooth Mountains	0	0	0	12,039	0	0
Republic	Absaroka Beartooth Mountains	388	388	388	388	0	0
Sheep Creek	Absaroka Beartooth Mountains	0	0	0	557	0	0
Strawberry Creek	Absaroka Beartooth Mountains	0	0	0	11,597	0	0
Tie Creek	Absaroka Beartooth Mountains	0	0	0	5,886	0	0
Timberline	Absaroka Beartooth Mountains	802	802	802	0	0	802

Chapter 3. Affected Environment and Environmental Consequences

Name	Geographic Area	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F
West Fork Rock Creek	Absaroka Beartooth Mountains	0	0	0	12,470	0	0
West Woodbine	Absaroka Beartooth Mountains	0	0	0	1,091	0	0
Blacktail Peak	Bridger, Bangtail, and Crazy Mountains	0	0	0	6,147	0	0
Crazy Mountains	Bridger, Bangtail, and Crazy Mountains	0	0	0	59,636	0	0
South Crazy Mountains	Bridger, Bangtail, and Crazy Mountains	0	0	0	0	0	9,619
West Bridger	Bridger, Bangtail, and Crazy Mountains	0	0	0	26,106	0	0
Buck Creek	Madison, Henrys Lake, and Gallatin Mountains	0	0	0	28,966	0	0
Cabin Creek North	Madison, Henrys Lake, and Gallatin Mountains	0	0	0	17,092	0	0
Cabin Creek South	Madison, Henrys Lake, and Gallatin Mountains	0	0	0	19,272	0	0
Cowboy Heaven	Madison, Henrys Lake, and Gallatin Mountains	0	0	15,536	14,357	0	13,176
Gallatin	Madison, Henrys Lake, and Gallatin Mountains	0	0	98,644	193,709	0	0
Gallatin Crest	Madison, Henrys Lake, and Gallatin Mountains	0	67,394	0	0	0	78,071
Lionhead	Madison, Henrys Lake, and Gallatin Mountains	20,774	17,983	15,738	31,389	0	0
Sawtooth Mountain	Madison, Henrys Lake, and Gallatin Mountains	0	14,503	0	0	0	14,461
Spanish Peaks East	Madison, Henrys Lake, and Gallatin Mountains	0	0	0	5,861	0	0
Spanish Peaks South	Madison, Henrys Lake, and Gallatin Mountains	0	0	0	2,845	0	0
Taylor Hilgard	Madison, Henrys Lake, and Gallatin Mountains	0	4,466	6,824	4,466	0	4,466
Yankee Jim Lake	Madison, Henrys Lake, and Gallatin Mountains	0	0	0	6,292	0	0
Total Acres	No data	33,741	113,382	145,777	711,425	0	139,425

Alternative A represents the current plans with projections if retained.

Current Plans

Management Direction under the Current Plans

Both the 1986 Custer Forest Plan and 1987 Gallatin Forest Plan list recommended wilderness areas. Currently the Custer Gallatin National Forest manages seven different recommended wilderness areas. Five of these are small areas under 5,000 acres and are attached to either the already designated Absaroka-Beartooth Wilderness or the North Absaroka Wilderness on the Shoshone National Forest. One, 6,800-acre area is in the Pryor Mountains, and the final area is over 20,000 acres in the Henrys Lake Mountains. In total, there are seven areas totaling 33,741 acres of recommended wilderness in the current plans.

Unlike other alternatives, all the acres within recommended wilderness areas in this alternative are also inventoried roadless areas. Table 133 displays the recommended wilderness areas in the current plans, their acreage and the geographic areas in which they are located, as well as recommended wilderness areas acres within inventoried roadless areas.

Table 133. Recommended wilderness areas in the current plans by geographic area, total acreage, and inventoried roadless area acreage

Recommended Wilderness Area	Geographic Areas	RWA Acres	RWA acres in Inventoried Roadless Area	Percent of RWA in IRA
Lost Water Canyon	Pryor Mountains	6,804	6,804	100
Mystic	Absaroka Beartooth Mountains	247	247	100
Burnt Mountain	Absaroka Beartooth Mountains	3,917	3,917	100
Timberline	Absaroka Beartooth Mountains	802	802	100
Line Creek Plateau	Absaroka Beartooth Mountains	809	809	100
Republic Mountain	Absaroka Beartooth Mountains	388	388	100
Lionhead	Madison, Henrys Lake, Gallatin Mountains	20,774	20,744	100
Total Acres	No Data	33,741	33,741	100

Note: RWA = recommended wilderness area; IRA = inventoried roadless area.

The 1986 Custer Plan's management area H goal requires the retention of the wilderness characteristics until a congressional decision is made regarding wilderness classification. Custer Plan components closed the recommended wilderness areas to motorized vehicles (standard 1a), and did not allow new roads or trails (standard 1d) or removal of mineral material (standard 6d2). The recommended wilderness areas are not suitable for timber production; limited cutting of trees is allowed to maintain existing trail structures (standard 5a). Fire control options are varied, however prescribed fire is not allowed (standard 9d). Some components call for specific actions to increase wilderness characteristics, such as the phase out of the Mystic Lake Boating Association special use permit and closure of the two-track road (jeep trail) in the Pryor Mountains to Tony Island Spring, both of which are accomplished (standards 7b, 8b).

The 1987 Gallatin Forest Plan forestwide goal 3 is to manage the existing and recommended wilderness resource to maintain its wilderness characteristics and to provide for its use and protection. Management area 4 direction is to manage recommended wilderness to protect the wilderness characteristics and to allow existing uses pending congressional action on their classification (goals 1 and 2). There are two appendixes, F-1 and F-2, which give detailed direction for the Absaroka Beartooth and Lee Metcalf Wildernesses. Management activities in grizzly bear habitat are to continue recovery of the bear, administrative cabins will be retained for management purposes but will not be rented to the public, prescribed fire is allowed, areas are unsuitable for timber production and generally no measures will be undertaken for insect and disease management unless epidemic populations exist and adjacent lands are severely threatened.

All seven recommended wilderness areas are mapped and managed as semi-primitive-non-motorized recreational opportunity spectrum. Motorized transport including motorized winter over-snow use is not suitable within recommended wilderness areas. Within the Lionhead Recommended Wilderness, mountain biking use is allowed on several trails; mountain biking is not a suitable use in the other recommended wilderness areas. There are no mineral rights or oil and gas leases within recommended wilderness area in this alternative.

Effects of the Current Plans

The current plans have less recommended wilderness area than alternatives B, C, D, and F and more than alternative E and therefore it would provide the fifth highest amount of recommended wilderness area of the six alternatives.

In the current plans, the seven current recommended wilderness area continue to be managed per the 1986 and 1987 forest plans. In the years since the original plans were completed, Congress has not taken action to either designate or release those areas recommended to be wilderness. They remain recommended to Congress to become designated wilderness. In the current plans, approximately 46 percent of the forest is suitable for motorized winter over-snow use, meaning they are in a recreation opportunity spectrum classification that accommodates winter motorized transportation. The 33,741 acres of recommended wilderness area in the current plans are not suitable for motorized transport including motorized winter over-snow use.

Natural disturbances and changes in recreation use patterns may continue to influence the wilderness characteristics of these areas. None of the recommended wilderness areas in the current plans have outstanding or reserved mineral rights, oil and gas leases, or mining claims. Mechanized transport such as mountain biking would continue to be suitable on 18 miles of trail in the Lionhead Recommended Wilderness Area. There are existing minor grazing facilities such as fence lines and water developments in the Lionhead Recommended Wilderness Area. Most of the recommended wilderness areas include use under outfitter guide permits. There are no state lands and private inholdings in recommended wilderness areas in the current plans. Prescribed fire on the five recommended wilderness areas under direction of the Custer Forest Plan is prohibited, while that action is allowed on the two recommended wilderness areas under the direction of the 1987 Gallatin Forest Plan.

Mechanized transport (such as, bicycles) may affect the undeveloped nature (ecological characteristic) and primitive recreation (social characteristic) where recommended wilderness is essentially without permanent improvements or modern human occupation and social characteristics of primitive recreation. Not every person traveling through the Lionhead Recommended Wilderness Area would

meet a mountain biker. Any type of trail, whether for hikers or horseback riders, can affect the undeveloped characteristics (ecological characteristics) as a trail is considered a development. Solitude can be affected by noise, but also can be affected by encountering other people who are hiking or horseback riding. Administrative use of chainsaws for trail maintenance may occur as there is no national prohibition on such use in recommended wilderness. Visitors may occasionally encounter crews conducting maintenance activities.

Under the current plans, there are 6,804 recommended wilderness area acres in the Pryor Mountains or nine percent of the total geographic area. There are a total of 6,163 recommended wilderness area acres in the Absaroka Beartooth Mountains Geographic Area or less than half of a percent of that total geographic area. Finally, there are 20,774 acres or about three percent within recommended wilderness area in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area.

Table 134 summarizes the effects of recommended wilderness area for the current plans.

Table 134. Recommended wilderness area indicators for the current plans

Indicators	Unit of Measure
Acres and percent of total National Forest within recommended wilderness areas	33,741 acres; 1.1%
Acres and percent of inventoried roadless area within recommended wilderness	33,741 acres; 100%
Acres of suitable motorized over-snow vehicle transport in recommended wilderness	0 acres
Miles of suitable wheeled motorized transport in recommended wilderness	0 miles
Miles of trails suitable for mechanized transport in recommended wilderness	20 miles
Miles of trails no longer suitable for mechanized transport in recommended wilderness	0 miles
Existing facilities	Minor Grazing Infrastructure

Revised Plan Alternatives

Management Direction Common to Revised Plan Alternatives

Forestwide plan components for all recommended wilderness areas are intended to protect wilderness characteristic. Under all revised plan alternatives, recommended wilderness areas would not allow new roads (FW-STD-RWA-01), new energy or utility corridors, or facilities (FW-STD-RWA-02), new commercial communication sites (FW-STD-RWA-03), new developed recreation sites (FW-STD-RWA-04), new recreation events (FW-STD-RWA-05), or extraction of saleable mineral materials (FW-STD-RWA-06). Recommended wilderness areas would not be suitable for timber production and timber harvest would not be suitable (FW-SUIT-RWA-01). Recommended wilderness areas would be 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 (FW-SUIT-RWA-03). Permitted livestock grazing would be suitable where it had been established prior to being identified as recommended wilderness area (FW-SUIT-RWA-04) and additional range improvements would be limited to existing allotments to enhance wilderness characteristics or for resource protection (FW-GDL-RWA-01). Recommended wilderness areas would not be suitable for recreational and commercial drone launching and landings (FW-SUIT-RWA-08).

Direction varies by alternative related to suitability of motorized and mechanized transport (FW-SUIT-RWA-02), developed recreation sites such as recreation rental cabins (FW-SUIT-RWA-05), commercial communication facilities (FW-SUIT-RWA-07), and is discussed further below for each alternative.

Alternative B

Management Direction under Alternative B

Nine areas would be recommended as wilderness for a total of 113,382 acres (table 135). Alternative B would include six recommended wilderness areas that are included in the current plans, and three additional recommended wilderness areas would be added. Alternative B would not include one area included in the current plans, the 3,917 acres in Burnt Mountain Recommended Wilderness Area west of the Red Lodge Mountain Ski Area. The 17,983-acre Lionhead Recommended Wilderness Area is 2,791 acres smaller in alternative B than the current plans, and excludes the Continental Divide National Scenic Trail corridor.

Additional recommended wilderness areas include the 14,503-acre Sawtooth Recommended Wilderness Area, the adjacent 67,358 Gallatin Crest Recommended Wilderness Area and the 4,466-acre Taylor Hilgard Recommended Wilderness Area which is adjacent to the south end of the Taylor Hilgard unit of the designated Lee Metcalf Wilderness.

Ninety-eight percent of recommended wilderness areas in alternative B are also within inventoried roadless areas. Table 135 displays the recommended wilderness areas in alternative B, their acreage and the geographic areas in which they are located, as well as recommended wilderness area acres within inventoried roadless areas.

Table 135. Alternative B recommended wilderness areas (RWA) by geographic area, total acreage, and inventoried roadless area acreage

Recommended Wilderness Area	Geographic Area	RWA Acres	RWA acres in Inventoried Roadless Area	Percent of RWA in IRA
Lost Water Canyon	Pryor Mountains	6,797	6,595	100
Mystic	Absaroka Beartooth Mountains	247	215	87
Timberline	Absaroka Beartooth Mountains	802	802	100
Line Creek Plateau	Absaroka Beartooth Mountains	801	801	100
Republic Mountain	Absaroka Beartooth Mountains	388	388	100
Lionhead	Madison, Henrys Lake, Gallatin Mountains	17,983	17,834	100
Gallatin Crest	Madison, Henrys Lake, Gallatin Mountains	67,394	66,865	99
Sawtooth Mountain	Madison, Henrys Lake, Gallatin Mountains	14,503	13,620	94
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	4,466	4,466	100
Total Acres	No Data	113,382	111,586	98

Under alternative B, most of the recommended wilderness areas would be managed as semi-primitive-non-motorized rather than primitive recreation opportunity spectrum because of the need to manage and enhance conditions. The proposed Taylor Hilgard Recommended Wilderness Area would be managed as semi-primitive-non-motorized summer recreational opportunity spectrum, and semi-primitive-motorized winter recreational opportunity spectrum. About 900 acres of the proposed Gallatin

Crest Recommended Wilderness Area is in winter motorized recreation opportunity spectrum categories; the remainder is semi-primitive non-motorized in summer and winter.

In alternative B, existing motorized and mechanized transport (such as, mountain bikes), including motorized winter over-snow transport would be suitable within recommended wilderness areas. Continued use of existing commercial communication sites would be suitable, while developed recreation sites such as recreation rental cabins would not be suitable.

Effects of Alternative B

Alternative B proposes 113,382 acres of recommended wilderness area; less than alternatives C, D, and F and more than alternatives A and E and it therefore it would provide the fourth highest amount of recommended wilderness area of the six alternatives. There are no recommended wilderness areas in the Ashland; Sioux; or Bridger, Bangtail, and Crazy Mountains Geographic Areas. There are 6,797 recommended wilderness area acres in the Pryor Mountains Geographic Area or nine percent of the total geographic area. There is a total of 2,238 recommended wilderness area acres in the Absaroka Beartooth Mountains Geographic Area or less than half of a percent of that total geographic area. Finally, there are 104,346 acres or about thirteen percent within recommended wilderness area in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area. All but approximately 2,000 acres of the recommended wilderness areas in this alternative are also inventoried roadless areas.

Tools such as additional educational or directional signage would be available in a semi-primitive-non-motorized setting to help move recommended wilderness areas toward the primitive and unconfined recreation opportunities envisioned in FW-DC-RWA-02. For example, signage to explain why a campsite is closed and being rehabilitated would be allowed in a semi-primitive-non-motorized setting and not available in a primitive setting. Such signage may help foster compliance and therefore rehabilitation of the campsite.

There are no existing motorized trails in recommended wilderness area in alternative B. Mechanized transport would continue to be suitable on about 20 miles of trails; about 11 miles in the proposed Lionhead Recommended Wilderness Area and about 9 miles in the proposed Sawtooth Recommended Wilderness Area. The mountain bike trails in the Sawtooth Recommended Wilderness Area are currently inaccessible to mountain bike use because they are located between private land with no public access and Yellowstone National Park which does not allow mountain bike use on its trails. The proposed Taylor Hilgard Recommended Wilderness Area and about 900 acres of the Gallatin Crest Recommended Wilderness Area would continue to be mapped as semi-primitive-motorized winter recreation opportunity spectrum categories which reflects that an area is suitable for snowmobiling, although the winter recreation opportunity spectrum mapping does not consider topography, access or consistent snow.

Mechanized transport (such as, bicycles) and motorized transport may affect the undeveloped nature (ecological characteristic) and primitive recreation (social characteristic) where recommended wilderness is essentially without permanent improvements or modern human occupation and social characteristics of primitive recreation. In addition, winter motorized transport such as over-snow vehicle transport, can impact the solitude and primitive recreation (social characteristic).

Not every person traveling through these recommended wilderness areas would meet a mountain biker or snowmobiler. Any type of trail, whether for hikers or horseback riders can affect the undeveloped

characteristics (ecological characteristic). Solitude can be affected by noise but also can be affected by encountering other people who are hiking or horseback riding.

Developed recreation sites would not be suitable within recommended wilderness areas in alternative B, such as operation of the Windy Pass cabin under the recreation rental cabin program. Some visitors may no longer visit this specific area overnight as they may want the comforts provided by a cabin rather than camping. Windy Pass cabin was rented 96 percent of available days in 2019 demonstrating the relative desirability of this cabin rental to the public. Given the high percentage of days that the Windy Pass cabin has been rented each year, visitor use to the area may decrease. The Custer Gallatin would no longer receive rental fees for this cabin, which could affect future maintenance of this historic structure. If the cabin is not needed for administrative purposes, it would be evaluated for removal. There are an additional 26 rental cabins and lookouts that would continue on the Custer Gallatin. The Buffalo Horn Administrative cabin, a historic structure in administrative use within the Gallatin Crest Recommended Wilderness Area, may be suitable to remain within this recommended wilderness area, but would need to undergo separate evaluation to determine the appropriateness of retaining such a structure. There are no current recreation event special use permits located within recommended wilderness areas in alternative B.

Commercial communication sites such as cell phone towers would continue to be suitable, and the Forest Service would provide reasonable access for their maintenance. In alternative B, there are three authorized communication uses within the Gallatin Crest Recommended Wilderness Area. Two of these sites are single user sites located on Steamboat Mountain and Twin Peaks. The third is a Forest Service building and tower at the Eaglehead Communication Site. Gallatin County, Montana Department of Transportation and a private commercial user are co-located in this Forest Service building. A passive reflector on Sheep Mountain is omitted from recommended wilderness in alternative B.

All except approximately 1,999 acres of the recommended wilderness areas in this alternative are also inventoried roadless areas. For those acres, (approximately two percent of recommended wilderness in alternative B), which are not under the direction of the 2001 Roadless Rule, the proposed allocation of recommended wilderness areas will restrict timber production, and temporary and permanent road building.

Administrative use of chainsaws for trail maintenance may occur as there is no national prohibition on such use in recommended wilderness. Visitors may occasionally encounter crews conducting maintenance activities.

The Custer Gallatin National Forest obtained lands through purchase or exchange, where the Federal government did not also obtain the mineral rights to those acres. "Reserved" mineral rights are retained by the grantor; "outstanding" mineral rights are held by other (third parties) than the owner or grantor. The rights to explore and develop minerals on those lands are not prohibited by a forest plan recommended wilderness area. Therefore, any lands such as these within a recommended wilderness area has the potential for future access and mineral development. While future mineral development may occur where valid existing or statutory rights exist, energy and mineral resources plan components state that mineral activities consider other resources values which may be present. The probability of an entity exerting those held mineral rights for exploration or development is not predicable.

Table 136 displays the acreage of mineral encumbrances, including outstanding mineral rights, reserved mineral rights, oil and gas leases, and whether there are mining claims within recommended wilderness

areas proposed in alternative B. Reasonable access and other mineral activities may occur in areas with mineral encumbrances.

Table 136. Alternative B recommended wilderness area (RWA) acreage and presence of mineral encumbrances

Recommended Wilderness Area	RWA Acres	Acres Outstanding Mineral Rights	Acres Reserved Mineral Rights	Acres Oil and Gas Leases	Mining Claims Present
Lost Water Canyon	6,797	0	0	none	no
Mystic	247	0	0	none	no
Timberline	802	0	0	none	no
Line Creek Plateau	801	0	0	none	no
Republic Mountain	388	0	0	none	no
Lionhead	17,983	0	0	none	no
Gallatin Crest	67,394	1,804	3,823	none	no
Sawtooth Mountain	14,503	604	4,667	none	no
Taylor Hilgard	4,466	0	0	none	no
Total Acres	113,382	2,408	8,490	0	0

Table 137 summarizes the effects of recommended wilderness area in alternative B.

Table 137. Recommended wilderness area indicators for alternative B

Indicators	Unit of Measure
Acres and percent of total national forest within recommended wilderness	113,382 acres; 3.7%
Acres and percent of inventoried roadless area within recommended wilderness	111,586 acres; 98%
Acres that continue to be suitable for motorized over-snow vehicle transport in recommended wilderness	5,385 acres
Miles of trails that continue to be suitable for mechanized transport in recommended wilderness	20 miles
Miles of trails no longer suitable for mechanized transport in recommended wilderness	0 miles
Existing special use permits or facilities.	Windy Pass rental cabin Buffalo Horn admin cabin Steamboat Mtn., Twin Peaks, Eaglehead communication uses

Alternative C

Management Direction under Alternative C

Nine areas would be recommended as wilderness as alternative C, for a total of 145,777 acres (table 132). The six recommended wilderness areas from the current plans that are included in alternative B would also be included in alternative C and three additional recommended wilderness areas would be added. The 15,738-acre Lionhead Recommended Wilderness Area excludes the Continental Divide National Scenic Trail corridor and other trails, and is 5,036 acres smaller in alternative C than the current plans and 2,245 acres smaller than alternative B.

The 98,644 -acre Gallatin Recommended Wilderness Area includes both the Sawtooth and Gallatin Crest Recommended Wilderness Areas of alternative B. The 6,824-acre Taylor Hilgard Recommended Wilderness Area is larger by 2,358 acres than in alternative B. The Cowboy Heaven Recommended Wilderness Area is 15,536 acres in this alternative.

Ninety-seven percent of recommended wilderness areas in alternative C are also within inventoried roadless areas. Table 138 displays the recommended wilderness areas in alternative C, their acreage and the geographic areas in which they are located, as well as recommended wilderness area acres within inventoried roadless areas.

Table 138. Alternative C recommended wilderness area by geographic area, total acreage, and inventoried roadless area acreage

Recommended Wilderness Area	Geographic Areas	RWA Acres	RWA acres in Inventoried Roadless Area	Percentage of RWA in IRA
Lost Water Canyon	Pryor Mountains	6,797	6,595	97
Mystic	Absaroka Beartooth Mountains	247	205	83
Timberline	Absaroka Beartooth Mountains	802	802	100
Republic Mountain	Absaroka Beartooth Mountains	388	388	100
Line Creek Plateau	Absaroka Beartooth Mountains	801	801	100
Lionhead	Madison, Henrys Lake, Gallatin Mountains	15,738	15,589	99
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	15,536	15,489	99
Gallatin	Madison, Henrys Lake, Gallatin Mountains	98,644	96,601	97
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	6,824	6,104	89
Total Acres	No Data	145,777	142,574	97

RWA is recommended wilderness; IRA is inventoried roadless area.

Under alternative C, all recommended wilderness areas would be managed as primitive recreational opportunity spectrum. Motorized and mechanized transport (such as, mountain bikes), including motorized winter over-snow transport, continued use of commercial communication sites and developed recreation sites, except for the continued use of the Windy Pass Cabin as a recreation rental cabin, would not be suitable within recommended wilderness areas.

A guideline is now included in alternative C for the Taylor Hilgard, Cowboy Heaven, and Gallatin Recommended Wilderness Areas stating “to maintain areas of undeveloped wilderness characteristics, 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.”

Effects of Alternative C

Alternative C recommends 145,777 acres of recommended wilderness area; less than alternative D and more than alternatives A, B, E, and F and therefore would provide the second highest amount of recommended wilderness area of the alternatives. There are no recommended wilderness areas in the Ashland; Sioux; or Bridger, Bangtail, and Crazy Mountains Geographic Areas. There are 6,797 recommended wilderness area acres in the Pryor Mountains Geographic Area or nine percent of the

total geographic area. There are 2,238 recommended wilderness area acres in the Absaroka Beartooth Mountains Geographic Area or less than half of a percent of that total geographic area. Finally, there are 136,741 recommended wilderness area acres in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area, or about seventeen percent of the total geographic area.

Under a primitive recreation opportunity spectrum desired condition, trails, signs, and infrastructure would be managed to a lower condition than currently exists. This would result, for example, in a setting managed to feature for challenge, self-reliance and route-finding experiences, compared to one of managing for visitor safety, ease, and comfort. Some tools, such as additional educational or directional signage, would not be available in a primitive setting to help move recommended wilderness areas toward the primitive and unconfined recreation opportunities envisioned in FW-DC-RWA-02.

There are no existing motorized trails within recommended wilderness area in alternative C. Mountain bike use would no longer be suitable on about 14 miles of trail currently open to mountain bikes. Alternative C boundaries for the Lionhead Recommended Wilderness Area excludes all but 1.5 miles of mountain bike trails; the spur trail to Coffin Lake would no longer be suitable for mountain bike use in this alternative. Cowboy Heaven Recommended Wilderness Area contains 3.5 miles of mountain bike trails; Gallatin Recommended Wilderness Area in the Sawtooth area contains nine miles of mountain bike trails, for a total of 14 miles of bike trails in alternative C.

Based on semi-primitive-motorized winter recreation opportunity spectrum mapping (which reflects that an area is suitable for snowmobiling, although the winter recreation opportunity spectrum mapping does not consider topography, access or consistent snow), there would be 8,884 fewer acres suitable for winter motorized transport compared to the current plans (table 139). Under this alternative, the applicable travel plans would need to be updated through site specific NEPA decision making after completion of the plan revision process.

Table 139. Alternative C recommended wilderness area acreage no longer suitable for winter motorized transport available acres, change from the current plans

Recommended Wilderness Area	Geographic Area	Acres no Longer Suitable for Over-snow Motorized Opportunities Transport
Lost Water Canyon	Pryor Mountains	0
Mystic	Absaroka Beartooth Mountains	0
Timberline	Absaroka Beartooth Mountains	0
Line Creek Plateau	Absaroka Beartooth Mountains	0
Republic Mountain	Absaroka Beartooth Mountains	0
Lionhead	Madison, Henrys Lake, Gallatin Mountains	0
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	0
Gallatin	Madison, Henrys Lake, Gallatin Mountains	2,060
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	6,824
Total Acres	No Data	8,884

Under alternative C, operating the Windy Pass rental cabin as a developed site would continue to be a suitable use. In 2019, the Windy Pass cabin was rented 96 percent of the days it was available, the highest utilization rate of all 27 rental cabins and lookouts on the Custer Gallatin. This indicates that during the 120-day operating season there would likely be fairly constant visitor activity in that cabin

location. The Custer Gallatin would continue to receive rental fees for maintenance of this historic structure. Buffalo Horn administrative cabin, a historic structure in administrative use in the Gallatin Recommended Wilderness Area, may be suitable to remain within this recommended wilderness area, but would need to undergo separate evaluation to determine the appropriateness of retaining such a structure. There are no current recreation event special use permits located within recommended wilderness areas in alternative C.

Commercial communication sites such as passive reflectors and microwave relay uses would not be suitable in recommended wilderness areas and a process would start for the eventual removal of such structures operating under special use permit. In addition to the communication sites of alternative B, alternative C has another commercial communication use at Sheep Mountain. The existing communication uses on Eaglehead would continue to be suitable and would be able to continue operation because they are providing agency and public services, and no commercial communication uses operate out of this site. The commercial communication uses at Steamboat Mountain, Twin Peaks, and Sheep Mountain would need to be evaluated for suitability with plan components, and would need to be moved outside of the recommended wilderness area or phased out over time with consequent impacts to the holder. Northwest Energy has indicated they do not intend to renew their expiring permit for the Steamboat site.

All but approximately 3,981 acres of the recommended wilderness areas in this alternative are also inventoried roadless areas. For those acres, (approximately three percent of recommended wilderness in alternative C), which are not under the direction of the 2001 Roadless Rule, the proposed allocation of Recommended Wilderness Areas would restrict timber production, and temporary and permanent road building.

Administrative use of chainsaws for trail maintenance may occur as there is no national prohibition on such use in recommended wilderness. Visitors may occasionally encounter crews conducting maintenance activities.

