



**Forest Service**  
U.S. DEPARTMENT OF AGRICULTURE

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# **Final Environmental Impact Statement for the 2021 Land Management Plan**

## **Helena - Lewis and Clark National Forest**

### **Volume 4**

Appendix B. Methodologies

Appendix C: Aquatic Ecosystems and Best Available Scientific Information

Appendix D: Supplemental Species Information

Appendix E: Recommended Wilderness Analysis Process

Appendix F: Wild and Scenic Rivers Eligibility Study Process

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# Appendix B. Methodologies

## Table of Contents

Introduction ..... 1

Aquatic Ecosystems ..... 1

    Analysis Area.....1

Air Quality ..... 2

Fire and Fuel Management..... 2

Terrestrial Vegetation, Old Growth, Snags and Downed Woody Debris, and Timber and Other Forest Products ..... 3

Plant Species at Risk (threatened, endangered, proposed, and candidate species and plant species of conservation concern) ..... 3

Invasive Plants..... 4

Terrestrial Wildlife Diversity ..... 4

At-Risk Terrestrial Wildlife Species ..... 5

Elk..... 6

    1986 Helena National Forest Plan .....6

    1986 Lewis and Clark Forest Plan .....6

    USDA FS and MTDFWP 2013.....7

    Elk Population Data.....7

Recreation Settings, Opportunities, Special Uses, and Access ..... 7

Scenery..... 7

Administratively Designated Areas..... 8

    Wilderness Evaluation .....8

    Eligible Wild and Scenic Rivers Study.....9

Congressionally Designated Areas ..... 10

    Cultural, Historical, and Tribal Resources .....10

Lands ..... 12

Infrastructure ..... 12

Social and Economics ..... 13

    Scale .....13

Analysis .....13

Livestock Grazing ..... 13

Geology, Energy, and Minerals ..... 14

Climate and Carbon Sequestration ..... 14

Literature ..... 14

## Introduction

This appendix includes the methodologies used by all of the resource areas analyzed, except for vegetation and timber (which are found in appendix H). They are arranged in the same order as the resources in chapter 3. The acronyms from the main body of the FEIS apply here, as well as the following:

- CWPP Community Wildfire Protection Plan
- HFRA: Healthy Forest Restoration Act
- LSRS: Land Status Record System
- PRISM: Plan-level foRest activity Scheduling Model
- SUDS: Special Uses Data System

## Aquatic Ecosystems

The approach used in this analysis was to take a programmatic look at the outcomes that could result from implementing the proposed management direction in each alternative. For estimating the effects at the programmatic-forest plan level, the assumption was made that the kinds of resource management activities allowed under the 2021 Land Management Plan direction are reasonably foreseeable future actions to achieve the goals and objectives. However, the specific location, design, and extent of such activities are not known at the time forest plans are revised. Project-level decisions are made based on site-specific analysis (project level) basis. Therefore, the discussions here refer to the potential for the effects to occur and are in many cases only estimates. The effects analyses are useful when comparing and evaluating alternatives but are not intended to be applied directly to specific locations on the Forest.

The 2021 Land Management Plan prescribes no specific activity in any location; potential spatial and temporal effects to water quality cannot be attributed to any specific watershed. In other words, the cumulative effects of a program at the forest plan scale as opposed to the effects from a project at the project scale can only be discussed in terms of general programmatic tendencies either toward improved or declining water quality or fisheries habitat at no specific site. Therefore, the potential cumulative effects from forest programs to water quality are generally discussed at the basin or HLC NF level. The temporal scale for this analysis is limited to the expected life of this plan (15 years).

## Analysis Area

The analysis area for the watershed, soils and aquatic species include all the lands within the boundary of the HLC NF and connected waterways. The connected river systems are included because migratory bull trout and westslope cutthroat trout that emerge from Forest streams move downstream to reach sexual maturity and then return to their natal streams to complete the spawning cycle and depend on connectivity for their survival.

The planning area is located within two HUC Regions:

- The Missouri Region (HUC = 10) is on the eastern side of the Continental Divide. Within this region, the planning area is located in 3 subregions: Missouri Headwaters (HUC=1002), Missouri-Marias (HUC=1003), and Missouri-Musselshell (HUC=1004). Within these subregions, the planning area is located in 14 fourth level watersheds. Within these fourth level watersheds the planning area is located within 88 fifth level watersheds which are further broken down into 301 sixth level watersheds.

- The Pacific Northwest Region (HUC = 17) drains to the west. Within this region, the planning area is located in one subregion, the Kootenai-Pend Oreille- Spokane (HUC=1701). Within this subregion, the planning area is located in two fourth level watersheds: Upper Clark Fork and Blackfoot River. Within these fourth level watersheds, the planning area is within 16 fifth level watersheds which are further broken down into 72 sixth level subwatersheds.

The analysis scale varies by resource and uses the fourth, fifth and sixth level watershed scales to assess current conditions across the HLC NF.

## Air Quality

The air quality analysis relies on existing and most current analysis, research, and planning documents. We used information from several government, academic, and private partnership consortiums that have conducted air quality emissions inventories, modeled pollution impacts and work on air quality planning on a regional scale in and around the HLC NF area. There is a great deal of extensive and complex data available and this assessment only summarizes information relevant to the HLC NF forest plan revision.

Quantitative values for wildland fire smoke impacts are difficult to predict. Potential emissions from wildfires are difficult to predict as they would vary depending upon site-specific vegetation and fuels conditions, ignitions, weather, and available suppression resources. Emissions estimate models are available for estimating smoke emission from prescribed fire.

## Fire and Fuel Management

Fire is a primary natural disturbance process within the HLC NF ecosystems that changes vegetation. Fuels management consists of management activities designed to alter vegetation conditions to achieve desired results. Therefore, the analysis process for determining vegetation conditions (past, present and future) provides the basis for the analysis of fire and fuels treatments within the FEIS. This process is briefly discussed below. Please refer to the Terrestrial Vegetation section of the FEIS and appendix H for greater detail.

The vegetation management strategy for the HLC NF is to manage the landscape to maintain or trend towards vegetation desired condition. Modeling was used to estimate extent and effects of disturbance processes (such as fire) into the past to develop a natural range of variation (NRV) and into the future (to project future wildfire). Fire (planned and unplanned), insects (e.g., bark beetles), weather (drought), and harvest treatments are the main drivers of vegetative change, interacting with climate and vegetative succession. The main analytical models used were the SIMPPLLE model (SIMulating Patterns and Processes at Landscape scaLEs) (Chew, Moeller, & Stalling, 2012) and the PRISM model.

SIMPPLLE was used to estimate wildfire activity on the HLC NF for five decades into the future. Best available information was used to build the fire suppression logic and assumptions within the model, including corroboration with actual data, and professional experience and knowledge.

All alternatives contain objectives for treating (mechanical and wildland fire) vegetation to improve structure and composition, including reducing surface fuels, ladder fuels, and canopy density.

For the HLC NF analysis, the wildland urban interface (WUI) is mapped based on County Wildland Protection Plans (CWPPs) where available, and standard Hazardous Fuels Reduction Act (HFRA) definitions where CWPP maps are unavailable. The WUI will change over time as human developments and land use change.

## Terrestrial Vegetation, Old Growth, Snags and Downed Woody Debris, and Timber and Other Forest Products

Please refer to appendix H of the FEIS.

### Plant Species at Risk (threatened, endangered, proposed, and candidate species and plant species of conservation concern)

The USFWS is responsible for determining species recognized under the ESA as threatened, endangered, and proposed or candidate. Once identified, the FS is responsible to manage for the ecological conditions that would contribute to the recovery of the listed species and conserve proposed and candidate species. Determining effects to federally recognized species by alternative considers the degree of management activities or natural conditions that may pose potential stress or threat to the species.

The 2012 Planning Rule provides direction for determining which species are species of conservation concern (SCC), as described in the body of the FEIS. The list of SCCs must meet the following mandatory requirement (FSH 1909.12 Section 12.52): The best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the planning area. This information may be derived from the scientific literature, species studies, habitat studies, analyses of information obtained from a local area, and/or the result of expert opinion or panel consensus. Additional information is available in the Assessment, the supplemental botany report in the project record, and the Region 1 Species of Conservation Concern Planning webpage:

<https://www.fs.usda.gov/detailfull/r1/landmanagement/planning/?cid=FSEPRD500402&width=full>

Once SCC were defined, key ecosystem characteristics for species were evaluated and determinations made on whether forestwide components maintained habitat quality needed by associated SCC by considering known locations of species and their habitats, as well as key drivers/stressors. Additional species-specific plan components were then considered and developed if needed. In other words, the extent and condition of each ecosystem or special type served as the habitat indicator for individual species, and for assemblages of at-risk species and overall floristic diversity. For most species, extent and condition of habitat typically constitute the best available scientific information indicating whether such populations would continue to persist with sufficient distribution in the planning area (2012 Rule Sec. 219.19), though known occurrences, trend data and known threats to species viability and used when available to compare each alternative.

Determinations for each species consisted of a viability evaluation, which examined whether plan components provide ecological conditions necessary to maintain a viable population of each species of conservation concern in the planning area. The viability evaluation was conducted using both a coarse filter and a fine filter approach, again using known populations, habitat extent and condition, and known threats as indicators. For the coarse filter approach, species were grouped by habitat guilds. This coarse filter approach assumes that viability of SCC is broadly dependent upon the integrity of the coarse ecosystems where they currently occur. Qualitative, rather than quantitative, evaluations were made to compare the action alternatives to the no-action alternative forestwide plan components. The coarse filter approach was used to compare forestwide plan components of the 1986 Forest Plans (alternative A, no action) to the action alternatives using habitat guilds and considering species in a broader context. However, the habitat guilds outlined below are roughly, but not exactly aligned with floristic geographic subdivisions, to which at-risk plant populations are often associated. Since the integrity of whole ecosystems does not necessarily ensure persistence of all species of conservation concern, particularly those with very limited distribution, we conducted additional fine filter analyses (by quantitative species-

specific population and habitat indicators) to ensure that persistence is provided for all plant SCC to compare each alternative.

The fine filter viability evaluation focuses on species-specific data rather than habitat guilds and was conducted to compare the analysis of (1) percentage of known occurrences within different management areas, such as designated wilderness, recommended wilderness or lands suitable for timber production, (2) estimated percentage of available potential habitat for each species in those areas, and (3) known threats to each individual SCC. Each alternative was considered using the fine filter approach. The habitat guilds are not used to quantitatively compare alternatives. For whitebark pine, a species that is a proposed species for federal listing, an additional indicator, population trend, was also evaluated. For this species, where trend information related to management activities has been documented in the planning area, quantitative, species-specific information was available for analysis. The adjustment of indicators was selected between the coarse and fine filter analysis because relative differences among alternatives could be readily compared. An overview of all at-risk species known in the planning area and species' respective determination rationale are presented in the Botany supplemental report in greater detail.

## Invasive Plants

Programmatic effects to invasive species are indicated by evaluating the difference in frequency, intensity, or type of management activity or natural processes by alternative, insofar as they may potentially disturb the ground and result in greater risk of weed spread or invasion. The process for identifying risk and impacts resulting from invasive species is completed by FS botanists and vegetation specialists.

The geographic scope of the analysis for non-native invasive plants are the NFS lands of the HLC NF. This area represents the lands where changes may occur to vegetation as a result of management activities or natural events. For cumulative effects, the analysis area also includes the non-NFS lands within and adjacent to the administrative boundary of the HLC NF.

Two temporal scales were chosen to assess the current condition of invasive plants:

- Inventory data collected beginning in 2001 has been summarized to characterize current invasive plant infestations (in acres) on the HLC NF.
- Treatment data collected from 2010 to 2019 has been summarized to characterize invasive plant treatments (in acres) across the HLC NF. This allows for the use of the most recent and relevant data in regard to invasive plant treatments.

The following methods and associated data were used to analyze the current condition of invasive species:

- Summarization of existing Geospatial Information Systems data as entered through the Threatened, Endangered, and Sensitive Plants, and Invasive Species database and reported through the Geospatial Interface;
- Summarization of existing Forest Service Activity Tracking System data.
- Literature review of the best available science.

## Terrestrial Wildlife Diversity

In developing plan components and in analyzing their potential effects on the diversity of native wildlife communities, we sought information on local wildlife populations and habitat factors from sources described in the section in the FEIS on best available scientific information. We identified key ecosystem characteristics, including those that support native wildlife species, assessed system drivers and stressors, and estimated the NRV for key ecosystem components. All of these are documented in the Terrestrial



Vegetation section of the FEIS, and appendices H and I of the FEIS. During the planning process, evaluations were made regarding whether wildlife species' needs would be met by plan components that were being developed to maintain or restore ecosystem diversity and integrity.

This section of the FEIS relies on vegetation models (SIMPPLLE and PRISM) to estimate and predict the current status, NRV, and predicted future condition of key ecosystem characteristics that comprise wildlife habitats. The Terrestrial Vegetation and Timber sections as well as appendices H and I provide information regarding the methods, accuracy, and limits of those models and their products. Estimates and predictions made for key ecosystem characteristics were evaluated using the best available scientific information regarding the habitat needs of native wildlife species, in order to assess the effectiveness of plan components in maintaining wildlife diversity.

For most habitats and species considered in this section of the FEIS, the analysis area is NFS lands within the administrative boundary of the HLC NF. The cumulative effects analysis area considers management of adjoining lands. The anticipated life of the forest plan is about 15 years. Management actions that occur under direction of the plan have the potential to impact wildlife species and their habitats for many decades, however, the analysis of potential vegetation and therefore habitat change spanned the next 50 years (refer to Terrestrial Vegetation section of the FEIS).

## At-Risk Terrestrial Wildlife Species

The 2012 Planning Rule states that plan components that provide for ecological conditions for ecosystem integrity and ecosystem diversity are the primary context for the evaluation of at-risk species. For most species, the only practical quantitative evaluation of their required ecological conditions is an assessment of habitat conditions (ecological conditions). Therefore, this section of the FEIS relies on the analysis completed in the Terrestrial Vegetation section, and other sections as appropriate, regarding the ecological conditions required by at-risk species. As such, the methodologies and science used in the analysis of terrestrial vegetation (see appendix H) is inherent in the discussion and conclusions provided in this section.

This section also relies primarily on information in the scientific literature, and in published and unpublished reports regarding the presence, distribution, and requirements of at-risk wildlife species and potential impacts on them of existing and proposed management actions. Research reports and literature are frequently not available specifically for the HLC NF or nearby areas, or for the specific management proposed in the 2021 Land Management Plan. Therefore, in this section, we have made inferences in applying information and conclusions from reports and literature to species, habitats, and management actions on the HLC NF.

The methods used for selecting species of conservation concern (SCC) for the HLC NF are documented on the Region 1 Species of Conservation Concern web page ([www.fs.usda.gov/goto/R1/SCC](http://www.fs.usda.gov/goto/R1/SCC)). That process included extensive coordination with the HLC NF, and review of available data, observations, scientific literature, published and unpublished reports, and other information as documented there.

Habitat models used to estimate current and future habitat for some at-risk species discussed in this section of the FEIS are the same as those used to estimate current and future amount and distribution of terrestrial vegetation. Methods for modelling vegetation, as well as information about accuracy of those models, are described in the Terrestrial Vegetation section, and in appendix H of the FEIS. Estimates of wildlife habitat were made using specific queries from those vegetation models, and therefore assume the accuracy of the model that was queried. Information regarding the queries used to estimate wildlife habitats is available in appendix H and the project record. Models are based on accumulations of assumptions and therefore vary in their ability to predict actual habitat, and they cannot predict whether animals will actually use habitat as depicted. Please see appendix H for SIMPPLLE model results for some at-risk wildlife species.

## Elk

This section summarizes the information sources and methodology used in the elk analysis. Additional detail can be found in the Elk Background Report in the project record. Information presented in this analysis and in the Elk Background Report comes from field examination of the planning area, inferences from scientific literature, wildlife survey work in the planning area, geospatial data, and discussions with other state and federal biologists.

The 1986 Forest Plans are described to provide context for the Environmental Consequence section. Note that both the Helena and Lewis and Clark 1986 Forest Plans include management area requirements specific to elk. For the purposes of this analysis, however, only forestwide requirements are included.

The USFS and MTDFWP Collaborative Recommendations for Big Game Habitat Management on the Custer, Gallatin, Helena, and Lewis and Clark National Forests (U.S. Department of Agriculture, 2013) is also used because this paper reflects the efforts of wildlife biologists from the FS and MTDFWP to use the best contemporary information and their collective experiences in managing elk and elk habitat to address current issues and conditions on the referenced NFs.

Habitat-related data are presented according to metrics identified in (1) the 1986 Helena NF Plan; (2) the 1986 Lewis and Clark NF Plan; and (3) the U.S. FS and MTDFWP Collaborative Recommendations for Big Game Habitat Management on the Custer, Gallatin, Helena, and Lewis and Clark National Forests. All vegetation data are based on R1-VMap. R1-VMap data are remotely sensed and represent a broad-scale, coarse filter depiction that is classified into vegetation components such as canopy cover, tree dominance type, and size class. Refer to the Elk Background Report in the project record for additional details regarding habitat mapping and estimation.

Please refer to appendix H for the modeling results for elk habitat.

### 1986 Helena National Forest Plan

The following methods and information have been used to describe the existing condition for elk habitat under the 1986 Helena NF Plan.

- Elk herd units serve as the basis for the analysis; these have been developed in conjunction with MTDFWP.
- Summer range comprises the entire elk herd unit. Winter range is based on updated MTDFWP range maps (2008).
- Hiding cover is based on the MTDFWP definition; both hiding cover and thermal cover are summarized in the Elk Background Report in the project record.
- Road density information is derived from transportation database. Assumptions made regarding which roads are included in calculations of density are detailed in the Elk Background Report in the project record.

### 1986 Lewis and Clark Forest Plan

The following methods and information have been used to describe the existing condition for elk habitat under the current Lewis and Clark NF Plan. See also the *Process for Analyzing Big Game Cover*, 2016.

- Sixth and 7<sup>th</sup> code subwatersheds (ranging from 3,000 acres to 40,000 acres) serve as the basis for the cover analysis under the Lewis and Clark plan.
- Vegetation data are used to develop the photo interpretive (PI) types as defined in the Montana Cooperative Elk/Logging Study (Lyon et al., 1985). Vegetation data from R1-VMap (refer to information in the Elk Background Report in the project record) has been used to assign PI type.

- Effective hiding cover is based on the “Montana Rule” that assigns a hiding cover percent to specific stand characteristics.

## USDA FS and MTDFWP 2013

The following methods and information have been used to describe the existing condition for elk habitat according to the U.S. Forest Service and Montana Department of Fish, Wildlife, and Parks Collaborative Recommendations for Big Game Habitat Management on the Custer, Gallatin, Helena, and Lewis and Clark National Forests (U.S. Department of Agriculture, 2013).

- The geographic area serves as the basis for the analysis.
- Elk security analysis is based on motorized routes (roads and trails). Definitions of elk security areas are in the collaborative recommendation paper cited above and are described in the Elk Background Report in the project record.
- Elk spring/summer/fall cover is determined primarily by tree canopy cover in certain tree dominance types, and elk winter cover is based on tree canopy cover. Refer to the collaborative recommendation paper cited above, and the Elk Background Report in the project record.

## Elk Population Data

Elk survey data are provided by MTDFWP area biologists for the respective hunting districts (MTDFWP 2002 – 2016, where available). Elk analyses are also based on the Montana Statewide Elk Management Plan (Montana Fish and Wildlife and Parks, 2004). Elk harvest reports from 2004 to 2016 are located at <http://fwp.mt.gov/hunting/planahunt/harvestReports.html>

## Recreation Settings, Opportunities, Special Uses, and Access

The analysis for sustainable recreation settings used existing travel plan information and the geographic information system to map each of the recreation opportunity spectrum classes. These classes were verified with forest personnel familiar with these areas.

Data for the recreation opportunities, recreation special uses, and recreation access portion of this analysis were derived from the Forest Service corporate database, Infrastructure. This database houses the specific information about the numbers, quantities, and types of recreation opportunities and special uses as well as the miles and status of roads and trails. This data was verified by forest personnel prior to inclusion in this analysis.

## Scenery

The FS uses the scenery management system to inventory, analyze, and monitor national forest scenic resources. This system recognizes natural disturbance processes such as fire, insects, and disease to be part of the natural landscape that is dynamic and also important in maintaining healthy, sustainable, and scenic landscapes. The scenery management system is also used in the context of ecosystem management to determine the relative value, stability, resiliency, and importance of scenery; assist in establishing overall resource objectives; and ensure high-quality scenery for future generations. The primary components of the scenery management system are:

- scenic character
- scenic attractiveness
- landscape visibility
- existing scenic integrity
- scenic classes
- scenic integrity objectives

The Forest completed an inventory of landscape visibility and scenic attractiveness and compiled scenic classes. In 2011, the FS's Northern Region completed existing scenic integrity mapping at a regional scale. Using this data, scenery was analyzed on a forestwide scale and included the encompassing viewsheds of the HLC NFS lands and the surrounding nonforest system lands. Landscape character descriptions for each of the GAs have been developed and are located in appendix G of the 2021 Land Management Plan.

Data used to conduct the analysis came from the latest spatial information contained in the geographic information system data. Acreages and percentages of scenic integrity objectives were analyzed to determine how well they support the inherent scenic character and move the landscape toward desired scenic integrity objectives.