Table 140 displays the acres of outstanding mineral rights, reserved mineral rights, oil and gas leases, and whether there are mining claims within recommended wilderness areas proposed in alternative C. Reasonable access and other mineral activities may occur in areas with mineral encumbrances.

Table 140. Alternative C recommended wilderness area (RWA) acres and presence of mineral encumbrances

Recommended Wilderness Area	RWA Acres	Acres Outstanding Mineral Rights	Acres Reserved Mineral Rights	Acres Oil and Gas Leases	Mining Claims Present
Lost Water Canyon	6,797	0	0	none	No
Mystic	247	0	0	none	No
Timberline	802	0	0	none	No
Line Creek Plateau	801	0	0	none	No
Republic Mountain	388	0	0	none	No
Lionhead	15,738	0	0	none	No
Cowboy Heaven	15,536	1,770	0	none	No
Gallatin	98,644	2,619	13,069	479	No
Taylor Hilgard	6,824	0	0	none	No
Total Acres	145,777	4,389	13,069	479	0

Table 141 summarizes the effects of recommended wilderness area in alternative C.

Table 141. Recommended wilderness area indicators for alternative C

Indicators	Unit of Measure
Acres and percent of total NF within recommended wilderness	145,777 acres; 4.8%
Acres and percent of inventoried roadless area within recommended wilderness	142,574 acres; 97%
Acres no longer suitable for motorized over-snow vehicle transport in recommended wilderness	8,884 acres
Miles of trail no longer suitable for motorized transport in recommended wilderness	0 miles
Miles of trails no longer a suitable for mechanized transport in recommended wilderness	14 miles
Existing special use permits or facilities	Windy Pass rental cabin, Buffalo Horn admin cabin, Steamboat Mountain, Twin Peaks, Eaglehead, Sheep Mtn. communication uses

Alternative D

Management Direction under Alternative D

Thirty-nine areas would be recommended as wilderness for a total of 711,425 acres (table 142). All seven recommended wilderness areas of the current plans are included in alternative D. The 3,917 acres in the current Custer Forest Plan’s Burnt Mountain Recommended Wilderness Area is incorporated within the 12,039 acres of Red Lodge Creek Recommended Wilderness Area. The Lionhead Recommended Wilderness Area is 10,615 acres larger in alternative D than the current plans and includes the Continental Divide National Scenic Trail corridor. All recommended wilderness areas included in alternatives B, C and F are among the thirty-nine areas included in this alternative, although boundary configurations may change from those alternatives.

Eighty-eight percent of recommended wilderness areas in alternative D is also within inventoried roadless areas. Table 142 displays the recommended wilderness areas in alternative D, their acreage and the geographic areas in which they are located, as well as recommended wilderness area acres within inventoried roadless areas.

Table 142. Alternative D recommended wilderness areas by geographic area, total acreage, and inventoried roadless area acreage

Name	Geographic Area	RWA Acres	RWA acres in Inventoried Roadless Area	Percentage of RWA in IRA
Cook Mountain	Ashland	9,794	9,592	98%
King Mountain	Ashland	10,502	10,348	99%
Tongue River Breaks	Ashland	16,883	16,818	99%
Bear Canyon	Pryor Mountains	10,366	0	0%
Big Pryor	Pryor Mountains	12,737	0	0%
Lost Water Canyon	Pryor Mountains	12,992	10,201	79%

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Name	Geographic Area	RWA Acres	RWA acres in Inventoried Roadless Area	Percentage of RWA in IRA
Punch Bowl	Pryor Mountains	7,766	0	0%
Chico Peak	Absaroka Beartooth Mountains	7,036	6,978	99%
Deckard Flats	Absaroka Beartooth Mountains	935	890	97%
Deer Creek	Absaroka Beartooth Mountains	85,444	76,140	89%
Dome Mountain	Absaroka Beartooth Mountains	9,540	7,311	76%
East Rosebud to Stillwater	Absaroka Beartooth Mountains	17,422	14,166	81%
Emigrant Peak	Absaroka Beartooth Mountains	15,829	11,598	73%
Knowles Peak	Absaroka Beartooth Mountains	1,223	1,186	97%
Line Creek Plateau	Absaroka Beartooth Mountains	26,605	23,674	89%
Mount Rae	Absaroka Beartooth Mountains	2,839	2,827	99%
Mystic	Absaroka Beartooth Mountains	136	135	100%
North Fork	Absaroka Beartooth Mountains	36	0	0%
Phelps Creek	Absaroka Beartooth Mountains	3,177	3,171	99%
Red Lodge Creek	Absaroka Beartooth Mountains	12,039	7,977	66%
Republic	Absaroka Beartooth Mountains	388	388	100%
Sheep Creek	Absaroka Beartooth Mountains	557	551	99%
Strawberry Creek	Absaroka Beartooth Mountains	11,597	11,475	99%
Tie Creek	Absaroka Beartooth Mountains	5,886	5,191	88%
West Fork Rock Creek	Absaroka Beartooth Mountains	12,470	12,459	99%
West Woodbine	Absaroka Beartooth Mountains	1,091	1,021	94%
Blacktail Peak	Bridger, Bangtail, Crazy Mountains	6,147	6,147	100%
Crazy Mountains	Bridger, Bangtail, Crazy Mountains	59,636	59,616	99%
West Bridger	Bridger, Bangtail, Crazy Mountains	26,106	24,911	95%
Buck Creek	Madison, Henrys Lake, Gallatin Mountains	28,966	27,801	96%
Cabin Creek North	Madison, Henrys Lake, Gallatin Mountains	17,092	17,073	99%

Name	Geographic Area	RWA Acres	RWA acres in Inventoried Roadless Area	Percentage of RWA in IRA
Cabin Creek South	Madison, Henrys Lake, Gallatin Mountains	19,272	17,988	93%
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	14,357	14,357	100%
Gallatin	Madison, Henrys Lake, Gallatin Mountains	193,709	175,745	91%
Lionhead	Madison, Henrys Lake, Gallatin Mountains	31,389	29,372	94%
Spanish Peaks East	Madison, Henrys Lake, Gallatin Mountains	5,861	5,673	97%
Spanish Peaks South	Madison, Henrys Lake, Gallatin Mountains	2,845	2,845	100%
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	4,466	4,466	100%
Yankee Jim Lake	Madison, Henrys Lake, Gallatin Mountains	6,292	3,706	59%
Total Acres	No data	711,425	623,797	88%

RWA is recommended wilderness area; IRA is inventoried roadless area.

Under alternative D, all recommended wilderness areas would be managed as primitive recreational opportunity spectrum. Motorized and mechanized transport (such as, mountain bikes), including motorized winter over-snow transport, continued use of commercial communication sites and developed recreation sites would not be suitable within recommended wilderness areas. There are 41,364 acres within recommended wilderness area also managed as key linkage areas for wildlife connectivity under alternative D.

Effects of Alternative D

Alternative D has the largest number of acres within recommended wilderness area of the six alternatives at 711,425 acres or more than 23 percent of the Custer Gallatin National Forest. This increases by 678,011 acres compared to the current plans.

There are no recommended wilderness areas in the Sioux Geographic Area. There are 37,180 acres in the Ashland Geographic Area or almost nine percent of the total geographic area. There are 43,861 recommended wilderness area acres in the Pryor Mountains Geographic Area or fifty-eight percent of the total geographic area. There are 91,889 recommended wilderness area acres in the Bridger, Bangtail, and Crazy Mountains Geographic Area or forty-five percent of the total geographic area. Another 214,247 recommended wilderness area acres are in the Absaroka Beartooth Mountains Geographic Area or almost sixteen percent of that total geographic area. Finally, there are 324,248 acres or about forty percent within recommended wilderness area in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area.

Under a primitive recreation opportunity spectrum desired condition, trails, signs, and infrastructure would be managed to a lower condition than currently exists. This would result, for example, in a setting managed to feature for challenge, self-reliance and route-finding experiences, compared to one of managing for visitor safety, ease and comfort. Some tools, such as additional educational or directional

signage, would not be available in a primitive setting to help move recommended wilderness areas toward the primitive and unconfined recreation opportunities envisioned in FW-DC-RWA-02.

Based on semi-primitive- motorized winter recreation opportunity spectrum mapping (which reflects that an area is suitable for snowmobiling, although the winter recreation opportunity spectrum mapping does not consider topography, access or consistent snow), there would be 234,341 acres fewer acres suitable for winter motorized transport compared to the current plans (table 143). The displacement effect on winter motorized transport is difficult to predict. Winter motorized recreationists may seek out other locations on this forest, or find opportunities on other public lands. For winter recreationists seeking areas without needing to share lands with motorized transport, this would conversely increase those opportunities.

Table 143. Alternative D recommended wilderness area acreage no longer suitable for winter motorized transport, change from the current plans

Recommended Wilderness Area	Geographic Area	Acres no Longer Suitable for Over-Snow Motorized Transport
Cook Mountain	Ashland	0
King Mountain	Ashland	0
Tongue River Breaks	Ashland	0
Bear Canyon	Pryor Mountains	3,936
Big Pryor	Pryor Mountains	9,372
Lost Water Canyon	Pryor Mountains	5,900
Punch Bowl	Pryor Mountains	4,106
Chico Peak	Absaroka Beartooth Mountains	7,036
Deckard Flats	Absaroka Beartooth Mountains	81
Deer Creek	Absaroka Beartooth Mountains	62,477
Dome Mountain	Absaroka Beartooth Mountains	51
East Rosebud to Stillwater	Absaroka Beartooth Mountains	695
Emigrant Peak	Absaroka Beartooth Mountains	4,856
Knowles Peak	Absaroka Beartooth Mountains	1,223
Line Creek Plateau	Absaroka Beartooth Mountains	0
Mount Rae	Absaroka Beartooth Mountains	2,839
Mystic	Absaroka Beartooth Mountains	0
North Fork	Absaroka Beartooth Mountains	0
Phelps Creek	Absaroka Beartooth Mountains	316
Red Lodge Creek	Absaroka Beartooth Mountains	390
Republic	Absaroka Beartooth Mountains	0
Sheep Creek	Absaroka Beartooth Mountains	557
Strawberry Creek	Absaroka Beartooth Mountains	11,597
Tie Creek	Absaroka Beartooth Mountains	5,790
West Fork Rock Creek	Absaroka Beartooth Mountains	0
West Woodbine	Absaroka Beartooth Mountains	1,091
Blacktail Peak	Bridger, Bangtail, Crazy Mountains	6,147

Recommended Wilderness Area	Geographic Area	Acres no Longer Suitable for Over-Snow Motorized Transport
Crazy Mountains	Bridger, Bangtail, Crazy Mountains	8,701
West Bridger	Bridger, Bangtail, Crazy Mountains	23,988
Buck Creek	Madison, Henrys Lake, Gallatin Mountains	11,547
Cabin Creek North	Madison, Henrys Lake, Gallatin Mountains	7,972
Cabin Creek South	Madison, Henrys Lake, Gallatin Mountains	17,794
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	0
Gallatin	Madison, Henrys Lake, Gallatin Mountains	24,927
Lionhead	Madison, Henrys Lake, Gallatin Mountains	6,239
Spanish Peaks East	Madison, Henrys Lake, Gallatin Mountains	0
Spanish Peaks South	Madison, Henrys Lake, Gallatin Mountains	230
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	4,466
Yankee Jim Lake	Madison, Henrys Lake, Gallatin Mountains	107
Total acres	No Data	234,341

The total mileage of motorized and mechanized trails affected is larger than other alternatives. Table 143 displays the recommended wilderness areas and the trails no longer suitable for motorized and mechanized transport. The Big Sky Snowmobile Trail is located in the area no longer suitable for over-snow motorized transport depicted in table 143 above. Those recreationists who use the existing trails that would no longer be suitable for the modes of travel they seek would be displaced. It is not possible to predict the locations where users would ride instead. They may ride elsewhere on the Custer Gallatin or seek other opportunities on public lands. Alternative D has the largest number of acres no longer suitable to current motorized and mechanized transport on trails within recommended wilderness area. Under this alternative, the applicable travel plans would need to be updated through site specific NEPA decision making after completion of the plan revision process. Recommended wilderness area miles of motorized and mechanized trails are shown in table 144.

Table 144. Alternative D recommended wilderness area miles of motorized and mechanized trails

Recommended Wilderness Area	Geographic Area	All Motorized Vehicles and Bicycles	ATVs and Bicycles	Motor-cycles and Bicycles	Bicycles
Cook Mountain	Ashland	0	0	0	0
King Mountain	Ashland	0	0	0	0
Tongue River Breaks	Ashland	0	0	0	0
Bear Canyon	Pryor Mountains	0	0	0	0

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Recommended Wilderness Area	Geographic Area	All Motorized Vehicles and Bicycles	ATVs and Bicycles	Motor-cycles and Bicycles	Bicycles
Big Pryor	Pryor Mountains	4.78	0	0	5.73
Lost Water Canyon	Pryor Mountains	0	0	0	0
Punch Bowl	Pryor Mountains	0	0	0	0
Total	Pryor Mountains	4.78	0	0	5.73
Chico Peak	Absaroka Beartooth Mountains	0	0	0	0
Deckard Flats	Absaroka Beartooth Mountains	0	0	0	0
Deer Creek	Absaroka Beartooth Mountains	0	6.79	48.56	36.10
Dome Mountain	Absaroka Beartooth Mountains	0	0	0	4.52
East Rosebud to Stillwater	Absaroka Beartooth Mountains	0	0	0	2.11
Emigrant Peak	Absaroka Beartooth Mountains	0	0	0	4.86
Knowles Peak	Absaroka Beartooth Mountains	0	0	0	2.08
Line Creek Plateau	Absaroka Beartooth Mountains	0	0	0	32.32
Mount Rae	Absaroka Beartooth Mountains	0	0	0	0.69
Mystic	Absaroka Beartooth Mountains	0	0	0	0
North Fork	Absaroka Beartooth Mountains	0	0	0	0
Phelps Creek	Absaroka Beartooth Mountains	0	0	0	0.94
Red Lodge Creek	Absaroka Beartooth Mountains	0	0	0	1.44
Republic	Absaroka Beartooth Mountains	0	0	0	0
Sheep Creek	Absaroka Beartooth Mountains	0	0	0	0
Strawberry Creek	Absaroka Beartooth Mountains	0	0	0	2.88
Tie Creek	Absaroka Beartooth Mountains	0	0	0	0
West Fork Rock Creek	Absaroka Beartooth Mountains	0	0	0	9.99
West Woodbine	Absaroka Beartooth Mountains	0	0	0	0
Total	Absaroka Beartooth Mountains	0	6.79	48.56	97.92
Blacktail Peak	Bridger, Bangtail, Crazy Mountains	0	0	0	0

Recommended Wilderness Area	Geographic Area	All Motorized Vehicles and Bicycles	ATVs and Bicycles	Motor-cycles and Bicycles	Bicycles
Crazy Mountains	Bridger, Bangtail, Crazy Mountains	0	0	4.50	13.37
West Bridger	Bridger, Bangtail, Crazy Mountains	0	0.61	22.05	22.62
Total	Bridger, Bangtail, Crazy Mountains	0	0.61	26.54	35.99
Buck Creek	Madison, Henrys Lake, Gallatin Mountains	0	9.14	10.58	22.13
Cabin Creek North	Madison, Henrys Lake, Gallatin Mountains	0	3.54	0	6.89
Cabin Creek South	Madison, Henrys Lake, Gallatin Mountains	0	0.76	3.49	9.64
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	0	0	0	4.97
Gallatin	Madison, Henrys Lake, Gallatin Mountains	0	10.65	41.31	47.73
Lionhead	Madison, Henrys Lake, Gallatin Mountains	0	5.22	0	30.04
Spanish Peaks East	Madison, Henrys Lake, Gallatin Mountains	0	0	0	0
Spanish Peaks South	Madison, Henrys Lake, Gallatin Mountains	0	0	0	1.62
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	0	0	0	0
Yankee Jim Lake	Madison, Henrys Lake, Gallatin Mountains	0	0	0	1.45
Total	Madison, Henrys Lake, Gallatin Mountains	0	29.30	55.38	124.46
Total Miles	No Data	4.78	36.62	130.49	264.11

Under alternative D, rental use of three cabins in recommended wilderness areas would no longer be a suitable use. In 2019 the Yellow Mule cabin was undergoing repairs and not available as a rental, Deer Creek cabin rented 17 percent and Windy Pass cabin 96 percent of available days; demonstrating the relative desirability of these cabin rentals to the public. Some visitors may no longer visit these specific areas overnight as they may want the comforts provided by a cabin rather than camping. Given the high percentage of days that the Windy Pass cabin in particular has been rented each year, visitor use to that area may decrease. The Custer Gallatin would no longer receive rental fees for these cabins, which could affect future maintenance of these historic structures. Closing these three cabins would still provide 24

other rental cabin locations across the Custer Gallatin. As with alternatives B and C, Buffalo Horn administrative cabin, a historic structure in administrative use in the Gallatin Recommended Wilderness Area may be suitable to remain, but would need to undergo separate evaluation to determine the appropriateness of retaining such a structure. The Cinnamon Lookout is a historic structure no longer used for fire detection which hosts a communication site which would be separately evaluated to determine the appropriateness of it to remain in a recommended wilderness area.

Recreation events are typically large public gatherings on the national forest where a fee is charged by organizers, and managed under special use permits. These events are prohibited in designated wilderness. All alternatives state that new recreation event special use permits are prohibited in recommended wilderness areas. Under alternative D, multiple special use permits for recreation events have been issued as of 2018 for ongoing events on the Custer Gallatin, which take place within a recommended wilderness area, as listed below:

- The Bozeman Ice Festival (partly), an international attraction
- Tour de Hyalite the foot race portion which goes to Hyalite Peak
- Jim Bridger summer foot race
- Baldy Blitz foot race
- Old Gabe foot race
- Bridger Ridge Run, a national attraction
- Foothills foot race

Those events with a multi-year permit at the time the plan is signed would be allowed to finish out their permits, however new ones would not be issued. These events would need to seek other locations, as recreation events are not appropriate in areas managed to promote wilderness characteristics. Finding remaining ridge routes for foot races outside of designated wilderness or recommended wilderness areas may be difficult under this alternative.

Five special use authorized communication sites are within the recommended wilderness areas in this alternative, including Buck Ridge, Eaglehead, Steamboat Mountain, Sheep Mountain, and Twin Peaks. The uses authorized at the Buck Ridge site include both public service (search and rescue) and commercial uses. These uses would need to be evaluated to determine suitability; commercial uses would need to be moved outside of the recommended wilderness area or phased out. The existing communication uses at Eaglehead would continue to be suitable and would be able to continue operation because they are providing agency and public services, and no commercial communication uses operate out of this site. The commercial communication uses at Steamboat Mountain, Twin Peaks, and Sheep Mountain would need to be evaluated for suitability with plan components and would need to be moved outside of recommended wilderness area or phased out over time with consequent impacts to the holder. Northwest Energy has indicated they do not intend to renew their expiring permit for the Steamboat site.

All but approximately 88,901 acres of the recommended wilderness areas in this alternative are also inventoried roadless areas. For those acres, (approximately thirteen percent of recommended wilderness in alternative D), which are not under the direction of the 2001 Roadless Rule, the proposed

allocation of recommended wilderness area will restrict timber production, and temporary and permanent road building.

Under alternative D, the Lost Water Canyon Recommended Wilderness Area would overlap the Pryor Mountain Wild Horse Territory on 4,311 acres. The area of overlap appears generally modified from wild horse grazing (low to moderate similarity to reference conditions) and some areas are not naturally appearing. The Pryor Mountain Wild Horse Territory north boundary fence (around 1.5 miles) is found close to the recommended wilderness area. Motorized transport is limited to the designated Burnt Timber Road #2849 which bisects the recommended wilderness area under alternative D. Ongoing road management, traditional uses, and wild horse administration would create difficult manageability issues within the wild horse territory management in this area. Routine wild horse management needs include activities such as population counts, immuno-contraception darting, bait trapping, periodic gathers, infrastructure maintenance, research activities, and weed treatment. Administrative motorized and aerial uses occur routinely. Managing this small area for wilderness characteristics would be difficult with the routine administrative activities used to manage wild horses.

Table 145 displays the acres of outstanding mineral rights, reserved mineral rights, oil and gas leases, and whether there are mining claims within recommended wilderness areas proposed in alternative D. Reasonable access and other mineral activities may occur in areas with mineral encumbrances.

Table 145. Alternative D recommended wilderness acreage and presence of mineral encumbrances

Recommended Wilderness Area	RWA Acres	Acres Outstanding Mineral Rights	Acres Reserved Mineral Rights	Acres Oil and Gas Leases	Mining Claims Present
Cook Mountain	9,794	1,405	0	none	No
King Mountain	10,502	142	142	none	No
Tongue River Breaks	16,883	0	0	none	No
Bear Canyon	10,366	0	0	none	No
Big Pryor	12,737	0	0	none	No
Lost Water Canyon	12,992	0	0	none	No
Punch Bowl	7,766	0	0	none	No
Chico Peak	7,036	0	0	none	Yes
Deckard Flats	935	0	32	none	No
Deer Creek	85,444	0	0	none	Yes
Dome Mountain	9,540	0	0	none	No
East Rosebud to Stillwater	17,422	0	0	0.22	Yes
Emigrant Peak	15,829	31	0	623	Yes
Knowles Peak	1,223	0	0	none	No
Line Creek Plateau	26,605	0	0	none	No
Mount Rae	2,839	0	0	none	Yes
Mystic	136	0	0	none	No
North Fork	36	0	0	none	No
Phelps Creek	3,177	0	0	none	No
Red Lodge Creek	12,039	0	671	none	No
Republic	388	0	0	none	No

Recommended Wilderness Area	RWA Acres	Acres Outstanding Mineral Rights	Acres Reserved Mineral Rights	Acres Oil and Gas Leases	Mining Claims Present
Sheep Creek	557	0	0	none	No
Strawberry Creek	11,597	0	0	none	No
Tie Creek	5,886	0	0	none	No
West Fork Rock Creek	12,470	0	0	none	No
West Woodbine	1,091	0	0	none	Yes
Blacktail Peak	6,147	0	0	6,145	No
Crazy Mountains	59,636	9,974	634	none	No
West Bridger	26,106	81	0	15,862	No
Buck Creek (Ridge)	28,966	3,372	0	360	No
Cabin Creek North	17,092	1,912	0	none	No
Cabin Creek South	19,272	0	0	none	No
Cowboy Heaven	14,357	1,930	0	none	No
Gallatin	193,709	11,813	17,245	5,385	No
Lionhead	31,389	0	0	none	No
Spanish Peaks East	5,861	617	0	none	No
Spanish Peaks South	2,845	0	0	120	No
Taylor Hilgard	4,466	0	0	none	No
Yankee Jim Lake	6,292	1,370	0	none	No
Total Acres	711,425	32,648	18,724	28,495	6 RWAs have claims

RWA is recommended wilderness area.

Table 146 summarizes the effects of recommended wilderness area in alternative D.

Table 146. Recommended wilderness area indicators for alternative D

Indicators	Alt D Unit of Measure
Acres and percent of total national forest within recommended wilderness areas	711,425 acres; 23.4%
Acres and percent of inventoried roadless area within recommended wilderness	623,797 acres; 88%
Acres no longer suitable for motorized over-snow vehicle transport in recommended wilderness (includes Big Sky Snowmobile Trail)	234,341 acres
Miles of summer trails no longer suitable for wheeled motorized transport and mechanized transport in recommended wilderness	172 miles
Miles of non-motorized trails no longer suitable for mechanized transport in recommended wilderness	264 miles
Existing special use permits or facilities	Yellow Mule, Deer Creek and Windy Pass rental cabins, Cinnamon Lookout, Special use permit water line=0.36 miles

Alternative E

Management Direction under Alternative E

Under alternative E there would be no areas of recommended wilderness. All of the land of potential recommended wilderness areas listed in other alternatives would be managed under other plan land allocation, geographic area, or forestwide direction.

Effects of Alternative E

There would be no change to the existing suitable uses of mechanized trails, wheeled motorized trails, motorized over-snow vehicle trails or areas, hiking and stock trails, rental cabins, or commercial communication uses as result of a recommended wilderness allocation. Other plan land allocations may affect suitable uses in alternative E. This alternative would provide no additional lands, outside of designated wilderness and wilderness study area, which are managed for wilderness-like character. This would decrease recreation opportunities outside of wilderness to provide similar experiences. It would provide more opportunities for recreation which occurs outside of wilderness, such as recreation events and areas where new motorized and mechanized trails could be proposed. It would also provide the most opportunities for potential additional infrastructure such as communication sites and powerlines to occur. Since Inventoried Roadless Area boundaries are static, that allocation still constrains development of new roads.

Alternative F

Management Direction under Alternative F

Eight areas would be recommended as wilderness, for a total of 139,425 acres (**Error! Reference source not found.**). Alternative F would not include five recommended wilderness areas included in the current plans; the 3,917-acre Burnt Mountain Recommended Wilderness Area, the 247-acre Mystic Lake Recommended Wilderness Area, the 20,774-acre Lionhead Recommended Wilderness Area, the 388-acre Republic Mountain Recommended Wilderness Area and the 809-acre Line Creek Plateau Recommended Wilderness Area. None of the Continental Divide National Scenic Trail corridor would be in recommended wilderness in alternative F.

Within the Pryor Mountains Geographic Area, the 8,168-acre Lost Water Canyon Recommended Wilderness Area is 1,364 acres larger than the current plans. Alternative F also includes the 10,662-acre Bear Canyon Recommended Wilderness Area for a total of 18,830 acres of recommended wilderness area in the Pryor Mountains. The 9,619-acre South Crazy Mountains Recommended Wilderness Area is proposed in the Bridger, Bangtail and Crazy Mountains Geographic Area. The Absaroka Beartooth Mountains Geographic Area includes the 802-acre Timberline recommended wilderness area.

Four recommended wilderness areas total 110,174 acres in the Madison, Gallatin, and Henrys Lake Geographic Area; the 13,176-acre Cowboy Heaven Recommended Wilderness Area, the 14,461-acre Sawtooth Recommended Wilderness Area, the 78,071-acre Gallatin Crest Recommended Wilderness Area, and the 4,466-acre Taylor Hilgard Recommended Wilderness Area adjacent to the south end of the Taylor Hilgard unit of the designated Lee Metcalf Wilderness.

Ninety-one percent of recommended wilderness areas in alternative F are also within inventoried roadless areas. **Error! Reference source not found.** displays the recommended wilderness areas in

alternative F, their acreage, the geographic areas in which they are located, as well as recommended wilderness area acres within inventoried roadless areas.

Table 147. Alternative F recommended wilderness area (RWA) by geographic area, total acreage, and inventoried roadless area acreage

Recommended Wilderness Area	Geographic Area	RWA Acres	RWA acres in Inventoried Roadless Area	Percent of RWA in IRA
Lost Water Canyon	Pryor Mountains	8,168	7,237	89
Bear Canyon	Pryor Mountains	10,662	0	0
Timberline	Absaroka Beartooth Mountains	802	798	100
South Crazy Mountain	Bridger, Bangtail, Crazy Mountains	9,619	9,619	100
Sawtooth Mountain	Madison, Henrys Lake, Gallatin Mountains	14,461	13,579	94
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	13,176	13,176	100
Gallatin Crest	Madison, Henrys Lake, Gallatin Mountains	78,071	77,518	99
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	4,466	4,466	100
Total	No Data	139,425	126,393	91

Under alternative F, all the recommended wilderness areas would be managed as semi-primitive-non-motorized rather than primitive recreation opportunity spectrum because of the need to manage and enhance conditions. Motorized and mechanized transport (such as, mountain bikes), including motorized winter over-snow transport, continued use of commercial communication sites and developed recreation sites would not be suitable within recommended wilderness areas.

Effects of Alternative F

Alternative F proposed 139,425 acres of recommended wilderness area; less than alternatives C and D and more than alternatives A, B and E and therefore it would provide the third highest amount of recommended wilderness area of the six alternatives.

There are no recommended wilderness areas in the Ashland or Sioux Geographic Areas. There are 18,830 recommended wilderness area acres in the Pryor Mountains Geographic Area or twenty-four percent of the total geographic area. There are 9,619 recommended wilderness area acres in the Bridger, Bangtail, and Crazy Mountain Geographic Area or five percent of the total geographic area. Another 802 recommended wilderness area acres are in the Absaroka Beartooth Mountains Geographic Area or less than half a percent of that total geographic area. Finally, there are 110,174 acres or about fourteen percent within recommended wilderness area in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area.

Tools such as additional educational or directional signage would be available in a semi-primitive-non-motorized recreation opportunity spectrum to help move recommended wilderness areas toward the primitive and unconfined recreation opportunities envisioned in FW-DC-RWA-02. For example, signage to explain why a campsite is closed and being rehabilitated would be available in a semi-primitive-non-motorized setting and not a primitive setting. Such signage may help foster compliance and therefore rehabilitation of the campsite.

There are no existing motorized trails in recommended wilderness areas in alternative F. About 14.38 miles of trails would no longer be suitable for mechanized transport; about 1.43 miles on the Smeller

Lake Trail in the proposed South Crazy Mountains Recommended Wilderness Area, about 4.13 miles on the Carpenter Creek, Cherry Creek and Red Knob trails in the Cowboy Heaven Recommended Wilderness Area and about 8.82 miles in the Sawtooth Recommended Wilderness Area. The mountain bike trails in the Sawtooth Recommended Wilderness Area are currently inaccessible to mountain bike use because they are located between private land with no public access and Yellowstone National Park which does not allow mountain bike use on its trails.

Based on semi-primitive-motorized winter recreation opportunity spectrum mapping (which reflects that an area is suitable for snowmobiling, although the winter recreation opportunity spectrum mapping does not consider topography, access, or consistent snow), there would be 10,900 fewer acres suitable for winter motorized transport compared to the current plans (table 148). Under this alternative, the applicable travel plans would need to be updated through site specific NEPA decision making after completion of the plan revision process.

Table 148. Alternative F recommended wilderness area acres no longer suitable for winter motorized transport change from the current plans

Recommended Wilderness Area	Geographic Area	Acres no Longer Suitable for Over-snow Motorized Opportunities
Bear Canyon	Pryor Mountains	4,232
Lost Water Canyon	Pryor Mountains	1,364
Timberline	Absaroka Beartooth Mountains	0
South Crazy Mountain	Bridger, Bangtail, Crazy Mountains	0
Gallatin Crest	Madison, Henrys Lake, Gallatin Mountains	838
Sawtooth Mountain	Madison, Henrys Lake, Gallatin Mountains	0
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	0
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	4,466
Total	No data	10,900

Developed recreation sites would not be allowed in alternative F, such as operation of the Windy Pass cabin under the recreation rental cabin program. Some visitors may no longer visit this specific area overnight as they may want the comforts provided by a cabin rather than camping. Windy Pass cabin was rented 96 percent of available days in 2019 demonstrating the relative desirability of this cabin rental to the public. Given the high percentage of days that the Windy Pass cabin has been rented each year, visitor use to the area may decrease. The Custer Gallatin would no longer receive rental fees for this cabin, which could affect future maintenance of this historic structure if it was retained. If the cabin is not needed for administrative purposes, it would be evaluated for removal. There are an additional 26 rental cabins and lookouts that would continue on the Custer Gallatin. There are no current recreation event special use permits located within recommended wilderness area in alternative F.

In alternative F there are four authorized communication uses within the Gallatin Crest Recommended Wilderness Area. Three of the existing sites are single user sites located on Steamboat Mountain, Twin Peaks, and Sheep Mountain. The fourth is a Forest Service building and tower at the Eaglehead Communication Site. Gallatin County and Montana Department of Transportation are co-located in this Forest Service building. The existing communication uses on Eaglehead would continue to be suitable and would be able to continue operation because they are providing agency and public services, and no

commercial communication uses operate out of this site. In this alternative, plan component FW-SUIT-RWA-07 would allow for continued use of the Sheep Mountain and Twin Peaks passive reflector sites within the currently authorized footprint and with the existing types of equipment. If the permittee determines that the existing passive reflector use is no longer needed, the equipment would be removed and the site would not be suitable for a new user or for a new commercial communications use. The ongoing use of the Steamboat site would need to be evaluated for suitability with plan components, moved outside of recommended wilderness area or phased out over time with consequent impacts to the holder. Northwest Energy has indicated they do not intend to renew their expiring permit for the Steamboat site.

All but approximately 13,032 acres of the recommended wilderness areas in this alternative are also inventoried roadless areas. For those acres, (approximately nine percent of recommended wilderness in alternative F), which are not under the direction of the 2001 Roadless Rule, the proposed allocation of recommended wilderness areas will restrict timber production, temporary and permanent road building, motorized and mechanized transport in summer and winter.

Administrative use of chainsaws for trail maintenance may occur as there is no national prohibition on such use in recommended wilderness. Visitors may occasionally encounter crews conducting maintenance activities.

The Custer Gallatin National Forest obtained lands through purchase or exchange, where the Federal government did not also obtain the mineral rights to those acres. “Reserved” mineral rights are retained by the grantor; “outstanding” mineral rights are held by other (third parties) than the owner or grantor. The rights to explore and develop minerals on those lands are not prohibited by a forest plan recommended wilderness area. Therefore, any lands such as these within a recommended wilderness area has the potential for future access and mineral development. While future mineral development may occur where valid existing or statutory rights exist, energy and mineral resources plan components state that mineral activities consider other resources values which may be present. The probability of an entity exerting those held mineral rights for exploration or development is not predicable.

Table 149 displays the acreage of mineral encumbrances, including outstanding mineral rights, reserved mineral rights, oil and gas leases, and whether there are mining claims within recommended wilderness areas proposed in alternative F. By law, reasonable access and other mineral activities may occur in areas with mineral encumbrances.

Table 149. Alternative F recommended wilderness area (RWA) acreage and presence of mineral encumbrances

Recommended Wilderness Area	RWA Acres	Acres Outstanding Mineral Rights	Acres Reserved Mineral Rights	Acres Oil and Gas Leases	Mining Claims Present
Lost Water Canyon	8,168	0	0	none	no
Bear Canyon	10,662	0	0	none	no
Timberline	802	0	0	none	no
South Crazy Mountains	9,619	1,275	0	none	no
Gallatin Crest	78,071	1,808	6,799	none	no
Cowboy Heaven	13,176	1,286	0	none	no
Sawtooth Mountain	14,461	604	4,667	none	no

Recommended Wilderness Area	RWA Acres	Acres Outstanding Mineral Rights	Acres Reserved Mineral Rights	Acres Oil and Gas Leases	Mining Claims Present
Taylor Hilgard	4,466	0	0	none	no
Total Acres	139,425	4,973	11,466	none	no

Table 150 summarizes the effects of recommended wilderness area in alternative F.

Table 150. Recommended wilderness area indicators for alternative F

Indicators	Unit of Measure
Acres and percent of total national forest within recommended wilderness	139,425 acres; 4.6%
Acres and percent of inventoried roadless area within recommended wilderness	126,393 acres; 91%
Acres no longer suitable for motorized over-snow vehicle transport in recommended wilderness	10,900 acres
Miles of trail no longer suitable for motorized transport in recommended wilderness	0 miles
Miles of trails no longer a suitable for mechanized transport in recommended wilderness	14.4 miles
Existing special use permits or facilities	Windy Pass rental cabin, Steamboat Mountain, Twin Peaks, Eaglehead, Sheep Mountain communication uses

Consequences to Recommended Wilderness Areas from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives plan components and management activities for aquatic ecosystems would have little effect related to the overall management within recommended wilderness areas. The plan components that may have influence are those associated with riparian management zones in the revised plan alternatives. Little to no active management would occur in recommended wilderness areas; however, protection of riparian management zones could include relocating camp areas if impacts were occurring. Riparian management zones guidance allowing prescribed fire in the inner riparian management zone to maintain or aquatic and riparian-associated resources may be complementary with maintaining ecological conditions in recommended wilderness areas (FW-STD-RMZ-01).

Effects from Vegetation Management

Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildland fire, avalanches, insects, and disease function with a limited amount of human influence. In the current plans, under the Custer Forest Plan, prescribed fire for use in restoration is prohibited. However, in the revised plan alternatives, recommended wilderness is suitable for restoration activities where the outcomes will protect the wilderness characteristics of the areas as long as the ecological and social characteristics that provide the basis for each areas’ suitability for wilderness recommendation are maintained and protected. Restoration activities could include restoration of whitebark pine (currently a proposed species under the Endangered Species Act), which could consist of prescribed burning, seeding, planting of rust-resistant whitebark pine seedlings, thinning with an emphasis on hand thinning over mechanical, and protecting phenotypically superior seed-

producing whitebark pine trees from loss due to fire, bark beetles, or other stressors. Control of invasive plant species (by hand pulling and herbicide spraying) and the planting or seeding of native plant species could also occur. Vegetation management activities conducted under the revised plan alternative vegetation plan components intended to promote ecological diversity, resilience, and sustainability, could enhance the resilience of recommended wilderness areas, see the suite of desired conditions for forested and non-forested vegetation.

Effects from Fire and Fuels Management

Under the revised plan alternatives wildland fire (prescribed fire and wildfire) may be used if needed as a restoration tool. The 1986 Custer Plan does not allow prescribed fire in recommended wilderness areas, while the 1987 Gallatin plan allows this use. The use of all wildland fire enhances the options for restoration of recommended wilderness areas. Wildland fire is managed to play its natural role while managers evaluate point protection of values at risk (FW-DC-FIRE-01, FW-OBJ-FIRE-02, FW-STD-FIRE-01, and FW-GDL-FIRE-01). Fuel treatments such as hand thinning may occur, especially in the wildland-urban interface (FW-OBJ-FIRE-01). Fire and fuels management plan components also specify the use of minimum impact strategies and tactics to manage wildland fire within recommended wilderness, which would further protect wilderness characteristics (FW-GDL-FIRE-03). Some wildfires may be actively suppressed, based on factors evaluated at the time. However, when natural fires are suppressed in fire adapted ecosystems, there could be detrimental effects to ecosystem processes, wildlife habitat and biodiversity (Keane et al. 2002).

Effects from Scenery Management

Recommended wilderness areas are assigned a scenery integrity objective of very high. Because management activities within recommended wilderness areas would be designed to maintain wilderness characteristics, the scenic integrity objective of very high would be compatible with that direction and would have no negative impacts on the potential future designation of these areas.

Effects from Permitted Livestock Grazing Management

Under the revised plan alternatives, permitted livestock grazing would be suitable in recommended wilderness areas where it had been established prior to being identified as recommended wilderness (FW-SUIT-RWA-04) and additional range improvements would be limited to existing allotments to enhance wilderness characteristics or for resource protection (FW-GDL-RWA-01). While FW-SUIT-RWA-04 would limit new permitted recreational livestock (per plan definition of permitted grazing), effects would be limited because more recreational livestock is currently authorized than is being used. While livestock grazing itself has the potential to degrade plant communities through factors such as invasive plant spread and damage to riparian areas, plan components emphasize the maintenance of resilient native plant communities as well as desirable riparian area conditions (see the suite of components for terrestrial vegetation, invasive species and permitted livestock grazing).

Cumulative Effects

In general, cumulative effects are the past, present, and reasonably foreseeable future effects from management activities on the Custer Gallatin and adjacent lands. Reasonable and foreseeable future actions on National Forest System lands include vegetation management, mining, and reduction of fuels in the wildland-urban interface. These actions could impact the wilderness characteristics of solitude, depending on how close and pervasive these actions were, although typically just the sights and sounds

within the recommended wilderness area are used to determine effects on wilderness characteristics. For example, vegetation management activities such as harvesting adjacent to a recommended wilderness area might increase the sights and sounds of logging equipment such as chainsaws and skidders within the recommended wilderness area, but because the harvesting is being done outside of the recommended wilderness area, it would not be considered as degrading the wilderness characteristic of solitude. However, in another example, an expansion of a ski area adjacent to recommended wilderness could increase use levels within the recommended wilderness, which might affect solitude as the number of encounters with others could increase within the recommended wilderness area.

Other than the Bear Canyon Recommended Wilderness Area, other Federal agency lands adjacent to Custer Gallatin recommended wilderness areas are largely designated wilderness, Bureau of Land Management wilderness study areas, recommended wilderness (or similar) or inventoried roadless areas, resulting in larger areas of continuous landscapes managed for their undeveloped nature.

The Custer Gallatin borders other Federal agency lands designated as wilderness in several areas, including the Lee Metcalf Wilderness (adjacent Beaverhead-Deerlodge National Forest and Bureau of Land Management lands), and the North Absaroka and Absaroka-Beartooth Wilderness Areas (adjacent Shoshone National Forest). The Custer Gallatin borders wilderness study areas on the Shoshone National Forest (High Lakes Wilderness Study Area) and borders the Bureau of Land Management's Burnt Timber Canyon and Pryor Mountains Wilderness Study Areas. The Custer Gallatin borders other Federal agency lands managed as recommended wilderness in several areas, including Yellowstone National Park, Lionhead/Henrys Lake Mountains (adjacent Caribou-Targhee National Forest) and Cowboy Heaven (adjacent Beaverhead-Deerlodge National Forest).

Where the Custer Gallatin borders other Federal agency lands managed as designated wilderness, wilderness study area or recommended wilderness, Custer Gallatin lands would be managed compatibly. Adjacent Custer Gallatin lands may be within a designation that maintains the current undeveloped character, such as designated wilderness, wilderness study area, Pryor Mountain Wild Horse Territory or inventoried roadless areas, or within a plan land allocation such as recommended wilderness or backcountry areas in one or more alternatives (e.g., Cowboy Heaven, Taylor Hilgard, Gallatin Crest, Sawtooth, Lionhead or Lost Water Canyon). In addition, the forestwide set of plan components for ecological, social, and economic sustainability apply to designations and allocations as well as to areas without an added allocation and would provide broad coverage of resource protections.

Growth in the western counties near the Custer Gallatin and the Billings area is likely to increase recreational use of the national forest, including use within recommended wilderness areas. The effects of urbanization and population growth on recommended wilderness use and resource conditions are likely to be gradual and to extend well beyond the planning period. Increased recreational use may negatively affect wilderness characteristics, particularly the opportunity for solitude and natural quality. Examples of potential impacts include increased opportunity for crowding in certain locations, soil compaction or erosion, and threats to native plant species from the spread of noxious weeds from sources outside the area.

Conclusion

In addition to plan components to maintain the characteristics of the recommended wilderness areas, Forest Service policy and regulations would provide additional direction for management.

Alternatives D, C, F, B, the current plans, and then alternative E, in that order, contain the most to the least areas recommended for wilderness. Alternatives D and C in that order result in the most potential displacement of current trail users, where areas would no longer be suitable for use of motorized or mechanized transport. The current plans, alternatives B, and E would not affect current uses. Alternatives vary with the amount of recommended wilderness that is also within inventoried roadless areas. The alternatives with the highest to lowest percentage of recommended wilderness area inside inventoried roadless areas are the current plans (alternative A), and then alternatives B, C, F, D, and E.

3.22.3 Eligible Wild and Scenic Rivers

Affected Environment (Existing Condition)

The 2012 Forest Planning Rule requires all forests undergoing a plan revision to conduct a study to determine if rivers have certain characteristics that would allow them to be eligible as a wild, scenic, or recreational river under the 1968 Wild and Scenic Rivers Act. Following the planning protocols, a study was conducted on all named rivers on the Custer Gallatin National Forest. They were evaluated by a forest interdisciplinary study, followed by public review and comments, to determine if they meet the criteria to be determined eligible under the Wild and Scenic Rivers Act. Prior to this current river study, both the 1986 and 1987 forest plans had earlier determined eligible rivers and plan components for their management and protection. Those rivers were again included in the new eligibility study as some guidance had changed. Eligibility is based on the study's determination that the rivers segments are free-flowing and possess one or more outstandingly remarkable value. Those outstandingly remarkable values that are evaluated are fisheries, wildlife, recreation, geology, scenery, and historic or cultural values. Appendix E of the proposed action provides more information on the river eligibility study.

Subsequent to the proposed action, one modification was made to the classification of Crooked Creek. Where the creek enters National Forest System lands (from the southern boundary with the Bureau of Land Management), that segment is now potentially classified as wild, until it meets the ½ mile buffer with Cave Creek; it had been potentially classified as scenic. At that junction near Cave Creek, the remainder of the Crooked Creek segment is potentially classified as scenic. After additional public comment on the draft plan and draft environmental impact statement, scenery was added as an outstandingly remarkable value to both Cabin Creek and Cave Creek.

Only Congress can pass legislation that, once signed by the president, would designate a river. This designation occurred in August of 2018 for the East Rosebud Creek, which is no longer considered an eligible river and therefore has been removed from this section and addressed under the designated Wild and Scenic River section.

Once identified, a corridor of ¼ mile on either side of the eligible river or river segment is identified for the protection and management of the wild and scenic river (WSR) related values. For management purposes, identified eligible WSR segments are tentatively classified as wild, scenic, or recreational.

- **Wild:** Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.
- **Scenic:** Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

- Recreational: Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

Plan components in both current plans, as amended, protect rivers found eligible so that ongoing management will not alter their eligibility if Congress decides to seek designation. Components protect the free-flowing nature, and assure that national direction and policy as stated in Forest Service manuals are followed.

The Custer Forest Plan Amendment 2 listed seven eligible rivers. East Rosebud Creek has since been designated as a wild and scenic river. The six remaining eligible rivers are listed in table 151.

Table 151. Eligible rivers and potential classifications on the Custer National Forest*

River/Segment	Potential Classification	Miles	Outstandingly Remarkable Values
Crooked River-Lost Water Canyon	Wild	8	Cultural, Fisheries, Geologic, Scenic
Lake Fork Rock Creek: Outside of Wilderness Within the Wilderness	Recreational Wild	2 8	Geologic, Scenic Geologic, Scenic
Rock Creek: Outside of Wilderness Within the Wilderness	Recreational Wild	13 3	Geologic, Recreation Geologic, Recreation
Stillwater: Outside of Wilderness Within the Wilderness	Recreational Wild	7 20	Fisheries, Recreation, Scenic Fisheries, Recreation, Scenic
West Fork Rock Creek: Outside of Wilderness Within the Wilderness	Recreational Wild	10 10	Fisheries, Geologic, Recreation Fisheries, Geologic, Recreation
West Rosebud Creek: Within the Wilderness	Wild	8	Geologic, Recreation, Scenic

*An additional river, the Little Missouri River, was also found eligible in Amendment #2, but this part of the national forest area is now administered by the Dakota Prairie Grasslands, so is no longer included here.

Five eligible rivers are listed in table 152 from the original 1987 Gallatin Forest Plan and plan Amendment 12. Updated GIS calculations have found the river miles written in the original plans were approximate.

Table 152. Eligible rivers from 1987 Gallatin National Forest Plan and Plan Amendment 12

River/Segment	Potential Classification	Miles	Outstandingly Remarkable Values
Boulder River; as amended Forest boundary to Blakely Creek and from Miller Creek to Bramble Creek	Recreational	9 Miles	Geologic, Recreation, Scenic

River/Segment	Potential Classification	Miles	Outstandingly Remarkable Values
Blakely Creek to Miller Creek and from Bramble Creek to Wilderness Boundary	Scenic	19 Miles	Geologic, Recreation, Scenic
Clarks Fork of Yellowstone River Forest boundary upstream to bridge crossing at the Clarks Fork trailhead	Wild	Approx. 1.8 miles	Scenic
Gallatin River Forest boundary upstream to Yellowstone National Park boundary.	Recreational	39 river miles entire length	Fisheries, Recreation, Scenic
Madison River Forest boundary upstream to Hebgen Dam including Quake Lake.	Recreational	8 miles	Geologic, Scenic, Fisheries
Yellowstone River Forest boundary upstream to Yellowstone National Park boundary	Recreational	17 river miles entire length	Recreation, Scenic

Effects of the Current Plans

Under all alternatives, the identified eligible wild and scenic rivers (and area within ¼ mile on either side of each rivers’ high-water mark) would be managed to protect their free-flowing condition and to preserve and enhance the outstandingly remarkable values for which they were identified. Fewer rivers were found eligible in the current plans than the revised plan alternatives.

The finding that a river is eligible as a Wild and Scenic River on national forest lands does not apply to private lands. The wild and scenic river boundaries in the current plans exclude private lands.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The rivers found to be eligible as a wild and scenic river do not vary by any revised plan alternative. Plan components in all revised plan alternatives protect the rivers’ free-flowing nature, preliminary classification and outstandingly remarkable values(s) (FW-DC-EWSR-01). Plan direction for topics such as timber production (FW-SUIT-EWSR-01) and fish barrier construction (FW-GDL-EWSR-01) have been addressed in components. In all alternatives, eligible segments would not allow saleable mineral material extraction (FW-STD-EWSR-01). Rivers found eligible for wild and scenic designation in the Custer Gallatin revised plan are listed in table 153.

Table 153. Rivers found eligible for wild and scenic designation in the Custer Gallatin revised plan

River Name	River Miles on National Forest	Location	Eligible Prior Plan?	Outstandingly Remarkable Values	Preliminary Classifications
Bark Cabin Creek	3.72	Gallatin Mountains	No	Fisheries	Wild
Bear Creek	1.75	Pryor Mountains	No	Wildlife	Scenic
Big Creek	8.3	Gallatin Mountains	No	Fisheries	Wild
Big Timber Creek	1.08	Crazy Mountains	No	Recreation, Scenery	Recreational
Boulder River	15.52	Absaroka Beartooth Mountains	Yes	Recreation, Scenery, Geology, Historic	Recreational

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River Name	River Miles on National Forest	Location	Eligible Prior Plan?	Outstandingly Remarkable Values	Preliminary Classifications
Cabin Creek	7.3	Madison Mountains	No	Scenery, Fisheries	Scenic
Cave Creek	7.2	Pryor Mountains	No	Geology, Scenery	Wild
Clarks Fork Yellowstone River	Wild- 2.15 Recreational- 0.40	Absaroka Beartooth Mountains	Yes	Scenery	Wild, Recreational
Crooked Creek		Pryor Mountains	Yes	Geology, Scenery, Historic, Fisheries	Wild, Scenic
Gallatin River	26.02	Gallatin/Madison Mountains	Yes	Recreation, Scenery, Historic	Recreational
Hyalite Creek	4.64	Gallatin Mountains	No	Recreation, Scenery	Scenic
Lake Abundance Creek	7.38	Absaroka Beartooth Mountains	No	Fisheries	Wild
Lake Fork of Rock Creek	Wild- 10.94 Recreational- 2.35	Absaroka Beartooth Mountains	Yes	Recreation, Scenery	Wild, Recreational
Lost Water Creek	6.89	Pryor Mountains	No	Scenery, Geology, Historic	Wild
Madison River	Segment 1 Recreational- 2.32 Segment 2 Recreational- 8.44	Madison Mountains	Yes	Recreation, Geology, Scenery, Historic, Wildlife	Recreational
Maid of the Mist Creek	1.38	Gallatin Mountains	No	Recreation, Scenery	Scenic
Middle Fork Cabin Creek	5.1	Madison Mountains	No	Fisheries	Scenic
Pine Creek	Wild-3.90 Recreational- 0.51	Absaroka Beartooth Mountains	No	Recreation, Scenery	Wild, Recreational
Rock Creek (Beartooth RD)	11.4	Absaroka Beartooth Mountains	Yes	Recreation, Historic, Scenery	Recreational
Rock Creek (Gardiner RD)	4.83	Absaroka Beartooth Mountains	No	Fisheries	Wild
Shower Creek	1.34	Gallatin Mountains	No	Recreation, Scenery	Scenic
Slough Creek & unnamed tributaries	Wild- 12.65 Scenic- 3.66	Absaroka Beartooth Mountains	No	Fisheries	Wild, Scenic
Stillwater River	Wild-22.0 Recreational-1.25	Absaroka Beartooth Mountains	Yes	Recreation, Scenery	Wild, Recreational
West Boulder River	12.31	Absaroka Beartooth Mountains	No	Recreation	Wild
West Fork Rock Creek	Wild- 8.93 Recreational- 9.23	Absaroka Beartooth Mountains	Yes	Historic, Scenery	Wild, Recreational
West Fork Stillwater River	14.02	Absaroka Beartooth Mountains	No	Scenery	Wild
West Rosebud Creek	8.9	Absaroka Beartooth Mountains	Yes	Recreation, Scenery	Wild
Woodbine Creek	Wild- 0.86 Recreational- 0.39	Absaroka Beartooth Mountains	No	Recreation, Scenery	Wild, Recreational

River Name	River Miles on National Forest	Location	Eligible Prior Plan?	Outstandingly Remarkable Values	Preliminary Classifications
Wounded Man Creek	4.48	Absaroka Beartooth Mountains	No	Fisheries	Wild
Yellowstone River	6.89	Absaroka Beartooth Mountains/Gallatin Mountains	Yes	Recreation, Scenery, Historic	Recreational

Effects of all Revised Plan Alternatives

Plan components for all alternatives do not vary and ensure that the tentative classification of river segments will be retained, that outstandingly remarkable values and the free-flowing nature of the rivers will be protected.

Under all revised plan alternatives, the identified and eligible wild and scenic rivers (and area within ¼ mile on either side of each river’s high-water mark) would be managed to protect their free-flowing condition and to preserve and enhance the outstandingly remarkable values for which they were identified, as well as protect the tentative classifications. As this river eligibility study does not apply to privately owned lands, there are no direct effects on those lands.

Nineteen additional rivers were found eligible under this river study compared to the current plans. Some previously existing eligible rivers may have had a change in the segment’s classification, length or outstandingly remarkable values found. However, all previously determined eligible rivers were once again found eligible.

There would be approximately 433 total river miles and 138,560 total acres within the ½ mile corridor of each river. 38,080 of additional acres would be managed within eligible river corridors than there was in the past 30 years under the current plans.

Some of those new eligible river corridor lands are also within designated wilderness, where the increase protection of an eligible river is a minor addition to existing wilderness management. As protection or enhancement of listed outstandingly remarkable values for each river segment are called for (along with retaining the preliminary classification listed), eligible river corridors should remain in a similar or improved condition for the current and foreseeable future.

The finding that a river is eligible as a wild and scenic river on national forest lands does not apply to private lands. The boundaries used for eligible rivers exclude any private lands. Therefore, property rights on private lands are not governed by the forest’s finding that a river is eligible on the national forest.

Consequences to Eligible Wild and Scenic Rivers from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. See the suite of plan components and activities related to watershed, riparian, or aquatic habitat improvements which would have a protective effect to eligible

wild and scenic rivers, as they would to all rivers on the Custer Gallatin. The area influenced by riparian plan components (up to 200 feet, depending on the body of water) is a shorter distance than the ¼ mile area above high-water mark on either side of the high-water mark of the stream where wild and scenic components apply, but provide very detailed protection.

By agency policy, for hydro-electric power facilities, Forest Service identified eligible rivers are to be protected from new dam construction pending a suitability determination.

Effects from Vegetation and Timber Management

In all alternatives, eligible wild classified rivers are not suitable for timber production and timber harvest is not suitable. Tree cutting would be suitable when needed in association with a primitive recreation experience, to protect users, or to protect identified outstandingly remarkable values. By Forest Service policy and plan direction for eligible scenic and recreational rivers, vegetation management may be suitable 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 (FW-SUIT-EWSR-01).

Effects from Fire and Fuels Management

Both natural and management ignited fires could change the outstandingly remarkable values present in a river segment such as scenery or historic resources.