## Administratively Designated Areas

The analysis for the existing administratively designated areas used maps stored in the Forest's GIS. Existing GIS maps were available for the following areas and were used in this analysis:

- inventoried roadless areas
- national recreation trails
- research natural areas
- Tenderfoot Creek Experimental Forest
- Elkhorns Wildlife Management Unit
- Kings Hill Scenic Byway

In addition to these existing administratively designated areas, the HLC NF identified the 6 new areas on the forest that may be administratively designated in the 2021 Land Management Plan. The boundaries for these areas were identified and mapped for this analysis.

- recommended wilderness areas
- eligible wild and scenic rivers
- South Hills Recreation Area
- Missouri River Corridor
- Smith River Corridor
- Badger Two Medicine Area
- Green Timber Basin-Beaver Creek Emphasis Area
- Grandview Recreation Area

## Wilderness Evaluation

The HLC NF was required to conduct a wilderness evaluation as a part of the forest planning process. The analysis for identifying potential recommended wilderness areas used official maps stored in the geographic information system. Specific data used to assess potential wilderness characteristics and overall descriptions were derived from the FS corporate Infrastructure database. This database houses the specific information about the acres, miles of trail, and facilities available within each wilderness area. Data was verified by forest personnel prior to inclusion in this analysis.

The geographic scope of the analysis included all lands administered by the Forest within the planning area. All lands within the HLC NF boundary form the geographic scope for cumulative effects, and the temporal scope was the life of the plan (approximately 15 years).

The process by which lands are recommended for inclusion in the National Wilderness Preservation System was intended to be transparent and consistent across the NFS. To accomplish this, the process

occurred in four primary steps (2012 Forest Service Planning Rule and Chapter 70 of the FS Land Management Planning Handbook 1909.12.) Each step of the process required public participation and collaboration, intergovernmental coordination with state and local governments, and tribal consultation (as required by the broader planning process). Steps 1-3 have been accomplished. Step 4 will be completed with the signing of the Record of Decision when the FEIS process has been completed.

1. **Inventory:** The Responsible Official (the Forest Supervisor) identifies and creates an inventory of all lands that may be suitable for inclusion in the National Wilderness Preservation System.
2. **Evaluation:** The Responsible Official evaluates the wilderness characteristics of lands identified in the inventory using a set of criteria based on the Wilderness Act of 1964.
3. **Analysis:** The Responsible Official considers the areas evaluated and determined which areas to further analyze for recommendation as part of one or more alternatives identified in a NEPA document.
4. **Recommendation:** The Responsible Official decides, based upon the analysis and input from Tribal, State, and local governments and the public, which areas, if any, to recommend for inclusion in the National Wilderness Preservation System.

All forest plan revisions are required to complete this process before the responsible official determines, within the plan decision document, whether to recommend lands within the planning area to Congress for wilderness designation. Wilderness recommendations are only preliminary administrative recommendations; Congress has reserved the authority to make final decisions on wilderness designation.

Wilderness characteristics are based on natural quality, undeveloped area, unconfined or primitive recreation or solitude, and unique or other features. Oftentimes, the ecological characteristics are discussed in terms of natural quality and undeveloped and can be represented by landscapes where the ecosystems of the area are intact and/or evidence of human disturbance is not readily apparent. Social characteristics can be discussed in terms of solitude or unconfined or primitive recreation and are often represented by remote, quiet landscapes where recreation activities such as hiking, climbing, fishing and hunting are predominant.

The HLC NF conducted a wilderness evaluation process outlined in the 2012 FS Planning Rule, Chapter 70 (Forest Service Land Management Planning Handbook 1909.12). Additional lands with potential for inclusion in the National Wilderness Preservation System were identified and evaluated in this process.

The inventory and evaluation steps were completed and displayed as an appendix in the proposed action. This draft environmental impact statement described the analysis step. The recommendation step will result from the final environmental impact statement and will be recorded in the record of decision. Recommendations of potential wilderness areas are only preliminary administrative recommendations. Congress reserves the authority make final decisions on wilderness designation. The ecological and social characteristics of recommended wilderness areas that provide the basis for suitability for inclusion into the National Wilderness Preservation System are identified for each recommended wilderness area by alternative and can be found in appendix E of the FEIS.

## Eligible Wild and Scenic Rivers Study

The HLC NF was required to conduct an eligible wild and scenic river study as a part of the forest planning process. The 2012 Planning Rule's Final Directives (FSH 1909.12 Chapter 80) provided guidance for conducting a wild and scenic rivers eligibility study during forest plan revision. The HLC NFs used this guidance to conduct the wild and scenic rivers eligibility study for the planning area using the following steps.

- Step 1: Identified free-flowing named streams/rivers.
- Step 2: Identified regions of comparison for each resource.

- Step 3: Developed evaluation criteria for identifying outstanding remarkable values.
- Step 4: Evaluated named streams/rivers and determine if they possess outstanding remarkable values.
- Step 5: Reviewed level of development/determined classification of wild, scenic, or recreational.
- Step 6: Developed forest plan management direction (included in the proposed action).

The eligibility study was conducted through a series of meetings and workshops aimed at each of the steps identified in the process paper. Much of the base information was developed from GIS, such as the base maps, determining the number and location of all “named streams”, and identifying the location of developments along or nearby these rivers and streams. Specific resource information about each river/stream was gathered from maps and professional knowledge provided by forest resource specialists.

The geographic scope of the wild and scenic rivers eligibility study was the free-flowing rivers and streams located within lands administered by the Forest. Rivers and segments of rivers that pass through private lands were not considered in the eligibility study. All lands within the HLC NF boundary form the geographic scope for cumulative effects, and the temporal scope is the life of the plan (15 years).

The document that summarizes the wild and scenic rivers eligibility study, as well as descriptions of each eligible river and maps are located in appendix F of the FEIS.

## Congressionally Designated Areas

The analysis for designated areas used the official maps from the enabling legislation for these lands which are stored in the geographic information system. The HLC NF used the enabling legislation and official designated areas maps to analyze the following areas:

- Designated wilderness areas
- Wilderness study areas
- Continental Divide National Scenic Trail
- Lewis and Clark National Historic Trail
- Lewis and Clark National Historic Trail Interpretive Center
- Rocky Mountain Front Conservation Management Areas

## Cultural, Historical, and Tribal Resources

The Regional Programmatic Agreement and the forest-specific Site Identification Strategy address details of National Historic Preservation Act/Section 106 compliance. They prescribe certain percentages of survey coverage for various types of undertakings, in order to adequately complete Section 106 effects analysis. The amount of survey and research anticipated depends on the undertakings involved. Information from project-level analyses assigns the ‘potential for the occurrence of cultural resources’ used in both NEPA and National Historic Preservation Act reviews.

The primary goal of a cultural resource inventory is to locate and describe archaeological, historic, and cultural sites and to make a recommendation of significance when such sites are found. Significance evaluations of known cultural resources and new sites discovered during inventories of a project area would follow general guidelines as set forth below:

1. Cultural materials were observed in depositional or surficial settings where cultural remains may have been buried or disturbed in essentially their original positions, thus preserving spatial context.

2. Artifacts diagnostic of historic or prehistoric cultural periods were found. Presence of such artifacts allows dating of cultural components and establishment of temporal and cultural context.
3. Presence of diagnostic artifacts in potentially preserved context makes it possible for a site to contribute significantly to understanding of local and regional history and prehistory.
4. Historic sites were found to associate with the lives of person(s) significant to local or regional history. Such associations can be apparent through archival research.
5. Historic or prehistoric sites were found to contain well-preserved features such as buildings, roads, trails, tipi rings, cairns, effigies, pictographs, or petroglyphs. Such features may be representative of or associated with an important period, architectural style, artistic style, or a unique or specialized activity.
6. Physical evidence of past or present cultural use of a locality for prayer, fasting, vision questing, piercing, burial, and other ceremonial activities were found. That evidence could include prayer cloth, rock structures, marked trees, sweat lodge remnants or hearths, or other lodge remnants. Presence of these things allow for identification of Traditional Cultural Properties.

Information from historic maps, the heritage resource database, and from numerous surveys completed in previous project areas identifies specific locations of prehistoric and historic sites. This information provides historic context and helps identify both specific sites present and the kind of sites which may exist across the Forest.

Evaluation of all potential historic properties, including traditional cultural properties, follows a set of criteria established by the Montana State Historic Preservation Office and the National Park Service. Historic properties are determined to be significant if they meet one or more of the following criteria (USDI-NPS Bulletin 15):

- a. They are associated with events that have made a significant contribution to the broad patterns in our history; and/or
- b. They are associated with the lives of persons significant in our past;
- c. They embody distinctive characteristics of a type, period, or method of construction that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;
- d. They have yielded, or may likely yield, information important in prehistory or history.

If sites do not meet the criteria for eligibility for the National Register of Historic Places after consultation with the appropriate parties, Section 106 of the National Historic Preservation Act stipulates no further consideration of cultural resources is necessary and the undertaking may proceed.

If a site meets any of these criteria, Section 106 requires an agency to determine the effect of the proposed action on the site. One of the following three determinations is possible:

1. No historic properties affected – a Heritage Specialist has determined that either there are no historic properties present or there are historic properties present, but the undertaking will have no effect upon them. The agency will notify all consulting parties and make the documentation available for public inspection before approving the undertaking.
2. Historic properties affected – a Heritage Specialist finds that there are historic properties the undertaking may affect or the State Historic Preservation Office/Tribal Historic Preservation Office or the Advisory Council objects to the agency's findings. The agency then will notify all consulting parties, invite their views on the effects, and assess adverse effects, if any.
3. Adverse effect – the Heritage Specialist determines that the effect on eligible cultural resources will be adverse. When an undertaking has been determined to have an adverse

effect on a property eligible for listing, the agency is directed to consult with the State Historic Preservation Office/Tribal Historic Preservation Office and other consulting parties to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize or mitigate adverse effects on historic properties. Mitigation of effects to a significant cultural resource entails a range of options including project redesign, avoidance, documentation (photography and archival research), or restoration and data recovery (through archaeological excavation). Mitigation options are selected on a case-by-case review and are tailored to the distinct values of the property and the planning options available within the project design. Once the agency and the State Historic Preservation Office agree on the mitigation measures for eligible properties and the conditions or stipulations have been met, the project may proceed.

The FS relies on its relationship and consultation with tribes to identify areas of tribal importance that may be impacted by FS actions. The consultation process affords both Tribes and the FS opportunities to identify sites, interests, and values of tribal importance as well as to design protective measures that avoid or mitigate effects to cultural or historical resources that are important to tribes.

Land use management plans, heritage reports, survey and research information, information from FS heritage resource specialists, and consultation with Tribe members are the primary sources of information used for this analysis.

## Lands

The total acres of NFS lands are derived using a GIS measuring process. The total is comprised of lands under FS jurisdiction both within and outside of the proclaimed NFS boundary. The total acres of non-NFS lands are provided by the Washington Office Lands group and are only those lands within the proclaimed NFS boundary. The data source for the number of special use authorizations is the national special uses data system.

The FS uses the Land Status Record System (LSRS) as the repository for realty records and land title documents. The LSRS includes accurate information on ownership acreages, condition of title, administrative jurisdiction, rights held by the United States, administrative and legal use restrictions, encumbrances, and access rights on land or interests in land in the NFS.

The FS uses the Special Uses Data System (SUDS) to create and administer special use authorizations. The data in SUDS is supported by hard copy files at Ranger District and Forest Supervisor's offices.

The FS uses the Title Claims and Encroachments Program to store data related to encroachments. This program provides a consistent, standard, operating method to inventory, process, and resolve title claims and encroachment cases, and sort the data needed to prepare summary reports for management. The primary focus of Title Claims and Encroachments Program is the defense and protection of the lands and title of the public's estate managed by the FS.

## Infrastructure

Information used to conduct the analysis generally comes from the national Infrastructure database. This database is a collection of web-based data entry forms, reporting tools, and mapping tools (GIS) that enable forest staff to manage and report accurate information about their inventory of constructed features and land units.



## Social and Economics

### Scale

The spatial scale for the Social and Economic analysis was determined as part of the Assessment process. Several factors were considered including FS staff expertise, commuting patterns, recreational visitation, trade, travel corridors, social and cultural identity and timber processing areas. The temporal scope is the life of the plan (approximately 15 years). For a complete discussion of the process for determining the analysis area, please see the Helena-Lewis and Clark Assessment (Ch 5, p2), as well as the USDA Forest Service Protocols for Delineation of Economic Impact Analysis Areas (METI Corp/Economic Insights of Colorado, 2010).

### Analysis

Economic and social benefits of the Forest are measured by identifying how ecosystem services (including multiple uses), infrastructure and operations, either directly or indirectly, contribute to economic and social sustainability. Specifically, ecosystem services are those societal benefits the Forest provides, including both goods and services, that 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 Forest staff provide such as fire suppression and educational programs.

The FS manages NFS lands according to the principle of multiple use. This principle allows the agency to manage land for a variety of uses, including amenity, commodity, non-commodity, and recreation. The Multiple-Use Sustained-Yield Act (P.L. 104–333) formalized this management philosophy, stating that the FS is to manage resources to best meet the needs of the American public, with flexibility to provide for “periodic adjustments in use to conform to changing needs and conditions” (Section 4(a) of the Act [16 U.S.C. 531]). For instance, areas suitable for timber production may contribute to the local economy by sustaining timber sector jobs and income; thereby maintaining social fabric and lifestyles of the community. Wilderness areas generate significant social well-being by providing world-class recreational settings and inspiration. Visitors from near and far may benefit from experiencing solitude in these pristine locations while contributing to the regional economy (i.e. travel and tourism related sectors) in terms of jobs, income, and other economic activities.

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

Societal benefits of the Forest are used and/or valued differently by different groups and communities. The Assessment provided a brief overview of social and economic conditions and highlighted the benefits the Forest provides to the affected communities. In the Affected Environment section, the social and economic conditions of affected communities are summarized alongside a discussion of the key societal benefits the Forest provides to beneficiaries.

### Livestock Grazing

The analysis area includes NFS rangelands within grazing allotments across the entire HLC NF planning area. While the HLC NF has been combined into one administrative unit, the 1986 Forest Plan guidance and much of the available data is split by the old forest boundaries. Therefore, the units may be described separately where appropriate in the analysis. A portion of the Beaverhead-Deerlodge National Forest lies within the Elkhorns GA, and revision of management direction for this area will take place within the 2021 Land Management Plan.

The proposed action and alternatives to the proposed action include components that describe actions that may, or may not, impact the management of grazing livestock. For this analysis, each alternative is evaluated using one or more key indicators to determine the overall impacts to livestock grazing on NFS land. When the degree of impact cannot be quantified, a qualitative assessment is used based on professional judgment and, when possible, in conjunction with available data.

## Geology, Energy, and Minerals

There are approximately 2,883,227 acres of NFS lands that are the administrative responsibility of the Forest. This is the result of the original Congressionally designated lands and the conveyances (acquisitions, disposals, and exchanges) that have occurred to date.

The acres that are available for locatable mineral development are determined by subtracting the number of acres that are withdrawn from locatable mineral entry from the total number of acres for the HLC NF. The number of acres that are withdrawn from mineral entry is a matter of record. By law, the Bureau of Land Management is the keeper of these official records in the General Land Office.

The number of acres that are available for leasing proposals is determined by subtracting the number of acres that are legally unavailable from the total number of acres on the HLC NF. There are no active leases on the forest aside from one lease (Solonex) which has been subject to litigation. A leasing decision is not a part of the 2021 Land Management Plan.

The number of acres that are available for disposal of mineral materials is determined by subtracting the number of acres where the FS has exercised its discretion to refrain from authorizing the disposal of mineral materials from the total number of acres on the HLC NF.

## Climate and Carbon Sequestration

See appendix J.

## Literature

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# Appendix C. Aquatic Ecosystems Best Available Scientific Information

## Table of Contents

Introduction ..... 1

Streams and riparian areas ..... 1

    Stream and riparian area management..... 1

        Bank stability and livestock grazing .....2

        Large wood .....2

        Livestock grazing .....3

        Wildland fire .....3

        Motorized trails, travel management, and roads .....4

    Riparian management zones ..... 6

        Ecological functions and width .....6

        Water temperature.....7

    Water quality: sediment and nutrients..... 8

        Vegetation management .....9

    Wetlands and groundwater ..... 10

        Vegetation management .....11

        Livestock grazing .....12

    Riparian dependent terrestrial species..... 12

Fisheries and other aquatic species ..... 13

    Aquatic invasive species..... 16

    Conservation watershed network ..... 17

Soils ..... 17

    Overview ..... 17

    Ability of soil to maintain ecological functions ..... 18

    Soil impairments and disturbances..... 20

Future climate and fire influences on aquatic ecosystems ..... 21

    Impacts to streams and riparian areas ..... 22

        Restoration treatments in riparian areas.....22

    Impacts to fisheries and other aquatic species ..... 23

    Future climate impacts to soils ..... 25

Literature ..... 26

## Figures

Figure 1. Total Snowbank and Copper Creeks bull trout redd counts 1984-2017 ..... 15

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## Introduction

This appendix provides a summary of the best available science (BASIS) used to support the aquatic ecosystems analysis found in the body of the DEIS.

## Streams and riparian areas

### Stream and riparian area management

Studies in the 1960s and 1970s documented harmful effects that timber harvest and road-building, at that time, had on streams, and in response agencies began passing a series of management requirements for activities on state and federal lands near streams. These are referred to as “best management practices” (BMPs). Everest and Reeves (2007) disclosed the following regarding the development of BMPs for the Pacific Northwest: “They [BMPs] were developed through the normative process that weighed, evaluated, and incorporated many types of information. The BASIS for protection of riparian and aquatic habitats was not always incorporated into forest practice rules” (p. 77). This was repeated several times even as successive monitoring efforts continued to document degraded stream conditions (Gordon H. Reeves, Olson, et al., 2016).

A crisis point was reached in the early 1990s in the western U.S. when several stocks of salmon and trout were reaching critically low numbers (Nehlsen, Williams, & Lichatowich, 1991) and ultimately were listed as threatened or endangered under the Endangered Species Act (ESA). By the mid-1990s, the FS and BLM had completed three broad-reaching documents (hereafter referred to collectively as “the strategies”) that amended forest plans across much of the public lands in the northwest to improve their conservation function. INFISH (U.S. Department of Agriculture, Forest Service, Intermountain, Northern, and Pacific Northwest Regions, 1995) addressed inland native fish habitat management including bull trout that were not covered within the geographic scope of the Pacific Anadromous Fish strategy (PACFISH). This includes parts of Idaho and Montana including the Blackfoot and Upper Clark Fork drainage.

One feature of the strategies was the extension of the distance from the stream of riparian management zones (RMZs; i.e., riparian reserves in the Northwest Forest Plan) and riparian habitat conservation areas to better protect ecological processes next to streams. Also, the precautionary principle was invoked. Reeves et al. (2016) described this principle as, “Forest managers who wanted to alter the comprehensive default prescriptions for riparian management under the [Northwest Forest Plan] in order to pursue other management goals were required to demonstrate through watershed analysis that changes would not compromise established riparian-management goals.” Not only did the burden of proof shift, these new strategies also required managers to consider ecological processes at the watershed scale. The components used in the Northwest Forest Plan, including the concept of the precautionary principle, were included in PACFISH and INFISH.

Riparian management has remained controversial, in part because of competing values and uses (Lee, Smyth, & Boutin, 2004). Strategies employed by the Northwest Forest Plan, PACFISH, and INFISH appear to have been successful at halting the loss of old growth due to harvest within riparian areas and limiting damage to aquatic systems in the Pacific Northwest (J. W. Thomas, Franklin, Gordon, & Johnson, 2006) and the intermountain region. However, some suggest a protection mindset emerged that has prevented management within riparian areas that would be desirable to sustain and/or promote ecological processes beneficial to aquatic or terrestrial ecosystems (Liquori, Martin, Coats, & Ganz, 2008; Ryan & Calhoun, 2010; J. W. Thomas et al., 2006). Speaking of the need to restore ecological conditions

and make good on social, economic, and ecological commitments in the Northwest Forest Plan, Thomas et al. (2006) wrote, “Minimization of short-term risks (the modus operandi of regulatory agencies and the federal courts) has a price tag, and a very big one, related to significantly increased longer-term risks of failure to meet objectives over very long time frames. Unless the federal agencies consider the peril of inaction equal to the peril of action, the goals of the [Northwest Forest Plan] will not be reached.” Richardson, Naiman, and Bisson (2012) wrote: “In an increasingly complicated management arena, the challenge will be to find alternatives to fixed width buffers that meet the multiple objectives of providing clean water (minimizing nutrient and sediment inputs), aquatic habitat, habitat for riparian species, connectivity across landscapes, and related responses.”

## Bank stability and livestock grazing

Bank stability is discussed here as an ecological process; especially as it relates to the effects of anthropogenic activities. In addition to bank degradation that could occur as a result of vegetation management, it can also occur from dispersed recreation and grazing.