Current plans' fire suppression directions are a range of responses. To minimize resource damage, the revised plan alternatives fire and fuels plan components call for minimum impact suppression tactics in sensitive areas such as eligible wild and scenic rivers, which would reduce resource impacts from the suppression effort itself (FW-GDL-FIRE-03). Exceptions may occur when a more direct attack is needed to protect human life, private property, or infrastructure.

Natural, unplanned ignitions and prescribed fires are used as tools to maintain ecological conditions within river corridors. These fire and fuels management components may be used so long as they maintain the outstandingly remarkable values and free-flowing nature of the identified rivers. In an eligible river segment, wildland fires managed to meet resource objectives may be used to restore or maintain outstandingly remarkable values. In the revised plan alternatives, plan components for fire and fuels management would encourage an appropriate management response to wildfires and provide opportunities for natural fire to promote and enhance the characteristics of these areas (FW-DC-FIRE-01, FW-OBJ-FIRE-02, FW-STD-FIRE-01, and FW-GDL-FIRE-01).

Effects from Wildlife and Fisheries Management

Plan components for all alternatives state that there must be protection of the free-flowing nature, no altering the preliminary classification, and protection of identified outstandingly remarkable values (FW-DC-EWSR-01). Fisheries enhancement projects should harmonize with the wild segment's essentially primitive character, the scenic rivers largely undeveloped character, and the recreational segments identified river values. In doing so, these components address future construction of minor structures and vegetation management to protect and enhance wildlife and fish habitat (FW-GDL-EWSR-01). Any portion of a proposed wildlife or fisheries restoration or enhancement project that has the potential to affect the rivers' free-flowing character must be evaluated as a water resources project. 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 (FW-GDL-EWSR-01).

Effects of Plan Land Allocations

Where an eligible river segment is within another plan land allocation that has stricter components, those stricter management directions take precedence. This may occur when an eligible river segment is in wilderness areas, recommended wilderness areas, inventoried roadless areas, research natural areas, or other allocations.

Effects from Access and Recreation Management

The Custer Gallatin is following existing agency policy and regulations in all alternatives in order to provide an essentially primitive character, eligible segments classified as wild would not have any recreation development occur. In segments classified as scenic or recreational, recreation development would be allowed, but only when it would preserve the identified outstandingly remarkable values and retain classification.

Additionally, the national forest is following existing agency policy and regulations, in all alternatives for eligible rivers that have a preliminary classification of wild would not allow roads to be built with the ½ mile river corridor. Rivers with a preliminary classification of scenic allow new roads and railroads to be permitted to parallel the river for short segments or bridge the river if such construction fully protects river values (including the river's free-flowing character). For both scenic and recreational rivers, bridge crossings and river access are allowed. New trail construction or airfields must be compatible with and fully protect identified values. Recreational rivers allow new roads and railroads which are permitted to parallel the river if such construction fully protects river values (including the river's free-flowing character). Plan components are not needed to replicate existing federal policy which provides this direction.

Effects from Energy and Minerals Management

In revised plan alternatives, eligible river segments would not allow saleable mineral material extraction (FW-STD-EWSR-01). In the current plans, saleable mineral material extraction is allowable within all eligible wild and scenic rivers corridors. In all alternatives, leasable and locatable mineral development is allowable within eligible wild and scenic rivers corridors. Potential impacts would be reduced by the revised plan alternatives direction that mineral and energy resource development consider other resource values, and that land be returned to a productive capacity after mineral or energy activity (FW-DC-EMIN-01).

Cumulative Effects

Cumulative effects are the potential impacts to wild and scenic rivers from the alternatives when combined with past, present, and reasonably foreseeable actions. The lands used as the regions of comparisons (in the eligibility study) form the geographic scope for evaluating cumulative effects. The region of comparison is a geographic area or areas that provides the basis for meaningful comparative analysis of potentially eligible rivers. The Forest Service may conclude that a single region of comparison can encompass the evaluation of outstanding remarkable values. Acknowledging the diversity across the Custer Gallatin National Forest, two separate regions of comparison, for all the outstandingly remarkable values, are being utilized for the west and east sides of the national forest.

There are currently 70 other eligible rivers within the regions of comparison; 64 on other national forests, and six under other Federal jurisdictions. Under the revised plan alternatives, adding the Custer Gallatin's 31 eligible rivers would be a 44 percent increase within the regions of comparison.

There are about 314 miles of other eligible rivers within the regions of comparison and 100,480 acres of land included within the half-mile management buffer surrounding those segments. The addition of 19 more eligible rivers on the Custer Gallatin would add approximately 119 miles.

An eligibility finding means that no dams may be built on these river segments, as they will remain free flowing. In the future if there are proposed actions such as construction of a dam, a further suitability study could be conducted on any river. Suitability studies are not being conducted as part plan revision.

Less than one percent of Montana's river miles are protected under the Wild and Scenic Rivers Act. The sections of four rivers currently protected are a 149-mile stretch of the Upper Missouri River, and 219 miles of the North, Middle, and South Forks of the Flathead River, and East Rosebud Creek. Nationally, less than 0.25 percent or 12,734 miles of the country's river miles are protected under the wild and scenic designation.

Conclusion

The revised plan alternatives add 19 additional eligible rivers and 38,080 additional acres within the ½-mile river buffers compared to the current plans. Plan components for rivers managed as eligible for the national wild and scenic river system would protect the outstandingly remarkable values, keep the rivers free flowing, and maintain the assigned tentative classifications for each river segment.

3.22.4 Backcountry Areas

Affected Environment (Existing Condition)

Backcountry area is a plan land allocation. Backcountry areas are generally undeveloped or lightly developed, either are unroaded or have few, primitive roads. Some have neither roads nor trails. Backcountry areas provide for more remote, semi-primitive recreation opportunities, both motorized and non-motorized, depending on the area. Similar areas are described in the 1986 Custer Forest Plan as "low development areas" on the Ashland Ranger District.

Environmental Consequences

Table 154 displays the acreage and percentage of backcountry areas in inventoried roadless areas in each alternative. In the current Custer Forest Plan those areas in Ashland are termed low development areas.

Table 154. Backcountry area acreage and percentage in inventoried roadless areas (IRA) by alternative

Backcountry Area	Geographic Area	Alt. A Acres*	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt. E Acres	Alt. F Acres	Acres in IRA	Percentage in IRA
Chalk Buttes	Sioux	0	0	0	5,937	0	5,937	0	0%
Cook Mountain	Ashland	9,794	9,794	9,794	0	0	9,794	9,646	98%
King Mountain	Ashland	12,189	12,189	12,189	0	0	12,189	11,983	98%
Tongue River Breaks	Ashland	16,431	16,365	16,365	0	0	16,899	Alt A, B, C = 16,343 Alt F = 16,877	99%

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Backcountry Area	Geographic Area	Alt. A Acres*	Alt. B Acres	Alt. C Acres	Alt. D Acres	Alt. E Acres	Alt. F Acres	Acres in IRA	Percentage in IRA
Big Pryor	Pryor Mountains	0	12,610	12,610	0	0	12,610	0	0%
Bear Canyon	Pryor Mountains	0	10,682	10,682	0	0	0	0	0%
Punch Bowl	Pryor Mountains	0	6,097	6,097	0	0	6,097	8	0%
Bad Canyon	Absaroka Beartooth Mountains	0	18,712	18,712	0	0	18,712	4,995	27%
Crazy Mountains	Bridger, Bangtail, Crazy Mtns	0	0	83,368	0	0	30,642	Alt C=74,154 Alt F= 30,037	Alt C = 89% Alt F = 98%
Blacktail Peak	Bridger, Bangtail, Crazy Mtns	0	0	6,148	0	0	4,640	Alt C=6,148 Alt F= 4,640	Alt C, F = 100%
West Bridgers	Bridger, Bangtail, Crazy Mtns	0	0	26,106	0	0	0	24,911	95%
Hyalite	Madison, Henrys Lake, and Gallatin Mtns	0	0	46,704	0	0	0	31,851	68%
West Pine	Madison, Henrys Lake, and Gallatin Mtns	0	0	22,619	0	0	22,632	17,419	77%
Buffalo Horn	Madison, Henrys Lake, and Gallatin Mtns	0	21,539	28,126	0	144,060	26,496	Alt B = 21,391 Alt C = 27,898 Alt E = 43,089 Alt F = 26,346	Alt B, C, E, F = 99%
Cowboy Heaven	Madison, Henrys Lake, and Gallatin Mtns	0	16,992	0	0	0	0	16,992	100%
Lionhead	Madison, Henrys Lake, and Gallatin Mtns	0	0	0	0	27,266	27,266	Alt E=29,189 Alt F=26,183	Alt E = 99% Alt F = 96%
South Cottonwood	Madison, Henrys Lake, and Gallatin Mtns						13,763	6,207	45%
Total Acres	No data	38,414	124,980	299,522	5,937	171,326	207,677	No data	No data
Total Percent Acres in IRA	No data	99%	65%	75%	0%	99%	74%	No data	No data

*Low development areas from 1986 Custer Forest Plan.

Table 155 summarizes the management direction for backcountry areas. In the current Custer Forest Plan, those areas in Ashland are termed low development areas. Table 156 displays more detail on motorized and mechanized transport in each backcountry area.

Table 155. Backcountry area uses allowed by alternative

Uses Allowed in Backcountry Areas* (BCAs)	Alternative A**	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
New permanent roads	No	No	No	No	No	No
New temporary roads (where not within IRA)	No (all are IRA)	Yes, in all non-IRA	Yes, in all non-IRA No: West Pine	Yes	No (all are IRA)	Yes, in Chalk Buttes, Big Pryor, Punch Bowl, and South Cottonwood
Hiking, horse use	Yes	Yes	Yes	Yes	Yes	Yes
New hiking, horse trails	Yes	Yes	Yes	Yes	Yes	Yes, except No: Cook Mtn, King Mtn, Tongue River Breaks
Mountain bike use	Yes	Yes, except No: Cook Mtn, King Mtn, Tongue River Breaks	Yes, except No: Cook Mtn, King Mtn, Tongue River Breaks Big Pryor, Punch Bowl, Bear Creek, Bad Canyon, Blacktail Peak	Yes	Yes	Yes, Chalk Buttes, Big Pryor, Buffalo Horn, Lionhead, South Cottonwood, West Pine. No, Cook Mtn, King Mtn, Tongue River Breaks, Punch Bowl, Bad Canyon, Blacktail Peak, Crazy Mountains
Change in mountain bike trail use	No change	No change	14.11 miles no longer suitable	No change	Additional opportunity	16.55 miles no longer suitable
New mountain bike trails in BCAs suitable for mechanized transport	No	Yes	Yes	Yes	Yes	Yes, Buffalo Horn, South Cottonwood, West Pine No construction in Chalk Buttes BCA No construction or designation Big Pryor and Lionhead BCAs
Mountain bikes restricted to approved system routes in BCAs suitable for mechanized transport	No	No	No	No	No	Yes
Motorized transport on existing motorized trails and areas	No (currently no motorized trails or areas)	Yes (applies to Buffalo Horn, Big Pryor, Punch Bowl)	Yes (applies to Crazies, West Bridgers, Blacktail Peak winter only, Buffalo Horn)	Yes (applies to Chalk Buttes)	Yes (applies to Buffalo Horn)	Yes (applies to Chalk Buttes, Big Pryor, Punch Bowl, Blacktail Peak winter only, Buffalo Horn)

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Uses Allowed in Backcountry Areas* (BCAs)	Alternative A**	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Construction or designation of new motorized trails	No	No	No	No	No, except Yes in Buffalo Horn SPM corridors	No
Change in motorized over-snow transport	No change	No change	16,001 acres no longer suitable	No change	Additional 10,283 acres suitable	No change
New developed recreation sites	Yes	No	No	No	No	No
New recreation events	Yes	Yes, except No: Buffalo Horn	Yes, except No: Buffalo Horn, West Pine	Yes	Yes	Yes, except No: Buffalo Horn, West Pine
New commercial communication sites	No	No	No	No	No	No
New energy or utility structures	No	No	No	No	No	No
New saleable mineral removal for example, gravel	No	No	No	No	No	No
New special use permits if compatible with BCA	Yes	Yes	Yes	Yes	Yes	Yes
Timber production on suitable lands	No	No	No	No	No	No
Timber harvest; for fuels reduction, restoration, habitat improvement	Yes	Yes	Yes, except No: Buffalo Horn, Big Pryor, Punch Bowl, Bear Creek, portion of Hyalite	Yes	Yes	Yes

*Exceptions allowed to provide for reasonable access and mining activities pursuant to the 1872 mining law.

**Low development areas from 1986 Custer Forest Plan.

Note: IRA = inventoried roadless area; SPM = semi-primitive motorized recreation opportunity spectrum.

Table 156. Backcountry areas suitable for motorized and mechanized transport

Backcountry Area	Motorized Transport on Existing Motorized Routes and Areas	New Motorized Trails or New Motorized Transport on Existing Routes, per Recreation Opportunity Spectrum	Mechanized Transport*	New Mountain Bike Trails
Chalk Buttes Alts D, F	Yes	No	Yes	Alternative D Yes Alternative F No
Cook Mountain Alts B, C, F	No (none currently)	No (not suitable)	No	No (not suitable)
King Mountain Alts B, C, F	No (none currently)	No (not suitable)	No	No (not suitable)
Tongue River Breaks Alts B, C, F	No (none currently)	No (not suitable)	No	No (not suitable)
Bear Canyon Alts B, C	Alternative B Yes Alternative C No	No	Alternative B Yes Alternative C No	Alternative B, C Yes
Big Pryor Alts B, C, F	Alternative B, F: Yes Alternative C: No (4 miles on no longer suitable)	No	Alternative B, F Yes Alternative C: No (6 miles no longer suitable).	Alternative B, C Yes Alternative F No
Punch Bowl Alts B, C, F	Alternative B, F Yes Alternative C No	No	Alternative B Yes Alternative C, F No	Alternative B Yes Alternative C, F No (not suitable)
Bad Canyon Alts B, C, F	No (none currently)	No (not suitable)	Alternative B Yes Alternative C, F No (14.11 miles no longer suitable)	Alternative B Yes Alternative C, F No (not suitable)
Crazy Mountains Alts C, F	Alternative C Yes Alternative F No (none currently)	No	Alternative C Yes Alternative F No (2.44 miles no longer suitable)	Alternative C Yes Alternative F No (not suitable)
Blacktail Peak Alts C, F	Yes, over-snow only	No	No	No (not suitable)
West Bridgers Alt C	Yes	No	Yes	Yes
Buffalo Horn Alts B, C, E, F	Yes	Alternative B, C, F: No Alternative E: Yes	Yes	Yes
Cowboy Heaven Alt B	No (none currently)	No	Yes	Yes
Hyalite Alt C	Yes	No	Yes	Yes
Lionhead Alts E, F	No (none currently)	No (not suitable)	Yes	Alternative E Yes Alternative F No
South Cottonwood Alt F	No (none currently)	No (not suitable)	Yes	Yes
West Pine Alt C, F	No (none currently)	No (not suitable)	Yes	Yes

*Mountain biking limited to approved system routes in all backcountry areas in alternative F, and Hyalite and Buffalo Horn backcountry areas in alternative C.

Current Plans

Management Direction under the Current Plans

There are no backcountry areas in the current plans; however, the 1986 Custer Forest Plan allocated three low development areas (management area J) on the Ashland Ranger District that are similar enough in management to backcountry areas to compare here. The 1987 Gallatin Forest Plan does not have a management area similar to either backcountry areas or low development areas.

The 1986 Custer plan goal for King Mountain, Cook Mountain, and the Tongue River Breaks low development areas is to retain these areas in a near natural condition, remain roadless or in a low development setting so that human use leaves little permanent or long-lasting effects. Management seeks to rehabilitate areas that have been previously impacted by other resource activities and uses. The three low development areas cover 38,414 acres in the current plans and all but 478 acres (or 99 percent) of those acres are also within inventoried roadless areas. Therefore, management direction for inventoried roadless areas also applies to most of the low development areas.

Specific management direction states that recreation development will be limited to parking, sanitation, and horse holding and handling facilities (standard 1a). Trails may be constructed to reduce soil and watershed damage (standard 1c). The areas are closed to motorized transport except for noxious weed control, administration of grazing systems, and construction or maintenance of authorized recreation or range facilities (standards 1b, 3c, 3d). Livestock grazing will continue (standard 3a). Structural range improvements may be constructed, but their impact on the roadless and cultural resource characteristics of the area must be minimized (standard 3b). Timber harvest will generally not occur (standard 4a). Sale of forest products not requiring roads is allowed as a wildlife enhancement tool, as is limited post and poles removal for recreation or range facilities (standards 4a, 4b). There are limited circumstances for new facility construction (standard 7a). Prescribed fire is allowed (standard 8b). Removal of saleable mineral material is not allowed (standard 5d2). Native American religious concerns will be taken into special account in management of the Tongue River Breaks (standard 1h).

Effects of the Current Plans

Under the current plans, the three low development areas are managed for near natural, roadless, low development conditions so that human use leaves little permanent or long-lasting effect. The desired condition is also achieved by virtue of 99 percent of the low development areas being in inventoried roadless area and subject to the limits of that allocation. Under the current plans, the total acres of the three areas covers 9 percent of the Ashland Geographic Area. The current plans have the second fewest acres offered for this type of opportunity of the six alternatives.

Revised Plan Alternatives

Management Direction Common to All Revised Plan Alternatives

Forestwide plan components for all backcountry areas are intended to keep these areas in a largely undeveloped condition, where natural processes play their role and human use leaves little permanent or long-lasting evidence (FW-DC-BCA-01). In all backcountry areas, new energy and utility structure, commercial communication sites, developed recreation sites, and extraction of saleable mineral material would not be allowed (FW-STD-BCA-01, 02, 03, and 04). Backcountry areas would not be suitable for timber production, but would be suitable for vegetation management, including timber harvest, for purposes such as fuels reduction, restoration or wildlife habitat enhancement (FW-SUIT-BCA-01), except

in the Buffalo Horn, Big Pryor, Bear Canyon, and Punchbowl Backcountry Areas in alternative C where timber harvest would not be suitable. New special uses would need to be compatible with management of the backcountry area character (FW-STD-BCA-05); new access to and development of minerals would minimize impacts to backcountry areas (FW-STD-BCA-06) and new structural range improvements should be placed in locations to avoid the need for new motorized transport (FW-GDL-BCA-01).

Additional direction is proposed for each backcountry area related to suitability of motorized and mechanized transport (SX-SUIT-CBBCA-01, AL-SUIT-ABCA-01, PR-SUIT-PRBCA-01, PR-SUIT-PBBCA-01, AB-SUIT-BCBCA-01, BC-SUIT-BPBCA-01, BC-SUIT-WBBCA-01, BC-SUIT-CMBCA-01, MG-SUIT-BHBCA-01, MG-SUIT-SCBCA-01, MG-SUIT-LHBCA-01, MG-SUIT-WPBCA-01). Direction that varies between alternatives for the same backcountry area are displayed in table 155 and table 156 above and discussed below for each alternative.

Much of the acreage within the proposed backcountry areas is also designated as inventoried roadless area (table 154). This analysis assumes that there will be no changes to inventoried roadless area boundaries or direction for the life of the plan. Where allocations overlap, the more restrictive management direction would take precedence.

Backcountry areas address uses that inventoried roadless do not address. For instance, inventoried roadless area direction alone does not address suitability of motorized or mechanized transport. Suitability of these uses is addressed in backcountry areas. Conversely, timber harvest in backcountry areas would be limited by the roadless area conservation rule.

Alternative B

Management Direction under Alternative B

Alternative B has nine backcountry areas, totaling 124,980 acres in four geographic areas. This alternative includes the King Mountain, Cook Mountain, Tongue River Breaks, Punch Bowl, Big Pryor, Bear Creek, Bad Canyon, Buffalo Horn, and Cowboy Heaven Backcountry Areas. Of those acres, 81,358 acres are also inventoried roadless areas.

The Ashland Geographic Area backcountry areas, King Mountain, Cook Mountain, and Tongue River Breaks, are the same boundaries managed as low development areas in the current Custer Forest Plan. These areas would not be suitable for motorized or mechanized transport. New facilities would be more limited than in the current plans. The physical environment and visual setting of the Tongue River Breaks provide the qualities of spiritual reflection, renewal, and sanctuary (AL-DC-ABCA-01).

The Pryor Mountains Geographic Area has three backcountry areas—Big Pryor, Bear Canyon, and Punchbowl. In alternative B, the areas would be suitable for mechanized transport and for motorized transport on existing system motorized routes and areas. New motorized trails could not be constructed or designated; however mechanized, foot, and horse trails could be built.

The Bad Canyon Backcountry Area in the Absaroka Beartooth Mountains Geographic Area would be suitable for mountain bike use.

Two backcountry areas are in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area; Buffalo Horn and Cowboy Heaven. The Cowboy Heaven Backcountry Area would not be suitable for motorized transport, and would be suitable for mechanized transport. The Buffalo Horn Backcountry Area (21,539 acres in alternative B) would be suitable for mechanized transport and for motorized

transport on existing system motorized routes and areas. New recreation events would not be allowed. Wilderness study area direction that is more restrictive than backcountry areas direction would be followed, unless Congress released the wilderness study area.

New permanent roads would not be allowed in any backcountry area, and temporary roads may be constructed only where backcountry areas do not overlap inventoried roadless areas.

Effects of Alternative B

Alternative B has nine backcountry areas totaling 124,980 acres, the fourth highest alternative. Six of these areas were not included in the current plans. Therefore, an additional 68,414 acres would be managed as backcountry areas under alternative B, compared to the low development areas of the current plans. Of total backcountry area acres, 81,358 (or 65 percent) are also within inventoried roadless areas and where plan land allocations overlap, the more restrictive guidance would apply. The 43,555 acres that are not inventoried roadless would not be suitable for timber production and would prohibit new permanent road construction because of the backcountry allocation.

The three backcountry areas in the Ashland Geographic Area comprise about 38,348 acres and cover about 9 percent of the national forest lands in this geographic area. The Cook Mountain Backcountry Area is 9,794 acres; the King Mountain Backcountry Area is 12,189 acres; and the Tongue River Breaks Backcountry Area is 16,365 acres. Under alternative B, management of the Ashland Backcountry Areas (Cook Mountain, King Mountain, and Tongue River Breaks) would be similar as in the current plans, except new recreation developments would not be allowed and mechanized transport would not be suitable. The current plans do not allow motorized transport and do not address mechanized transport; however, no system trails exist in these areas.

The three backcountry areas in the Pryor Mountains Geographic Area total 29,389 acres (39 percent of this geographic area) are a change from the current plans. The Punch Bowl Backcountry Area is 6,097 acres; the Big Pryor Backcountry Area is 12,610 acres; and the Bear Canyon Backcountry Area is 10,682 acres and are a change from the current plans. Suitability of motorized and mechanized transport would not change from the current situation. In a change from the current plans, new recreation facilities and new motorized recreational trails would not be allowed. As virtually none of the Punch Bowl, Big Pryors, or Bear Canyon Backcountry Areas are also within inventoried roadless areas, under alternative B there would be new prohibitions on permanent road building (temporary roads would be allowed). These backcountry areas would not be suitable for timber production although vegetation management, including timber harvest, may be suitable for purposes such as fuels reduction, restoration, or wildlife habitat enhancement.

The Bad Canyon Backcountry Area in the Absaroka Beartooth Mountains Geographic Area is 18,712 acres (just over 1 percent of the geographic area) and is a change from the current plans. Suitability of motorized and mechanized transport would not change from the current situation. Twenty-seven percent of the backcountry area (4,995 acres) is in inventoried roadless area. Therefore, alternative B proposes new restrictions on new road construction and timber production on the 73 percent of the non-inventoried roadless area lands. Timber harvest may be suitable for purposes such as fuels reduction, restoration, or wildlife habitat enhancement across the entire backcountry area.

The Buffalo Horn and Cowboy Heaven Backcountry Areas in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area total 38,531 acres (five percent of the geographic area). Suitability of motorized and mechanized transport would not change from the current situation. Both the Cowboy

Heaven and Buffalo Horn Backcountry Areas are not suitable for timber production as they are 99 percent inventoried roadless area. Vegetation management, including timber harvest, may be suitable for purposes such as fuels reduction, restoration, or wildlife habitat enhancement. The Buffalo Horn Backcountry Area would not allow new recreation events, therefore displacing those activities to other locations, either on or off the national forest.

There would be no changes in motorized winter transport between the current plans and alternative B.

Alternative C

Management Direction under Alternative C

Alternative C has thirteen backcountry areas, consisting of 299,522 acres in five geographic areas. This alternative includes the King Mountain, Cook Mountain, Tongue River Breaks, Punch Bowl, Big Pryor, Bear Creek, Bad Canyon, Hyalite, Buffalo Horn, West Pine, Crazy Mountains, West Bridgers, and Blacktail Peak Backcountry Areas. Of those acres, 225,363 (or 75 percent) are also inventoried roadless areas and inventoried roadless area plan components would apply where there are overlapping allocations.

The Ashland Geographic Area backcountry areas are identical in number, acres, and management direction as in alternative B.

The Pryor Mountain Backcountry Areas are the same boundaries as alternative B. In contrast to alternative B, in alternative C, the Punch Bowl, Big Pryor and Bear Creek Backcountry Areas would not be suitable for motorized transport, mechanized transport, or for vegetation management, including timber harvest, for purposes such as fuels reduction, restoration, or wildlife habitat enhancement. None of the Pryor Mountains Backcountry Areas is also within inventoried roadless area.

In the Absaroka Beartooth Mountains Geographic Area, the Bad Canyon Backcountry Area is the same boundary as alternative B. In alternative C, the backcountry would not be suitable for motorized transport or mechanized transport. Only 27 percent of the backcountry area (4,995 acres) is in inventoried roadless area.

Blacktail Peak, Crazy Mountains, and West Bridger Backcountry Areas are proposed in the Bridger, Bangtail, and Crazy Mountain Geographic Area in alternative C. The Blacktail Peak Backcountry Area would be suitable for winter motorized over-snow transport, and not suitable for summer motorized or mechanized transport. The Crazy Mountain and West Bridger Backcountry Areas would be suitable for mechanized transport and for motorized transport on existing system motorized routes and areas.

The Madison, Henrys Lake, and Gallatin Mountains Geographic Area includes the Buffalo Horn, Hyalite, and West Pine Backcountry Areas in alternative C. The Buffalo Horn Backcountry Area in alternative C is larger than in alternative B at 28,126 acres and would be suitable for mechanized transport and for motorized transport on existing system motorized routes and areas. As opposed to alternative B, in alternative C timber harvest would not be suitable in the Buffalo Horn backcountry area. Wilderness study area direction that is more restrictive than backcountry area direction would be followed, unless Congress released the wilderness study area. The West Pine Backcountry Area is 22,619 acres and would be suitable for mechanized transport, and not suitable for motorized transport.

Plan components for the 46,704-acre Hyalite Backcountry Area in alternative C include a desired condition that loop trail opportunities are available outside of the Hyalite Creek watershed; standards for no new motorized trails, no new motorized over-snow use areas in the Hyalite Creek watershed, no new

trails to the high peaks (Flanders, Mt. Bole, Divide Peak, Maid of the Mist), and no extraction of saleable mineral materials. The Hyalite Backcountry Area would be suitable for motorized transport on existing motorized trails and in existing motorized over-snow use areas. Mountain biking would be suitable only on system roads and approved system mountain bike trails, and timber harvest would not be allowed in the portion of the Hyalite Backcountry Area within the wilderness study area boundary.

In all three of these backcountry areas, new permanent or temporary roads would not be allowed. In other backcountry areas, new permanent roads would not be allowed in any backcountry area, and temporary roads may be constructed only where backcountry areas do not overlap inventoried roadless areas.

Effects of Alternative C

At 299,596 acres, this alternative has the highest acreage of backcountry areas of all six alternatives. Ten of these areas were not included in the current plans. Therefore, an additional 261,182 acres would be managed as backcountry areas under alternative B compared to the low development areas of the current plans. Seventy-five percent of backcountry areas are also within inventoried roadless in alternative C, which means that where plan land allocations overlap, the more restrictive guidance would apply. The 75,159 acres that are not inventoried roadless would not be suitable for timber production and would prohibit new permanent road construction because of the backcountry allocation.

Effects of the Ashland Backcountry Areas would be the same as in alternative B.

The three backcountry areas in Pryor Mountains are the same boundaries as in alternative B. Plan components in alternative C would not be suitable for timber harvest, which may limit some restoration projects requiring vegetation management. Within the Big Pryor Backcountry Area, motorized or mechanized transport would no longer be suitable on about 3.6 miles of route 2095a. Mechanized transport would no longer be suitable on about 4 miles of the Big Pryor Trail 30 and almost 2 miles of the Crater Ice Cave Trail 31.

In the Absaroka Beartooth Mountains Geographic Area, about 14.11 miles on the Bad Canyon, Bear Trap, Telegraph Creek, and Trout Creek trails would no longer be suitable for bicycle use in alternative C in the Bad Canyon Backcountry Area. Twenty-seven percent of the backcountry area (4,989 acres) is in inventoried roadless area; the effects on the remaining 73% of the backcountry area are the same as alternative B.

The three backcountry areas in the Bridger, Bangtails, and Crazy Mountains Geographic Area total 115,625 acres, or 56 percent of the geographic area. The Blacktail Peak Backcountry Area is 99 percent, the Crazy Mountains Backcountry Area is 88 percent, and the West Bridger Backcountry Areas is 95 percent inventoried roadless area, which limits road building, timber production and timber harvest. Suitability of motorized and mechanized transport would not change from the current situation.

The total area of the three backcountry areas in Madison, Henrys Lake, and Gallatin Mountains Geographic Area is 97,449 acres (or 12 percent of the geographic area). The Buffalo Horn Backcountry Area in alternative C at 28,126 acres is larger than alternative B. As opposed to alternative B, in alternative C timber harvest would not be suitable in the Buffalo Horn Backcountry Area, which may limit some restoration projects requiring vegetation management. Suitability of motorized and mechanized transport would not change from the current situation, except that mountain biking would be suitable only on approved system routes.

Suitability of motorized and mechanized transport would not change from the current situation in the West Pine Backcountry Area. This backcountry area is 77 percent in inventoried roadless area. Plan components would restrict timber production and construction of permanent and temporary roads in the remaining 23 percent of the backcountry area that is not inventoried roadless area.

The Hyalite Backcountry Area at 46,704 acres, has plan components which would restrict new motorized trails, and new hiking trails to the high peaks listed. As a result, new motorized transport would need to be considered in other locations on or off the national forest, likely a farther distance from Bozeman's population center. Plan components would restrict construction of permanent and temporary roads in the 32 percent of the backcountry area that is not inventoried roadless area.

The following changes in suitability of motorized over-snow winter transport would occur under alternative C, compared to the current plans:

- Bear Canyon Backcountry Area – 4,253 acres no longer suitable for winter motorized transport.
- Big Pryor Backcountry Area – 9,249 acres no longer suitable for winter motorized transport.
- Punch Bowl Backcountry Area – 2,499 acres no longer suitable for winter motorized transport.

In total, 16,001 acres would no longer be suitable for winter motorized transport in backcountry areas in alternative C compared to the current plans.

Alternative D

Management Direction under Alternative D

Alternative D includes one backcountry area—the 5,937 acres Chalk Buttes Backcountry Area in the Sioux Geographic Area. None of the backcountry area is also within inventoried roadless area. New permanent roads would not be allowed; temporary roads may be constructed. The area would be suitable for mechanized transport and for motorized transport on existing system motorized routes and areas.

Effects of Alternative D

Alternative D has the least number and acreage of backcountry areas of the six alternatives. There would be 32,477 fewer acres managed as backcountry areas under alternative D compared to the low development areas of the current plans. The allocation would cover 3 percent of the National Forest System lands within the Sioux Geographic Area.

Allocation as a backcountry area would manage the Chalk Buttes for less developed, semi-primitive recreation opportunities, with limits on new permanent roads and development, while motorized transport would continue to be suitable where it currently exists. Since none of the area is inventoried roadless area, the backcountry area limit on new permanent road construction and timber production is a change from the current plans. There are no changes in motorized winter recreation opportunities between the current plans and alternative D.

Alternative E

Management Direction under Alternative E

In alternative E, two backcountry areas are proposed in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area—the Buffalo Horn Backcountry Area includes the entire 144,064 Hyalite Porcupine Buffalo Horn Wilderness Study Area (on National Forest System land) and 27,266 acres in Lionhead. About 99 percent of the backcountry areas is also inventoried roadless area, and inventoried roadless area plan components would apply.

Management direction for the Buffalo Horn Backcountry Area in alternative E would allow new recreation events, and the backcountry area would be suitable for mechanized transport, for motorized transport on existing motorized routes, and for new motorized transport in semi-primitive motored recreation corridors. Wilderness study area direction that is more restrictive than backcountry area direction would be followed, unless Congress released the wilderness study area. The Lionhead Backcountry Area would be suitable for non-motorized and mechanized transport. New permanent roads or virtually any new temporary roads would not be allowed in either backcountry area.

Effects of Alternative E

Alternative E has the third highest acreage of backcountry areas, after alternatives C and F, although it only includes two areas. The combined acreage of the Buffalo Horn and Lionhead Backcountry Areas would be 171,326 (or 21 percent of that geographic area). Neither of these areas was included in the current plans. Overall, an additional 132,912 acres would be managed as backcountry areas in alternative E, compared to the current plans. While 171,326 more acres would be managed as backcountry areas in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area, 38,414 fewer acres would be managed as low development areas in the Ashland Geographic Area compared to the current plans. Ninety-nine percent of the two backcountry areas is also inventoried roadless area.

Bicycle use would continue to be suitable in the Lionhead Backcountry Area. Additional land would be suitable for motorized and mechanized transport opportunity within semi-primitive motorized recreation opportunity spectrum corridors in the Buffalo Horn Backcountry Area. Wilderness study area direction that is more restrictive than backcountry area direction would be followed, unless Congress released the wilderness study area.

Compared to the current plans, the Buffalo Horn Backcountry Area in alternative E has an increase of 10,283 acres of winter motorized opportunities, if the wilderness study area was released by Congress.

Alternative F

Management Direction under Alternative F

Alternative F includes 13 backcountry areas in all six geographic areas, totaling 207,677 acres. This alternative includes the Chalk Buttes, King Mountain, Cook Mountain, Tongue River Breaks, Big Pryor, Punch Bowl, Bad Canyon, Crazy Mountains, Blacktail Peak, Buffalo Horn, South Cottonwood, Lionhead, and West Pine Backcountry Areas. Of those acres, 154,341 (or 74 percent) are also inventoried roadless areas and inventoried roadless area plan components would apply where there are overlapping allocations

The Chalk Buttes Backcountry Area in the Sioux Geographic Area is identical in size and management direction as in alternative D, except that mountain biking would be suitable only on approved system routes, and new mountain bike trails could not be constructed (SX-STD-CBBCA-03).

The Ashland Geographic Area backcountry areas are identical in number, acres, and management direction as in alternative B, except that (1) the Tongue River Breaks Backcountry Area is 468 acres larger because in alternative F, the Poker Jim Research Natural Area overlays the backcountry area; (2) the backcountry areas would not be suitable for mechanized transport, except use of game carts; and (3) no new trails would be allowed (AL-STD-ABCA-02).

The Pryor Mountains Geographic Area has two backcountry areas—Big Pryor and Punchbowl. In alternative F, the Big Pryor Backcountry Area would be suitable for mechanized transport and for motorized transport on existing system motorized routes and areas. Mountain biking would be suitable only on existing approved system routes and other than reroutes of existing trails, new mountain bike trails could not be constructed or designated (PR-STD-PRBCA-02). The Punch Bowl Backcountry Area would not be suitable for summer motorized or mechanized transport; however, game carts would be suitable. This backcountry area would continue to be suitable for winter motorized over-snow transport.

The Bad Canyon Backcountry Area in the Absaroka Beartooth Mountains Geographic Area would not be suitable for motorized or mechanized transport, but would accommodate game carts.

The Bridger, Bangtail, and Crazy Mountains Geographic Area includes the Blacktail Peak and Crazy Mountain Backcountry Areas. The Blacktail Peak Backcountry Area would not be suitable for summer motorized or mechanized transport; however, game carts would be suitable. Winter motorized over-snow transport would be suitable. The Crazy Mountain Backcountry Area would not be suitable for motorized transport. The backcountry area would not be suitable for mechanized transport, except use of game carts.

Four backcountry areas are proposed in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area—Buffalo Horn, Lionhead, South Cottonwood, and West Pine Backcountry Areas. The Lionhead, South Cottonwood and West Pine Backcountry Areas would not be suitable for motorized transport, but would be suitable for mechanized transport. Mountain biking would be suitable only on approved system routes. In the Lionhead Backcountry Area, other than reroutes of existing trails, new mountain bike trails could not be constructed or designated (MG-STD-LHBCA-02). The Buffalo Horn Backcountry Area would be suitable for motorized transport on existing system motorized routes and areas. The backcountry area would be suitable for mechanized transport and mountain biking would be suitable only on approved system routes. In addition, new recreation events would not be allowed in the Buffalo Horn and West Pine Backcountry Areas (MG-STD-BHBCA-02 and MG-STD-WPBCA-02). Wilderness study area direction that is more restrictive than backcountry areas direction would be followed, unless Congress released the wilderness study area.

New permanent roads would not be allowed in any backcountry area, and temporary roads would be allowed only in the Chalk Buttes, Big Pryor, Punch Bowl, and South Cottonwood Backcountry Areas (SX-STD-CBBCA-01, AL-STD-ABCA-01, PR-STD-PRBCA-01, PR-STD-PBBCA-01, AB-STD-BCBCA-01, BC-STD-BPBCA-01, BC-STD-CMBCA-01, MG-STD-BHBCA-01, MG-STD-LHBCA-01, MG-STD-SCBCA-01, MG-STD-WPBCA-01). Standard FW-STD-BCA-06 allows exceptions to the no new roads standards if needed to provide reasonable access pursuant to the 1872 mining law.

Effects of Alternative F

Alternative F has 13 backcountry areas, totaling 207,677 acres, the second highest alternative. Ten of these areas were not included in the current plans. Therefore, an additional 169,263 acres would be managed as backcountry areas under alternative F, compared to the low development areas of the current plans. In alternative F there are 154,341 acres (about 74 percent) are also within inventoried roadless areas and where those plan land allocations overlap, the more restrictive guidance would apply. The 53,336 acres that are not inventoried roadless would not be suitable for timber production and would prohibit new permanent road construction because of the backcountry allocation.

Effects of the Chalk Buttes Backcountry Area in the Sioux Geographic Area are the same as alternative D, except that in alternative F, mountain biking would be restricted to approved system routes, and new mountain bike trails could not be constructed. In effect, mountain biking would be allowed on system roads. Additional mountain biking could potentially be allowed if public access was obtained on existing administrative roads.

Effects of the three backcountry areas in the Ashland Geographic Area are the same as alternatives B and C, except that the Tongue River Breaks Backcountry Area is 534 acres larger than alternative B or C, because the Poker Jim Research Natural Area overlays the backcountry area, rather than being omitted from the backcountry area. In a change from current direction, no new trails could be added. Game carts were not mentioned in the current plans.

The two backcountry areas in the Pryor Mountains Geographic Area total 18,707 acres (2.5 percent of geographic area). The Punch Bowl Backcountry Area is 6,097 acres; the Big Pryor Backcountry Area is 12,610 acres and are a change from the current plans. Current modes of transport would continue to be suitable in these backcountry areas, except that mountain biking would be limited to current system routes. Other effects would be the same as in alternative B.

Effects of the Bad Canyon Backcountry Area in the Absaroka Beartooth Mountains Geographic Area would be the same as in alternative C; 14.11 miles on the Bad Canyon, Bear Trap, Telegraph Creek, and Trout Creek trails would no longer be suitable for bicycle use. New permanent and temporary road construction and timber production would be restricted on the 73 percent of the area that is not inventoried roadless area.

The two backcountry areas in the Bridger, Bangtails, and Crazy Mountains Geographic Area total 35,282 acres, or 17 percent of the geographic area. The Blacktail Peak Backcountry Area is 100 percent and the Crazy Mountains Backcountry Area is 98 percent inventoried roadless area, which limits road building, timber production and timber harvest. Suitability of motorized and mechanized transport would not change from the current situation in the Blacktail Peak Backcountry Area. There are no motorized trails or areas in the Crazy Mountains Backcountry Area, while 2.44 miles of bicycle trail would no longer be suitable for that use. This trail on the South Fork of the American Fork is currently inaccessible to mountain bike use. The Buffalo Horn, Lionhead, South Cottonwood and West Pine Backcountry Areas in the Madison, Henrys Lake, and Gallatin Mountains Geographic Area total 90,157 acres (close to 11 percent of the geographic area). Suitability of motorized and mechanized transport would not change from the current situation, except that in alternative F, mountain biking would be restricted to approved system routes. Mountain biking would be limited to the current trail system in the Lionhead Backcountry Area. Currently, the Buffalo Horn, and Lionhead Backcountry Areas are not suitable for timber production, as they are almost entirely inventoried roadless area. Vegetation management may be

suitable for purposes such as fuels reduction, restoration, or wildlife habitat enhancement. About 23 percent of the West Pine Backcountry Area is not inventoried roadless area and plan components would restrict timber production and construction of permanent and temporary roads. Prohibiting new recreation events in the Buffalo Horn and West Pine Backcountry Areas would displace those activities to other locations, either on or off the national forest.

In backcountry areas where mountain biking is suitable for use, restricting mountain bikes to approved system routes (essentially not allowing off-trail use) would limit the potential of user-created trails, which could alter the current character and landscape of these backcountry areas. This is in keeping with the forestwide desired condition (FW-DC-BCA-01), stating natural processes play their role and human use leaves little permanent or long-lasting evidence in backcountry areas.

There are no backcountry area related changes in motorized winter recreation opportunities between the current plans and alternative F.

Consequences to Backcountry Areas from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Revised plan alternative plan components and objectives for aquatic ecosystems would complement the overall management of backcountry areas by promoting the ecological integrity of watersheds, riparian areas, and aquatic habitats (see the suite of components for Watershed, Aquatics and Riparian Zones).

Effects from Vegetation and Timber Management

Backcountry areas are not suitable for timber production in all revised plan alternatives (FW-SUIT-BCA-01). Vegetation management, including timber harvest, may be suitable for purposes such as fuels reduction, restoration, or wildlife habitat enhancement (FW-SUIT-BCA-01), except in alternative C for the Punch Bowl, Big Pryor Bear Canyon, and Buffalo Horn Backcountry Areas. Vegetation management activities, including timber harvest, coupled with vegetation plan components for ecological diversity, resilience, and sustainability would enhance the resilience of backcountry areas (see suite of desired conditions for forested and non-forested vegetation).

Effects from Wildlife Management

A wildlife key linkage area would overlie the West Bridger Backcountry Area and a portion of the Hyalite Backcountry Area proposed in alternative C and the Blacktail Peak Backcountry Area proposed in alternatives C and F. Where located within backcountry areas, revised plan alternative plan components for key linkage areas would add additional restrictions to activities otherwise allowed. New recreation development, including trails, designed for increasing recreation use should not be allowed within key linkage areas, although they may be constructed to address on-going or imminent ecological resource concerns within the key linkage area, including but not limited to, degradation of wildlife habitat connectivity (FW-GDL-WL-03).

Effects from Energy and Minerals Management

No alternatives allow new saleable mineral material extraction such as gravel pits in backcountry areas (Custer Forest Plan management area J, standard 5d2, and FW-STD-BCA-04). Revised plan alternatives allow exceptions to the backcountry area standards to provide for reasonable access and mining activities pursuant to the 1872 mining law, and state new access to and development of minerals shall minimize impacts to backcountry areas (FW-STD-BCA-06). In addition, potential impacts would be reduced by the revised plan alternatives direction that mineral and energy resource development consider other resource values, and that land be returned to a productive capacity after mineral or energy activity (FW-DC-EMIN-01).

Cumulative Effects

The backcountry area allocation would retain the current undeveloped or lightly developed characteristics of between nearly 6,000 acres and almost 300,000 acres, depending on alternative. When coupled with recommended wilderness areas, the revised plan alternatives propose between about 173,000 acres (alternative E) and about 718,000 acres (alternative D) in a more restrictive plan land allocation than the current plans (about 72,000 acres).

Growth in the western counties near the Custer Gallatin is likely to increase recreational use of the national forest, including use within backcountry areas. The effects of urbanization and population growth on these lightly developed parts of the national forest are likely to be gradual and to extend well beyond the planning period. Examples of potential impacts include increased opportunity for crowding in certain locations, soil compaction or erosion, and threats to native plant species from the spread of noxious weeds from sources outside the area. While the lightly developed character of these areas would be retained, limits on new recreation facilities and uses would restrict lands available for potential future recreation facilities to address increasing population growth.

Conclusion

The management of many of the backcountry areas is influenced by the fact that many of the lands are also inventoried roadless areas, which come with an existing national level set of regulations on allowed management activities. The Chalk Buttes, Punch Bowl, Big Pryor Mountain, Bear Canyon Backcountry Areas have no area within inventoried roadless areas. Other backcountry areas may be partially within inventoried roadless areas as displayed in table 154.

Plan components are sufficient to maintain the current undeveloped or lightly developed characteristics of the backcountry areas. Plan components do so by restricting new permanent roads, communication sites, energy and utility corridors, saleable mineral material removal, and timber production where those actions would not have already been restricted, while providing a mix of suitable mechanized and motorized transport opportunities. Backcountry areas provide some management flexibility for these areas, with timber harvest suitable in most alternatives for purposes such as fuels reduction, restoration, or wildlife habitat enhancement.

3.22.5 Recreation Emphasis Areas

Affected Environment (Existing Condition)

Recreation emphasis areas are certain areas, lakeshores, or river corridors that have existing high use by different types of recreationists. Locations are in the front-country and accessible by roads. Recreation

emphasis areas typically offer a variety of quality recreation opportunities, including motorized and non-motorized transport. The recreation opportunities are accessible to a wide range of users, in several seasons, and typically offer challenges to a wide range of skills. Many of the areas are well known as destinations to generations of forest users. The areas may be regional, national, or international destinations, or may be close to higher population centers. 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. Three of the six revised plan geographic areas have proposed recreation emphasis areas; none are proposed in the Pryor Mountains or in the Ashland or Sioux geographic areas.

Environmental Consequences

Some recreation emphasis areas include lands that are also inventoried roadless areas. Table 157 displays the recreation emphasis area total acreage, and acreage within inventoried roadless area, by alternative.

Table 157. Recreation emphasis area total acreage, and acreage and percentage within inventoried roadless area (IRA) by alternative

Recreation Emphasis Area	Geographic Area	Alt. B acres	Alt. C acres	Alt. D acres	Alt. E acres	Alt. F acres	Acres in IRA	Percentage in IRA
Main Fork Rock Creek	Absaroka Beartooth Mountains	6,750	6,750	6,681	6,883	8,803	Alt B=2,017 Alt C=2,017 Alt D=1,948 Alt E=2,151 Alt F=2,043	B, C= 30% D=29% E=31% F=23%
West Fork Rock Creek	Absaroka Beartooth Mountains	0	0	0	9,538	0	4,055	43%
Cooke City Winter	Absaroka Beartooth Mountains	23,742	23,742	0	24,130	24,130	Alt B=15,013 Alt C=15,013 Alt E=15,401 Alt F=15,401	B, C=63% E, F=64%
Boulder River	Absaroka Beartooth Mountains	7,367	7,367	0	7,367	7,367	Alt B=61 Alt C=61 Alt E=61 Alt F=61	<1%
Yellowstone River	Absaroka Beartooth / Madison, Henrys Lk, Gallatin Mts	2,166	2,166	2,054	2,166	2,166	Alt B=291 Alt C=291 Alt D=222 Alt E=291 Alt F=291	B, C=14% D=11% E, F= 13%
Bridger Winter	Bridger, Bangtail, Crazy Mts	0	0	0	5,354	0	Alt E=744	14%
Bridger	Bridger, Bangtail, Crazy Mts	0	0	0	0	12,969	Alt F= 3,310	26%
M Trail	Bridger, Bangtail, Crazy Mts	0	0	0	148	0	148	100%

Recreation Emphasis Area	Geographic Area	Alt. B acres	Alt. C acres	Alt. D acres	Alt. E acres	Alt. F acres	Acres in IRA	Percentage in IRA
Hyalite	Madison, Henrys Lake, Gallatin Mts	33,799	18,934	8,530	21,491	36,246	Alt B=14,131 Alt C=108 Alt D=386 Alt E=1,864 Alt F=14,056	Alt B=42% Alt C=1% Alt D=5% Alt E=9% Alt F=39%
Storm Castle	Madison, Henrys Lake, Gallatin Mts	0	0	0	34,620	36,516	60	<1%
Gallatin River	Madison, Henrys Lake, Gallatin Mts	16,678	15,247	16,143	16,180	16,474	Alt B=6,628 Alt C=5,399 Alt D=6,114 Alt E=6,167 Alt F= 6,461	Alt B=40% Alt C=35% Alt D=38% Alt E=38% Alt F=39%
Hebgen Winter	Madison, Henrys Lk, Gallatin Mts	72,490	72,491	0	70,924	70,924	Alt B=9,155 Alt C=9,156 Alt E=8,555 Alt F= 8,555	Alt B=13% Alt C=13% Alt E=12% Alt F=12%
Hebgen Lakeshore	Madison, Henrys Lk, Gallatin Mts	13,967	13,969	0	13,887	13,886	Alt B=1,705 Alt C=1,705 Alt E=1,714 Alt F= 1,714	12%
Total Acres	(no data)	176,958	160,665	33,408	212,689	229,482	(no data)	(no data)

Current Plans

Management Direction under the Current Plans

The Custer Forest Plan, as amended, does not have a management area comparable to recreation emphasis areas. Management area F applies to developed recreation sites and to most of the access corridors and were largely mapped at smaller scales than the revised plan alternatives' recreation emphasis areas.

Gallatin Forest Plan management area 5 direction is comparable to the revised plan alternatives' recreation emphasis areas because the direction acknowledges current high use recreation areas. Management area 5 includes portions of the Gallatin River Canyon, Boulder River, Yankee Jim Canyon of the Yellowstone River, Highway U.S. 212 in the Cooke City vicinity, Highways U.S. 191 and 287 in the West Yellowstone vicinity, and areas adjacent to Hebgen Lake and Hyalite Reservoir. The Gallatin plan, as amended, has 29,913 acres in management areas 5, with some direction to emphasize recreation as a dominant use when considering implementation of other management actions in the specific areas listed.

Gallatin Forest Plan management area 5 direction allows range, wildlife, and fish projects to continue, but states that timber harvest be consistent with a goal to "maintain and improve wildlife habitat values and the natural attractiveness of these areas to provide opportunities for public enjoyment and safety." Other direction includes "shape and scale even-aged openings to replicate natural openings" and "permit commercial and precommercial thinning if it enhances the recreational values of the area."

Effects of the Current Plans

Recreation management would continue to be emphasized in Gallatin Forest Plan management area 5 areas. The 29,913 acres of management area 5 in the current plans are the least amount of area with a recreation emphasis of all six alternatives. The individual acres of listed locations within management area 5 were not available to include in table 157.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

All revised plan alternatives have the same forestwide direction for recreation emphasis areas. Forestwide plan components state that recreation emphasis areas provide: sustainable recreation opportunities and settings that respond to changing recreation desires (FW-DC-REA-01), local communities can readily access recreation emphasis areas for a variety of motorized and non-motorized experiences (FW-DC-REA-01), trail systems connect to communities, (FW-DC-REA-02), loop trail opportunities (FW-DC-REA-03) and educational programs (FW-DC-REA-03 and 04), developed recreation sites which are accessible to all users (FW-DC-REA-06), vegetation management which complements the recreational settings over the long term (FW-DC-REA-05). In addition, the components state, that the national forest works with partnerships to increase capacity and offer opportunities, continues existing partnerships and seeks new partnerships to increase capacity to maintain and enhance the recreation opportunities in recreation emphasis areas (FW-GO-REA-01), provide that temporary roads, skid trails, and landings should be constructed and rehabilitated to discourage new visitor use of that structure (FW-GDL-REA-01), and that the areas are suitable for a high density of recreation development (FW-SUIT-REA-01).

Each recreation emphasis area has specific plan components in addition to the forestwide components described above. These components emphasize place-based partnerships, define the role of outfitters in a specific area, and in some areas seek alternative transportation options for convenient and sustainable public access. Plan components prohibit new motorized trail construction in the Main Fork Rock Creek Recreation Emphasis Area (AB-STD-RCREA-01), and address the groomed trail surface of the Rendezvous Ski trail in the Hebgen Winter Recreation Emphasis Area (MG-STD-HWREA-01 and MG-GDL-HWREA-01).

Objectives include activities such as converting unsustainable dispersed lakeshore camping areas or sites into higher development scale campgrounds on Hebgen Lake in compliance with the grizzly bear plan components (MG-OBJ-HLREA-01), developing or converting dispersed camping areas to a higher developed recreation site in the Main Fork Rock Creek Recreation Emphasis Area (AB-OBJ-RCREA-01), developing or converting day use sites on the Hyalite lakeshore from other developed recreation sites, such as campsites on the lakeshore (MG-OBJ-HREA-01), and creating loop trail opportunities in the Hyalite Recreation Emphasis Area (MG-OBJ-HREA-02). Objectives vary by alternative for the Hebgen Lakeshore and Hyalite Recreation Emphasis Areas

Specific standards vary by alternative for the Hyalite Recreation Emphasis Area. In alternative C only, the construction or designation of new motorized trails and the removal of saleable mineral material would not be allowed (draft plan standard MG-STD-01 and 03). In alternative F, new trail construction would not be allowed to provide access to Flanders, Mt. Bole, Divide Peak, and Maid of the Mist Peaks (revised plan standard MG-STD-HREA-01).

Effects of Alternative B

Alternative B proposes eight recreation emphasis areas (Main Fork Rock Creek, Boulder River, Cooke City Winter, Yellowstone River, Hyalite, Gallatin River, Hebgen Lakeshore, and Hebgen Winter Recreation Emphasis Areas), for a total of 177,647 acres. Alternative B has the third largest acreage of recreation emphasis areas of revised plan alternatives. Six of the recreation emphasis areas proposed in alternative B are included in Gallatin Forest Plan management area 5 in the current plans. The current plans did not include Main Fork Rock Creek or Hebgen Winter areas.

Inventoried roadless areas within recreation emphasis areas would typically allow less facility development and would limit new road construction, which might be otherwise sought for expansion of developed recreation in some cases within some recreation emphasis areas. It is not necessarily incompatible to have some inventoried roadless areas within the recreation emphasis allocation. The inventoried roadless areas included in these recreation emphasis areas reflect the transition from heavy recreation usage that may occur close to roads to areas further from roads. The Hyalite Recreation Emphasis Area for example, includes rock climbing areas and high use trails away from roads. The Cooke City Winter Recreation Emphasis Area use is predominantly snowmobile use away from plowed roads.

Effects of Alternative C

Alternative C proposes the same eight recreation emphasis areas as alternative B for a total of 161,561 acres. This alternative proposes a smaller Hyalite Recreation Emphasis Area than in alternative B. Alternative C has the fourth largest acreage of recreation emphasis areas.