Bank stability on low gradient stream reaches that support cold water fish species are of particular concern and are susceptible to livestock overuse. Riparian vegetation that stabilizes the banks has the best opportunity to slow velocity and induce deposition of materials, and recreate channel pattern, profile, and dimension appropriate for the landscape setting. Where streambank instability due to vegetation removal or changes in channel form may arise from channel widening or channel incision, vegetation along the greenline is most critical for maintaining stability. When livestock grazing is closely managed and monitored by professional land managers, assumptions are made that some degree of cattle use is compatible with riparian ecosystem management and that trends towards desired conditions can be achieved while cattle graze the area (Armour, Duff, & Wayne, 1994; Robert L. Beschta, Bilby, Brown, Holtby, & Hofstra, 1987; Bryant et al., 2004; Clary & Webster, 1990; Johnson, 1992; Platt, 1991);(Hanson, Wullschleger, Bohlman, & Todd, 1993).

Most of the literature reviewed pertains to varied conditions found in western riparian areas and is most applicable to riparian areas in sagebrush grasslands, western interior forests and prairie settings. Many of these rangelands can be affected by varying amount of grazing use. A publication discussing grazing in southwest Montana disclosed some of the history of grazing and focused attention on the stream channel response and management options (Benegyfield, 2006). Extensive grazing by both wild and domestic ungulates can remove woody plants (Batchelor, Ripple, Wilson, & Painter, 2015), reduce the vigor of perennial forbs and grasses, and cause channel profile and function changes via bank collapse on low gradient streams (Benegyfield, 2006; Trimble & Mendel, 1995). Widening channels, increased stream temperature, increased fine sediment, altered bank structure and loss of overhanging vegetation that may occur from excessive grazing (Kershner, Roper, Bouwes, Henderson, & Archer, 2004; Myers & Swanson, 1996) is often harmful to aquatic fauna, especially cold-water dependent species (Belsky, Matzke, & Uselman, 1999; Saunders & Fausch, 2007). Furthermore, some studies have demonstrated trout respond positively to livestock exclusion (Sievers, Hale, & Morrongiello, 2017), though mechanisms are not clearly understood.

## Large wood

The fate of large wood in streams has been an important focus for aquatic scientists and managers in the western U.S. for decades (Richardson et al., 2012). Up until the 1980s, many managers were concerned about how wood in streams affected water quality and about how accumulations of wood in streams could sometimes block fish migration. These concerns led to instream wood removal programs (Mellina & Hinch, 2009). By the 1980s, scientists more fully recognized wood’s role in channel formation and maintenance (J. W. Thomas & Raphael, 1993). As with stream temperature, the precautionary principle

applied by the strategies to riparian reserves and riparian habitat conservation areas also ensured that the interim widths were set wide enough to encompass any trees that could be delivered to streams, especially the two-tree width for fish-bearing streams (Everest & Reeves, 2007).

Regarding the riparian width needed to ensure streamside wood delivery to streams, debate and scientific inquiry has continued since the strategies were adopted. Studies have been completed to help identify where wood in streams comes from (L. Benda, Miller, Bigelow, & Andras, 2003; Gordon H. Reeves, Burnett, & McGarry, 2003) and the fate of wood once it is delivered above or to the stream (T. J. Beechie, Pess, Kennard, Bilby, & Bolton, 2000). In addition to streamside delivery, disturbance combined with topography can deliver a significant percentage from outside riparian management zones, especially steeper watersheds that are more dissected. Models have also been developed to help identify the likelihood of riparian trees being delivered to the stream channel (L. Benda et al., 2003; Meleason, Gregory, & Bolte, 2003; Pollock, Beechie, & Imaki, 2012; T. Spies, Pollock, Reeves, & Beechie, 2013; Welty et al., 2002). Models focused on wood delivery from the riparian areas consider distance from the stream, median tree height, and the direction that trees fall. Benda and others. (2016) also discuss how to implement tree tipping (manually falling trees into a stream) to balance the effects of thinning dense second-growth stands to accelerate large wood development. Modeling completed by Meleason and others (2003) found that > 90 percent of wood was contributed from within 30 meters of the stream edge for modeled conifer riparian stands in western Oregon and Washington. In a literature review, Spies and others (2013) found that 95 percent of wood delivered to streams from hardwood stands came from within 82 feet, and from conifer stands from within 148 feet, in forests in the western cascades of Oregon and Washington.

## Livestock grazing

The primary grazing areas that have low enough precipitation and high enough evaporation rates to support grass communities, instead of coniferous stands, tend to occur in the warmer, lower elevation areas that may also include losing stream reaches. Although the losing flows in these areas tend to be principally geologically controlled, grazing related impairments can also contribute to stream-flow loss. Mechanisms include reductions in shade canopy, disruption of beaver created water storage in flood-plains and altering width-depth entrenchment ratios. These same impairment related mechanisms often lead to an increase in water temperatures in the stream. Additional grazing related impairments are increased sediment yields and in-channel storage of fine sediments, which also impact stream channel form, function and fish habitat. Across the planning area, fine sediments are almost always darker in color than native gravels and larger sized substrates. The combination of a higher width-depth ratio and a reduced shade canopy results in higher solar radiation absorption increasing water temperatures, decreasing food production, and reducing the quality of aquatic habitat.

## Wildland fire

Under natural fire regimes, fire that burned into riparian areas was influenced by a combination of factors, including weather (i.e., wind speed and direction), fuels/vegetation conditions (i.e., moisture level, downed wood, forest densities and tree species), terrain (i.e., steepness as it may affect spread of fire), climatic conditions (i.e., drought period), and just plain chance. See fire and fuels section for a description of fire history in the planning area.

Fire occurrence historically varied with vegetation type, aspect, and elevation differences. High severity fire occurrence in forested vegetation types ranged from 35 – 200 years and were typically associated with extended dry climatic periods. These types of fires would often burn at high or moderate severity through riparian areas as well, especially in the steep, deeply incised stream channels typical across much of the planning area. These fires converted forests to an early successional stage dominated by grasses,

forbs, shrubs, and seedling trees. Though openings might be large and extend to the edge of streams or wetlands, in the relatively moist sites of riparian areas they typically revegetate rapidly. There is often a higher diversity and density of plants in riparian areas in this early successional stage compared to upland terrestrial sites, including broadleaved trees (such as aspen, birch and cottonwood) that benefit from the open forest conditions.

## Motorized trails, travel management, and roads

Road networks have been shown to have detrimental effects on water and aquatic resources in forested landscapes when not properly maintained or built in a poor manner. Road systems can change a natural hydrologic regime by altering natural flow patterns and increasing sediment delivery to streams. Roads have been shown to destabilize side-casted material and hillsides, expand the lengths of gullies and stream channels, increase sediment delivery, and alter streamflow and channel adjustments (Furniss, Roelofs, & Yee, 1991; Quigley & Arbelbide, 1997).

Natural drainage patterns are affected long-term by the mere presence of roads. Roads intercept subsurface drainage in cut slopes, capture rainfall on hardened road surfaces, and route excess runoff into the stream channel system. These impacts increase as the road system becomes more connected, in terms of hydrology, to the natural channel network. Where a dense road network is well connected to the stream network, it can be an “extension” of the actual stream network and alter streamflow regimes. These alterations can increase the delivery of water to the mouth of a watershed during snow melts and storm events, which can increase peak flows in streams and water levels in ponds, lakes, and wetlands.

Sediment from the road system can be delivered to streams by direct erosion of cut and fill-slopes associated with stream crossings or by surface runoff from roads and ditches that carries sediment-laden water directly or indirectly to streams. In general, roads lacking surface rock, those with steep grades and steep side slopes, and those that cross streams or are in proximity to streams are the greatest contributors of sediment from surface erosion. In steep terrain, roads can increase the rate of hill slope failures and soil mass wasting. Excessive fine sediment loading can lead to changes in channel morphology and water temperature because of pool filling, widening of the channel, and making the channel shallower, which can result in water temperature increases as a result of having a shortened water column that takes less solar energy to heat. Such changes in channel morphology are typically found at road-stream crossing locations and in response to mass failures associated with road runoff. Sometimes roads capture flow out of the channel and result in the stream re-routing down the road, which typically results in road failure and more sediment delivery to streams.

Vehicular traffic also contributes to sediment delivery from roads, particularly if ruts develop in the road and if traffic is heavy during shoulder seasons when the ground is more saturated. Hauling during timber sales is typically down the same road system for weeks or months at a time, thus the quantity and repeated nature of this traffic make it a systematic, recognizable source of sediment on forest roads.

The location and design of valley bottom roads also create long-term effects on water resources. Many older roads were constructed very close to stream channel areas, often in the floodplain. Poorly placed roads can encroach on stream channel and floodplain areas. Roads can affect stream channels directly if they are located on active floodplains or directly adjacent to stream channels. Often streams were straightened to accommodate road placement. For example, a road located adjacent to a stream can be a chronic source of sediment. If the road changes the morphological characteristics of the stream, this can set forth a chain reaction of channel adjustments that can result in accelerated bed and streambank erosion, which produces excessive sediment.



Not all sediment production from roadways reaches the aquatic system. Many of the aforementioned effects of roads can be mitigated by design changes that disperse, rather than concentrate road runoff. Good design provides stable cut and fill slopes and adequate drainage that allows water to filter through vegetated strips or sediment traps before entering the stream channel. The effectiveness of vegetative strips generally increases with increased width and lower hillslope gradient. However, the effects of large-scale or chronic road impacts may still impact streams even when streams are protected by wide and intact vegetative strips.

Other design elements used to mitigate road interception and runoff are the addition of gravel surfacing and seasonal road closures. Road treatments can upgrade or remove problem culverts to allow sediment and wood to move downstream instead of accumulating upstream of roads and leading to culvert blockage and failure. However, temporary, short-term, and long-term sediment and turbidity increases can occur from project implementation, as well as from post-project stabilization.

Turbidity and sediment increases result from the construction of roads, road grading, ditch cleaning, culvert replacement, road ripping or decompaction, and the installation of water bars due to the heavy equipment excavation that these activities require. Minor amounts of fine sediment would be delivered to streams during implementation of road treatment activities and during the first substantial runoff event. Subsequent runoff events would contribute less sediment production over time but are expected to last up to one year later or until vegetation is established on bare-soil areas adjacent to streams. Design criteria and BMPs are used to minimize the amount of fine sediment entering stream channels while work is in progress and after the work is completed, including promoting vegetation establishment.

Roads that are at high risk of failure and have the potential to cause extensive resource damage are candidates for relocation or decommission. Preferred locations for roads are away from stream channels, riparian areas, steep slopes, high-erosion-hazard areas and areas of high mass movement. Realignment of roads so they traverse riparian areas and streams at perpendicular angles rather than parallel angles would improve the quality of riparian and aquatic habitats in presently impacted stream reaches by reducing chronic sediment sources. If relocation is not possible, seasonal restrictions could limit road damage and subsequent sedimentation.

The potential risk of detrimental effects exists as long as the road is retained. The continued use and existence of roadway segments that interact with stream corridors pose a risk of erosion, slope failure, and sediment delivery to receiving waters. Road obliteration reduces the long-term risk of sediment delivery to streams from roads and road-side ditches by reducing culvert failures and landslides, eliminating vehicular traffic, improving infiltration of water into the ground through decompaction of road surfaces, and reducing overland and ditch flow into streams. While some sediment is expected to be delivered to streams during culvert removal and decommissioning processes, the amount of sediment delivered to streams is expected to be significantly less than would occur if the roads were left under current maintenance. Cook and Dresser (2007) found that stream-crossings that were restored through decommissioning delivered only 3 to 5 percent of the amount of fill material that was originally located at each crossing.

Removal or closure of roads adjacent to streams can have short and long-term positive effects on soil-hydrologic function, soil productivity, and stream water temperature. Trees and other riparian vegetation can recolonize a ripped roadbed and help provide shade. The amount water or stream temperature improves depends on the existing stream shade to block solar radiation, water temperature, the stream's size, and how much riparian road is removed or closed.

## Riparian management zones

The most important change between the current 1986 plan directions for the HLC NF and the 2012 Planning Rule (36 CFR 219.8) is the requirement to establish riparian management zone (RMZ) widths. The 2012 Planning Rule directs that during plan revision efforts, RMZs shall be established in all NFS lands. The 2012 Planning Rules states that the:

(ii) Plans must establish width(s) for RMZs around all lakes, perennial and intermittent streams, and open water wetlands, within which the plan components required by paragraph (a)(3)(i) of this section will apply, giving special attention to land and vegetation for approximately 100 feet from the edges of all perennial streams and lakes.

(A) RMZ width(s) may vary based on ecological or geomorphic factors or type of water body; and will apply unless replaced by a site-specific delineation of the riparian area.

(B) Plan components must ensure that no management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment that seriously and adversely affect water conditions or fish habitat shall be permitted within the RMZs or the site-specific delineated riparian areas.

The Helena NF Plan had riparian areas designated west of the Continental Divide by Amendment Number 14 in 1996, i.e. the 1995 Inland Native Fish Strategy (INFISH) decision. The rest of the HLC NF does not have riparian management areas currently designated.

This section provides background information and a summary of the best available science (BAS) that was used to identify the appropriate widths for designating riparian management areas on the HLC NF.

## Ecological functions and width

Regarding the widths of management areas next to streams, the interim minimum distances listed in INFISH for fish-bearing streams west of the continental divide (300 feet) and permanently flowing non-fish-bearing streams (150 feet) arguably remain the most controversial components of the existing strategies. Numerous studies that have been completed since the strategies were first published investigate how management affects the different ecological processes that are a function of riparian management zones. Though most studies were conducted for riparian habitats west of the continental divide, they were applied throughout the planning area. The ecological processes that function within riparian zones are first discussed individually below and then in combination, as they affect both aquatic and riparian conditions and biota.

After considering new science, Reeves and others (2016) proposed two options to direct management in riparian management zones in the Northwest Forest Plan area. The first option the authors considered was a “one-size-fits-all-approach” that retains the fixed buffer width where the inner 75 feet next to the stream is managed strictly to conserve aquatic function and the outer 75 feet allows ecological forestry to meet other resource objectives, including commercial harvest. The use of the term “ecological forestry” is referring to Franklin and Johnson (2012) and means that harvest retains structural and compositional elements of the pre-harvest stands, follows natural stand development principles, and applies return intervals that are consistent with disturbance regimes and that all management activities and applications are informed by landscape considerations.

The second option, described as a “context- dependent approach” by Reeves and others (2016), does not have a fixed inner width; instead, the inner width is variable and context dependent based on characteristics of the stream reach: “susceptibility to surface erosion, debris flows, thermal loading, and

habitat potential for target fish species.” The second option allows for natural variation and will require more analysis to inform decision-maker choices to benefit all resources. The context-dependent approach depends on landscape considerations that are expected to occur through watershed analysis. Unlike the past, when earlier attempts at watershed analysis struggled because of lack of analytical tools (Gordon H. Reeves, Williams, Burnett, & Gallo, 2006), better tools and data are now readily available (Burnett et al., 2007; Irvine et al., 2015; Isaak, Young, Nagel, Horan, & Groce, 2015; K. S. McKelvey et al., 2016). Although the options were developed for the Northwest Forest Plan Area and therefore are influenced by the conditions in that region, the underlying concepts of both options can be applied to the USFS Northern Region, including the HLC NF.

Debate remains among scientists and the public as to whether active vegetation management should occur anywhere in RMZs, even when large percentages of those zones in many areas across the West were previously managed for strictly economic purposes and no longer match distributions of conditions that would have occurred naturally. Although, the magnitude of commercial harvest in riparian zones is minor on the HLC NF (refer to the Timber section of the EIS), other activities such as mining and road building have had impacts on riparian areas in the planning area. The differing opinions between scientists makes it difficult for managers to design and implement restoration actions in RMZs (Gordon H. Reeves, Olson, et al., 2016). Pollock and Beechie (2014) urge caution when considering vegetation treatments near streams because there are many trade-offs to consider, especially for some terrestrial vertebrate species that depend on large dead wood. Their study shows that emphasizing the development of large-diameter trees via thinning to create key pieces available for streams can have negative consequences for terrestrial vertebrate species. Reeves and others (2016) discuss how tree tipping can be used to offset short-term deficiencies of woody debris in small streams and adjacent riparian areas. Rieman and others (2015) suggest that it is not clear whether the considerable funding expended to date on habitat restoration treatments has been successful. Going forward, they recommend, “(1) a scientific foundation from landscape ecology and the concept of resilience, (2) broad public support, (3) governance for collaboration and integration, and (4) a capacity for learning and adaptation” (p. 124). Monitoring and adaptive management will be essential to continually learn from and refine riparian management, including on sites where only passive management occurs.

Monitoring and research reports over the past 20 years have documented the efficacy of RMZs and their ability to protect the functional attributes for riparian and aquatic resources and water quality. Using stream temperature as a response variable, a study in Oregon found no differences before and after project using a no-cut buffer as small as 25 feet (Groom, Dent, Madsen, & Fleuret, 2011). Similarly, a comprehensive study in Oregon and Washington that evaluated various buffer widths found no increases in stream temperature using a 50 foot buffer (P. D. Anderson & Poage, 2014). The study did point out that the efficacy depended on the adjacent disturbance and contrast in forest canopy. Many researchers suggest that a 30-meter buffer next to fish-bearing and perennial streams is generally likely to be sufficient to protect against temperature increase (P. D. Anderson & Poage, 2014; Gordon H. Reeves, Pickard, et al., 2016; Sweeney & Newbold, 2014; Witt, Barton, Stringer, Kolka, & Cherry, 2016). Even so, considerations of context and geography are also appropriate. In a discussion of fixed-width riparian buffers, Richardson and others (2012) state that although these types of protections are administratively simple to implement at a reach scale, watershed considerations and location within the catchment provide additional important context.

## Water temperature

Among the more commonly studied management concerns, as they relate to ecological processes near streams and determining the appropriate widths for designating riparian management areas on the HLC NF, are the effects of nearby harvest on stream temperature. Initial studies completed by Chen, Franklin,

and Spies (1993) and the Forest Ecosystem Management Assessment Team (1993) found that streamside buffers of approximately 125 meters were needed to protect ecological processes such as wind speed and humidity near streams, which at the time were thought to be able to increase stream temperature. In the Pacific Northwest where Chen and others completed their studies, average site potential tree height next to streams was identified as approximately 50 meters. This finding was partially responsible for the second tree height applied to riparian reserve and riparian habitat conservation area widths in the existing strategies (Everest & Reeves, 2007; Gordon H. Reeves, Pickard, & Johnson 2013).

A study that modeled the effects of riparian reserves on stream temperature in Washington found that the first 10 meters were most important in protecting stream temperature and buffers greater than 30 meters did not appreciably lower stream temperatures (Sridhar, Sansone, LaMarche, Dubin, & Lettenmaier, 2004). A study on headwater stream microclimate by Anderson and others (2007) found that the first 10 meters had the most effect on microclimate above the stream and that temperatures in the streambed increased only when streamside vegetation closer than 50 feet was removed (P. D. Anderson & Poage, 2014). A review of studies by Moore and Wondzell (2005) suggested that a riparian reserve that was the width of one tree height was likely large enough to protect the ecological processes that control stream temperature. A subsequent study (Rykken, Chan, & Moldenke, 2007) found that stream effects helped to offset edge effects documented by Chen and others (1993). While Pollock and others (2009) did not find a correlation between recent (greater than 20 year old) streamside harvest 600 feet upstream of a monitoring site and increased stream temperature, they did find a significant relationship between basins that had greater than 25 percent harvest in the last 40 years and increased stream temperature. While the increased temperature reported (Pollock et al., 2009) was significant, it is unclear if there is a corresponding biological effect on native salmonids in the region where the studies were conducted (Gordon H. Reeves et al., 2013). For example, if a substantial rise in water temperature does not become a limiting factor in a stream reach, it may not have an effect. However, if the rise exceeds the thermal limits or growth optima of a species, negative effects would be realized.

For the past generation, many researchers suggest that a 30 meter buffer next to fish bearing and perennial streams is generally likely to be sufficient to protect against temperature increase (Gordon H. Reeves, Olson, et al., 2016; Sweeney & Newbold, 2014; Witt et al., 2016). Even so, considerations of context and geography are also appropriate. In a discussion of fixed width riparian buffers, Richardson and others (2012) stated that while these types of protections are administratively simple to implement at a reach scale, watershed considerations and location within the catchment provide additional important context. While the best available science indicates there could be some flexibility for management, this strategy does not recommend changing the widths of inner and outer riparian reserves.

## Water quality: sediment and nutrients

Forest management practices such as road building and harvest have long been a concern regarding their potential to generate fine sediment and subsequent effect on water quality (Robert L. Beschta, 1978). Grazing impacts are also major sediment source as cattle can effect streambank stability and streambank vegetative protection (Clary & Kinney, 2002; Clary & Webster, 1990). Altered sediment rates have also been linked to changes in stream condition and ultimately trout and salmon survival in cold water streams (Clary & Webster, 1990; Jensen, Steel, Fullerton, & Pess, 2009). Some activities that led to degraded stream conditions and water quality, i.e. clearcutting next to streams and aggressive forest road building, are highly unlikely to occur present day on NFS lands in the Northern region. Reductions in sediment and nutrient delivery have resulted from sequentially improving BMPs (Everest & Reeves, 2007) and regional strategies that have offered greater protection (USDA, 1995a). In recent decades, researchers interested in forest management and water quality have investigated the effectiveness of management policy and law (T. C. Brown, Brown, & Binkley, 1993; Cristan, Aust, Bolding, Barrett, & Munsell, 2016; Rashin, Clishe,

Loch, & Bell, 2006). In general, the latest Forest BMP reviews have found very little unnatural introductions of total suspended sediments and nutrients when BMPs are properly installed before activities begin and maintained throughout management efforts (Cristan et al., 2016; Sugden et al., 2012). Increased nitrogen levels may be an exception and may still present as elevated outside of natural conditions (Gravelle, Ice, Link, & Cook, 2009). Directions carried forward from existing strategies combined with conservation and improvement strategies discussed elsewhere in this document should help to continue improving trends.