Alternative C proposes limitations in the Hyalite Recreation Emphasis Areas that are not proposed in other alternatives. The prohibition on the removal of saleable mineral material may reduce the availability of this material for projects within the recreation emphasis area such as roads, trails and trailheads, campgrounds, and other projects. Material needed for these types of projects may need to be purchased and transported from commercial sources resulting in an increase in the use of fuel and project costs.

The prohibition on construction and designation of new motorized trails in this recreation emphasis area would maintain the current footprint of motorized trails in a popular area of growing demand. Unlike other recreation emphasis areas, the Hyalite Recreation Emphasis Area under this alternative would have restrictions to the growth of some recreation activities.

Effects of Alternative D

Alternative D proposes four recreation emphasis areas for a total of 34,303 acres. This alternative proposes the Main for Rock Creek, Yellowstone River, Hyalite, and Gallatin River. Of these, the Yellowstone River, Hyalite, and Gallatin River Recreation Emphasis Areas would be smaller in alternative D than in all other alternatives. Alternative D has the least acres of recreation emphasis areas of the revised plan alternatives. It includes three of the areas included in the current plans. There would be no recreation emphasis areas representing winter recreation, with the four areas chosen representing only the highest summer use areas for developed recreation facilities on the Custer Gallatin. Reflective of the smaller acreage of recreation emphasis areas than in other revised plan alternatives, there are correspondingly fewer acres of recreation emphasis areas within inventoried roadless areas. The effects of inventoried roadless area within recreation emphasis areas are similar to alternatives B and C.

Effects of Alternative E

Alternative E proposes twelve recreation emphasis areas, for a total of 213,582 acres. This alternative proposes the Main Fork Rock Creek, West Fork Rock Creek and Red Lodge Mountain, Boulder River, Cooke City Winter, Yellowstone River, Hyalite, the M, Bridger Winter, Storm Castle, Gallatin River, Hebgen Lakeshore, and Hebgen Winter. Two of these, West Fork Rock Creek, and the M trail appear only in this alternative. This alternative has the most recreation emphasis areas and second highest acreage of all alternatives. Alternative E includes winter downhill and cross-country ski areas, the iconic M trail adjacent to the town of Bozeman, Storm Castle (which is a more heavily motorized trail experience than other locations), and West Fork Rock Creek at the base of the Beartooth Highway offering developed campgrounds. A variety of summer and winter recreational activities are acknowledged for the important role they play in these national forest locations.

Effects of inventoried roadless area within recreation emphasis areas are similar to alternatives B and C. One of the most urban accessible locations, the M trail near Bozeman, is also almost entirely within an inventoried roadless area, which is compatible to the hiking experience offered.

Effects of Alternative F

Alternative F proposes ten recreation emphasis areas, for a total of 229,482 acres. This alternative proposes the Main Fork Rock Creek, Cooke City Winter, Boulder River, Yellowstone River, Bridger, Hyalite, Storm Castle, Gallatin River, Hebgen Winter, and Hebgen Lakeshore.

This alternative has the second highest number of recreation emphasis areas and highest acreage of all revised plan alternatives. This alternative provides a mix of recreational activities that acknowledge the important role played in these recreation emphasis areas. Winter sport activities in Cooke City and the Hebgen area are included, as well as a large variety of summer recreational activities, both motorized and non-motorized, in the other locations.

Effects of inventoried roadless area within recreation emphasis areas are similar to alternatives B and C.

Consequences to Recreation Emphasis Areas from Plan Components Associated with Other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

In all alternatives, plan components provide for the protection of watershed resources within these heavily used recreation areas. The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats (see the suite of components for watershed, aquatics and riparian management zones). The revised plan alternatives include the adoption of riparian management zones, which are greater in size from the riparian zones currently identified for streams east of the Continental Divide. Plan components limit new recreation facility development within riparian management zones (FW-GDL-FAC-03).

Effects from Vegetation and Timber Management

Recreation emphasis areas do not restrict timber management. However, timber production is not suitable in inventoried roadless areas or developed recreation sites, which also occur in parts of some recreation emphasis areas (FW-SUIT-RECDEV-01 and FW-SUIT-IRA-01).

In the current plans, the Gallatin Forest Plan guidance addresses using timber management to enhance recreation values in management area 5. In the revised plan alternatives, recreation emphasis area guidance addresses vegetation management compatibility with the recreational setting (FW-DC-REA-05). In all alternatives, plan components that provide for restoration efforts, including treatment of diseased stands and hazard tree removal, would provide for visitor safety and healthy functioning settings for recreational activities (FW-STD-RMZ-02 and FW-DC-RECDEV-05).

Effects from Fire and Fuels Management

In all alternatives, fire and fuels plan components strive to protect infrastructure that is often associated with recreation emphasis areas (FW-STD-FIRE-01, FW-GDL-FIRE-02). Fuels management components have a desired condition that there are minimal detrimental impacts to values at risk, which would include developed recreation sites (FW-DC-FIRE-03). Revised plan alternative plan components support low intensity fire adjacent to infrastructure and the wildland-urban interface (FW-DC-FIRE-02); some recreation emphasis areas may also be within the wildland-urban interface. Therefore, active fuel treatment would be part of protecting recreation facilities from wildfire (FW-OBJ-FIRE-01).

Effects from Wildlife Management

In all alternatives, wildlife plan components for grizzly bears within the recovery zone limit the amount of new developed recreation facilities allowed and require facilities to offer certain food protections and other restrictions. These components offer ways to provide for visitor safety and minimize conflicts in bear country. In alternatives B through E, construction of new developed recreation sites would be limited within the Greater Yellowstone Area Grizzly Bear Conservation Strategy Recovery Zone boundaries. The number and capacity of developed sites must be maintained at or below 1998 baseline levels; that is, it limits the number of new developed recreation sites (including overnight campsites) that may be built as well as expansion of existing sites, to the number and capacity that existed in 1998, (FW-DC-WLGB-01). This hinders the ability to provide more capacity for overnight camping in forest areas where population pressures and tourism are expected to increase. Lack of additional overnight developed recreation sites in popular locations may move campers to dispersed camping, where encounters with bears may be more likely and there are no food storage facilities or interpretive signing to educate visitors on camping in bear prone areas. For developed recreation sites inside the grizzly bear recovery zone and primary conservation area, there are numerous limitations on new infrastructure that would increase capacity (draft revised plan FW-STD-WLGB-04, 05).

In alternative F, within the Greater Yellowstone Area Grizzly Bear Conservation Strategy Recovery Zone boundaries, the number of developed sites must be maintained at or below 1998 baseline levels; but additional human capacity for administrative and public use may be allowed within the authorized footprint of a site that existed in 1998 or the area within 300 meters of a primary road that existed in 1998 (FW-STD-WLGB-04, 05). Compared to alternatives B through E, alternative F would provide opportunity to increase overnight camping capacity within existing developed recreation sites in forest areas where population pressures and tourism are expected to increase.

Effects from Access and Recreation Management

Recreation emphasis areas are highly visited and accessed by maintenance of Level 3 through Level 5 roads. Revised plan alternative plan objectives that prioritize maintenance of Level 3 through Level 5 roads would result in continued access to these areas (FW-OBJ-RT-02). Revised plan alternative

recreation management plan components for developed campgrounds call for public safety to be provided (FW-GDL-RECDEV-01).

Effects from Scenery Management

In all alternatives, the revised plan scenic integrity objectives do not prohibit on-the-ground actions, but may influence the design or the location of facilities that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objective, which describes the lowest maximum threshold of visual dominance and deviation from the surrounding scenic character.

Cumulative Effects

Population growth, urbanization, and growth in travel and tourism are high probabilities over the next 10 to 15 years. These trends would draw more visitors to the western part of the Custer Gallatin and areas such as recreation emphasis areas. While growth is predicted, there are limits to expansion of facilities such as developed campgrounds. The campgrounds that are found in many recreation emphasis areas are unlikely to expand, nor is it likely new ones will be created due to limited budgets and restrictions placed on new developed facilities in the grizzly bear recovery zone. Thus, visitation may outpace capacity for some of these areas. Goals encourage partners to provide additional capacity and these may offer possibilities that are not currently known. This may not occur in the lifetime of the plan, but it seems likely that, given time, highly in demand parts of the Custer Gallatin will reach some type of recreation use capacity.

Conclusion

The recreation emphasis area allocations do not occur in the eastern geographic areas; the Sioux, Ashland, or Pryor Mountains Geographic Areas. Under all revised plan alternatives, plan components along with existing Forest Service policy and direction on management of recreation facilities would provide for accessible recreation opportunities that are responsive to changing visitor demands, visitor safety, and resource protection in heavily visited, recreation-focused areas of the Custer Gallatin. Compared to the current plans, recreation emphasis areas more clearly define the important role that a variety of recreational activities play in these locations. Because applicable forestwide plan components for all resources would apply within recreation emphasis areas, natural resources would be protected while seeking to accommodate appropriate levels of recreational use.

3.22.6 Stillwater Complex

Affected Environment (Existing Condition)

Within the Stillwater Complex plan land allocation are significant base, precious, and critical and strategic minerals. The area has been mined since the later portions of the 19th century. Currently, the area hosts two large underground platinum and palladium mines. Both 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 area is unique in its 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 large underground mines could be in operation throughout the lifespan of this plan. In recognition of the

above information and the fact that mining produces specific surface and subsurface types of disturbance inherent to the production of minerals, the planning team developed a plan land allocation for this area.

Environmental Consequences

Current Plans

Management Direction under the Current Plans

The 1986 Custer Forest Plan management area E recognizes areas of high mineral potential and existing mineral development activities. The goal of the management area E allocation is to facilitate and encourage the exploration, development, and production of energy and mineral resources from National Forest System lands while mitigating impacts to the extent possible. Management area E is applied to about 23,400 acres in the area of the Stillwater Complex.

The 1987 Gallatin Forest Plan management area 24 consists of active or recently active mineral extraction, processing, and exploratory operations. The goal of the management area 24 allocation is to manage for the orderly exploration and development of mineral resources while mitigating effects on renewable resources. Management area 24 is applied to several individual small areas in the area of the Stillwater Complex.

Effects of the Current Plans

Mining operations will continue at the Stillwater Complex in the current plans, and impacts to other resources will be mitigated by following the standards of the current forest plans.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The Stillwater Complex allocation comprises 101,832 acres. It includes current operations and mineralized areas where future mining may occur, and the boundary is located on natural features that are locatable on the ground. The allocation encompasses the parts of the Custer management area E and the Gallatin management area 24 that apply to the Stillwater Complex.

Desired conditions envision the exploration, development, and production of palladium and platinum contributing unique and globally rare minerals for a variety of societal needs, commensurate with conservation of other resources.

The Stillwater Complex allocation is proposed in alternatives B, C, E, and F. It is not proposed in alternative D because some land in the Stillwater Complex boundary is proposed as recommended wilderness area (in that alternative) and the two allocations would be incongruous on the same land.

Effects of Alternatives B, C, E, and F

The 101,832 -acre Stillwater Complex allocation in alternatives B, C, E, and F specifically recognizes that mining activities will occur in this area.

The Stillwater Complex allocation overlaps with inventoried roadless area. The Roadless Area Conservation Rule recognizes activities necessary for valid existing rights may occur in inventoried roadless areas.

The Stillwater Complex allocation overlaps with the Main Boulder River recreation emphasis area and the Boulder River eligible wild and scenic river. The allocation overlap is compatible in that plan direction requires that mining activities take place commensurate with conservation of other resources.

Effects of Alternative D

In alternative D, there would be no Stillwater Complex allocation. Even without the plan land allocation, mining is expected to continue to occur in this area. In alternative D, some land in the Stillwater mining area would be recommended wilderness (the potential recommended wilderness coincides with inventoried roadless area). In both recommended wilderness areas and inventoried roadless areas, activities necessary for the exercise of valid existing rights may occur, such as construction of new roads, trails, or other types of access, regardless of any plan component that says no new roads shall be constructed. Although access is a guaranteed right under the mining laws, the plan component of no new road construction in recommended wilderness areas would likely result in an increase in the length of time to process a minerals plan, additional mitigation requirements, and additional costs for the operations.

Consequences to the Stillwater Complex from Plan Components Associated with other Resource Programs or Management Activities

Plan direction for other resource programs would be in effect in the Stillwater Complex allocation. Plan direction (FW-DC-EMIN-01) requires that mining activities take place commensurate with conservation of other resources. The energy, minerals, and geologic areas of interest section provides an analysis of consequences to mining from plan components associated with other resource programs or management activities.

Cumulative Effects

The platinum and palladium minerals mined at the Stillwater Complex are used in air pollution abatement technologies and contribute to clean air throughout the world. Other uses include high speed electronic and investment metals used worldwide.

Conclusion

Mining would continue at the Stillwater Complex in all alternatives. The Stillwater Complex allocation in alternatives B, C, and F specifically recognizes the mining activities in this area.

3.23 Land Status, Ownership and Land Uses

3.23.1 Introduction

This section addresses land ownership administration, adjustments, and special uses of National Forest System lands on the Custer Gallatin. Management of National Forest System lands include: surveying, marking, and posting of ownership boundaries, acquisition, conveyance and exchange of lands and interests in lands, disposition of title claims and encroachments, acquisition of rights-of-way, and issuance and management of land use authorizations to reasonably accommodate non-Forest Service needs, and to protect resource values and interests of the public managed by the Forest Service.

The current proclaimed boundaries of the Custer Gallatin National Forest, and the intermingled public and private landownership pattern within it, are the product of a rich history of federal laws and actions that originate with the United States Constitution, and include the Acquisition Era (for example, the

Louisiana Purchase), the Disposal Era (such as Federal land grants), and the Reservation Era (for example, the creation of the forest reserves and national forests). Collectively, these early laws and actions significantly affected the land ownership and management of the Custer Gallatin National Forest and surrounding lands.

When the forest reserves and national forests were established in the early 1900's, substantial amounts of lands within these proclaimed boundaries had already been patented and conveyed to state and private ownership as a way to expand western civilization in the United States, mainly through grants to states, homestead acts, mining laws, and railroad grants.

Land ownership status on National Forest System lands can change over time through land adjustments. Land adjustments involve transfer of fee title and result in a change of legal ownership. The primary methods used by the Forest Service and its cooperators to acquire and conserve private lands within and adjoining the Custer Gallatin National Forest are:

- Land exchange (land-for-land, and land-for-timber)
- Land purchase (willing seller)
- Land donation (voluntary donation by landowner)
- Conservation easements (acquire development rights on private land)

Each of these land adjustment methods have been applied extensively on the Custer Gallatin National Forest to acquire and conserve critical private lands, to improve access, and to advance land management effectiveness.

Lack of reasonable physical and legal access to National Forest System lands results from historic land ownership patterns (for example, private lands in the valleys, public lands in the mountains, intermingled ownership from railroad grants, homestead acts, and mining patents), and more recently from changes in private land ownership and changing attitudes toward public access through private lands. The primary methods used by the Forest Service to acquire and protect access to National Forest lands are land adjustments, cooperative or reciprocal access arrangements, and memorializing existing rights through negotiation or legal action.

All occupancy, use, or improvements on National Forest System lands that are not directly related to timber harvest and forest products, grazing, mining activities, and recreation are referred to as 'special uses' (36 CFR 251.50(a)). Special use authorizations fall into two broad categories, recreation special uses and non-recreation (lands) special uses. Recreation special uses include recreational facilities open to the public such as ski areas and resorts, as well as activities and services such as outfitting and guiding and recreation events. Recreation special uses also include private uses, such as recreational residences and organization camps. Non-recreation special uses include water transmission lines, communication facilities, research, and road and utility rights-of-way. The objectives of the Forest Service special uses program are to manage the use and occupancy of National Forest System lands in a manner that protects natural resource values, public health and safety, and is consistent with forest land management plan. Policy is to give preference to uses that offer public service or benefits over single purpose or private uses. Proposals for new uses are carefully screened to determine if the proposed use is in the public interest, or if the use can reasonably be located on non-federal lands.

Communities and businesses in and near the Custer Gallatin rely on utility corridors (energy, fiber optic) and communication sites (cellular, radio, emergency response, etc.). These services contribute to quality of life and community sustainability, providing rural communities the ability to connect in a global or regional economy. Roads, trails, and forest infrastructure provide for safe and reliable access for recreation, and resource management. Access and open space connections are tied to community, quality of life, self-identity, economy and use patterns.

Regulatory Framework

The following is a select set of statutory authorities that govern landownership adjustments and the issuance and administration of special use authorizations. They are briefly identified and described below to provide context to the management and evaluation of these resources. There are multiple other laws, regulations, and policies not described below that also guide the management of these programs; Forest Service Manuals 2700, 5400, and 5500 provide a comprehensive listing.

Organic Administration Act of June 4, 1897 (16 U.S.C. 477-482, 551): authorizes the Secretary of Agriculture to issue rules and regulations for the occupancy and use of the national forests. This is the basic authority for authorizing use of National Forest System lands for other than rights-of-way.

Occupancy Permits Act of March 4, 1915 (16 U.S.C. 497 et seq.) as amended: authorizes use and occupancy on National Forest System land for recreational purposes including resorts and recreation residences.

General Exchange Act of March 20, 1922 (16 U.S.C. 485, 486): authorized the Forest Service to consolidate its holdings in national forests where a large percentage of private lands were intermingled with National Forest System lands. It made possible the exchange of inholdings within national forests for private lands of equal value and within the same state.

Highway Act of August 27, 1958 (23 U.S.C. 317), supplemented by the Act of October 15, 1966 (49 U.S.C. 1651): authorizes the Federal Highway Administration to grant easements to states and counties for highways that are part of the Federal-Aid System or that are constructed under the provision of chapter 2 of the Highway Act. The Forest Service consents to the grant of these easements in a form agreed upon by the two agencies and upon the public road management agency's execution of stipulations. This is the only authority for granting rights-of-way for projects on the Federal-Aid System or projects constructed under the provisions of chapter 2 of the Highway Act (Forest Service Manual 2731).

National Forest Roads and Trails Act of October 13, 1964 (16 U.S.C. 532-38): authorizes the Secretary of Agriculture to grant temporary or permanent easements to landowners who join the Forest Service in providing a permanent road systems that serves lands administered by the Forest Service and lands or resources of the landowner. It also authorizes the grant of easements to public road agencies for public roads that are not a part of the Federal-Aid System (Forest Service Manual 2732).

The Act of November 16, 1973 (30 U.S.C. 185), amending Section 28 of the 1920 Mineral Leasing Act: authorizes the Forest Service to issue authorizations for oil and gas pipelines and related facilities located wholly on National Forest System land. When the lands are under the jurisdiction of two or more Federal agencies, authority for issuance is reserved to the United States Department of Interior and Bureau of Land Management, subject to approval by the agencies involved.

Federal Land Policy and Management Act of October 21, 1976 (43 U.S.C. 1761-1771): Title V of the Federal Land Policy and Management Act (FLPMA) authorizes the Secretary of Agriculture to issue permits, leases, or easements to occupy, use, or traverse National Forest System lands. FLPMA directs the United States to receive fair market value unless otherwise provided for by statute and provides for reimbursement of administrative costs in addition to the collection of land use fees (43 U.S.C. 1764(g)). This act is also very key for land exchanges. Establishes policy for exchange of lands under uniform procedures and that the lands exchanged be consistent with the prescribed mission of the agency.

Alaska National Interest Lands Conservation Act of 1980 (16 U.S.C 3210): provides numerous authorities related to access that are specific to national forests in Alaska (except for sec. 1323(a), which applies to all National Forest System lands; see the following paragraph b). The provisions of section 1323(a) (16 U.S.C. 3210) apply to all National Forest System lands. This section provides that, subject to terms and conditions established by the secretary of agriculture, the owners of non-federal land within the national forest shall be provided adequate access for the reasonable use and enjoyment of the non-federal lands, as determined by the authorized officer. Regulations implementing section 1323(a) are set forth at Title 36, Code of Federal Regulations, Part 251, and Subpart D -Access to Non-federal Lands. See Forest Service Manual 2701.3, paragraph 3, for the summary of the provisions of 36 CFR 251, Subpart D.

Small Tracts Act of January 12, 1983 (16U.S.C. 521c-521i), as amended: authorizes the sale, exchange, or interchange of certain parcels of minimal size.

Organic Act of August 3, 1956: authorizes the Forest Service to acquire lands or interest in lands as necessary to carry out its authorized work.

Act of May 26, 2000 (16 U.S.C. 406I-6d): supplements the authority of the Secretary of Agriculture to regulate commercial filming and still photography on National Forest System lands. It also authorizes the secretary to retain and spend land use fees collected for commercial filming and still photography without further appropriation, and provides for recovery of administrative and personnel costs in addition to the collection of the land use fee.

March 22, 2012, Executive Order 13604, Improving Performance of Federal Permitting and Review of Infrastructure Projects: states that “it is critical that executive departments and agencies take all steps within their authority, consistent with available resources, to execute Federal permitting and review processes with maximum efficiency and effectiveness...”

August 8, 2005, Energy Policy Act of 2005, Section 1211(c), Access Approvals by Federal Agencies (Public Law 109-58): states “Federal agencies responsible for approving access to transmission and distribution facilities located in the United States shall expedite any Federal agency approvals that are necessary to allow the owners or operators of such facilities to comply with reliability standards regarding vegetation management, electric service restoration, or resolution of situations that imminently endanger the reliability or safety of the facilities.”

May 18, 2001, Executive Order 13212, Actions to Expedite Energy-Related Projects: orders executive departments and agencies to take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy.

Vegetation Management of Utilities in March 23, 2018 Omnibus Bill: amends Title V of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1761 et seq.) to add the following: Vegetation

Management, Facility Inspection, and Operation and Maintenance relating to electric transmission and distribution facility rights of way.

The following regulations provide direction for lands and special uses management on National Forest System lands:

36 CFR 212 – Travel Management and Reciprocity

36 CFR 251 — Land Uses

36 CFR 254 — Landownership Adjustments

Key Indicators and Measures

The indicators and measures used to qualitatively analyze effects or changes to access and land special use opportunities on the Custer Gallatin National Forest are:

- Access provided to and through the planning area for public and forest management measured by the projected right-of-way acquisitions and type of access needed.
- Limits on new and existing discretionary uses based on plan land allocations (recommended wilderness, backcountry areas or other special areas), measured in relative amounts of lands in these allocations by alternative.

Methodology and Analysis Process

In this section, access refers to the easements held by the United States government and administered by the Forest Service across non-National Forest System land for the management of National Forest System lands. This generally and preferably includes unrestricted access by the public across these lands. Access needed is typically identified in the travel plan for the Gallatin Forest, but was not identified in the travel plans completed on the Custer Forest. Plan components for right-of-way acquisition are the same in all revised plan alternatives; however, the priority of the type of access to acquire will change based on the alternative.

There may be a change in the types of uses authorized and the location of uses based on the plan components for the various plan land allocations. The analysis will look at the number of special use authorizations administered, the types of uses authorized, and the location of the uses compared to potential changes that may result from implementation of the alternatives. This includes existing and potential future uses that may not be allowed or suitable in recommended wilderness, backcountry areas, and other areas.

Information Sources

The Forest Service uses the Land Status Record System as the repository for all realty records and land title documents. The Land Status Record System includes information on National Forest System land acreages, administrative jurisdiction, rights held by the Forest Service, administrative and legal use restrictions, encumbrances, and access rights on land or interests in National Forest System lands.

The Forest Service uses the special uses data system to create and administer special-use authorizations. This data is supported by hardcopy files held at the ranger district and forest supervisor's office. A comprehensive geospatial layer of authorized special uses across the Custer Gallatin does not currently

exist. The Custer Gallatin is working to collect the data and build a spatial layer that shows the location of special use authorizations and the type of use authorized.

Analysis Area

Lands considered in this analysis lie within the boundaries of the Custer National Forest and the Gallatin National Forest. The temporal scope is the anticipated life of the plan. The lands within the national forest boundaries form the geographic scope for cumulative effects since this is the scope for the analysis. In looking at trends and future management, the scope considers ownership and management of lands adjacent to the Custer Gallatin, including the roads and trails that provide access to the national forest.

Notable Changes between the Draft and Final Environmental Impact Statements

The final environmental impact statement has been updated to incorporate analysis of alternative F.

3.23.2 Affected Environment (Existing Condition)

Land Ownership and Status

The Custer Gallatin National Forest shares boundaries with other federal lands including Yellowstone National Park, the Beaverhead-Deerlodge National Forest and the Helena-Lewis and Clark National Forest in Montana, the Caribou-Targhee National Forest in Idaho, the Shoshone National Forest in Wyoming, and the public lands managed by the Bureau of Land Management in Montana and South Dakota. The Custer Gallatin also sits adjacent to Tribal, state, and private lands.

The Custer Gallatin consists of approximately 3,045,965 acres of National Forest lands (federal) and 366,050 acres of private lands, state lands and Tribal (non-federal) lands. Most of the non-federal land ownership within and adjacent to the Custer Gallatin National Forest consists of intermingled privately-owned lands that were established through “checkerboard” railroad grants, homestead grants, and patented mining claims, primarily in the late 1800s and early 1900s. In addition, some of the non-federal lands, notably in the Big Sky and Bangtail Mountain areas, and on the Sioux Ranger District in South Dakota, were established as a result of land exchanges, primarily from the 1950’s to the 1990’s.

The remaining areas containing substantial intermingled ownership and checkerboard ownership are in the Crazy Mountains, east side of the Gallatin Range, north Bridger Mountains, Bangtail Mountains, north side of Spanish Peaks, the Cinnabar Basin, Tom Miner and Mol Heron areas, and near Jardine, Cooke City, and Hebgen Lake.

Access

Longstanding Forest Service policy is to acquire and maintain permanent, full rights road and trail rights-of-way (access easements) to assure the protection, administration and use of the National Forest System lands and resources. On the Custer Gallatin National Forest, access is a key issue.

The policy for the land adjustment program is to acquire key wildlife habitat and recreation lands, and to improve legal access and overall management effectiveness through land acquisition. The primary methods used by the Forest Service to acquire and protect access to National Forest lands are land adjustments (land exchange, purchase and donation), cooperative or reciprocal access arrangements, direct negotiation, establishing existing rights through negotiation or legal action.

The Custer Gallatin's land purchase and exchange programs have been very effective in resolving and securing legal access to roads and trails within the Custer Gallatin National Forest. The Custer Gallatin's reciprocal access program has also been successful in securing access to existing roads and trails across private lands, and in providing access across National Forest System lands to lands of other ownership.

Special Uses

The Custer Gallatin National Forest currently administers 860 special use authorizations (475 recreation uses and 385 land uses). Recreation permits include outfitter guide uses, recreation events, recreation residences, resorts, and other uses that are further described in the recreation section.

There are 58 different types of lands uses (non-recreation) authorized by permits, leases, and easements on the Custer Gallatin ranging from research activities to more extensive uses such as water systems, communications facilities, roads, utilities. The majority of land use authorizations are issued for transportation purposes (highways and roads for private land access) and water systems serving private property (ditches and water lines). Table 158 summarizes the types of use on the Custer Gallatin and the number of authorizations issued.

Table 158. Special use authorizations¹

Type of Use	Number of Authorizations
Agriculture	8
Community Services and Public Information	15
Research, Training, Cultural Resource Survey	17
Industry, Storage, Stockpile Sites	6
Energy and Gas Transmission	21
Transportation	162
Communication Uses	38
Water	99
Filming and Photography	19
Recreation Residences	292
Outfitter and Guide Services	140
Other Recreation Uses	43

1. Data from Special Uses Data System August 2018.

3.23.3 Environmental Consequences

Current Plans

Management Direction under the Current Plans

Longstanding Forest Service policy for the Landownership Adjustment Program is to acquire and consolidate key tracts of non-federal land to protect and enhance wildlife and fish habitat, wilderness, recreational opportunities, wetlands and riparian areas, and to improve legal access and long-term management effectiveness. These goals and objectives are reflected in the 1987 Gallatin Forest Plan and the 1986 Custer Forest Plan.