For the water resource and quality, BASI was used to inform this FEIS. The data and reports provide background information on the current and historic water quality conditions across the HLC NF. Across the planning area, water quality monitoring in conjunction with forest project activities have been occurring since the last forest plan was developed. The HLC NF has extensive watershed monitoring programs. For more than three decades, data have been collected at monitoring sites in timber sales and other major projects. The number of years of data collection at each site has varied based on project needs. The forest used other data including various total maximum daily loads inventory and monitoring programs, the Youth Forest Monitoring Program, and monitoring done by other governmental agencies (e.g. MT DEQ, US EPA).

## Vegetation management

Managing vegetation on forest lands can impair water quality by routing runoff and sediment onto bottomland stream areas. Over the last planning period, management addressed these impacts by regulating the extent of upland timber harvest, applied BMPs to limit connection from impervious surfaces, and minimized entries into riparian habitat conservation areas to provide protection from upslope activities and filter runoff. The use of these BMPs were instituted in the 1980s to control non-point source pollution (Binkley & Brown, 1993), and the riparian habitat conservation areas were established with the INFISH amendment in 1995. Using results from State of Montana audits, the FS BMPs were effective 96 percent of the time (Ziesak, 2015). Using a similar audit scheme, the FS was 100 percent effective in establishing the correct buffer to meet the State of Montana design standards for streamside management zones (SMZs).

Forest management disturbs uplands through removal of tree canopy and the yarding of the material to a central processing facility. Site preparation historically reduced groundcover by broadcast burning remaining vegetation to bare soil for planting and clear remaining fuels. The practice in the 1980s produced higher severity fire because the purposeful clearing of vegetation also removed protective groundcover. The HLC NF has largely moved away from this practice with either mechanical piling/burning or prescribed fire as primary methods for reducing hazardous fuels. A change in contemporary timber practices to whole tree yarding has further reduced remaining vegetation while preserving protective groundcover covering at least 85 percent of the area based on soil monitoring data.

Studies have documented increased sediment erosion associated with timber harvest, but the primary agent is sediment from roads (Charles H. Luce & Black, 1999; Sugden & Woods, 2007). Management controls non-point delivery of sediment in harvest areas through the use of water and soil conservation practices and BMPs (FSH 2509.22.10, R1/R4 Amendment 1) (USDA, 2012), oriented on the stabilization of log skidding and landing networks where erosion is most probable. Otherwise, forests generally have very low erosion rates with chronic erosion after disturbance lasting typically one to three years (William J. Elliot, Hall, & Scheele, 2000). After timber harvest and site preparation, regrowth of vegetation covers the soil surface with plant litter, soils armor, and potential erosion hazard becomes low (ibid).

Where prescribed fire is applied and blackens the area, the runoff can increase from reduced infiltration. Blackened soil areas can accelerate runoff due to soil sealing from ash that lowers the infiltration capacity

of soils (Doerr et al., 2006). These conditions vary spatially and decrease over the first year as products of burning in the soil degrade (ibid). Natural forest conditions have hydrophobic conditions that resist infiltration when soils dry and from plant litter waxes, but the main difference is that burned areas lack surface roughness to dissipate rain splash energy and interrupt runoff. Other factors that increase runoff from harvest and burn areas are steep slopes, low groundcover, and long slope lengths (W. J. Elliot, 2013). Runoff transports loose soil particles and deposits sediment down the slope proportional to runoff energy. One reason sedimentation decreases over time is that the sediment supply decreases after bare surfaces armor, lacking a ready sediment supply. Over the past planning period, management has mitigated prescribed fire by not lighting fire within stream buffer areas and burning during cool and moist conditions that results in low and moderate severity fire.

The loss of forest canopy on harvest sites changes the water balance, and studies in the Pacific Northwest have documented cases where excess water from harvest areas influence peak and timing of stream flows (S. C. Anderson, Moore, McClure, Dulvy, & Cooper, 2015; Keppeler & Ziemer, 1990; Moore & Wondzell, 2005; Stednick, 1996). In reviews, these cases depended largely on the extent of harvest and climatic regime (Grant, Lewis, Swanson, Cissel, & McDonnell, 2008). The effect diminishes in time as vegetation re-establishes. Peak flow increases were raised as a concern from the potential to alter stream morphology and degrade water quality. The altering of streamflow can also influence stream temperature (Swanston, 1991), although the principle factor in affecting stream temperature is changes to riparian cover that shades streams (Robert L. Beschta et al., 1987; Gomi, Moore, & Dhakal, 2006; L. H. MacDonald & Stednick, 2003).

Watershed yield studies specifically targeted timber harvest activities that would generate a response and may not necessarily mimic current forest practices. Beschta and others (2000) found a weak relationship between forest harvest and increased peak flows, and reported “mixed messages” about the relationship between forest harvest and peak flow responses. Numerous studies documented the effects of forest canopy removal on peak flows in the Pacific Northwest (R. L. Beschta et al., 2000; Hubbart, Link, Gravelle, & Elliot, 2007; Jones & Grant, 1996; Kuras, Alila, & Weiler, 2012; R. F. Thomas & F., 1998; Tonina et al., 2008), but surprisingly, very few demonstrated a direct link between water yield/peak flow changes and measured channel impacts in forested environments. In the latest review for Pacific Northwest studies, Grant and others (2008) suggested that if degradation were to occur, channels most sensitive to peak flow changes are low gradient (less than 2%) with gravel bed and sand bed substrates.

The concern over changes to peak flow from timber harvest was raised when timber was harvested on a larger scale than current. The HLC NF no longer harvests timber at a rate seen in the 1970s to 1990s. Average annual harvest rates were 15 to 30 million board feet (23,525 acres) in the 80s compared to roughly 6 to 7 million board feet (4,397 acres) in 2012 and 2013 (see Timber section). In addition, many of the classic watershed studies could not disentangle the effects from roads where at least 2 percent of the study areas had roads and skidding network (Grant et al., 2008). Forest management has somewhat alleviated these effects by establishing streamside buffer zones (riparian habitat conservation areas with INFISH), reducing road construction and implementing best management practices.

## Wetlands and groundwater

A key factor that determines wetland type and function is water regime. Water regime pertains to the depth, duration (hydro period), frequency, diurnal fluctuation, and seasonal timing of groundwater and surface water. A large suite of variables – not just water yield, peak flow, and base flow - have been used as “indicators” to describe hydrologic change in watersheds, streams, and rivers (Gao, Vogel, Kroll, Poff, & Olden, 2009; Konrad, Booth, & Burges, 2005; Merritt, Scott, Poff, Auble, & Lytle, 2010; N. L. Poff,

2009; N. Leroy Poff, Bledsoe, & Cuhaciyan, 2006; N. L. Poff & Zimmerman, 2010). A similarly large number could be used to characterize changes in wetlands.

In general terms, some indicator variables that apply to estimating the hydrologic effects of vegetation management on wetlands include:

- volume of water inputting to wetland (i.e., water yield of contributing area) and its timing
- peak water level or flow within the wetland: magnitude (depth or rate) and timing
- minimum water level or flow: magnitude (depth or rate) and timing
- percentage of days annually with surface water or measurable flow (both continuous and total)
- fluctuation (variance) in water level or flow: daily or annual
- percent of wetland water budget derived from groundwater vs. surface runoff vs. direct precipitation (and snow vs. rain)

Small isolated headwater wetlands are perhaps most at risk from hydrologic changes occurring in their catchments because their hydrologic inputs are usually the least. In glaciated landscapes, some wetlands that comprise only one-third of their catchment area can produce 50-70% of the annual streamflow, because wetlands often occur where groundwater intercepts the land surface (Verry, Brooks, Nichols, Ferris, & Sebestyen, 2011).

## Vegetation management

Many but not all studies have shown that removal of trees near a stream or in a wetland causes a mean annual rise in the local water table (A. E. Brown, Zhang, McMahon, Western, & Vertessy, 2005; Grant et al., 2008; Guillemette, Plamondon, Prevost, & Levesque, 2005; Mallik & Teichert, 2009; L. B. Miller, McQueen, & Chapman, 1997; Moore & Wondzell, 2005; Scherer & Pike, 2003; Smerdon, Redding, & Beckers, 2009; Stednick, 1996, 2008; Charles A. Troendle, MacDonald, Luce, & Larsen, 2010; Winkler et al., 2010). As regeneration occurs in cutover areas, the previous rates and amounts of water transfer between uplands and wetlands return. This usually begins within 3-7 years post-harvest (R. L. Beschta et al., 2000) - less if the area has not been clearcut (R. B. Thomas & Megahan, 1998). Hydrologic recovery to preharvest conditions takes 10 to 20 years in some coastal watersheds but may take many decades longer in mountainous, snow-dominated catchments (Moore & Wondzell, 2005; Whitaker, Alila, Beckers, & Toews, 2002).

The probability of a harvest operation having an effect on a wetland's water regime is greatest if trees are removed directly from a wetland or, if removed from outside the wetland, the removal occurs close to and upslope from the wetland. Several other factors influence the degree to which tree removal causes water tables to rise. Especially on windy south-facing forest edges during the summer, tree roots can transfer large amounts of soil moisture to foliage and then to the atmosphere via transpiration and evaporation (Keim & Skaugset, 2003). This effectively removes some of the water before it can reach wetlands and streams. Trees also intercept significant volumes of rain and especially snow, allowing some of that retained water to evaporate before it can reach wetlands and streams located farther downslope (C. A. Troendle & King, 1987; Winkler, Spittlehouse, & Golding, 2005). Thus, when trees are removed from within or above a wetland that potential source of liquid water becomes available, the water table often rises, and the wetland may receive more water.

This has been suggested by the data from many studies of streams and watersheds in the Pacific Northwest (R. L. Beschta et al., 2000; Hetherington, 1987; Hudson, 2001; Jones & Grant, 1996; J. S. Macdonald, Beaudry, MacIsaac, & Herunter, 2003; McFarlane, 2001; R. B. Thomas & Megahan, 1998;

C. A. Troendle & Reuss, 1997). If resulting increases in peak flows are great, the morphology of channels can be affected (Grant et al., 2008). This can create, expand, or shrink wetlands. Depending on the soils and topography, the slash burning and soil compaction components of some harvest operations provide additional surface runoff to wetlands, at least during a few years post-harvest (Lamontagne, Schiff, & Elgood, 2000). In addition, in snow-affected areas, clear-cuts have sometimes been shown to cause greater runoff during rain-on-snow events (Berris & Harr, 1987) and earlier peaking of streamflow (or wetland water levels).

On the other hand, harvest might measurably reduce runoff to streams and wetlands in some parts of the Pacific Northwest during low runoff periods, partly by temporarily eliminating trees that otherwise contribute water by intercepting fog (R. D. Harr, 1982; R. Dennis Harr, 1983). During the autumn, streams in clearcut watersheds in the Pacific Northwest tend to have lower flows than in uncut watersheds (R. D. Harr, Harper, Krygier, & Hsieh, 1975). Also, cutting or windthrow of trees in or near wetlands can increase open-water evaporation sufficiently to reduce water persistence in late summer (Petroni, Silins, & Devito, 2007), especially in larger wetlands and/or in drier parts of the Pacific Northwest.

### Livestock grazing

In some cases, grazing has the potential to damage springs and other types of groundwater dependent wetland habitats. These off-channel aquatic features have incredibly high biodiversity and serve important ecosystem functions. They are also attractive to livestock as they offer palatable browse and flat, cool resting spots. If not properly managed, this conflict can lead to water quality issues, damaged organic soils, and reduced wildlife habitat. Impacts to these areas are commonly noticeable earlier in the grazing season than most other types of sites within pastures. Actions in response to this use pattern has typically been to fence-off these features when damage has been repeatedly noted. This is effective as long as fences can be consistently maintained. Maintenance failure can result in higher levels of damage as cattle may remain there longer as they move further away from the point of entry, limiting access to outside the enclosure. Adaptive management has been implemented in some areas to resolve localized issues.

### Riparian dependent terrestrial species

BASI, since the Strategies were published, has sharpened focus on aquatic/riparian interactions. One review found that buffers wider than 30 meters are large enough to protect water quality and aquatic biota in small streams (Sweeney & Newbold, 2014). In some circumstances, such as a narrow band of riparian dependent vegetation alongside an intermittent stream that has low connectivity, these characteristics could lead to a reduced width for the RMZ if only aquatic functions are being considered. However, RMZs have had increasing focus applied to their ability to support terrestrial organisms and processes. Starting as far back as the Forest Ecosystem Management Team (1993), “Protection of riparian-associated terrestrial organisms has become an explicit conservation objective associated with protection of streams (Richardson et al., 2012).” Numerous studies have published research on riparian use by species from invertebrates (Bunnell & Houde, 2010) to amphibians (Olson & Burton, 2014) and from mammals (Kevin S. McKelvey & Buotte, in press; Wilk, Raphael, Nations, & Ricklefs, 2010) to avifauna (Lehmkuhl et al., 2007) (T. A. Spies, Stine, Gravenmier, Long, & Reilly, 2018).

Science published on wildlife use of the riparian area is more varied and subsequently more complicated. In a literature review considering appropriate widths for RMZs, Wenger (1999) found that buffer distances reported to protect terrestrial wildlife ranged from as little a few feet to over 1000 feet. A distance of 300 feet was recommended for most wildlife acknowledging that the distance might be difficult to implement in all management applications. Lee and others (2004) completed a literature review of management prescriptions next to water bodies in both Canada and the U.S. They found that while prescriptions for buffer widths varied by water type such as wetlands, intermittent streams, and fish



bearing streams, they were generally wide enough to protect many of the important riparian processes that support aquatic biota. However, buffers were generally less than recommended widths to protect terrestrial fauna. Marczak and others (2010) found that for buffers less than 50m wide, responses by different taxa became more variable as compared to untreated riparian areas. They also found that taxa did not respond similarly to riparian treatments; edge related species increased in abundance or diversity while some interior associated species declined. Some species presence and abundance remained unchanged. Ultimately, they found that current buffers do not retain terrestrial fauna at levels comparable to unmanaged sites for all taxa. They offered that sometimes upland terrestrial vegetation might need to be combined with the protections that come with RMZs for some sensitive terrestrial species (Semlitsch and Bodie, 2003). They concluded that increases in protections in some locations should be balanced with some riparian areas allowing partial resource extraction (Marczak et al., 2010; Gordon H. Reeves, Pickard, et al., 2016).

Riparian ecosystems are equally important habitat to wildlife for feeding, drinking, cover, breeding seasonal habitat, and habitat connectivity. They are often rich in bear foods such as skunk cabbage and other herbaceous plants with nutritious bulbs. Many wildlife species are associated with riparian ecological systems, including beaver, Canada lynx, grizzly bear, harlequin ducks, and mink. Upland vegetation within riparian areas in combination with the riparian vegetation create zones that provide important wildlife habitat and connectivity values. Most wildlife use RMZs and/or aquatic habitats for at least some of their daily or seasonal needs. Due to their widespread distribution and linear or clustered pattern, they provide extensive and important habitat connectivity areas for numerous species of wildlife. Refer to wildlife section for information on riparian associated wildlife species and habitat connectivity.

During the past few decades, land managers have recognized the importance of riparian ecosystems in maintaining water quality, terrestrial, and aquatic habitat. As a result, riparian conservation measures have been developed for federal, state, and private lands – helping to preserve and protect the integrity of the riparian and wetland habitats, as well as the water quality of associated waterbodies.

## Fisheries and other aquatic species

Around the beginning of the 20th century, the influx of human populations began along with the development of the land and resources to support those populations. This has resulted in many new human-caused disturbances to the watershed systems, and the pattern of many of those disturbances has tended to be a more sustained or “press” disturbance regime. A press disturbance forces an ecosystem to a different domain or set of conditions (G. H. Reeves, Benda, Burnett, Bisson, & Sedell, 1995). Many of those disturbances tend to mimic historic “natural” processes (i.e. livestock grazing and American Bison), but the frequency and intensity has been greatly amplified. In some cases, the watershed systems have begun to adjust to those press disturbances; or have become altered by them, resulting in an inability to support aquatic dependent resources.

Stream habitat degradation in the western U.S. became a great concern in the early 1990s, as well as the potential the loss of salmon, trout, and char populations (Nehlsen et al., 1991; Rieman & McIntyre, 1993). By the mid 1990’s, The FS and BLM completed three broad reaching documents that amended forest plans across much of public lands in the west to improve their conservation function. Two of those documents were: *Record of Decision for Amendments to Forest Service and Bureau of Land Management Land Planning Documents Within the Range of the Northern Spotted Owl* (often referred to as Northwest Forest Plan Record of Decision, 1994); and the *Decision Notice/Decision Record for Interim Strategies for Managing Anadromous Fish-Producing Watersheds on Federal Lands in Eastern Oregon and Washington, Idaho and Portions of California* (USDA, 1995a). Both documents greatly improved protection for migratory salmon and steelhead. These documents influenced the development of the last

of the three broad strategies developed, which was the *Inland Native Fish Strategy-Interim Strategies (INFISH) for Managing Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and Portions of Nevada* (USDA, 1995b). While INFISH was originally expected to last 18 months to three years while an effort similar to the Northwest Forest Plan, the Interior Columbia Basin Ecosystem Management Project (Frissell et al., 2014), was completed for the Interior Columbia River Basin. That strategy was never completed, but science from that effort has been retained in the form of guidance for plan revisions occurring in areas covered by INFISH and PACFISH. Interior Columbia Basin Ecosystem Management Project science and guidance is followed in the 2021 Land Management Plan.

INFISH was designed to maintain options for inland native fish by reducing negative impacts to aquatic habitat. Riparian management objectives, standards and guides, and monitoring requirements were implemented beginning in 1995 to avoid causing further damage and begin recovery of aquatic habitats. The 1986 Helena NF Plan was amended by INFISH in 1996. This strategy is still in effect west of the continental divide on portions of the Divide and all of the Upper Blackfoot GAs of the HLC NF. The INFISH strategy does not apply to those GAs of the HLC NF east of the continental divide.

Since INFISH was implemented, there have been numerous changes to policy, BASI, and the condition of listed species. There have been tremendous advances in knowledge regarding physical habitat and ecological interactions at many scales and across scientific disciplines, as well as advances in spatial data-base management. Scientists findings disclosed in BASI urge managers and biologists working to maintain and improve aquatic habitat to look beyond just the stream reach when considering how best to plan and implement project activities. Climate change science has also emerged as an important aspect of forest and river management since INFISH was adopted.

When instituted, riparian management objectives were considered by many to be an important component of INFISH. Riparian management objectives were developed from PACFISH objectives measured in habitats across the range of anadromous fish in Washington, Oregon, and Idaho. The objectives selected were considered good indicators of ecosystem health, and were thought to be, “a good starting point to describe the desired condition for fish habitat.” (INFISH, p. E-3, 1995- emphasis added). INFISH guidance recommended that riparian management objective values should “be refined to better represent conditions that are attainable in a specific watershed or stream reach based upon local geology, topography, climate and potential vegetation” (USDA, 1995b). Since INFISH was adopted on the Helena NF west of the continental divide, data has been collected and used for comparison purposes in project design, consultation, and monitoring. As indicated in INFISH, the riparian management objectives of pool frequency, width/depth ratio, and supporting feature water temperature categories are applicable to all systems, and large woody debris to forested systems, while bank stability and lower bank angle may apply more to nonforested habitat areas of the HLC NF where specific land uses may affect these habitat features. INFISH did not provide any sediment indicators as riparian management objectives.

Several factors have contributed to the decline of bull trout. Habitat degradation, interaction with exotic species, over harvesting, and fragmentation of habitat by dams and diversions, are all factors contributing to the decline (Rieman & McIntyre, 1995). Historically, bull trout populations were distributed throughout the core areas and in larger tributaries and were in higher densities than they are today.