The current forest plans contain a brief discussion that proposals for special uses will be evaluated on a case-by-case basis and need to meet the direction in the plan. In addition, there is direction that energy

transmission and communication uses may be authorized, however, where technically feasible, new lines should be installed underground. In both plans, approval of special uses is subject to the overall forest and management area direction.

The Gallatin Travel Plan identifies rights-of-way needed for recreation and forest management, but neither current forest plan contains numerical objectives for rights-of-way acquisition.

Effects of the Current Plans

The current plans have the least number of acres that are not suitable for some special uses such as powerlines and communication use. While neither current forest plan contains a numerical objective for rights-of-way acquisition, the national forest on average acquires about 5 access routes per decade.

Revised Plan Alternatives

Management Direction under the Revised Plan Alternatives

The plan components developed for lands are based on Forest Service policy and remain the same in all revised plan alternatives. There is an objective (FW-OBJ-LAND-01) for right-of-way acquisition defined in the revised plan alternatives. All revised plan alternatives include guidelines that would provide additional direction for approval of land uses in riparian areas (FW-GDL-LAND-03 and 04). There is an objective (FW-OBJ-DWA-01) to remove facilities, improvements, or uses in designated wilderness that are not suitable for wilderness.

Effects of the Revised Plan Alternatives

None of the revised plan alternatives proposes to make any site-specific changes to the existing landownership on the Custer Gallatin National Forest. No conveyances (acquisitions, disposals, or exchanges) are proposed. Any of these actions would be considered at the project level. Criteria to consider when evaluating lands for acquisition or conveyance are discussed in the management approaches section of the forestwide direction.

Under all revised plan alternatives, proposals for new land uses would be screened according to policy (36 CFR 251.54) and the authorized uses would be managed with terms and conditions that protect forest resources. New proposals for some special uses (for example, power lines and commercial communication uses) are not suitable in recommended wilderness areas, backcountry areas, the wilderness study area, and other special areas. Based on plan land allocations, alternative D would have the greatest number of acres that are not suitable for some lands uses, followed by alternative C, then F, then B, and then E.

There is an objective (FW-OBJ-LAND-01) for right-of-way acquisition defined in the revised plan alternatives; however, the priority for the type of access acquired will vary by alternative (for example, roads to access areas for vegetation management or trails for recreational access). In alternative D, the priority for acquisition of rights of way needed would be to provide access to recreation facilities and trails. In alternative E, the priority for acquisition of rights of way needed would be to provide access to support vegetation management projects. Priorities for acquisition of rights of way in alternatives B, C and F would be to support a mix of recreation and forest management access needs.

Where recommended wilderness areas contain existing land uses, future management of that use could be affected. Permittees that have uses within recommended wilderness areas could potentially have increased administrative terms and conditions that make it more difficult to operate as compared to

alternatives with less recommended wilderness area allocation. Authorized uses would need to be identified, reviewed (to determine if they meet the suitability components for the area), and modified or removed. Motorized transport for operation and maintenance of authorized uses, may be subject to increased review for authorization in recommended wilderness areas.

In alternatives B, C, D, and F there are existing communication uses authorized within recommended wilderness areas. In alternative B, there are three authorized communication uses within the Gallatin Crest Recommended Wilderness Area. Two of these uses are single user sites located on Steamboat Mountain and Twin Peaks. Northwestern Energy has authorization for the operation of a microwave facility on Steamboat Mountain. The facility consists of a small, 10-foot by 10-foot metal building, a 20-foot antennae, and associated solar panels. Qwest Corporation has an authorization to operate two, 24 foot by 30-foot, passive reflectors on Twin Peaks. The two reflectors are used for microwave telephone relay. A passive reflector on Sheep Mountain is omitted from recommended wilderness in alternative B. The third site is a Forest Service owned building and tower on Eaglehead. Gallatin County and Montana Department of Transportation are co-located in this Forest Service building and provide additional communication services (public safety, search, and rescue) from this site. These existing communication uses would continue to be suitable uses in recommended wilderness areas in alternative B.

In alternatives C and D, the communication uses on Steamboat Mountain, Twin Peaks, Sheep Mountain and Eaglehead are in the Gallatin Recommended Wilderness Area. The Buck Ridge communication site is within the proposed Buck Creek Recommended Wilderness Area. The uses authorized at the Buck Ridge site include both public service (search and rescue) and commercial use. The existing uses would need to be evaluated to determine suitability; commercial uses would need to be moved outside of the recommended wilderness area or phased out. An additional communication use on Sheep Mountain is also in this area. Qwest Corporation has an authorization for operation of a 40-foot by 48-foot passive reflector on Sheep Mountain. The reflector is used to reflect microwave radio beams between the radio terminal located in West Yellowstone and the radio terminal at the Tom Minor repeater. The ongoing agency and public communication uses at Eaglehead would be suitable; however, uses at the other three sites in the Gallatin Recommended Wilderness Area would need to be evaluated for suitability with the plan components, moved outside the recommended wilderness area, or phased out over time with impacts to the holder.

In other plan land allocations, existing facilities, including commercial communication facilities, would be continue to be suitable uses. In the current plans and alternative E, these four commercial communication uses would continue to be suitable uses because they are not located in recommended wilderness areas.

Alternative F, the Gallatin Crest Recommended Wilderness Area contains the four authorized communication uses described above on Steamboat Mountain, Twin Peaks, Sheep Mountain and Eaglehead. In alternative F, plan component FW-SUIT-RWA-07 would allow for continued use of the existing Sheep Mountain and Twin Peaks passive reflector sites within the currently authorized footprint and with the existing types of equipment. If the permittee determines that the existing passive reflector use is no longer needed, the equipment would be removed and the site would not be suitable for a new user or for a new commercial communications use. The existing communication uses at Eaglehead would also be suitable since the users at this site are providing agency and public services, and no commercial communication services operate out of this site. The ongoing use of the Steamboat site would need to

be evaluated for suitability with the plan components, moved outside the recommended wilderness area, or phased out over time with impacts to the holder.

While new commercial communication uses would not be allowed in recommended wilderness areas, agency and public safety communication uses are suitable. In addition, there are many existing communication sites established with ongoing operations across the forest that are outside of recommended wilderness areas. Not all communication uses are located on mountain tops or ridges, the Forest Service has authorized emergency phone boxes in the Gallatin Canyon travel corridor to enhance communications in this area where it is difficult to provide cellular services due to the terrain.

Consequences to Land Status, Ownership and Uses from Plan Components Associated with other Resource Programs or Management Activities

Effects from Watershed, Riparian, and Aquatic Management

The revised plan alternatives provide more detailed guidance than the current plans for protection of watersheds, riparian areas, and aquatic habitats. All revised plan alternatives provide direction and guidance for the management of land uses to protect watershed, riparian, and aquatic habitats, most specifically within riparian management zones (FW-GDL-LAND-03 and 04). Where reasonable, new land uses and reauthorizations would be located outside of these zones, or impacts within these zones would be minimized. Plan components for riparian zones may limit road construction and vegetation management activities that could occur in association with land use permits.

Effects from Scenery Management

In all alternatives, the revised plan scenic integrity objectives do not outright prohibit on-the-ground actions, but may influence the design or the location of on-the-ground projects that would be visible from any of the listed critical viewing platforms. Design features or mitigations may be required to meet or exceed the assigned scenic integrity objectives, which describes the maximum threshold of visual dominance and deviation from the surrounding scenic character.

Effects from Wildlife Management

In all alternatives, wildlife plan components for species such as grizzly bears may restrict the location or installation of land uses or the timing of activities. The revised plan alternatives add direction for certain species such as plan components for priority sage grouse habitat (FW-GDL-WLSG-03 and 04), or near white tail prairie dog colonies (FW-STD-WLPD-02 and FW-GDL-WLPD-02). In addition, in all alternatives, all special use permits require food storage in the montane area of the Custer Gallatin.

Cumulative Effects

Cumulative effects evaluate the potential impacts to National Forest System lands and special uses from the proposed action when combined with past, present, and reasonably foreseeable actions. In order to integrate the contributions of past actions to the cumulative effects of the proposed action and alternatives, existing conditions are used as a proxy for the impacts of past actions. This is because existing conditions reflect the collective impact of all prior actions that have affected landownership and special uses and might contribute to cumulative effects. Landownership and special uses can be expected to be influenced by a variety of factors.

The Custer Gallatin National Forest has administrative responsibilities for over 3 million acres of National Forest System lands. Of the Custer Gallatin managed lands, nearly 200,000 acres were acquired or placed

under Forest Service management through land purchases, land exchanges, land donation, and conservation easements since the last planning effort. Adjustments in landownership on the Custer Gallatin will continue. Several land exchanges are currently underway. When these exchanges are finalized, the Forest Service will acquire lands that consolidate ownership, enhance recreation opportunities, provide public access, and protect aesthetic values. In addition, the Custer Gallatin has been working with landowners and partners in the Crazy Mountains area to develop projects that would consolidate the checkerboard landownership pattern and provide additional access to National Forest System lands.

Partnerships with national nonprofits (Rocky Mountain Elk Foundation, Trust for Public Lands, etc.), local access advocacy groups, and the state have been productive in resolving access issues and are increasingly necessary as the Forest Service is faced with reduced budgets and staffing in lands, and increased challenges from non-National Forest System landowners.

Boundary surveying and marking will continue, and additional encroachments are likely to be discovered. Increased housing density in areas adjoining National Forest System lands can increase the potential for encroachment, trespass, and unauthorized use and occupancy of the public's land and resources.

The Custer Gallatin can expect requests for special use authorizations to increase. As more private land is subdivided, an associated increase in requests for special use authorizations such as road and utilities will result. Under section 368 of the Energy Policy Act of 2005, the Forest Service and Bureau of Land Management coordinated to review and designate energy corridors crossing Federal lands in the 11 contiguous western states. None of the section 368 designated corridors cross the Custer Gallatin National Forest; however, the agencies continue to work together to consider future delivery of electricity across Federal lands. As technological advances are made (such as broadband, fiber optic cable), requests for modification of existing authorized communications sites and approval of new communication uses can reasonably be expected.

As human population increases, expected trends include a greater use of National Forest System lands by the public, particularly those areas close to population centers. There is also expected to be more development of private lands adjacent to National Forest System lands and on private inholdings within the national forest boundary. Private access needs will likely increase. This may also result in challenges from other landowners to existing and perceived access to National Forest System lands, as private landowners are becoming more reluctant to grant easements or recognize existing rights of the United States. Access in general across all National Forest System lands is becoming more difficult to obtain. This is expected to continue.

Adjacent national forests manage land uses and land status in a similar manner as the Custer Gallatin National Forest. Adjacent and nearby Bureau of Land Management lands also allow similar land uses as national forests, while adjacent Yellowstone National Park is more limited than national forests in the uses allowed. State laws and county ordinances apply to these activities on adjacent private lands.

Conclusion

The plan components will provide for continued land adjustment and right-of-way acquisition. Riparian plan components in all revised plan alternatives would limit new uses or require extra measures for new uses. All alternatives would limit some new and existing special uses in some plan land allocations, with the most affected acres in alternative D, followed by alternatives C, F, B, E, and then the current plans.

Chapter 4. Other Disclosures, Preparers, and Distribution of the Environmental Impact Statement

4.1 Other Required Disclosures

4.1.1 Unavoidable Adverse Effects

Plan revision and land management plans do not produce unavoidable adverse effects because they do not directly implement any management activities that would result in such effects. However, the plans do establish management emphasis and direction for implementation of activities that may occur on National Forest System lands in the planning period. If those activities occur, the application of forestwide and geographic area standards and guidelines (as described in the plan) would limit the extent and duration of any resulting environmental effects. Some unavoidable effects could still occur; however, these potential effects are described by resource area throughout chapter 3 of this final environmental impact statement, primarily under “Environmental Consequences.”

4.1.2 Relationship of Short-term uses and Long-term Productivity

Short-term uses are those expected to occur for the planning period (10 to 15 years), including recreation use, timber harvest, and prescribed burning. Although the plan does not directly implement these uses, the potential for these uses are described in the plan goals and objectives, both at the forestwide and geographic area levels (see plan).

Long-term productivity refers to the capability of the land to provide resource outputs for a period of time beyond the planning period. Minimum management requirements, established by regulation (31 CFR 219.27), provide for maintenance of long-term productivity of the land. Minimum management requirements are contained in forestwide and geographic area standards and guidelines and would be met under any alternative. They ensure that the long-term productivity of the land is not impaired by short-term uses.

Monitoring and evaluation, as described in the plan, applies to all alternatives. A primary purpose of monitoring is to ensure that long-term productivity of the land is maintained or improved. If monitoring and evaluation show that plan standards and guidelines are inadequate to protect long-term productivity of the land, then the plan would be adjusted (through amendment or revision) to provide for more protection or fewer impacts.

Although all alternatives are designed to maintain long-term productivity, there are differences among the alternatives in the long-term availability or condition of resources. There may also be differences among alternatives in long-term expenditures necessary to maintain or achieve desired conditions. The differences are discussed throughout the various sections in chapter 3 of this document.

4.1.3 Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable commitments of resources are defined in Forest Service Handbook 1909.15, Environmental Policy and Procedures.

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line rights-of-way or road.

The decisions made in land management plans do not represent actual irreversible and irretrievable commitments of resources. This is because land management planning identifies what kinds and levels of activities are appropriate in different parts of the national forest; it does not make project decisions. Ground-disturbing activities cannot occur without further site-specific analyses, section 7 consultation required under the Endangered Species Act, and project decision documents.

4.1.4 Energy Requirements and Conservation Potential

Energy is consumed in the administration of natural resources from the national forests. The main activities that consume energy are timber harvest, recreation use, road construction and reconstruction, minerals and energy exploration and development, transporting and managing livestock, and administrative activities of the Forest Service and other regulatory agencies. Energy consumption is expected to vary only slightly by alternative.

4.1.5 Prime Farmland, Rangeland, and Forestland

No prime farmland, rangeland, or forestland has been identified in the planning area. Plan revision or the plan would not directly affect such lands. Although implementation of the plan could have indirect effects. Regardless of the alternative selected for implementation, National Forest System lands would be managed with sensitivity to the values of any adjacent private or public lands.

4.1.6 Conflicts with Other Agency or Government Goals or Objectives

Contact, review, and public involvement with other Federal and State agencies indicate no major conflicts between the plan and the goals and objectives of other governmental entities. In the limited cases where the land management plan does not accommodate direction in other agency plans, the plan includes numerous goals that support collaboration and coordination with Tribal governments, states, counties, and other Federal agencies, which would provide opportunities to continue to work to reduce conflicts during implementation of the plan. This review is documented in appendix E of the final environmental impact statement and the cumulative effects analysis of many sections of this document.

4.2 Preparers

Core Planning Team Members

Name	Responsibility	Years of Experience
Bev Dixon	Wildlife	36
Gunnar Carnwath	Vegetation, Timber	20
Jake Chaffin	Watershed, Fisheries	28
Mariah Leuschen-Lonergan	Public Affairs, Collaboration	15
Mary Gonzales	GIS	35
Pam Novitzky	Recreation, Designations	37
Virginia Kelly	Team Leader	37

Extended Team Members

Name	Responsibility	Years of Experience
Alex Palombo	Administrative	3
Beth Bischoff	Grazing, Invasives, Designations	33
Cody Yeatts	Administrative	14
Eric Henderson	Analyst	17
Halcyon La Point	Cultural, Historic Resources; Tribal Liaison	32
Jane Ruchman	Scenery	37
Jonathan Kempff	Infrastructure	41
Jordan Larson	Economics	14
Josh Hemenway	Wildlife	10
Julia Barton	Administrative	17
Kami Crotofo	GIS	17
Kathy Nash	Lands, Special Uses	26
Kim Reid	Grazing, Invasives, At-Risk Plants, Vegetation, Designations	41
Kristen Stoeger	Editor	2
Lauren Oswald	Plan Land Allocations	19
Mark Beth Marks	Minerals	38
Mark Story	Air Quality	39
Michael Inman	Park County, Montana Compatibility Review	15
Randy Scarlett	Wildlife	18
Rebecca Rasch	Social Science	11
Shelly Deisch	South Dakota Department of Game, Fish and Parks Compatibility Review	31
Todd Erdody	Fire and Fuels	16
Tom Keck	Soils	31
Vince Archer	Soils	20

4.3 Distribution of the Environmental Impact Statement

4.3.1 Agencies, Organizations and People Notified of the Release of the Final Environmental Impact Statement

Adjacent State, Local, and Federal Partners

- Internal Federal Employees
- All 7 Ranger Districts
- National Park Service, Yellowstone National Park
- Bureau of Land Management
(Montana/Dakota State Office, Billings Field Office, Butte Field Office)
- Environmental Protection Agency, Region 8
- Planning and Review Advisory Council on Historic Preservation
- USDA Animal and Plant Health Inspection Service
- Rural Utilities Service
- Natural Resources Conservation Services
- National Agricultural Library
- Energy and Environmental Readiness Division
- Office of Environmental Management
- U.S. Army Corp of Engineers
- Department of Energy
- Department of Interior, Office of Environmental Policy and Compliance
- Northwest Power Planning Council
- Federal Aviation Administration
- Federal Highway Administration
- Montana Fish, Wildlife and Parks
- South Dakota Department of Game, Fish and Parks
- Montana and South Dakota Governor's Offices
- Montana Department of Natural Resources
- U.S. Fish and Wildlife Service
- Rocky Mountain Research Station
- Caribou Targhee National Forest
- Shoshone National Forest
- Beaverhead-Deerlodge National Forest

- Montana and South Dakota Capitol City Coordinators
- Helena, Lewis and Clark National Forest
- Northern Rockies Regional Office
- South Dakota Agriculture, Health and Natural Heritage Program
- South Dakota Commission on Schools and State Lands
- Montana Department of Transportation
- Montana State University (Interested Faculty, Staff)

Adjacent Town, Chambers and County Contacts

- West Yellowstone Chamber
- Town of West Yellowstone
- Cooke City Chamber
- Gardiner Chamber
- Red Lodge Area Chamber
- Bozeman City Plan/Engineering and City Commission
- Public Libraries (Reference Desks) 15 Public Libraries and 10 Tribal Colleges

County Commissioners

- Gallatin County: Joe Skinner, Scott MacFarlane, Don Seifert
- Park County Commissioners: Steve Caldwell, Bill Berg, Clint Tinsley, (DeAnn Weickum)
- Stillwater County Commissioners: Dennis Shupak, Mark Crago, Tyrel Hamilton, (Pam Stoddard)
- Sweet Grass County Commissioners: Bill Wallace, JV Moody, Melanie Roe
- Carbon County Commissioners: Robert DeArmond, Scott Blain, Bill Bullock
- Yellowstone County Commissioners: John Ostlund, Denis Pitman, Donald Jones
- Meagher County: Ben Hurwitz, Herb Townsend, Rod Brewer
- Powder River County Commissioners: Lee Randall (Chairman), Donna Giacometto, Rod Schaffer
- Bighorn County Commissioners: George Real Bird III, Sidney Fitzpatrick, Larry Vandersloot, (Candy Wells)
- Harding County, SD County Commissioners (Kathy Glines)
- Madison County Commissioners: Jim Hart, Dan Allhands, Ron Nye (Laurie Buyan)
- Rosebud County Commissioners: Robert E. Lee, Douglas Martens, Ed Joiner (Sarah Kisman)
- Carter County Commissioners: Rod Tauck, Mike Watkins, Steve Rosencranz

Collaborative

- Custer Gallatin Working Group Members

U.S. Congressional Delegation

- Senator Jon Tester (D)
- Senator Steve Daines (R)
- Congressman Greg Gianforte (R)

State Representatives

- Senator Pat Flowers
- Representative Kerry White
- Senator Scott Sales
- Representative Walt Sales
- Senator Mike Phillips
- Representative Jim Hamilton
- Representative Zach Brown
- Senator JP Pomnichowski
- Representative Christopher Pope
- Representative Alan Redfield
- Senator David Howard
- Representative Seth Berglee
- Senator Jason Small
- Representative Sharon Steward-Peregoy
- Representative Rae Peppers
- Senator Roger Webb
- Representative Bill Mercer
- Representative Frederick (Eric) Moore
- Senator Doug Kary
- Representative Peggy Webb
- Senator Mary McNally
- Representative Jessica Karjala
- Senator Kenneth Bogner
- Representative Laurie Bishop
- Senator John Esp
- Representative Forrest Mandeville
- Senator Tom Richmond
- Representative Vince Ricci
- Senator Cary Smith
- Representative Dennis Lenz
- Senator Duane Ankney
- Representative Geraldine Custer
- Representative Barry Usher
- Representative Bruce Grubbs
- Representative Terry Moore

*or respective representative given the electoral season.

Tribal Leadership

- Cow Creek Sioux Tribe
- Lower Brule Sioux
- Rosebud Sioux
- Oglala Sioux
- Cheyenne River Sioux
- Standing Rock Sioux
- Three Affiliated Tribes – Mandan, Hidatsa, Arikara
- Eastern Shoshone
- Northern Arapaho

- Fort Peck Assiniboine (Nakona) and Sioux (Dakota) Tribes
- Northern Cheyenne
- Crow Apsaalooke
- Blackfeet
- Confederated Salish and Kootenai Tribes
- Shoshone-Bannock
- Nez Perce
- Confederated Tribes of the Umatilla – Umatilla, Walla Walla, Cayuse
- Confederated Tribes and Bands of the Yakama Nation
- Pikakkanni (Blackfeet) Canada
- Turtle Mountain
- Fort Belknap Indian Community
- Rocky Mountain Tribal Leadership Council

Other

This category consists of environmental organizations, nongovernmental, industry, and other interests, as well as interested and select members of the public as part of opt-in mailing list (electronic and hardcopy options) – Approximately 13,500 recipients. This category also includes the following types of media.

Traditional Print and Web-based Media Outlets

- Montana Associated Press
- Daily Newspapers
- Billings Gazette (paper of record)
- Bozeman Chronicle (paper of record)
- Rapid City Journal (paper of record)
 - Helena Independent Record
- Weekly Newspapers
- Belgrade News (biweekly)
- Nation Center News – Buffalo
- Ekalaka Eagle
- Powder River Examiner
- Cooke City Newsletter (Community Newsletter)
- West Yellowstone Chamber News
- Big Timber Pioneer
- Carbon County News
- Stillwater County News
- Montana Standard
- Livingston Enterprise
- Missoulian
- Explore Big Sky
- Laurel Outlook
- Gardiner Chamber (Ad – based only)
- Bighorn Country News
- Cody Enterprise (biweekly)
- Powell tribune
- Tri-State Livestock News
- Miles City Star
- Forsyth County News

Web-based Media/ Quarterly Magazine-Based

- Cowles Montana Media

- Town Square Media -
connoisseurmedia.com
- Calendar of events
- Big Timber Buzz (FB sharing group –
necessary)
- Gardiner Buzz (FB sharing group –
necessary)
- Bozone – listserve (and additional
online sharing/listserve groups
necessary)
- Outside Bozeman
- Montana Outside
- The Hyalite
- Yellowstone Valley Woman (Billings)

Radio Media

- Montana Public Radio/Yellowstone
(KGLT) Public Radio
- KEMC-FM Billings
- KEMC-FM Billings
- KAPC-FM Butte
- KYPM-FM Livingston
- Northern News Broadcasting,
- KIKC Range Web (Eastern Montana –
Broadus, Ashland, Miles City, Ekalaka)
- KULR Radio,
- Billings MOJO,
- Big sky Radio
- Planet 106.7
- KISS – FM – Bozeman
- KMMS – Town Square Media
- KWYS- West Yellowstone

Television Media

- KTVQ—Billings, MT
- ABC- Fox Montana —Butte, Bozeman, MT
- KBZK – (CBS) - Bozeman, MT
- KULR 8 —Billings, MT
- KTVM – (NBC Montana) – Bozeman, Missoula

Glossary

The glossary defines terms used in the plan or plan appendices. 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
- [FSM] Forest Service Manual
- [FSH] Forest Service Handbook
- [GBCS] Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem (U.S. Fish and Wildlife Service 2016)

- [LCAS] Lynx Conservation and Assessment Strategy 2013
- [NWCG] National Wildfire Coordinating Group

A-C

activity area (soils): 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, and grazing areas or pastures within livestock allotments, riparian areas, recreation areas, and alpine areas. Temporary roads, skid trails, and landings are part of an activity area.

active mining claim: An active mining claim is properly located, filed, and maintained. Mining claims are filed with the Bureau of Land Management (BLM).

adaptive management: The general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 CFR 219.5). This framework supports decision-making that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

administrative 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.

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 use: A generic term for authorized agency activity.

agency-authorized personnel: Parties authorized by the Forest Service to conduct activities on the national forest, including contractors, outfitters, guides, permittees, concessionaries, and volunteers.

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).

airfield: Designated aircraft landing location open to either public and/or administrative uses.

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 U.S. 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: See infrastructure.

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).

alternative transportation: All modes of travel other than the private motor vehicle. Alternative transportation systems connect communities to forests, help manage congestion and ease parking shortages for areas at or nearing capacity. Alternative transportation can also contribute to improving air quality, soundscapes and reduce wildlife and auto collisions.

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 known to occur in the plan area and relevant to planning process (36 CFR 219.6(b)).

authorized use (grazing): The use specified on the annual Bill for Collection and verified by the permittee's payment of fees.

bare ground: All land surface not covered by vegetation, rock or litter.

barrier, habitat connectivity: 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 recovery zone/primary conservation area, as recommended in the Conservation Strategy for Grizzly Bears in the Greater Yellowstone Ecosystem (GBCS). Baseline and current habitat values are documented in annual reports by the Interagency Grizzly Bear Study Team. Current baseline values for secure habitat, developed sites, and permitted livestock allotments are presented in plan appendix F. Modifications to these values will be made as needed to reflect subsequent updates to the GBCS.

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 CFR 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.

bison suitable habitat: Grass, forb and shrub dominated landscapes serve as general range; forested areas with less than 25 percent coniferous canopy cover serve as spring range.

biological control (also referred to as biological weed treatment): Any enemy, antagonist, or competitor used to control a plant pest or noxious weed (Plant Protection Act of 2000).

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 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 (Superfund) 42 United States Code section 9601 et seq. (1980) in order to clean up or prevent a release of hazardous materials into the environment.

channel avulsion: A process by which flow diverts out of an established stream channel into a new stream channel on the adjacent floodplain.

chemical control (also referred to as chemical weed treatment): Refers to any technique that involves the application of a chemical (pesticide) to control invasive species infestations.

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 or activity: A use or activity on National Forest System lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity is intended to produce a profit (36 CFR 251.51).

communication facility: See infrastructure.

composition: The biological elements within the different levels of biological organization, from genes and species to communities and ecosystems.

connecting corridors: For wildlife, these are areas with no barriers and minimal impediments, through which wild animals are able to move between patches of suitable habitat.

connectivity: The ecological conditions that exist at several spatial and temporal scales that provides landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long-distance range shifts of species, such as in response to climate change (36 CFR 219.19). Connectivity needs vary by species. For example, 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.

construction: Creating a new infrastructure feature where none previously existed.

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 °Fahrenheit. 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 United States Code 1533), upon a determination by the Secretary that such areas are essential for the conservation of the species. Endangered Species Act, section 3 (5)(A), (16 United States Code 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce (Endangered Species Act, sections 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 landscape: The National Park Service defines a cultural landscape as a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, person or exhibiting other cultural or aesthetic values.

cultural control (also referred to as cultural weed treatment): 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.