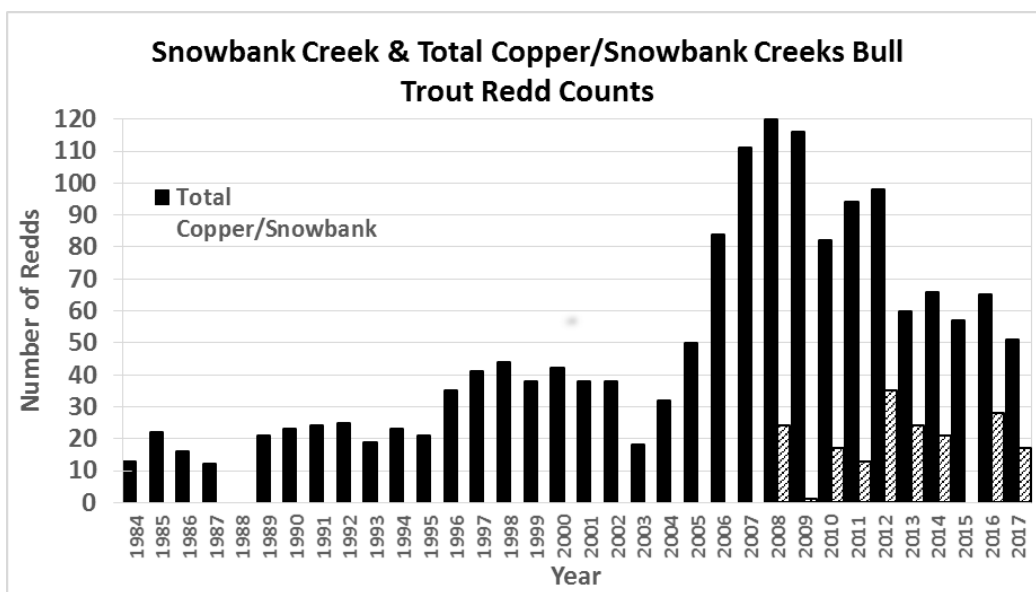
Substantial impacts to the population were likely related to water rights and water diversions, overgrazing, and clearing stream riparian areas. Use of surface waters required diversions, which were not usually screened, led to the entrainment of various age classes of aquatic species. In addition to unscreened diversions, the withdrawal of water from the stream diminished the ability to provide adequate habitat for aquatic species. Clearing of riparian shrubs and damage to streambanks by overgrazing also caused impacts to stream's geomorphology making them wider and warmer. Eroding banks

introduced higher amounts of sediment than could be transported by the streams, which exacerbated stream morphology problems and reduced fish spawning success. Significant timber harvest and road building was also taking place. These activities led to additional increases in fish barriers following the installation of undersized culverts. These barriers resulted in increasing sediment delivery and stream temperatures, as well as other water quality impacts. Many of these impacts have been reduced or eliminated, decreasing some stressors on the population so they no longer play as large a role as they historically did. For instance, fish barriers have been identified as a significant impact and multiple agencies and partners have engaged in removing or upgrading culverts. Also, connectivity has been improved by removing or mitigating local barriers such as irrigation diversion structures on and off forest lands to provide fish passage.

Bull trout spawning occurs in the fall, and the eggs incubate in the stream gravel until hatching in January (Fraley & Shepard, 1989). The alevins remain in the gravel for several more months and emerge as fry in early spring. Unlike many anadromous salmonids, which spawn once and die, bull trout are capable of multi-year spawning (ibid). The historic range of bull trout stretched from California, where the species is now extinct, to the Yukon Territory of Canada (Haas & McPhail, 1991).

Bull trout populations in the Little Blackfoot drainage currently appear to be resident populations. The population trend for spawning bull trout in the primary spawning tributaries (Blackfoot Core Area, Copper and Snowbank Creeks) on the HLC NF shows an overall increasing trend between 1984 and 2017. Total redd counts in the two streams showed the highest numbers counts in 2008 and have decreased since then but still remain above 1984-2005 levels. A critical issue with this monitoring data is the short time scale. In addition to the Index Section initiated in 1984, observations of substantial spawning occurring upstream led to adding the Upper Section on Copper Creek in 1996. Following work that reconnected Snowbank and Copper creeks, a redd count section was established on Snowbank Creek in 2008. Furthermore, the additional downstream section of Copper Creek on NFS lands has been examined to determine if spawning habitat is present. The trends in the number of redds over the past 32 years shows an increase following the 2003 Snow-Talon Fire in the Copper/Snowbank Creeks drainage (Figure 1). As funding allows, the Forest expects to continue to collaborate with MTDFWP and USFWS on completing bull trout redd count surveys.

Figure 1. Total Snowbank and Copper Creeks bull trout redd counts 1984-2017



Historically, bull trout numbers were likely at much higher levels and we assume that the population is still well below its potential. Currently, the main factor limiting recovery of bull trout in the Blackfoot is thought to be the lack of high quality tributaries throughout the watershed (USDA-USFWS, 2013). However, it is unlikely that this impact is entirely responsible for the overall decline. Numerous other impacts have contributed to the decline, including inadvertent angling-related mortality, warming water temperatures, anthropogenic sediment delivery, non-native fish competition and hybridization. Future concerns are anticipated to be associated with the protection of instream flows in an era of increasing human consumption of surface and groundwater since these factors can have profound effects on the habitat requirements of bull trout and connectivity for the migratory fluvial form.

## Aquatic invasive species

Nonnative invasive species are a serious threat to all aquatic habitats in the U.S. The severity of this threat is difficult to assess or predict in this planning area, or in any other specific locality. Virtually every biological lifeform has been a documented agent in disruptive outbreaks in North America. These lifeforms cover the range from viruses to mammals. Included in documented losses to ecologic integrity and beneficial uses are vegetative lifeforms that range from single-cell algae to vascular plants such as nonnative trees.

The ecological and economic impacts of invasions vary greatly in scale. Effects from invasive species also vary with local environmental dynamics and complexity of the ecosystem. For example, whirling disease (*Myxobolus cerebralis*) appears to have produced major changes in the assemblage of fish species in some Montana rivers but not in others. Where ecological disruptions have been noted, there were lost recreational opportunities and revenues for the tourism, outfitting, and related industries. The intensity of effects has been less pervasive, suggesting the conditions and habitat to complete the life cycle requiring two hosts have proven to date to be less suitable than in other waters and/or resistance exists in the salmonid populations.

When a new aquatic invasive species invasion occurs in a locality, it often requires research and observation time before reliable inferences can be made regarding spread patterns, specific effects, and potential containment strategies. A baseline often is lacking to predict how an invasive species from another region or continent will respond when introduced into a new environment. Since a local environment contains a unique assemblage of thousands of interconnected components and processes, the results in one area can vary slightly or significantly from previously infected areas.

Prevention of invasions is of paramount importance in land and natural resource management. If an aquatic invasive species becomes established, elimination may be nearly impossible and efforts for containment can be very difficult, time consuming, and expensive. This involves recognizing the vectors for infection and spread and implementing safeguards, or resource protection measures, to minimize and prevent the transmission of invasive organisms through these pathways. An example of a transmission vector would be heavy equipment, pumps or mineral exploration equipment that come into contact with water. This equipment can be highly mobile from drainage to drainage with some exploration equipment even transported globally between projects, allowing microbes, spores, planktonic larval and adult stages, and plant materials to be easily spread. Effective sanitation and inspection measures are essential resource protection measures.

Spread and introduction vectors are inherent to most projects and types of forest use. Thus, components of the 2021 Land Management Plan require mechanisms for addressing aquatic invasive species. More general or universal objectives and procedures, such as using current BMPs for equipment washing before and after entering an area, are recommended for inclusion. High risk activities within individual resource areas are likely best addressed in resource-specific sections. This better assures that these components are

included as resource protection measures at the project level. These activities would include but aren't limited to; transporting water across drainage boundaries for fire suppression, constructing stream fords, operating equipment in a riparian area and near a water course, and the use of pumps and sumps for mineral exploration, fire suppression, or construction related dewatering activities.

## Conservation watershed network

The BASI indicates the HLC NF is and will be important for conservation of native bull and westslope cutthroat trout within their range. The planning area is located along both sides of the continental divide and it is predicted the planning area would provide cold water refugia into the future due to the effects of climate change being slower in high elevation mountain streams.

Climate shield and temperature models across level 6<sup>th</sup> hydrologic unit codes in the planning area looked closely at where cold water is predicted to persist into the future in the face of climate change. The models identified that cold water is predicted to persist in the sub-watershed in the Blackfoot GA that was identified as a priority watershed under INFISH. HLC NF priority bull trout and westslope cutthroat trout occupied watersheds and designated critical habitat by the USFWS are included in the HLC NF conservation watershed network. Isaak and others (2015) identified bull trout and westslope cutthroat trout probabilities of persistence into the future under different climate warming scenarios as well as cold water refugia. The Climate Shield Model (Isaak et al., 2015) was used as a starting point to identify watershed with cold water that may persist into the future.

At the broadest of scale considerations, information in USFWS bull trout recovery plan was reviewed to help place habitat and core populations located within the HLC NF in context with recovery needs of the species across its range in the western U.S. For recovery units like the Columbia Headwaters, the plan strategy states, “A viable recovery unit should demonstrate that the three primary principles of biodiversity have been met: representation (conserving the breadth of the genetic makeup of the species to conserve its adaptive capabilities); resilience (ensuring that each population is sufficiently large to withstand stochastic events); and redundancy (ensuring a sufficient number of populations to provide a margin of safety for the species to withstand catastrophic events).”

## Soils

### Overview

Soil monitoring data on the HLC NF have demonstrated that allowing ground-based equipment only on slopes below 35 % maintains the level of detrimental soil disturbance below the regional threshold (U.S. Department of Agriculture, Forest Service,, 2017).

Coarse wood debris in the form of slash can provide a practical and effective mitigation for reducing harvest impacts on soil physical function and processes ((R. T. Graham et al., 1994; Harvey, Jurgensen, & Graham, 1989). Leaving harvest slash along skid trails can prevent compaction (Han, Han, Page-Dumroese, & Johnson, 2009) and enhance soil recovery (D. S. Page-Dumroese, Jurgensen, & Terry, 2010). Coarse wood debris contains very little nutrient value (Laiho & Prescott, 1999), but its function as groundcover and tempering soil climate promotes soil biologic activity. Target coarse wood levels balance needs for fuels reduction, soil production and wildlife. Optimal ranges for Montana and Idaho forests were reported as 5 to 20 tons per acre for warm sites and 10 to 30 tons per acre for cooler sites (J. K. Brown, Reinhardt, & Kramer, 2003). Any benefits from road decommissioning will depend largely on site potential for recovery (Switalski, Bissonette, DeLuca, Luce, & Madej, 2004). Road treatments will stabilize the surface from erosion, while soil biology, soil chemical and hydrologic properties slowly

recover as plants recolonize. Lloyd and others (2013) quantified road recovery on the Nez Perce – Clearwater NF, showing faster soil recovery for treated roads where the road prism was outsloped along with some level of revegetation versus abandoned roads. It was found that topsoil developed on treated roads more readily than topsoil on roads abandoned for nearly thirty years.

Adequate canopy and groundcover are the best protections against soil erosion. Overland flow and surface erosion are rare in Rocky Mountain forests (Wondzell & King, 2003). Based on the disturbed Water Erosion Prediction Project model, a soil erosion model amended for forested environments, soil erosion rarely occurs if groundcover exceeds 85% cover (William J. Elliot, Page-Dumroese, & Robichaud, 1999).

The steep topography of the HLC NF naturally predisposes slopes to erosion after wildfires. Erosion caused by intense rainfall following these fires will continue as a natural geomorphology agent as it has occurred episodically in Rocky Mountain forests for millennium (Kirchner et al., 2001; D. Miller, Luce, & Benda, 2003). When taking a closer look over a century scale, fire incidence coincides with warm phases of the Pacific Decadal Oscillation (Morgan, Heyerdahl, & Gibson, 2008). This latest warm cycle has continued with periods of dry springs and hot summers. These conditions align with large scale fire patterns based on tree-ring research (Gray & McCabe, 2010; Madany, Swetnam, & West, 1982). Climate change predictions suggest a continued increase in monthly temperatures along with longer periods of drought that increase the wildfire hazard.

In regards to prescribed burning and wildfires, across blackened areas, the net effect of the burn residue and surface sealing of soil pores can exacerbate erosion potential by slowing infiltration (Larsen et al., 2009; Wondzell & King, 2003). This post burn condition is highly variable spatially and decreases over time (Doerr et al., 2006). One benefit of fuels treatments is that it re-introduces fire into the system. Burning creates a net increase in available nutrients, both in terms of the products of fire contained in ash residue and the higher decomposition rates after the fire. Almost immediately, burning increases the amount of available nitrogen for plants and soil biota (Choromanska & DeLuca, 2002; Hart, DeLuca, Newman, MacKenzie, & Boyle, 2005). In drier habitats, this increase can be detected as much as 50 years after a fire event (McKenzie, Gedalof, Peterson, & Mote, 2004). The burning also produces charcoal production that enhances conditions soil by increasing water holding capacity and providing exchange sites (DeLuca & Aplet, 2008).

## Ability of soil to maintain ecological functions

FSM Chapter 2550 Soil Management identifies six soil functions: soil biology, soil hydrology, nutrient cycling, carbon storage, soil stability and support, and filtering and buffering. Soil is the foundation of the ecosystem; in order to provide multiple uses and ecosystem services in perpetuity, these soil functions need to be active.

The soil biology attributes of note on the Forest are roots and aeration, plant community potential, and thermodynamics. Little information currently exists on the trends of soil biology. It is likely that severe or frequent burns (natural or prescribed) reduce the diversity of the soil biota by reducing the soil organic matter required to support the biota. Similarly, erosion may reduce soil biota diversity. Climate change will likely change the soil biota due to increased accumulation and decomposition of organic matter and changes in soil temperature and moisture. The climate change effects are site specific. Invasive species cover may also reduce soil biota diversity.

Soil hydrology is the ability of the soil to absorb, store, and transmit water both vertically and horizontally. Soil hydrology is extremely important on the Forests because the ecosystem productivity is typically limited by water. Soil can regulate the drainage, flow, and storage of water and solutes, including

nitrogen, phosphorus, pesticides and other nutrients and compounds dissolved in water. When properly functioning, soil partitions water for groundwater recharge and use by plants and animals. Changes in soil bulk density, soil chemistry, soil structure, soil pores, and ground cover can alter soil hydrology. The main impacts to soil hydrology on the Forest are compaction, erosion, loss of vegetation cover, and hydrophobicity from severe burns. Interception by roads also affects soil hydrology. The historic soil impacts from past activities have affected soil hydrology especially in areas where road densities are high.

Nutrient cycling is the movement and exchange of organic and inorganic matter back into the production of living matter. Soil stores, moderates the release of, and cycles nutrients and other elements. During these biogeochemical processes, analogous to the water cycle, nutrients can be transformed into plant available forms, held in the soil, or even lost to the atmosphere or water bodies. Soil is the major ‘switching yard’ for the global cycles of carbon, water, and nutrients. Carbon, nitrogen, phosphorus, and many other nutrients are stored, transformed, and cycled through the soil. Decomposition by soil organisms is at the center of the transformation and cycling of nutrients through the environment. Decomposition liberates carbon and nutrients from the complex material making up life forms and puts them back into biological circulation, so they are available to plants and other organisms. Decomposition also degrades compounds in soil that would be pollutants if they entered ground or surface water. Nutrient cycling can be assessed by considering organic matter composition on a site and the nutrient availability. The major impacts to nutrient cycling are compaction and loss of organic matter and topsoil.

Nearly all nitrogen in forest systems is bound to organic matter. Very little of the total pool of nitrogen is available to plants; only about 2.5 percent of total organic nitrogen is released annually (Grigal & Vance, 2000). The rate of nitrogen release from organic matter (a process called mineralization) is controlled by microbial decomposition, which in turn is controlled by environmental factors as well as the amount and chemical composition of organic matter (Drury, Voroney, & Beauchamp, 1991; Grigal & Vance, 2000). Rates of mineralization are highly spatially variable within stands (Campbell & Gower, 2000). The availability of nitrogen from organic matter has been said to ‘most often limit the productivity of temperate forests’ (Hassett & Zak, 2005). Logging residues are a source of nitrogen during early periods of stand growth after harvest (Hyvonen, Olsson, Lundkvist, & Staaf, 2000; Malkonen, 1976). Dead woody material left after logging provides carbon-rich material for microbes to feed upon; and typically microbial populations increase after forest harvests due to the input of logging residues. When logging residue is removed for fuels management and/or site prep microbial populations may decrease.

Carbon storage is the ability of the soil to store carbon. The carbon cycle illustrates the role of soil in cycling nutrients through the environment. More carbon is stored in soil than in the atmosphere and above-ground biomass combined. Compaction and loss of organic matter and topsoil can be assumed to affect carbon storage.

Soil structure and support gives soil the ability to maintain its porous structure to allow passage of air and water, withstand erosive forces, and provide a medium for plant roots. Soils also provide anchoring support for human structures and protect archeological treasures. Soil support is necessary to anchor plants and buildings. Both flexible (it can be dug) and stable (it can withstand wind and water erosion), soil also provides valuable long-term storage options including protecting archeological treasures and land-filling human garbage. The need for structural support can conflict with other soil uses. For example, soil compaction may be desirable under roads and houses, but can be devastating for the plants growing nearby.

Soil acts as a filter to protect the quality of water, air, and other resources. Toxic compounds or excess nutrients can be degraded or otherwise made unavailable to plants and animals. The minerals and microbes in soil are responsible for filtering, buffering, degrading, immobilizing, and detoxifying organic and inorganic materials, including industrial and municipal by-products and atmospheric deposits. Soil

absorbs contaminants from both water and air. Some of these compounds are degraded by microorganisms in the soil. Others are held safely in place in the soil, preventing contamination of air and water. When the soil system is overloaded, such as with the excess application of fertilizer or manure, or when the soil is unstable, some contaminants will be released back to the air and water through erosion or leaching.

## Soil impairments and disturbances

Land-use and forest practices have affected soil functions, and these functions are intertwined, making it difficult to discuss them separately. Management action such as timber activities, livestock grazing, road management, fuels management, and recreation can all have effects such as compaction, erosion, and loss of organic matter, and can impair the majority of soil functions. While these effects have not been eliminated in current practices, the FS has decreased these types of effects. This reduction, coupled with soil restoration activities, should result in a sustainable or possibly even increased capacity of the soils to support multiple uses and ecosystem services.

Harvesting timber requires machinery to cut and yard trees to landings sites that can compact and displace soils (Cambi, Certini, Neri, & Marchi, 2015; D. S. Page-Dumroese, M. F. Jurgensen, et al., 2010). Intensity and extent of impacts are managed by project mitigation and best management practices. Using soil monitoring, the FS evaluates the efficacy of forest treatments by comparing disturbance extent against soil quality thresholds. When soil disturbance surpasses these thresholds, long-term impairment could occur and the disturbance is considered detrimental to soil quality. Soil surveys have found ground-based harvest and skidding methods have resulted in the highest disturbance levels (U.S. Department of Agriculture, Forest Service, 2017). Contemporary methods have reduced impacts with lower pressure, wider track or tread equipment, although economics and advances in mechanization have driven operators to favor ground-based equipment. Forest monitoring has not found forest treatment intensity to equate to disturbance, because skid trails are a far greater disturbance factor than the degree of tree removal. Soil compaction largely occurs after only three passes by equipment and most pronounced on skid trails (Han et al., 2009; Williamson & Neilsen, 2000). Because the same skid trail networks are used for both thinning and regeneration type harvests they have near equal rates of soil disturbance (Milner, 2015).

Fire impacts soils by consuming organic matter and producing surface conditions prone to soil erosion. The impact is described qualitatively as soil burn severity which conveys the magnitude of energy released from the consumption of fuels and the duration of heating. When fires burn all the above ground biomass and forest floor, a large portion of the nutrient supply is volatilized into the atmosphere (Erickson & White, 2008; Neary, Klopatek, DeBano, & Ffolliott, 1999). The inherent soil quality may remain intact after wildfire since wind driven fire rarely heats deep into soil (Hartford & Frandsen, 1992). However, after the wildfire, the lack of forest canopy and bare soil creates conditions suitable for erosion. Water and wind erosion transport and deposit soil material incrementally downslope until slopes stabilize. Erosion is highest where fires burn severely on steep hillsides. Though natural, recovery in these areas depends on available moisture and recolonization from neighboring vegetation and soil patches.

The potential impacts of anthropogenic climate change on the forest soil resource are not well known at this time. Warmer, more moist winters may result in large areas of reduced capability for winter harvest operations; a common soil protection practice on the HLC NF. Increased frequency and severity of summer droughts could threaten effective vegetation cover through increased wildfire, and pathogen and insect activity. Literature suggests that opportunities may exist to manage the soil carbon pool (Harmon & Marks, 2002; Johnson & Curtis, 2001). However, predicted soil carbon response to anthropogenic climate change is extremely uncertain at this time (Friedlingstein et al., 2006; Todd-Brown et al., 2013).



Soil has the ability to either store or release greenhouse gases; thereby, potentially influencing climate change. More carbon is stored in soil than in the atmosphere and above-ground biomass combined (Yanai, Currie, & Goodale, 2003). Soil carbon is in the form of organic compounds created through photosynthesis in which plants convert atmospheric carbon dioxide into organic carbon compounds. The organic compounds enter the soil system when plants and animals die. Immediately, soil organisms begin consuming the organic matter, releasing water, heat, and carbon dioxide back to the atmosphere. Thus, if no new plant residue is added to the soil, soil organic matter will gradually disappear. If plant residue is added to the soil at a faster rate than soil organisms convert it to carbon dioxide, carbon will gradually be removed from the atmosphere and stored (sequestered) in the soil. Some forms of soil carbon are very stable and will persist for long periods. It is unknown at this time as to how forest practices affect soil carbon storage, although research is on-going.

Current findings from the FS Long Term Soil Productivity study suggest that the extent of impacts to soil relate to texture and organic matter (D. Page-Dumroese, D. Neary, & C. Trettin, 2010; Powers et al., 2005) but often as confounding variables. For example coarse textured soils appear resistant to compaction (Gomez, Powers, Singer, & Horwath, 2002), but also nutrient poor and at risk to the nominally least risky treatments that remove forest floor (D. Page-Dumroese et al., 2006; D. S. Page-Dumroese, D. Neary, & C. Trettin, Eds., 2010). Forestry research has underscored the importance of organic matter documenting the soil benefits of downed wood (Russell T. Graham et al., 1994; Harvey et al., 1989), forest floor and soil organic matter (Jurgensen et al., 1997). The Rocky Mountain Research Station has responded by initiating studies to establish minimal necessary amounts of organic matter by habitat type. The forest floor can act as a mulch and buffers the soil microclimate to hold water on warmer, less moist sites for soil and plant processing in addition to providing a nutrient cache. Colder, moist sites would not have the same water issues and thus adequate forest floor can be less constraining for growth.