D-F

dams (jurisdictional): Refers 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:

- Dams with a high hazard potential classification;
- Dams with a significant hazard potential classification; and
- Dams with a low or undetermined hazard potential classification that:
 - Equal or exceed 25 feet in height and exceed 15 acre-feet in storage, or
 - Exceed 6 feet in height and equal or exceed 50 acre-feet in storage.

day use: Use of a developed recreation area generally sunrise to sunset dependent upon the season and enforced using 36 CFR 261.58(u).

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 CFR 220.3).

decommission: Demolishing and removing existing infrastructure including site restoration. (related: road decommissioning).

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 CFR 219.19).

desired condition (DC): 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.

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.

detrimental soil disturbance: Management-caused soil disturbance in vegetation management areas that persists on the landscape for an extended period of time 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.

desired nonnative species: Species that contribute to conservation or management objectives such as providing habitat or food resources, or providing desirable ecosystem functions.

developed recreation site: An area that has been improved or developed for recreation (36 CFR section 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.

developed sites (per grizzly bear direction): Areas developed with permanent infrastructure to accommodate concentrated recreation and/or administrative use. Examples include, but are not limited to campgrounds, picnic areas, trailheads, boat launches, rental cabins, recreation residences, lodges, visitor centers and administrative sites.

diameter breast height (d.b.h.): The diameter of a tree measured 4.5-feet above the ground on the uphill side of the tree, or diameter of a log measured 4.5-feet from the large end of the log.

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 CFR 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 CFR 219.19).

driver (ecology): See “ecosystem driver.”

duff: A highly decomposed transitional soil layer formed in forested soils between partially decomposed forest litter at the surface and underlying mineral soil.

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 CFR 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 CFR 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: A standard reference for natural resource information for all Federal agencies and other interested groups/organizations. Ecological site descriptions 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. Ecological site descriptions 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 CFR 219.19): A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. The term ecosystem can be used at a variety of scales; for the 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 CFR 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 CFR 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.

ectomycorrhizal associations: Ectomycorrhizal associations are mutualistic associations between higher fungi and Gymnosperms or Angiosperms. They are formed predominantly on the fine root tips of the host, which are unevenly distributed throughout the soil profile, being more abundant in topsoil layers containing humus, than in underlying layers of mineral soil.

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. 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 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 stream: A channel or draw reach with a definable channel or evidence of annual scour or deposition that only carries surface flow in direct response to precipitation.

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 timeframe provided for the treatment procedures. Considering the need for multiple treatments over time, certain populations can be eradicated using proper integrated management techniques.

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.

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 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 159.

Table 159. 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 to mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Ponderosa pine and 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, low to 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, dry 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 severity (greater than 75 percent of the dominant overstory vegetation replaced)	Moist lodgepole pine, subalpine fir, Engelmann spruce, aspen, and sagebrush steppe 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 severity but can include low 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 and consequence of a wildfire burning in an area (based on the wildfire hazard, potential losses, and weather conditions). Elevated concerns for fire risk include areas in the wildland-urban interface, areas with a high density of recreation sites, and along control lines where even relatively low fuel loads contribute to a level of fire intensity that results in a high resistance to control for firefighters protecting values at risk. These conditions can also increase fire severity and the probability of negative impacts to values at risk.

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.

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 stream or river channel which are subject to recurrent flooding through surface and sub-surface hydrological connections. Floodplains are composed of sediments, gravels and rocks, and organic materials carried by streams and deposited in-stream and/or 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 influences shallow water aquifers (for example, hyporheic zone) that return flow to surface waters; and helps shape ecological processes influencing plant and animal diversity 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 CFR 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 (FSH 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 CFR 219.19).

forest plan: See “land management plan.”

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.

G-J

geographic area (GA): A spatially contiguous land area identified within the plan area. A geographic area may overlap with a management area (36 CFR 219.19).

geographic information system (GIS): A computer process that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

goals (GO): Broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Also see chapter 1 of this plan.

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: See “sage-grouse habitat—general habitat management areas.”

greater sage-grouse priority habitat: See “sage-grouse habitat—priority habitat management areas.”

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): An interagency management document compiled under direction of the Yellowstone Ecosystem Subcommittee of the Interagency Grizzly Bear Committee that describes the regulatory framework for management of the Greater Yellowstone Ecosystem grizzly bear population and its habitat (Yellowstone Ecosystem Subcommittee 2016).

ground-disturbing activity: An activity that results in a change in the vegetation cover or ground surface at an extent that may cause or contribute to sediment mobilization. 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 of this plan.

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 severity fire/high severity fire regime: See “stand-replacing fire.”

high use/density areas: Areas that receive high levels of visitor use such as trailheads, developed campgrounds, etc.

historic properties: 36 Code of Federal Regulations 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.

hydrologically stable condition: The manner in which transportation structures (bridges, culverts, drainage dips, fords) are constructed and maintained that minimizes the risk for unbalancing the natural hydrologic function around the site. As an example, a bridge site during Q100 flood event would resist accelerated erosion to the approach embankments, damaging vegetation, undermining of rip rap, undermining of footings, and debris plugging, and diversion of flood waters outside of the designed pathways.

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: 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 United States Code 479a-1).

infrastructure. Human built features either on or off National Forest Lands and authorized by of the Forest Service. Examples include:

- Transportation features include roads, roads on private land easements, parking areas, trails, airfields, helipads, etc. including components such as bridges, culverts, streamside rip rap, cattleguards, gates, signs, etc.
- Utilities include overhead and underground powerlines, water systems, wastewater systems, ditches, communication facilities and lines, fire protection systems, wells, etc.
- Communication facilities include buildings, towers, or other physical improvements (buildings and towers do not have to be combined to be considered a facility) that are built or installed to house and/or support authorized communications equipment.
- Buildings include offices, residences, bunkhouses, warehouses, well houses, rest rooms, storage, cabins, recreation residences, etc.
- Dams include Forest owned dams or permitted on National Forest lands.
- Allotment infrastructure include structural improvements that are necessary for grazing management and include fences, gates, handling facilities, water developments (including e.g., stock tanks, windmills, ponds, guzzlers, distribution pipelines), etc.
- Recreation amenities include campground furniture, boat ramps, bulletin boards, docks, fencing, interpretive signs, corrals, overlooks, etc.
- Resource improvements include fish barriers, stream enhancements, gauging stations, etc.

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 CFR 219.19).

inherent productivity of soil resources: The ability of the soil to produce a specific type and amount of native vegetation based on physical and chemical soil properties that were inherited from the combined influences of local geology, landform, climate, plant community, and effects over time. Productivity that is not the result of added soil amendments.

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 landforms, 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.

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: 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, integrated pest management 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 integrated pest management 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 CFR 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.

introduction: As a result of human activity, the intentional or unintentional escape, release, dissemination, or placement of an organism into an ecosystem to which it is not native (Executive Order 13571).

invasive species: With regard to a particular ecosystem, a non-native organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health. 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 13571).

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, cultural, mechanical and physical, 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.

K-M

key big game habitat: Habitats important to the seasonal and year-round life history of big game species necessary to support sustainable herd size and distribution. Examples include security habitat, winter range, and parturition areas.

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: A document that guides sustainable, integrated resource management of the resources within a plan area and within the context of the broader landscape, giving due consideration to the relative values of the various resources in particular areas (36 CFR 219.1(b)). Consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 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.

landscape: A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 CFR 219.19).

landslide: A general, non-technical term commonly used for all forms of relatively dry mass wasting events where earthen materials, typically as a mass, are moving downslope under the force of gravity.

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.

large woody debris: Whole trees, logs, branches, and other wood that falls into or adjacent to waterbodies.

limits of acceptable change: A determination of the amount of human-caused change to the biophysical and social components of an area that can be tolerated through dispersed recreation use.

livestock: Domestic foraging animals of any kind kept or raised for use or pleasure.

livestock handling activities: Sorting, loading, and 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: 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 (FSH 1909.12, chapter 20, section 23.13c. 1c.).

lotic habitat: refers to flowing water habitats that range from small spring that could only be a few centimeters wide to the largest rivers present on the forest. Lotic habitat can be contrasted with lentic habitat which includes habitats such as ponds or lakes.

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 and low severity fire regimes: 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 CFR 219.19).

maintenance, infrastructure: Preserving infrastructure in its original condition and function by routine or preventative means. Could include a small percentage of minor reconstruction tasks normally associated with larger reconstruction projects such as replacing some rotten fence posts, minor trail

relocations to avoid a wet area or an eroding steep grade, replacing a short section of deteriorated sidewalk to a building, chip sealing a segment of road, etc.

management action/management activities: Activities conducted by the Custer Gallatin National Forest to achieve specific resource management outcomes.

management practice: A specific activity, measure, course of action, or treatment.

mass wasting: A collective term for all gravitational or downslope movements of weathered rock debris.

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 CFR 219.19).

mean fire return interval: The average period between fires under the presumed historical fire regime.

mechanical or physical control (also referred to as mechanical or physical weed treatment): Refers to any technique that involves the use of mechanical or physical means to control weeds, such as hand pulling/grubbing or mowing and installing aquatic species barriers.

mechanized travel or transport: A contrivance for moving people or material in or over land, water, or air, having moving parts, that provides a mechanical advantage to the user, and that is powered by a living or nonliving power source. This includes but is not limited to, sailboats, hang gliders, parachutes, bicycles, game carriers, carts, and wagons. It does not include wheelchairs when used as necessary medical appliances. It also does not include skis, snowshoes, rafts, canoes, sleds, travois, or similar primitive devices without moving parts (36 CFR 2320. (3)).

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:* Petrified wood and common varieties of sand, stone, gravel, cinders, clay, pumice, pumicite and other similar materials.
- *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.

mining activities: All function, work, and activities in connection with locatable minerals activities that are reasonably incident to all stages of mining including, prospecting, exploration, development, mining or processing of mineral resources, production, reclamation, abandonment and closure. Reasonable access, including roads and other means of access and site development is included in mining activities.

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 CFR 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 incursion: the act of crossing a boundary with motorized equipment either on or off trail, into an area where that type of use is prohibited.

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.

motorized uses, recreation, or transport: Uses on Forest roads and trails that include motorized vehicles such as passenger cars, 4x4 and high clearance vehicles, motorcycles, all-terrain vehicles, and snowmobiles.

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 CFR 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.

N-Q

national ambient air quality standards (NAAQS): Are national air quality standards established by the U.S. Environmental Protection Agency 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 CFR 219.19 and 219.62).

National Forest System road: 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: 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: Established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 CFR 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 CFR 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.

net conservation gain (greater sage-grouse): The cumulative benefits of the mitigation or compensatory measures (for example, beneficial actions taken under a voluntary prelisting conservation program) that provide for an increase in the population(s) of the species of interest directly or indirectly through the enhancement or restoration of its suitable habitat, or maintenance of currently suitable habitat, that reduces or eliminates current and future threats, taking into account the duration of the actions and all the adverse effects of the impact project.

nonconforming uses: When used in the context of Wilderness or Recommended Wilderness are uses or facilities within those areas that do not 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.

non-motorized transport: Uses on national forest roads and trails such as hiking, horseback riding, skiing, biking, and snow shoeing that do not depend upon motorized vehicles.

non-native species or alien species: With respect to a particular ecosystem, an organism, including its seeds, eggs, spores, or other biological material capable of propagating that species, that occurs outside of its natural range (Executive Order 13571).

normative flow regime: A flow regime that has temporal pattern of high and low flows expected in a reference stream or river; thereby playing a key role in regulating geomorphic processes that shape river channels and floodplains and sustains all life stages of a diverse suite of native species. Over the life of the plan flow regimes may change due to effects of climate change.

noxious weed: Any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment (Plant Protection Act of 2000). The term typically describes species of plants that have been determined to be undesirable or injurious in some capacity. Federal noxious weeds are regulated by USDA-Animal and Plant Health Inspection Service under the Plant Protection Act of 2000, which superseded the Federal Noxious Weed Act of 1974. 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 (chapters 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.”

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 of this plan.

occupied area (bighorn sheep): Areas that provide suitable habitat conditions for utilization by transient or permanent bighorn sheep populations and presence of bighorn populations has been confirmed by the appropriate State wildlife agency (Montana Fish, Wildlife and Parks or South Dakota Game and Fish). Area is located within mapped State agency bighorn sheep distribution.

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 as the minimum criteria established in Old Growth Forest Types of the

Northern Region by Pat Green et al. (Green et al. 2011) unless more current scientific information becomes available.

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 and 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 CFR 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.

over-snow vehicle: A motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis while in use over snow.

pathway: The mechanisms and processes by which non-native species are moved, intentionally or unintentionally, into a new ecosystem.

perennial stream: A stream that flows continuously throughout most years.

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 CFR 251.51).

permitted grazing: Authorizes livestock use on National Forest System lands. Authorizing permits include grazing permits for commercial livestock production purposes, outfitter and guide special use permits with associated pack animals, or other special use permits.

permitted grazing use: The number of animals, period of use, and location of use specified in part 1 of the grazing permit.

persistence: Continued existence.

physical or mechanical control (also referred to as physical or mechanical weed treatment): Refers to any technique that involves the use of mechanical or physical means to control weeds, such as hand pulling/grubbing or mowing and installing aquatic species barriers.

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: See “land management plan.”

plan area: The National Forest System lands covered by a land management plan (36 CFR 219.19).

planned wildland fire: See “prescribed burn or prescribed fire.”

porcelanite: Fused shales and clay, that occur in the roof or floor of burned coal seams.

potential vegetation type and 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.”

practicable: Available and capable of being put into practice or of being done or accomplished, after taking into consideration cost, technology, and logistics in light of overall project purpose.

prevention: The action of stopping invasive species from being introduced or spreading into a new ecosystem (Executive Order 13571). 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 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). The PSD program 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 Grizzly bear Conservation Strategy to be managed as a source area for the grizzly bear population, where continuous occupancy by grizzly bears would be maintained. Habitat within the primary conservation area 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).

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 CFR 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 CFR 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): The estimated quantity of timber meeting applicable utilization standards that is expected to be sold during the plan period. As a subset of the projected wood sale quantity, the projected timber sale quantity includes volume from timber harvest for any purpose from all lands in the plan area based on expected harvests that would be consistent with the plan components. The PTSQ is also based on the planning unit's fiscal capability and organizational capacity. The PTSQ is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

projected wood sale quantity (PWSQ): The estimated quantity of timber and all other wood products that is expected to be sold from the plan area for the plan period. The PWSQ consists of the projected timber sale quantity as well as other woody material such as fuelwood, firewood, or biomass that is also expected to be available for sale. The PWSQ includes volume from timber harvest for any purpose based on expected harvests that would be consistent with the plan components. The PWSQ is also based on the planning unit's fiscal capability and organizational capacity. The PWSQ is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

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 CFR 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: 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 (Public Law 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.

R-T

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.

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.

reasonable assurance: A judgment made by the Responsible Official based on the best available scientific information and local professional experience that practices based on existing technology and knowledge are likely to deliver the intended results. Reasonable assurance applies to average and foreseeable conditions for the area and does not constitute a guarantee to achieve the intended results.

reclamation: The restoration of a site or resource to a desired condition to achieve management objectives or stated goals.

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.

reconstruction: Rebuilding, modifying, relocating, or replacing components of an infrastructure feature in generally the same corridor. Projects would likely include a mix of management actions.

- Rebuilding means doing deferred or heavy maintenance back to original condition and function.
- Modifying means bringing feature to modern code, standard, or requirement. Might include reconstructing a campground by lengthening and widening spurs, paving the loop road, and making sites more accessible, converting a trail to an accessible standard, remodeling a building to modern building codes, upgrading a powerline to a higher voltage, converting a single lane road to a double lane paved road, converting a hiking trail to a motorized trail, etc.
- Relocating means moving discrete portions of the feature to resolve resource or legal issues within the same general corridor or area. Might include such work as shifting a fence, road, or trail away from an eroding creekside or shifting a segment out of a riparian management zone, moving a powerline away from a moving riverside, etc.
- Replacing means to replace some or many of the feature's major components due mainly to end of their service life. Examples are replacing a deteriorated roof, rusted and leaking culverts, rotten or burned fence posts and wire, a constantly leaking old water system, an aging bridge, or converting native to aggregate surfacing, etc.

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 CFR 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 CFR 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 CFR 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 CFR 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. Some 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 CFR 219.19).

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: The ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape.

resistance: The ability of a community to avoid alteration of its present state by a disturbance.

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 CFR 219.19 and 219.62).

restore: To renew by the process of restoration (36 CFR 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 CFR 219.19).

restrictive soil features: Adverse physical or chemical features in the soils, either within surface soil horizons, subsoil horizons, or underlying substrate materials that restrict plant growth. These include shallow depths to soft or hard bedrock, surface or subsoil materials with abundant hard rock fragments, defined as greater than 35 percent rock fragment in topsoil horizons or greater than 60 percent hard rock fragments in subsoil or substrate materials, saline or sodic soil conditions, excessively high soil pH ($\text{pH} > 8.6$) or excessively low soil pH ($\text{pH} < 4.0$), or the presence of dense hardpan layers at shallow depths (< 20 inches).

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 1998).

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 CFR 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 CFR 219.19).

riparian vegetation: Riparian vegetation grows along banks of a waterbody extending to the edge of the riparian ecosystem. This includes the emergent aquatic plants growing at the edge of the waterbody and the plants which have adapted to growing in the low-oxygen (anaerobic) conditions associated with prolonged saturation or flooding.

risk: A combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences (36 CFR 219.19).

road: A motor vehicle route more than 50-inches wide, unless identified and managed as a trail (36 CFR 212.1, FS Manual 7705) (related: permanent road, temporary road):

- *Decommissioned:* the stabilization and restoration of an unneeded road to a more natural state (36 CFR 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 CFR 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 (FSH 7709.59, 62.32).

- Level 1: These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.
- Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.
- Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.
- Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.
- Level 5: Assigned to roads that provide a high degree of user comfort and convenience.
- *National Forest System*: A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 CFR 212.1).

road bridge: A designed structure that supports the roadway across rivers, streams, railroads, and other natural openings or human-built systems. The bridge is designed and maintained to support the roadway road management objectives.

road decommissioning: Removal from the road system and taken out of service. The unneeded road corridor would be returned to the natural landscape (also see decommissioning).

road management objective (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.

rock hounding: Includes the collection of small amounts of widespread, low value, relatively common rocks and minerals (common quartz crystals, agate, obsidian) for personal noncommercial use. Rock hounding also includes hobby mining activities; such as recreational gold panning or use of metal detectors to prospect for gold nuggets and other naturally occurring metals. Activities that involve mechanized earth moving equipment, including bobcats, suction dredges, 'high banking' or dry washing equipment are not rock hounding. The removal of vertebrate fossils, projectile points, pottery or any other archeological resource is not rock hounding.

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 place: A sacred place is any specific location on National Forest System land, whether site, feature, or landscape, that is identified by an Indian Tribe, or the religious societies, groups, clans, or practitioners of an Indian Tribe, as having historically important spiritual and cultural significance to that entity, greater than the surrounding area itself. Sacred places may include but are not limited to geological features, bodies of water, burial places, traditional cultural places, biological communities, stone and earth structures, and cultural landscapes uniquely connecting historically important cultural sites, or features in any manner meaningful to the identifying Tribe. Report to the Secretary of Agriculture—USDA Policy and Procedures Review and Recommendations: Indian Sacred Sites (December 2012).

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: The removal of dead trees or trees damaged or dying because of injurious agents, other than competition, that recovers economic value that would otherwise be lost, or because the removal of the dead or damaged trees contributes to achieving plan desired conditions or objectives.

sanitation harvest: The removal of trees to improve stand health by stopping or reducing actual or anticipated spread of insects and disease.

scarification: To loosen topsoil aggregates by means of raking the soil surface with a set of sharp teeth. The term may also include removal of the surface organic material (litter and duff) typically to prepare a

site for reforestation or to remove accumulated wood ash from a site as an initial step towards restoration.

scenery management system: A systematic Forest Service approach to inventory, analyze, manage and monitor the scenic resources on national forests. 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 measure scenic integrity (2012 Planning Rule and 36 CFR 219.19). The scenic character description incorporates the visible natural physical and biological features, as well the 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 that have been accepted over time, contribute to the sense of place and that contribute to high quality scenery.

scenic integrity: A measure of the degree of visible disruptions to or deviations from the scenic character. A landscape with very minimal visual disruption is considered to have very high scenic integrity. Landscapes with visual elements that are increasingly discordant with the scenic character have diminished scenic integrity.

scenic integrity objectives: Serve as thresholds of allowable visual dominance by landscape modifications and deviations from the 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 in which the scenic character is intact with minute if any deviations or disruptions. The scenic character and sense of place is expressed at the highest possible level.
- *High:* Landscapes in which the scenic character appears intact. Deviations from or disruptions to the scenic character resulting from management actions 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 scenic character appears slightly altered. Noticeable deviations from or disruptions to the scenic character resulting from management actions must repeat the form, line, color, texture, and pattern common to the scenic character and must remain visually subordinate to the scenic character being viewed.
- *Low:* Landscapes in which the scenic character appears altered. Deviations from or disruptions to the scenic character resulting from management actions are recognizable and may be visually dominant, but borrow some visual attributes such as line, form, color, texture, and pattern common to the scenic character.
- *Very low:* Landscapes in which the scenic character appears heavily altered. Deviations from or disruptions to the scenic character resulting from management actions may strongly dominate the scenic character and do not borrow any visual attributes common to the scenic character.

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.

security habitat (elk): An area that because of its geography, topography, vegetation, or a combination thereof, will hold elk during periods of stress (Lyon and Christensen 1992). Security areas are intended to reduce elk vulnerability during the hunting season, and to provide animals the opportunity to meet their biological needs without making large range movements, such as to private land or to lower quality habitats (Lyon and Canfield 1991).

secure habitat (grizzly bear): Areas at least 10 acres in size and 0.31 mile (500 meters) away from open or gated motorized routes, prescribed footprint of a developed site, or recurring low-level helicopter flight line during the non-denning period (March 1 through November 30).

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 per year, past a designated "accounting point" in a watershed.

seral: A biotic community that is developmental; a transitory stage in an ecologic succession.

seral 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 Federal Cave Resource Protection Act, which has been determined to contain significant biota, cultural, geologic, mineralogic, paleontologic, hydrologic, recreational, educational, or 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 potential tree: The average maximum height of the tallest dominant trees for a given site class.

site preparation: A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

site productivity: The combined effect of physical and climate properties, soil depth, texture, nutrient load, precipitation, temperature, slope, elevation, and aspect, on tree growth of a specific area of land.

ski resort: 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 resort

may also include ancillary facilities directly related to the operation and support of skiing activities (36 CFR 251.51).

skid trails: A temporary route used by logging equipment to remove logs from a timber stand.

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.

slump or rotational slump: A mass movement process of slope failure, in which a mass of rock or unconsolidated material drops along a concave slip surface. Slump units move downslope as an intact block (without internal deformation of the landslide material) and frequently rotate backwards.

snag: A standing dead tree usually greater than 5 feet in height and 6 inches diameter at breast height.

snowmobile: A motorized vehicle 50 inches or less in width, designed for use over snow, runs on a track and uses one or more skis for steering.

social sustainability: See “sustainability” (36 CFR 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.

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 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 its surroundings to sustain biological productivity, maintain or enhance hydrologic function and water quality, and preserve overall environmental quality.

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 or including numerous public water systems, whether the source is ground water or surface water or both, as part of a State or Tribal source water assessment and protection program approved by the Environmental Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)) (36 CFR section 219.19) or any subsequent laws applicable to public water systems that provide water for human consumption.

special forest products: 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).

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 CFR 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 CFR 219.9(c)).

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 of this plan.

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."

statutory rights: Rights granted by enactment of Federal or State laws. For example, rights granted by the 1872 Mining Law are statutory rights.

stomata: Tiny openings or pores in plant tissue that allow for gas exchange. Stomata are typically found in plant leaves but can also be found in some stems.

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 and 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 CFR 219.19). Also see "ecosystem stressor."

structure: In a terrestrial ecological context, refers to the horizontal and vertical distribution of vegetation layers in a forest or grassland including the trees, shrubs, and ground cover (which includes vegetation and dead and down woody material). Structure looks at the proportion of small, medium, and large trees or short and tall grasses, for example, and can be measured in a variety of ways depending on the system and structural attribute of interest.

structures, built: Something (such as a building) that is constructed.

stubble height: The height of forage plants remaining after grazing has occurred; average stubble height includes both grazed and un-grazed plants (FSH 2209.13 chapter 90).

substrata: The composition of a streambed or wetland/pond/lake bottom. It may be inorganic, consisting of geological material from the catchment area such as boulders, pebbles, gravel, sand or silt, or it may be organic, including fine particles, leaves, wood, moss and plants.

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 (SUIT): 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 CFR 219.19).

sustainable recreation: The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations (36 CFR 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” are addressed in the 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).

thalweg: A geomorphological term that describes the lowest elevation in a stream/river longitudinally from upstream to downstream.

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 and 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 United States Code section 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 CFR 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 CFR 219.19).

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 and cultural purposes: The term “traditional and cultural purpose”, with respect to a definable use, area, or practice, means that the use, area, or practice is identified by an Indian Tribe as traditional or cultural because of the long-established significance or ceremonial nature of the use, area, or practice to the Indian Tribe. Cultural Heritage Cooperative Authority (CHCA) 2019.

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 CFR 212.1).

trail bridge: A designed structure that supports the roadway across rivers, streams, railroads, roads, and other natural openings or human-built systems. The bridge is designed and maintained to support the trailway trail management objectives.

trail class: The prescribed scale of development for a trail, representing its intended design and management standards.

trail management objective (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.

trail open to all vehicles: A trail open to all non-motorized transport and motorized vehicles uses shown on the Motor Vehicle Use Map. Motorized users may be licensed or non-licensed as required by the State jurisdictions.

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.

transportation atlas: National Forest System roads and National Forest System trails are the surface transportation system (including bridges) necessary for the administration of the national forest. Together these create the Transportation Atlas. The atlas is composed of the road and trail arcs in GIS and the tabular information in the Travel Routes portion of the corporate database. Roads and trails can be wholly within the national forest or across legal easements from public road systems (such as Federal, State, and County) to National Forest System lands.

travel route: Road, trail, or airfield open transportation uses.

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.

tribal cultural landscapes: any place in which a relationship, past or present, exists between a place resources, and an associated group of indigenous people whose cultural practices, beliefs or identity connects them to that place.

U-Z

unplanned wildland fire: See “wildfire.”

utilities: See infrastructure.

valid existing rights: Mining claims have valid existing rights if a discovery of a valuable mineral was made on the claim prior to the date public lands were withdrawn from mineral entry. A mining claimant must make a discovery of a valuable mineral deposit. A Certified Mineral Examiner must examine the mining claim to determine whether a valid claim creates an existing right (validity exam).

valid mining claim: A valid mining claim has undergone a validity exam and the claim was determined to be valid

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, hazard tree removal 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 (36 CFR 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 °Fahrenheit. 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 CFR 219.19).

watershed condition: The state of a watershed based on physical and biogeochemical characteristics and processes (36 CFR 219.19).

wetland: An area that under normal circumstances has hydrophilic vegetation, hydric soils, and wetland hydrology.

wild horse range: 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 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 CFR 219.19).

- *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.
- *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.
- *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.

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).

wilderness character: Untrammelled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation and other features and values.

- *Untrammeled*: The wilderness is essentially unhindered and free from modern human control or manipulation.
- *Naturalness*: The wilderness ecological systems are substantially free from the effects of modern civilization.
- *Undeveloped*: The wilderness is essentially without permanent improvements or modern human occupation.
- *Outstanding opportunities for solitude or a primitive and unconfined type of recreation*: The wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge.
- *Other features of value*: The wilderness may contain ecological, geological, or other features of scientific educational, scenic, or historical value.

wilderness characteristics: Undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation and other features and values.

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 section 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 the Healthy Forest Restoration Act; for full text see Healthy Forest Restoration Act section 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.

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