## Future climate and fire influences on aquatic ecosystems

Over the last 50 years, average spring snowpack (April 1 snow water equivalent) has declined and average snowmelt runoff is occurring on average 15 days earlier in the spring where expected future changes could be as much as 20 to 40 days earlier in many streams (Stewart, Cayan, & Dettinger, 2004). These trends are observed for northwestern Montana, the entire Pacific Northwest, and much of the western U.S. Several recent studies of the same trends across the entire western U.S. have concluded that natural variability explains some, but not all, of the west-wide trend in decreasing spring snowpack and earlier snowmelt runoff.

Shifts in climate could play out mostly in mid elevation forests where winter moisture comes as rain rather than snow, and where a decrease in snowpack could result in prolonged periods of soil moisture deficit. It is likely this would continue the trend of earlier spring, as much as two months over the next century (Charles H. Luce, in press).

A decrease of snowpack could extend soil drought to the mid elevations that is now common to low elevation ponderosa pine forests. The seasonal water deficits could stress mesic species such as lodgepole and sub-alpine fir that make up the mixed conifer forests. It is possible drought stress would affect mid elevation forests even more because forest species shift will occur according to aspect in this zone. Concave slope areas would grow mesic species since these areas have moist deep soils from converging slope water. The upper extent of the timber line would likely move up in elevation as the growing season extends in these normally cold limited environments.

## Impacts to streams and riparian areas

Fire and changing conditions on the landscape that result from a warming climate must be kept in mind when considering riparian management needs (Dwire, Meyer, Riegel, & Burton, 2016; Joyce, Talbert, Sharp, Morissette, & Stevenson, in press; C. Luce et al., 2012; Gordon H. Reeves, Olson, et al., 2016). When considered by subregion, model runs in the Northern Region show that averaged temperatures would continue to become warmer during the first half of the 21st century (Joyce et al., in press). Some locations in the region are expected to become drier and have more periods of drought; while overall, precipitation is expected to range from 5% less to an increase of up to 25%, with a mean increase expected to be 6 to 8% (ibid). Climate is expected to reduce stream flows (C. H. Luce & Holden, 2009), reduce the storage capacity associated with snowpack (C. Luce et al., 2014b), and shift the timing of run-off in some locations (C. Luce et al., 2012; C. Luce et al., 2014a).

Climatic changes are expected to differentially affect tree species and their distribution on the landscape, as well as some of the pathogens that act upon them (Keane et al., in press). There is also significant concern that climate change effects combined with altered disturbance regimes caused by fire suppression would change ecosystems (Hessburg, Agee, & Franklin, 2005; C. Luce et al., 2012). Finally, climate change may create conditions heretofore not observed and cause ecosystems to shift in novel ways (C. Luce et al., 2012; Gordon H. Reeves, Olson, et al., 2016). These changes include how riparian areas respond to potentially novel disturbance regimes (Dwire et al., 2016; Hessburg et al., 2015; Gordon H. Reeves, Pickard, et al., 2016). How land managers prepare and respond becomes ever more crucial.

The relation of fire behavior between riparian areas and adjacent uplands is influenced by a variety of factors, contributing to high spatial variation in fire effects to riparian areas. Landform features, including broad valley bottoms and headwalls, appear to act as fire refugia (Camp, Oliver, Hessburg, & Everett, 1997). Biophysical processes within a riparian area, such as climate regime, vegetation composition, and fuel accumulation are often distinct from upland conditions (Dwire & Kauffman, 2003). This can be especially true for understory conditions (Halofsky & Hibbs, 2008). Riparian areas experiencing moderate annual climate conditions can have higher humidity and can act as a buffer against fire and therefore as a refuge for fire-sensitive species (ibid). Some studies have found fire typically occurs less frequently in riparian areas (Dwire et al., 2016; Russell & McBride, 2001).

Depending on geologic and topographic features, riparian conditions and response to fire vary (Halofsky & Hibbs, 2008). A study in mixed severity conifer stands in the Sierra Nevada found that riparian and upland conditions are similar and consequently fire effects are similar (Van de Water & North, 2010). Under severe fire weather conditions and high fuel accumulation, riparian zones may become corridors for fire movement (Pettit & Naiman, 2007). Fire effects occurring upstream will likely influence downstream conditions (Wipfli, Richardson, & Naiman, 2007), as well as future fire behavior (Pettit & Naiman, 2007). Effects of high severity fire on aquatic systems will likely have short term negative affects at the reach scale but beneficial effects over time at that same scale as recolonization naturally occurs (Gresswell, 1999). At a watershed scale, fire effects for one life history phase can be negative, while in the same watershed, the fire effects will be beneficial for another life history phase (Flitcroft et al., 2016). Considering these varied conditions that occur from the stream edge to upslope and from river mouth to mountaintop, riparian response to fire is complex and heterogeneous and therefore requires considerate effort to design treatment plans that maximize benefits for both terrestrial and aquatic dependent species.

## Restoration treatments in riparian areas

In the face of larger fires and disease outbreaks, the challenge of how to integrate management of aquatic and terrestrial resources has now confronted the agency for over a generation, including the Northern

Region. Rieman and others spoke directly to this perception and identified opportunities for convergence. (Rieman, Lee, Thurow, Hessburg, & Sedell, 2000), as have many others since (Hessburg et al., 2015; Gordon H. Reeves, Olson, et al., 2016; Gordon H. Reeves, Pickard, et al., 2016; Rieman, Hessburg, Luce, & Dare, 2010). Current habitat has been degraded in many dry and mesic forests, and treatments (such as road improvement or relocation, culvert replacement, thinning, prescribed fire and wildfire use to restore old forest structure) could create more suitable aquatic habitat in the long term. Rieman and others stated, “By working strategically it may be possible to establish mosaics of fuel and forest conditions that reduce the landscape risk of extremely large or simultaneous fires without intensive treatment of every subwatershed (Rieman et al., 2000).” Further, they suggested recovery of function in some watersheds may not be possible without some human intervention.

Dry forest treatments, while still controversial (Williams & Baker, 2012), are broadly supported by current scientific literature (Hessburg et al., 2016) and have continued to gain acceptance from the public and greater use by managers. In the Northern Region of the FS, restoring mixed severity fire regimes also remains controversial and complicated for numerous reasons such as the habitat needs of ESA listed species like steelhead, bull trout, lynx and grizzly bear. Treating riparian areas in mixed severity forests can be especially controversial and complicated. In locations where up-slopes and riparian forests have qualitatively similar fire effects, treatments guided by scientific findings are likely to restore ecological function of fire regimes at the landscape level (Finney et al., 2007). Position in the landscape relative to elevation, location within the stream network, and climate regime should be carefully considered to ensure understanding of riparian function (Gordon H. Reeves, Olson, et al., 2016; Gordon H. Reeves, Pickard, et al., 2016) (Pettit & Naiman, 2007). Because the effects of restoration treatments on departed riparian habitats are poorly understood, focused research in an adaptive management framework will be necessary.

In addition to vegetation treatments in riparian areas, stream channel restoration treatments will likely be considered to help aquatic ecosystems adapt to climate change. In a paper titled “*Restoring Salmon Habitat for a Changing Climate*” (T. Beechie et al., 2013), the authors recommend actions that connect streams to floodplains, restore flow, and help degraded channels aggrade as actions most likely to improve water temperatures. They also disclose that instream channel actions are unlikely to ameliorate climate change effects entirely.

## Impacts to fisheries and other aquatic species

Expected climatic and hydrologic trends, combined with climate-related trends in wildfires and forest mortality from insects and diseases, can significantly affect aquatic ecosystems and species (J. Dunham, Rieman, & Chandler, 2003; J. B. Dunham, Rosenberger, Luce, & Rieman, 2007; Isaak et al., 2010). A growing body of literature has linked these hydrologic trends with impacts to aquatic ecosystems and species in western North America, often as a result of climate-related factors affecting stream temperatures and the distribution of thermally suitable habitat (Bartholow, 2005; Isaak et al., 2010; Kaushal et al., 2010; Morrison, Quick, & Foreman, 2002; Petersen & Kitchell, 2001). Lower summer stream flows and higher air temperatures, as observed over recent decades in Montana, are generally expected to result in increased stream temperatures. However, stream temperatures are controlled by a complex set of site-specific variables; including shading from riparian vegetation, wind velocity, relative humidity, geomorphic factors, groundwater inflow, and hyporheic flow (Caissie, 2006).

Potential changes in streamflow and rising stream temperatures are likely to increase risks to maintaining existing populations of native, cold-water aquatic species. Over the last century, most native fish and amphibians have declined in abundance and distribution throughout the western U.S., including western and central Montana and on the HLC NF. It is unknown whether, or to what degree, these changes are

attributable to climate trends. Potential climate-induced trends of altered streamflow timing, lower summer flows, and increased water temperature would likely reduce the amount, quality, and distribution of habitat suitable for native trout and contribute to fragmentation of existing populations. Climate-related impacts are likely to add cumulatively to other stressors on native fish and amphibian species. Non-native trout and other aquatic species better adapted to warm water temperatures may increase in abundance and expand their existing ranges.

Westslope cutthroat trout and bull trout populations are sensitive to increased water temperatures (Bear, McMahon, & Zale, 2007; J. Dunham et al., 2003; Selong, McMahon, Zale, & Barrows, 2001). The latest science and modeling results (Isaak et al., 2015) for predicting localized climatic changes were reviewed to assess possible changes in summer water temperatures. Outputs from models which accurately back-predict historical temperatures were used for analyzing climatic effects on aquatic wildlife populations. It appears that these are relatively consistent in predicting that local, average summer air temperatures are predicted to increase between 2 to 4 degrees Celsius by 2050 (Dare et al., 2007);(Barsugli & Anderson, 2009).

A warming climate would decrease biodiversity through a number of potential pathways; including invasive hybridization (Muhlfeld et al., 2014). Isaak and others (2010; 2012) concluded a warming climate has already increased stream temperature and the volume of available habitat is shrinking resulting in a bottle neck to key species.

Water temperatures in montane stream systems do not respond directly in magnitude to changes in maximum and average air temperatures. For instance, a one degree increase in average air temperature parameters will almost universally result in less than a one degree increase in either average or maximum water temperatures. Buffering influences from factors such as groundwater discharge, and the role of direct solar radiation in heating stream water, prevent this from occurring. In the plan's geographical area, for every degrees Celsius increase in air temperature, a 0.44 degrees Celsius increase in average water temperature is predicted (Isaak et al., 2010; Mohseni, Erickson, & Stefan, 1999; Mohseni, Stefan, & Eaton, 2003). This would indicate that under constant catchment basin characteristics, an increase in summer water temperatures ranging from 0.88 to 1.76 degrees Celsius could be expected between now and 2050. This extrapolated prediction is consistent with trends measured in recent decades of approximately 0.24 degrees Celsius per decade (Isaak et al., 2012). Extending this rate out to 2050 would match the low-end of this range without considering or adjusting for rate changes due to emission patterns or other influencing trends. This extrapolated range is also consistent with predictions found in a recently published paper (Isaak & Rieman, 2013). This article provides more of an accuracy check than an independent collaboration of the results brought forward in this assessment. Both efforts use similar citations and are primarily based on the same source data and modeling runs.

Decade-long averages of summer temperatures naturally vary across the North American continent. There is a pattern of warmer and cooler decades. Any future decade could fall at the margins of the historic variation before modeled increases are put into consideration.

One of the climate change related viability concerns for aquatic wildlife populations in this planning area is whether adding the predicted 0.88 to 1.76 degree Celsius increase to current maximum summer temperatures would lead to mortality concerns. The term "mortality concerns" in this context addresses temperature related fish-kill events that could reasonably be expected to occur during prolonged, extreme heat/drought events in the warmer sections of a stream. A fish-kill does not necessarily occur when temperatures exceed the critical thermal maximum for a species. The magnitude, duration, frequency of these events as well as the local microhabitat conditions are important factors. A weather event in which water temperatures slightly exceed a "reduced survivability threshold" for a few-minutes on only one day of the summer would be much less likely to create a fish-kill than a heat/drought event in which

temperatures exceed the same threshold by a higher magnitude, across multiple hours each day and persisting over the span of several days.

There are climatic factors in addition to maximum summer water temperatures that affect survival and lifecycle completion for fish and mussel species. Thermal regimes in other seasons can affect the timing of spawning and the success of egg incubation. Earlier snowmelt run-off could increase scour during critical time periods in the lifecycles of trout, char, and mussels (Isaak et al., 2012). Earlier loss of snowpack also leads to lower summer flows which have been correlated within this plan area with decreased densities of westslope cutthroat trout (Nelson et al., 2011). Receding summer flows can lead to lower winter flows depending on fall precipitation events and effects of drought cycles on groundwater levels. Low winter flows are a concern as the critical over-wintering habitat is restricted.

Groundwater influence and discharges into surface water has been shown to both moderate temperature and be positively correlated with salmonid abundance (Ebersole, Liss, & Frissell, 2001). Perennial stream reaches in higher-elevation areas that have well-timbered valley bottoms and ground-water entry would be most resilient to warming conditions and changing weather patterns promoting earlier run-off. Lower elevation stream reaches, lacking riparian shade, containing high sediment loads, with impaired width-depth ratios, and losing flows to groundwater would be the least resilient reaches to changing conditions. This class of impacts often correlates spatially across the planning area with the stream reaches identified in the previous sentence as being least resilient to changing climatic conditions.

## Future climate impacts to soils

Any future changes to length of growing season based on climate would affect soil and plant respiration. Typically, soils become active where temperatures exceed 44 degrees Fahrenheit and decrease in activity when soil moisture declines below 10 percent moisture (Davidson, Belk, & Boone, 1998). The combination of adequate temperature for growth is expressed as growing degree days. Using a 30 year compilation of mean annual data (Holden et al., 2015) growing degrees vary according to topographic gradient, aspect and valley form for the HLC NF. Bottomlands can have up to a 220 day growing season except where cold air drainage constrains growth. Middle elevations have from 160 to 200 day growing season varying mostly by aspect. In upper elevations, the cold air temperatures restrict the growing season down to 100 days with the greatest limitations above 7,500 feet. On areas that could experience longer seasonal drought, the effective growing degree days for soil respiration would decrease while upper elevations might have a longer growing season. As warming occurs, available soil moisture will be the primary control at mid to lower elevations. In Colorado, a study found that in complex terrain available water was the limiting factor to soil respiration for ponderosa and lodgepole (Berryman, Battaglia, & Hoffman, 2015). On finer scales the outcome becomes complicated by the interaction of the forest canopy and topographic position. Soil water can be maintained by the shading of forest canopy which reduces evaporative losses from wind and sun.

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# Appendix D. Supplemental Species Information

## Table of Contents

Introduction ..... 1

Aquatic Species Supplemental Information..... 1

    Species Habitat Associations..... 1

    Plan Components and Monitoring Items for At-Risk Aquatic Species..... 1

    Key Ecosystem Characteristics and Stressors for At-Risk Aquatic Species ..... 3

Terrestrial Wildlife Supplemental Information..... 7

    Species Habitat Associations..... 7

    Plan Components and Monitoring Items for At-Risk Wildlife Species..... 10

    Key Ecosystem Characteristics and Stressors for At-Risk Wildlife Species ..... 13

Plants Supplemental Information ..... 20

    Species Habitat Associations..... 20

    Plan Components and Monitoring Items for At-Risk Plant Species..... 24

    Key Ecosystem Characteristics and Stressors for At-Risk Plant Species ..... 27

## Tables

Table 1. Summary of plan components and monitoring that address at-risk aquatic species (bull trout, westslope cutthroat trout, and western pearlshell mussel)..... 2

Table 2. Summary of how plan components address stressors, key ecosystem characteristics, and ecological conditions for at-risk aquatic species (bull trout, westslope cutthroat trout and western pearlshell mussel) .. 3

Table 3. HLC NF wildlife species habitat associations..... 7

Table 4. Summary of plan components and monitoring that address at-risk wildlife species..... 10

Table 5. Summary of how plan components address stressors, key ecosystem characteristics, and ecological conditions for at-risk wildlife species..... 13

Table 6. HLC NF plant species and associated habitat..... 20

Table 7. Summary of plan components and monitoring that address at-risk plant species ..... 24

Table 8. Summary of how plan components address stressors, key ecosystem characteristics, and ecological conditions for at-risk plants ..... 27

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## Introduction

The Forest adopted an ecosystem and species-specific approach, known as a coarse-filter/fine-filter approach, to provide for the diversity of plant and animal communities and the long-term persistence of native species in the planning area. The coarse-filter plan components are designed to maintain or restore ecological conditions for ecosystem integrity and ecosystem diversity in the planning area within Agency authority and the inherent capability of the land. The habitat needs of most plant and animal species are provided by plan components associated with the coarse filter of terrestrial vegetation conditions. Fine filter plan components are also written to provide for the needs of some species due to their status (at-risk) or specific habitat needs that are not covered by the coarse filter.

At-risk species include those that are listed as threatened, endangered, proposed, or candidate species under the Endangered Species Act; as well as those identified as Species of Conservation Concern (SCC). For the HLC NF, this includes aquatic species (bull trout); terrestrial wildlife species (flammulated owl, Lewis's woodpecker, Canada lynx, and grizzly bear); one tree (whitebark pine); and multiple plant species.

This appendix provides species lists and information on aquatic, wildlife, and plant species (including at-risk species) to supplement chapter 3 of the FEIS, including the habitat associations for each species and a guide to all of the plan components that contribute to the persistence and/or recovery of at-risk species.

## Aquatic Species Supplemental Information

### Species Habitat Associations

Freshwater habitat needs are similar for bull trout, westslope cutthroat trout and western pearlshell mussel and many other native fish species on the HLC NF. All salmonid life stages including those of western pearlshell mussel, require cold, well-oxygenated, unpolluted waters that are low in suspended sediment, connected, and retain structural diversity. The health of an aquatic ecosystem depends on terrestrial products and processes notably shade, soil erosion, large wood recruitment, and nutrient/detritus inputs. Although each aquatic life stage has slightly different critical habitat needs, a well-functioning riparian ecosystem should satisfy diverse habitat requirements. For example, water temperature is most critical for the growth and development of juvenile fish. Side channel and off-channel wetland habitat provide ideal rearing temperatures and are refuge for young fish during high spring flows while deep pools provide thermal refuge for adult fish during summer months, and optimal overwintering habitat. Meanwhile, maximum densities of western pearlshell mussel are found primarily in riffle reaches with diverse substrate. Western pearlshell inhabit small cobble and gravels stabilized by larger rock features and rely on dispersal by migrating cold water trout specifically, westslope cutthroat trout.

### Plan Components and Monitoring Items for At-Risk Aquatic Species

The plan components in Table 1 provide management direction and monitoring that is relevant to at-risk aquatic species (bull trout, an ESA threatened species; westslope cutthroat trout and western pearlshell mussel, species of conservation concern on the HLC NF). Plan components may apply at the

forestwide scale (FW) or the geographic area scale (GA). In addition to the plan components described below, the Plan includes appendix E, which identifies the conservation watershed network for the HLC NF.

**Table 1. Summary of plan components and monitoring that address at-risk aquatic species (bull trout, westslope cutthroat trout, and western pearlshell mussel)**

| Desired Conditions  | Objectives and Goals   | Standards and Guidelines   | Suitability    | Monitoring   |
|---|--|--|----------------|--|
| FW-WTR-DC 01 to 13<br>FW-RMZ-DC 01 to 02<br>FW-FAH-DC 01 to 08<br>FW-CWN-DC-01<br>FW-SOIL-DC-01<br>FW-FIRE-DC-01<br>FW-VEGT-DC-01<br>FW-INV-DC-01,02<br>FW-WL-DC-01<br>FW-REC-DC-04<br>FW-ACCESS-DC 04<br>FW-WILD-DC-04<br>FW-IRA-DC-01<br>FW-WSR-DC-01<br>FW- LAND-DC-03<br>FW-RT-DC-02,04<br>FW-CONNECT-DC-02<br>FW-FWL-DC-05<br>DI-FAH-DC-01, 02<br>UB-FAH-DC-01, 02 | FW-WTR-GO 01 to 04<br>FW-WTR-OBJ-01 to 03<br>FW-RMZ-OBJ-01<br>FW-FAH-GO 01 to 06<br>FW-FAH-OBJ-01, 03<br>FW-CWN-OBJ-01, 02<br>FW-WL-GO-01<br>FW-REC-OBJ-01,02<br>FW-ACCESS-GO-01<br>FW-RT-OBJ-01, 02<br>DI-FAH-GO-01<br>UB-FAH-GO-01 | FW-WTR-STD-01 to 03<br>FW-WTR-GDL- 01 to 03<br>FW-RMZ-STD-01 to 06<br>FW-RMZ-GDL-01 to 12<br>FW-FAH-STD-01<br>FW-FAH-GDL-01 to 05<br>FW-CWN-GDL-01 to 03<br>FW-VEGT-GDL-01 to 04<br>FW-INV-GDL-03,05<br>FW-WL-GDL-08<br>FW-REC-GDL-01, 03 to 06<br>FW-FIRE-GDL-01, 02<br>FW-ACCESS-GDL-01<br>FW-WILD-GDL-01<br>FW-WSR-GDL-01<br>FW-LAND USE-GDL-03 to 06<br>FW-RT-STD-01 to 04<br>FW-RT-GDL-01 to 12<br>FW-BRDG-GDL-01<br>FW-GRAZ-STD-01, 02<br>FW-GRAZ-GDL-01 to 07<br>FW-EMIN-GDL-01, 02 | FW-RMZ-SUIT-01 | MON-WTR-01 to 07<br>MON-FAH-01 to 02<br>MON-RMZ-01 |



## Key Ecosystem Characteristics and Stressors for At-Risk Aquatic Species

Table 2 shows how key ecosystem characteristics and stressors for at-risk aquatic species are addressed by coarse-filter and species-specific plan components. Some plan components deal with stressors or threats relevant to populations in the planning area, and some deal with the ecological conditions or key ecosystem characteristics required. Plan components may apply at the forestwide scale (FW) or the geographic area scale (GA). The lists in Table 2 are not intended to be all inclusive.

**Table 2. Summary of how plan components address stressors, key ecosystem characteristics, and ecological conditions for at-risk aquatic species (bull trout, westslope cutthroat trout and western pearlshell mussel)**

| Key ecosystem characteristics or ecological conditions   | Stressors  | How stressors are addressed by coarse filter plan components in the preferred alternative   | How stressors are addressed by species-specific plan components in the preferred alternative   |
|--|--|---|--|
| <p>Cold water temperatures (&lt;15°C), minimal substrate embeddedness (&lt;35% fines), moderate streamflow, habitat connectivity, complex habitat: side channels, large wood complexes, undercut banks, pool quality and quantity similar to reference reach conditions.</p> | <ul style="list-style-type: none"> <li>•Livestock grazing</li> <li>•Vegetation management</li> <li>•Mining</li> <li>•Forest roads and undersized culverts</li> <li>•Climate change</li> <li>•Large wildfires/fire suppression</li> <li>•Non-native fish</li> <li>•Habitat fragmentation</li> <li>•Recreational activities e.g. angling pressure</li> </ul> | <ul style="list-style-type: none"> <li>• Collectively, FW-WTR-DC 01 to 13, FW-WTR-GO-01 to 04, FW-WTR-GDL-01, FW-RMZ-DC 01 to 02, FW-FAH-DC 01 to 08, and FW-CWN-DC-01 describe the desirable coarse filter characteristics that would support watershed function and habitat for all aquatic species. FW-WILD-DC-04 and FW-IRA-DC-01 also express the desired condition for undisturbed and unfragmented habitat for aquatic species in those areas. In addition, FW-FAH-GO-03 and 05 broadly address working with other agencies and landowners to recover threatened and endangered species and meet objectives for native species. MON-WTR-01, 03, 04, and 05 and MON-RMZ-01 would monitor key characteristics of aquatic and riparian conditions over time.</li> <li>• Multiple stressors would be addressed by objectives that address the need to improve watershed function/resiliency and riparian habitat (FW-WTR-OBJ-02, FW-RMZ-OBJ-01, FW-FAH-OBJ-01); and plan components that require restoration to be prioritized in the CWN (FW-CWN-GDL-02, 03).</li> <li>• FW-FAH-STD-01 and FW-FAH-GDL-02 require that stream diversions, ditches, and pumps be screened to prevent fish capture. FW-LAND USE-GDL-04, 05, 06 ensure that permits hydropower facilities and other support facilities or land uses include mitigation</li> </ul> | <ul style="list-style-type: none"> <li>• FW-FAH-GO-01 specifically addresses the goal of contributing to the expansion of core populations of bull trout.</li> <li>• FW-FAH-GO-02 specifically addresses the goal of contributing the expansion of core populations of westslope cutthroat trout.</li> <li>• In GAs where bull trout are present, plan components are included that describe the desired habitat conditions (DI-FAH-DC-01, 02; UB-FAH-01, 02); as well as goals to contribute to population recovery (DI-FAH-GO-01; UB-FAH-GO-02).</li> <li>• FW-RT-OBJ-02 specifies that priorities for road improvement projects should include CWNs</li> <li>• MON-FAH-01 specifically addresses the status of westslope cutthroat trout through indicators such as fish per mile or miles of occupied reaches, and location of populations.</li> <li>• Some eligible WSRs were selected based an outstanding remarkable</li> </ul> |

| Key ecosystem characteristics or ecological conditions | Stressors | How stressors are addressed by coarse filter plan components in the preferred alternative   | How stressors are addressed by species-specific plan components in the preferred alternative   |
|--|-----------|---|--|
|  |           | <p>measures that ensure adverse effects to fish and riparian resources are avoided or minimized.</p> <ul style="list-style-type: none"> <li>• The stressor of livestock grazing is addressed by FW-FAH-GDL-03, which requires that AMPs be designed to maintain or improve water quality. FW-WDL-GDL-01 specifies that in wilderness areas, grazing of livestock is not permitted within 100 feet of water sources. Further, FW-GRAZ-GDL 01, 03, 05, 06, and 07 would apply to all lands, and ensure that riparian conditions are maintained or improved by grazing practices.</li> <li>• The potential impact of vegetation management is impacted in part by FW-RMZ-SUIT-01, which specifies that RMZs are not suitable for timber production. Other plan components ensure that when harvest and other vegetation management occurs - as well as weed spraying - that those activities are compatible with RMZ desired conditions and protect aquatic habitat (FW-WTR-STD-01 to 03; FW-RMZ-STD-01 to 06; FW-RMZ-GDL-01 to 03, 05, 06, 08 to 12; FW-INV-STD-01; FW-INV-GDL-03,05).</li> <li>• Fire disturbance plays an essential and natural role in shaping riparian condition and aquatic habitat. Both wildlife and prescribed fire can play a key role in enhancing aquatic resources and watershed resiliency (FW-FIRE-DC-01). FW-FIRE-GDL-01,02 would promote desired vegetative conditions through the use of fuels/fire management and ensure ecosystems are more resilient to large wildfire disturbance.</li> <li>• The stressor of mining is addressed by FW-EMIN-01 and 02, which would ensure new authorizations or reauthorizations for mineral development would avoid RMZs and adverse effects to aquatic resources; or include measures to maintain, protect, rehabilitate fish habitat.</li> </ul> | <p>value based on bull trout and/or westslope cutthroat trout fisheries (as listed in the 2021 Land Management Plan). On these streams, FW-WSR-GDL-01 prescribes interim protection measures that would further protect desirable aquatic habitat characteristics.</p> |

| Key ecosystem characteristics or ecological conditions | Stressors | How stressors are addressed by coarse filter plan components in the preferred alternative   | How stressors are addressed by species-specific plan components in the preferred alternative |
|--|-----------|---|--|
|  |           | <ul style="list-style-type: none"> <li>• The stressor of forest roads is addressed with multiple plan components. FW-RT-DC-04 expresses the desire that the transportation system has minimal impacts on aquatic species. FW-RMZ-GDL-04 requires that new road and landing construction is avoided in RMZs; and FW-RMZ-GDL-07 would result in new sand and gravel pits or gravel mining not occurring in RMZs. FW-FAH-GDL-04 would ensure construction activities within the high-water mark that have adverse impacts occur outside of spawning and incubation seasons. FW-CWN-OBJ-01 and 02 address the need to repair road/stream crossings and stormproof roads, prioritized in conservation watershed networks. FW-CWN-GDL-01 and 02 address the need to avoid increases in stream crossings and road lengths; and be prioritized for road decommissioning, relocation, and other strategies, to reduce sediment delivery. Collectively, FW-RT-STD-01 and FW-RT-GDL-01 to 06; 08 to 12 would limit sediment delivery, other pollutants, and impacts to aquatic habitat connectivity. MON-WTR-06 specifically monitors road and access improvements in CWNs. MON-FAH-02 would result in monitoring if culverts and bridges are being constructed/upgraded/removed to allow aquatic organism passage.</li> <li>• FW-FAH-GO-06 addresses nonnative fish by stating the goal of working with other MTDFWP to help prevent aquatic invasive species; as well as by FW-FAH-GDL-01 which requires inspection and cleaning to avoid introduction of invasive species.</li> <li>• Habitat fragmentation in part would also be addressed by FW-LAND-DC-03, which expresses the desire that land adjustments and acquisitions enhance riparian habitat. FW-FAH-GO-04 specifies working with other landowners to provide for fish habitat connectivity. FW-FAH-OBJ-03 specifies an objective of reconnecting at least 10 miles of</li> </ul> |  |

| Key ecosystem characteristics or ecological conditions | Stressors | How stressors are addressed by coarse filter plan components in the preferred alternative  | How stressors are addressed by species-specific plan components in the preferred alternative |
|--|-----------|--|--|
|  |           | <p>habitat over the life of the plan. FW-FAH-GDL-05 requires that human-created migration barriers not be created unless needed to prevent invasion by nonnative species. FW-RT-GDL-02, 09, 10, and 11 as well as FW-BRDG-GDL-01 would ensure that road and bridge work has minimal impact to connectivity.</p> <ul style="list-style-type: none"> <li>• The stressor of recreation activities is addressed by REC-DC-04; FW-ACCESS-DC-03,04, which specifically enumerates the desire that recreation facilities and uses have minimal impacts on aquatic species or remove/restrict the ones that degrade aquatic resources. FW-FAH-GDL-01 addresses recreation activities that may introduce invasive species.</li> </ul> |  |

# Terrestrial Wildlife Supplemental Information

## Species Habitat Associations

Table 3 lists wildlife species analyzed in the FEIS and their habitat associations; it is not an exhaustive list of all the species found on the HLC NF but includes many species that are not considered ‘at-risk’. Habitat associations are groupings of vegetation types as referred to in the Terrestrial Wildlife Diversity section of the FEIS. Some species may use more habitat associations than indicated, which is intended only to provide a general overview of terrestrial wildlife diversity on the HLC NF. SCC would be adopted with the action alternatives. Under the no-action alternative, the designations for Regional Forester Sensitive Species (RFSS) would be retained. Management indicator species (MIS) are not identified in the table but would be included in the no-action alternative.

**Table 3. HLC NF wildlife species habitat associations**

| Species                        | Species Status | Grass-forb-shrub | Late-successional, old-growth, large trees | Snags | Coarse woody debris | Hard-wood forest | High elevation habitats | Aquatic, wetland, and/or riparian | Dry conifer (warm-dry PVT) | Mixed conifer (warm dry, cool moist, & cold PVTs) | Cave, cliff, rock, other geologic |
|--------------------------------|----------------|------------------|--|-------|---------------------|------------------|-------------------------|-----------------------------------|----------------------------|---|-----------------------------------|
| <b>Amphibians and reptiles</b> |                |                  |  |       |                     |                  |                         |                                   |                            |   |                                   |
| Western toad                   | RFSS           |                  | X  |       |                     |                  |                         | X                                 |                            |   |                                   |
| Northern leopard frog          | RFSS           |                  |  |       |                     |                  |                         | X                                 |                            |   |                                   |
| Garter snake                   |                |                  |  |       |                     |                  |                         | X                                 | X                          |   |                                   |
| Salamander                     |                |                  | X  |       | X                   | X                |                         | X                                 |                            |   |                                   |
| <b>Birds</b>                   |                |                  |  |       |                     |                  |                         |                                   |                            |   |                                   |
| Bald eagle                     | RFSS           |                  |  |       |                     |                  |                         | X                                 |                            |   |                                   |
| Barred owl                     |                |                  | X  | X     |                     |                  |                         |                                   |                            | X   |                                   |
| Black rosy finch               |                |                  |  |       |                     |                  | X                       |                                   |                            |   |                                   |
| Black-backed woodpecker        | RFSS           |                  | X  | X     |                     |                  |                         |                                   |                            |   |                                   |
| Boreal Owl                     |                |                  | X  |       |                     |                  |                         |                                   |                            | X   |                                   |
| Brown Creeper                  |                |                  | X  | X     |                     |                  |                         |                                   |                            | X   |                                   |
| Clark’s nutcracker             |                |                  |  |       |                     |                  | X                       |                                   | X                          |   |                                   |
| Cooper’s hawk                  |                |                  |  |       |                     |                  |                         |                                   |                            | X   |                                   |
| Flammulated owl                | SCC, RFSS      |                  | X  | X     |                     |                  |                         |                                   | X                          |   |                                   |
| Golden eagle                   |                |                  |  |       |                     |                  |                         |                                   |                            |   | X                                 |

| Species                                   | Species Status | Grass-forb-shrub | Late-successional, old-growth, large trees | Snags | Coarse woody debris | Hard-wood forest | High elevation habitats | Aquatic, wetland, and/or riparian | Dry conifer (warm-dry PVT) | Mixed conifer (warm dry, cool moist, & cold PVTs) | Cave, cliff, rock, other geologic |
|---|----------------|------------------|--|-------|---------------------|------------------|-------------------------|-----------------------------------|----------------------------|---|-----------------------------------|
| Gray-crowned rosy finch                   |                |                  |  |       |                     |                  | X                       |                                   |                            |   |                                   |
| Great gray owl                            |                |                  |  | X     |                     |                  |                         |                                   |                            | X   |                                   |
| Harlequin duck                            | RFSS           |                  |  |       |                     |                  |                         | X                                 |                            |   |                                   |
| Hawk Owl                                  |                |                  |  | X     |                     |                  |                         |                                   |                            | X   |                                   |
| Lewis's woodpecker                        | SCC            |                  | X  | X     |                     | X                |                         |                                   | X                          |   |                                   |
| Mountain bluebird                         |                |                  |  | X     |                     |                  |                         |                                   | X                          |   |                                   |
| Northern flicker                          |                |                  |  | X     |                     | X                |                         | X                                 |                            | X   |                                   |
| Northern goshawk                          |                |                  | X  |       |                     |                  |                         |                                   |                            | X   |                                   |
| Northern (American) three-toed woodpecker |                |                  |  | X     |                     |                  |                         |                                   |                            | X   |                                   |
| Nuthatch                                  |                |                  |  | X     |                     | X                |                         | X                                 | X                          | X   |                                   |
| Peregrine falcon                          |                | X                |  |       |                     |                  |                         |                                   |                            |   | X                                 |
| Pileated woodpecker                       |                |                  | X  | X     |                     |                  |                         |                                   | X                          | X   |                                   |
| Screech owl                               |                |                  |  | X     |                     | X                |                         | X                                 |                            |   |                                   |
| Sharp-shinned hawk                        |                |                  |  |       |                     |                  |                         |                                   |                            | X   |                                   |
| Shorebirds and Waterfowl                  |                |                  |  |       |                     |                  |                         | X                                 |                            |   |                                   |
| White-tailed ptarmigan                    |                |                  |  |       |                     |                  | X                       |                                   |                            |   |                                   |
| <b>Mammals</b>                            |                |                  |  |       |                     |                  |                         |                                   |                            |   |                                   |
| Long-eared myotis                         | RFSS           |                  |  | X     |                     |                  |                         |                                   |                            | X   | X                                 |
| Fringed myotis                            | RFSS           |                  |  |       |                     |                  |                         |                                   | X                          | X   | X                                 |
| Silver-haired bat                         |                |                  |  | X     |                     |                  |                         |                                   |                            |   |                                   |
| Townsend's big-eared bat                  | RFSS           |                  |  |       |                     |                  |                         |                                   |                            | X   | X                                 |
| Beaver                                    |                |                  |  |       |                     | X                |                         | X                                 |                            |   |                                   |
| Bighorn sheep                             | RFSS           | X                |  |       |                     |                  |                         |                                   | X                          |   | X                                 |
| Black bear                                |                | X                |  |       |                     | X                |                         | X                                 | X                          | X   |                                   |
| Bobcat                                    |                |                  |  |       |                     |                  |                         |                                   | X                          |   |                                   |
| Bushy-tailed woodrat                      |                |                  |  |       |                     |                  |                         |                                   |                            |   | X                                 |

| Species                        | Species Status | Grass-forb-shrub | Late-successional, old-growth, large trees | Snags | Coarse woody debris | Hard-wood forest | High elevation habitats | Aquatic, wetland, and/or riparian | Dry conifer (warm-dry PVT) | Mixed conifer (warm dry, cool moist, & cold PVTs) | Cave, cliff, rock, other geologic |
|--------------------------------|----------------|------------------|--|-------|---------------------|------------------|-------------------------|-----------------------------------|----------------------------|---|-----------------------------------|
| Canada lynx                    | TEPC           |                  | X  |       | X                   |                  |                         |                                   |                            | X   |                                   |
| Coyote                         |                | X                |  |       |                     | X                |                         | X                                 | X                          | X   |                                   |
| Deer                           |                | X                |  |       |                     | X                |                         | X                                 | X                          | X   |                                   |
| Elk                            |                | X                |  |       |                     | X                |                         |                                   | X                          | X   |                                   |
| Fisher                         | RFSS           |                  | X  |       |                     |                  |                         | X                                 |                            | X   |                                   |
| Golden-mantled ground squirrel |                |                  |  |       | X                   |                  | X                       |                                   |                            |   | X                                 |
| Gray wolf                      | RFSS           | X                |  |       |                     |                  |                         |                                   | X                          |   |                                   |
| Grizzly bear                   | TEPC           | X                |  |       |                     | X                | X                       | X                                 | X                          | X   |                                   |
| Hoary marmot                   |                |                  |  |       |                     |                  | X                       |                                   |                            |   | X                                 |
| Moose                          |                |                  |  |       |                     | X                |                         | X                                 |                            | X   |                                   |
| Mountain goat                  |                |                  |  |       |                     |                  | X                       |                                   |                            |   | X                                 |
| Mountain lion                  |                |                  |  |       | X                   |                  |                         |                                   | X                          |   |                                   |
| Northern bog lemming           | RFSS           |                  |  |       |                     |                  |                         | X                                 |                            |   |                                   |
| Northern flying squirrel       |                |                  | X  | X     | X                   | X                |                         |                                   |                            | X   |                                   |
| Pika                           |                |                  |  |       |                     |                  | X                       |                                   |                            |   | X                                 |
| Pine marten                    |                |                  | X  | X     | X                   |                  |                         |                                   |                            | X   |                                   |
| Red fox                        |                | X                |  |       |                     |                  |                         |                                   |                            |   |                                   |
| Red squirrel                   |                |                  |  |       | X                   | X                |                         |                                   |                            | X   |                                   |
| Short-tailed weasel            |                |                  |  | X     | X                   |                  |                         |                                   |                            |   |                                   |
| Shrews                         |                |                  |  |       | X                   |                  |                         | X                                 |                            |   |                                   |
| Snowshoe hare                  |                |                  |  |       |                     |                  |                         |                                   |                            | X   |                                   |
| Voles                          |                | X                |  |       | X                   |                  |                         | X                                 |                            |   |                                   |

## Plan Components and Monitoring Items for At-Risk Wildlife Species

The plan components in Table 4 provide management direction and monitoring that is particularly relevant to at-risk wildlife species on the HLC NF (flamulated owl, Lewis’s woodpecker, Canada lynx, and grizzly bear). Plan components may apply at the forestwide scale (FW) or the geographic area scale (GA).

**Table 4. Summary of plan components and monitoring that address at-risk wildlife species**

| Desired Conditions   | Objectives and Goals | Standards and Guidelines   | Suitability | Monitoring  |
|--|----------------------|--|-------------|---|
| <b>Flamulated owl</b>  |                      |  |             |   |
| FW-VEGT-DC-01 to 04<br>FW-VEGF-DC-01 to 04, 08, 09<br>FW-VEGNF-DC-01, 03<br>FW-WL-DC-01 to 04<br>FW-REC-DC-04<br>FW-WILD-DC-02<br>FW-RECWILD-DC-02<br>FW-WSA-DC-01<br>FW-IRA-DC-01<br>FW-LAND-DC-03<br>FW-CONNECT-DC-02<br>BB, DI, EH, UB-VEGT-DC-01<br>BB, DI, EH, UB-VEGF-DC-01 to 03<br>BB, DI, UB-WL-DC-02<br>EH-WL-DC-01, 03<br>EH-ACCESS-DC-01<br>RM-CMA-DC-01 | FW-WL-GO-01 to 06    | FW-FIRE-GDL-02<br>FW-VEGF-GDL-01, 02<br>FW-REC-GDL-01<br>FW-RT-GDL-13<br>FW-TIM-GDL-02<br>EH-WL-GDL-01, 02, 03<br>EH-ACCESS-GDL-01 |             | MON-VEGT-02<br>MON-VEGF-01, 02, 03, 04, 06<br>MON-WL-03   |
| <b>Lewis’s woodpecker</b>  |                      |  |             |   |
| FW-VEGT-DC-01 to 04<br>FW-VEGF-DC-01 to 04, 06, 08, 09, 11<br>FW-WL-DC-01 to 04<br>FW-REC-DC-04<br>FW-WILD-DC-02   | FW-WL-GO-01 to 06    | FW-FIRE-GDL-02<br>FW-VEGF-GDL-01, 02<br>FW-REC-GDL-01<br>FW-RT-GDL-13<br>FW-TIM-GDL-02, 03   |             | MON-FIRE-01<br>MON-VEGT-02<br>MON-VEGF-01, 02, 03, 04, 06 |



| Desired Conditions   | Objectives and Goals   | Standards and Guidelines  | Suitability   | Monitoring   |
|--|--|---|---|--|
| FW-RECWILD-DC-02<br>FW-WSA-DC-01<br>FW-IRA-DC-01<br>FW-LAND-DC-03<br>FW-CONNECT-DC-02<br>BB, CA, CR, DI, EH, HI, LB, RM,<br>SN, UB-VEGT-DC-01<br>BB, CA, CR, DI, EH, HI, LB, RM,<br>SN, UB -VEGF-DC-01 to 03<br>EH-WL-DC-01<br>EH-ACCESS-DC-01<br>RM-CMA-DC-01   |  | EH-WL-GDL-01, 02, 03<br>EH-ACCESS-GDL-01  |   |  |
| <b>Canada lynx</b>   |  |   |   |  |
| FW-WTR-DC-02<br>FW-RMZ-DC-02<br>FW-FIRE-DC-01<br>FW-VEGT-DC-01 to 04<br>FW-VEGF-DC-01 to 03, 07 to 09<br>FW-WL-DC-01 to 04, 07 to 09<br>FW-ROS-DC-02 to 05<br>FW-REC-DC-04<br>FW-WILD-DC-02, 03<br>FW-RECWILD-DC-02<br>FW-WSA-DC-01<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-LAND-DC-03<br>FW-LAND USE-DC-03<br>FW-RT-DC-02, 04<br>FW-CONNECT-DC-02 | FW-FAH-GO-04<br>FW-WL-GO-01 to 06<br>FW-LAND USE-GO-01<br>FW-RT-GO-03<br>DI-WL-GO-01 | FW-RMZ-GDL-12<br>FW-VEGF-GDL-05<br>FW-REC-GDL-01<br>FW-LAND USE-GDL-03, 07<br>FW-ACCESS-GDL-01<br>FW-WL-GDL-06<br>FW-WSR-GDL-01<br>FW-WSA-STD-01<br>FW-RT-GDL-12, 13<br>FW-GRAZ-GDL-04<br>FW-TIM-STD-04<br>FW-TIM-GDL-02<br>FW-OFP-GDL-03<br>DI, UB-WL-GDL-01<br>EH-WL-GDL-01 to 03<br>EH-RT-STD-01, 02; GDL-01<br>EH-ACCESS-GDL-01<br>RM-CMA- STD-01, 02 | FW-RECWILD-SUIT-01, 06<br>FW-WILD-SUIT-02, 03, 05<br>FW-RNA-SUIT-03<br>FW-WSA-SUIT-01 to 08<br>FW-IRA-SUIT-01, 02 | MON-FIRE-01<br>MON-VEGT-02, 03<br>MON-VEGF-01, 02, 03, 07<br>MON-WL-01, 03 |

| Desired Conditions   | Objectives and Goals   | Standards and Guidelines   | Suitability  | Monitoring           |
|--|--|--|--|----------------------|
| BB, CA, CR, DI, EH, LB, RM, SN,<br>UB-VEGT-DC-01<br>BB, CA, CR, DI, EH, LB, RM, SN,<br>UB -VEGF-DC-01 to 03<br>BB-WL-DC-03<br>CR, DI, RM, UB-WL-DC-01<br>EH-WL-DC-01, 02<br>EH-ACCESS-DC-01<br>RM-VEGF-DC-04<br>RM-BTM-DC-02<br>RM-CMA-DC-01, 03<br>UB-VEGF-DC-04<br>FW-CARB-DC-01   |  |  |  |                      |
| <b>Grizzly bear</b>  |  |  |  |                      |
| FW-RMZ-DC-02<br>FW-WTR-DC-02<br>FW-VEGT-DC-01 to 04<br>FW-VEGF-DC-08<br>FW-WL-DC-01 to 05, 07<br>FW-NCDE-DC-01 to 03<br>PCAZ1Z2-NCDE-DC-01<br>PCAZ1-NCDE-DC-01<br>Z1-NCDE-DC-01, 02<br>PCA-NCDE-DC-01 to 06<br>FW-ROS-DC-02 to 05<br>FW-REC-DC-04<br>FW-WILD-DC-02, 03<br>FW-RECWILD-DC-02<br>FW-WSA-DC-01<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01 | FW-FAH-GO-04<br>FW-WL-GO-01 to 06<br>FW-RT-GO-03<br>FW-LAND USE-GO-01<br>DI-WL-GO-01 | FW-RMZ-STD-03<br>FW-RMZ-GDL-04, 07 to 09,<br>11, 12<br>FW-WL-GDL-02<br>FW-NCDE-STD-01, 02<br>PCAZ1Z2-NCDE-STD-01<br>PCAZ1Z2-NCDE-GDL-01, 02<br>PCAZ1-NCDE-STD-01 to 12<br>Z1-NCDE-STD-01<br>PCAZ1-NCDE-GDL-01 to 07<br>PCA-NCDE-STD-01 to 12<br>PCA-NCDE-GDL-01 to 10<br>FW-REC-GDL-01, 07<br>FW-WSA-STD-01<br>FW-WSR-GDL-01<br>FW-ACCESS-GDL-01<br>FW-RSUP-GDL-01 | FW-WILD-SUIT-02,<br>03, 05<br>FW-RECWILD-SUIT-01, 06, 08<br>FW-WSA-SUIT-01 to 08<br>FW-IRA-SUIT-01, 02<br>FW-RNA-SUIT-03 | MON-WL-01, 02, 04,08 |

| Desired Conditions   | Objectives and Goals | Standards and Guidelines  | Suitability | Monitoring |
|--|----------------------|---|-------------|------------|
| FW-LAND-DC-03<br>FW-LAND USE-DC-03<br>FW-RT-DC-01, 02, 04<br>FW-CONNECT-DC-02<br>BB, CA, CR, DI, EH, HI, LB, RM,<br>SN, UB-VEGT-DC-01<br>BB-WL-DC-03<br>CR, DI, RM, UB-WL-DC-01<br>HI, LB-WL-DC-01<br>EH-WL-DC-01, 02<br>EH-ACCESS-DC-01<br>RM-BTM-DC-02<br>RM-CMA-DC-01, 03 |                      | FW-RT-GDL-12, 13<br>FW-LAND USE-GDL-03, 07<br>FW-GRAZ-GDL-04<br>FW-TIM-GDL-02<br>FW-OFP-GDL-03<br>DI, UB-WL-GDL-01<br>EH-WL-GDL-01 to 03<br>EH-ACCESS-GDL-01<br>EH-RT-STD-01, 02; GDL-01<br>RM-WL-STD-01<br>RM-CMA-STD-01, 02 |             |            |

### Key Ecosystem Characteristics and Stressors for At-Risk Wildlife Species

Table 5 shows how key ecosystem characteristics and stressors for at-risk wildlife species (flamulated owl, Lewis’s woodpecker, Canada lynx, and grizzly bear) are addressed by coarse-filter and species-specific plan components. Some plan components deal with stressors or threats relevant to populations in the planning area, and some deal with the ecological conditions or key ecosystem characteristics required by the species. Plan components may apply at the forestwide scale (FW) or the geographic area scale (GA). The lists in Table 5 are not intended to be all inclusive.

**Table 5. Summary of how plan components address stressors, key ecosystem characteristics, and ecological conditions for at-risk wildlife species**

| Species        | Key ecosystem characteristics or ecological conditions              | Stressors  | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components  |
|----------------|---|--|---|--|
| Flamulated owl | Large ponderosa pine and/or Douglas-fir with an open forest canopy, | <ul style="list-style-type: none"> <li>•Fire exclusion</li> <li>•Insect infestation</li> <li>•Logging</li> </ul> | <ul style="list-style-type: none"> <li>•Several plan components provide for the habitat conditions needed for wildlife in general terms (FW-VEGT-DC-03 and 04; FW-WL-DC-01, 02, 03; FW-WL-GO-01 to 06; FW-LAND-DC-</li> </ul> | In occupied GAs (Big Belts, Divide, Elkhorns, and Upper Blackfoot), plan components are included that describe |

| Species | Key ecosystem characteristics or ecological conditions | Stressors  | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components   |
|---------|--|--|---|---|
|         | interspersed with nonforested areas for foraging       | <ul style="list-style-type: none"> <li>Human developments</li> </ul> | <p>03; FW-CONNECT-DC-02; EH-WL-DC-01; EH-WL-GDL-01; RM-CMA-DC-01).</p> <ul style="list-style-type: none"> <li>Coarse filter vegetation plan components provide for the general habitat requirements within the natural range of variation, including dry forests and savanna areas (FW-VEGT-DC-01 (warm dry PVT); FW-VEGT-DC-02, 04; FW-VEGF-DC-01 to 04, 08; FW-VEGNF-DC-01 and 03; as well GA-level VEGT-DC-01 and VEGF-DC-01 to 03). These components emphasize increasing ponderosa pine and large trees, maintaining open savannas and nonforested vegetation types, and providing snags. These conditions help address the ongoing effects of fire exclusion, and are based on concepts of resiliency, to ensure that habitats are not vulnerable to wildfire and insect infestations. Several plan components emphasize resiliency of forest habitats and natural disturbance regimes, e.g. FW-FIRE-GDL-02 and FW-VEGF-DC-09.</li> <li>Several guidelines ensure that large trees and snags are retained during vegetation management, including logging (FW-VEGF-GDL-01, 02; FW-TIM-GDL-02).</li> <li>The preferred alternative also provides for abundant areas of land with limited human developments and influence (e.g., wilderness, recommended wilderness, wilderness study areas, inventoried roadless areas, and primitive ROS areas) and associated plan components that would ensure that natural processes and limited human developments occur in these areas (FW-WL-DC-04; FW-WILD-DC-02; FW-RECWILD-DC-02; FW-WSA-DC-01; FW-IRA-DC-01; EH-WL-GDL-02).</li> <li>Several plan components also address potential stressors to wildlife and wildlife habitats associated with human developments and uses (FW-REC-DC-04; FW-REC-GDL-01;</li> </ul> | <p>the habitat characteristics for flammulated owls (BB-WL-DC-02, DI-WL-DC-02, EH-WL-DC-03, and UB-WL-DC-02).</p> <p>In addition, there is a monitoring element for flammulated owl habitat in these GAs (MON-WL-05).</p> |

| Species            | Key ecosystem characteristics or ecological conditions                             | Stressors   | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components   |
|--------------------|--|---|--|---|
|                    |  |   | <p>FW-RT-GDL-13; EH-WL-GDL-02, 03; EH-ACCESS-DC-01; EH-ACCESS-GDL-01).</p> <ul style="list-style-type: none"> <li>• Several monitoring elements would assess vegetation conditions relevant to flammulated owl habitat (MON-VEGT-02; MON-VEGF-01, 02, 03, 04, 06).</li> </ul>  |   |
| Lewis’s woodpecker | Large ponderosa pine, Douglas-fir, aspen, and cottonwood; Snags; Brushy understory | <ul style="list-style-type: none"> <li>• Logging</li> <li>• Fire exclusion</li> <li>• Insect infestation</li> <li>• Human developments</li> </ul> | <ul style="list-style-type: none"> <li>• Several plan components provide for the habitat conditions needed for wildlife in general terms (FW-VEGT-DC-03 and 04; FW-WL-DC-01, 02, 03; FW-WL-GO-01 to 06; FW-LAND-DC-03; FW-CONNECT-DC-02; EH-WL-DC-01; EH-WL-GDL-01; RM-CMA-DC-01).</li> <li>• Coarse filter vegetation plan components provide for the general habitat requirements within the natural range of variation, including dry forests and aspen/hardwoods, snags, and understory species (FW-VEGT-DC-01 (primarily warm dry PVT); FW-VEGT-DC-02; FW-VEGF-DC-01 to 04, 06, 08; FW-VEGF-DC-11; as well GA-level VEGT-DC-01 and VEGF-DC-01 to 03). These components emphasize increasing ponderosa pine, aspen/cottonwood, large trees, and maintaining snags. These conditions help address the ongoing effects of fire exclusion, and are based on concepts of resiliency, to ensure that habitats are not vulnerable to the wildfire and insect infestations. Several plan components emphasize resiliency of forest habitats and natural disturbance regimes, e.g. FW-FIRE-GDL-02 and FW-VEGF-DC-09.</li> <li>• Several guidelines ensure that large trees and snags are retained during vegetation management (FW-VEGF-GDL-01, 02; FW-TIM-GDL-02). Further, FW-TIM-GDL-03 addresses the retention of snags in burned habitats.</li> </ul> | The coarse filter plan components are sufficient to provide for Lewis’s woodpecker. The monitoring prescribed for flammulated owl would be informative for this species (FW-MON-WL-05). |

| Species     | Key ecosystem characteristics or ecological conditions   | Stressors  | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components   |
|-------------|--|--|--|---|
|             |  |  | <ul style="list-style-type: none"> <li>•The preferred alternative provides for abundant areas of land with limited human developments and influence (e.g., wilderness, recommended wilderness, wilderness study areas, inventoried roadless areas, and primitive ROS areas) and associated plan components that would ensure that natural processes dominate in these areas (FW-WL-DC-04; FW-WILD-DC-02; FW-RECWILD-DC-02; FW-WSA-DC-01; FW-IRA-DC-01; EH-WL-GDL-02).</li> <li>•Several plan components address potential stressors to wildlife and wildlife habitats associated with human developments (FW-REC-DC-04; FW-REC-GDL-01; FW-RT-GDL-13; EH-WL-GDL-02, 03; EH-ACCESS-DC-01; EH-ACCESS-GDL-01).</li> <li>•Several monitoring elements would assess vegetation conditions relevant to Lewis’s woodpecker habitat (MON-FIRE-01; MON-VEGT-02; MON-VEGF-01 to 04, 06).</li> </ul> |   |
| Canada lynx | <p>Boreal forest with gentle rolling topography, dense horizontal cover, deep snow, and moderate to high snowshoe hare densities</p> <p>Habitat security and connectivity</p> <p>Denning habitat</p> | <ul style="list-style-type: none"> <li>• Vegetation management</li> <li>• Wildland fire management</li> <li>• Climate change</li> <li>• Habitat fragmentation</li> </ul> | <ul style="list-style-type: none"> <li>• Several plan components provide for the habitat conditions needed for wildlife in general terms (FW-VEGT-DC-03 and 04; FW-WL-DC-01, 02, 03; FW-WL-GO-01 to 06; FW-LAND-DC-03; FW-CONNECT-DC-02; EH-WL-DC-01; EH-WL-GDL-01; RM-CMA-DC-01).</li> <li>• Coarse filter vegetation plan components provide for the general habitat requirements within the natural range of variation, including boreal forests (FW-WL-DC-07, 08; FW-WL-GDL-06; FW-VEGT-DC-01 (primarily the cool moist PVT); FW-VEGT-DC-02 (primarily the spruce/fir cover type); FW-VEGF-DC-01 to 03, 07, 08; as well as all GA-level VEGT-DC-01 and VEGF-DC-01, 02, 03).</li> </ul>   | <p>The 2021 Land Management Plan retains the Northern Rockies Lynx Management Direction in its entirety, which addresses the stressors to lynx (Plan appendix F).</p> <p>FW-WL-DC-09 provides for lynx habitat forestwide.</p> <p>Several other plan components provide for</p> |

| Species | Key ecosystem characteristics or ecological conditions | Stressors | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components  |
|---------|--|-----------|--|--|
|         |  |           | <ul style="list-style-type: none"> <li>• Other components also emphasize the importance of natural disturbance regimes fulfilling their function on the landscape (FW-FIRE-DC-01; FW-VEGF-DC-09).</li> <li>• The coarse filter for habitat connectivity is provided for plan components that allow for the movement of wildlife species (FW-WTR-DC-02; FW-RMZ-DC-02; FW-RMZ-GDL-12; FW-FAH-GO-04; FW-VEGT-DC-04, 08; FW-VEGF-DC-08; DI-WL-GDL-01; DI-WL-GO-01; FW-RT-GO-03; EH-WL-DC-02; UB-WL-GDL-01). Connectivity in several GAs would also be monitored (MON-WL-01).</li> <li>• A variety of plan components establish large, undisturbed areas of land and limit access and human interventions within them (FW-WL-DC-04; FW-ROS-DC-02 to 05; FW-WILD-DC-02, 03; FW-WILD-SUIT-02, 03, 05; FW-WSA-DC-01; FW-WSA-STD-01; FW-WSA-SUIT-01 to 08; FW-IRA-DC-01, 02; FW-IRA-SUIT-01, 02; FW-RECWILD-DC-02; FW-RECWILD-SUIT-01, 06; FW-RNA-DC-01; FW-RNA-SUIT-03; FW-WSR-GDL-01; FW-LAND-DC-03; FW-LAND USE-GO-01, FW-LAND USE-DC-03, FW-LAND USE-GDL-03, 07; FW-RT-DC-01, 02, 04; FW-RT-GDL-12, 13; FW-ACCESS-GDL-01, EH-ACCESS-DC-01, EH-ACCESS-GDL-01, EH-RT-STD-01, 02; EH-RT-GDL-01; RM-BTM-DC-02; RM-CMA-DC-01, 03; RM-CMA-STD-01, 02).</li> <li>• Several plan components address potential stressors to wildlife and wildlife habitats associated with human developments and uses, including recreation, roads and access, livestock grazing, and timber harvest (FW-VEGF-GDL-05; FW-REC-DC-04; FW-REC-GDL-01; FW-RT-GDL-13; FW-GRAZ-GDL-04; FW-TIM-STD-04; FW-TIM-GDL-02; FW-</li> </ul> | <p>lynx habitat to support recovery and persistence of lynx (DI-VEGF-DC-04; RM-VEGF-DC-04; UB-VEGF-DC-04) and connectivity (BB-WL-DC-03; CR-WL-DC-01; DI-WL-DC-01; RM-WL-DC-01; UB-WL-DC-01).</p> <p>The monitoring plan includes an element for lynx (MON-WL-03) to assess any change that occurs to lynx habitat as a result of forest management.</p> |

| Species      | Key ecosystem characteristics or ecological conditions  | Stressors  | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components   |
|--------------|---|--|---|---|
|              |   |  | <p>OFP-GDL-03; EH-WL-GDL-02, 03; EH-ACCESS-DC-01; EH-ACCESS-GDL-01, 02).</p> <ul style="list-style-type: none"> <li>The coarse filter vegetation components listed above incorporate concepts of resiliency in the face of climate change. Climate and change is also specifically addressed in FW-VEGT-DC-01; FW-VEGT-DC-04; FW-VEGF-DC-08; FW-WL-DC-03; and FW-CARB-DC-01.</li> <li>Several monitoring elements would assess vegetation conditions relevant to Canada lynx (MON-FIRE-01; MON-VEGT-02, 03; MON-VEGF-01, 02, 03, 07).</li> </ul>  |   |
| Grizzly bear | <p>Habitat security (unroaded landscapes; natural vegetation conditions)<br/>Habitat connectivity</p> | <ul style="list-style-type: none"> <li>Motorized access &amp; habitat fragmentation</li> <li>Developed sites</li> <li>Bear-human conflicts/direct mortality</li> </ul> | <ul style="list-style-type: none"> <li>Several plan components provide for the habitat conditions needed for wildlife in general terms (FW-VEGT-DC-03 and 04; FW-WL-DC-01, 02, 03; FW-WL-GO-01 to 06; FW-LAND-DC-03; FW-CONNECT-DC-02; EH-WL-DC-01; EH-WL-GDL-01; RM-CMA-DC-01).</li> <li>Coarse filter vegetation plan components provide for vegetation conditions within the natural range of variation (FW-VEGT-DC-01; FW-VEGF-DC-08; FW-WL-DC-07; as well GA-level VEGT-DC-01).</li> <li>Habitat security is addressed by plan components that establish areas with limited human influence, and/or restrict motorized access and route densities (FW-WL-DC-04; FW-ROS-DC-02 to 05; FW-WILD-DC-02; FW-WILD-SUIT-02, 03, 05; FW-WSA-DC-01; FW-WSA-STD-01; FW-WSA-SUIT-01 to 08; FW-IRA-DC-01, 02; FW-IRA-SUIT-01, 02; FW-RECWILD-DC-02; FW-RECWILD-SUIT-01, 06, 08; FW-RNA-DC-01; FW-RNA-SUIT-03; FW-WSR-GDL-01; FW-LAND-DC-03; FW-LAND USE-GO-01, FW-LAND USE-DC-03, FW-LAND USE-GDL-03, 07; FW-RT-DC-01, 02, 04; FW-RT-GDL-12, 13; FW-</li> </ul> | <p>The 2021 Land Management Plan incorporates all of the applicable direction from the Grizzly Bear Conservation Strategy, which addresses all of the stressors for grizzly bear (FW-NCDE-DC-01, 02, 03; FW-NCDE-STD-01, 02; PCAZ1Z2-NCDE-DC-01; PCAZ1Z2-NCDE-STD-01; PCAZ1Z2-NCDE-GDL-01, 02; PCAZ1-NCDE-DC-01; PCAZ1-NCDE-STD-01 to 12; PCAZ1-NCDE-GDL-01 to 07; Z1-NCDE-DC-01, 02; Z1-NCDE-STD-01; PCA-NCDE-DC-01 to 06; PCA-NCDE-STD-01</p> |



| Species | Key ecosystem characteristics or ecological conditions | Stressors | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components   |
|---------|--|-----------|--|---|
|         |  |           | <p>ACCESS-GDL-01, EH-ACCESS-DC-01, EH-ACCESS-GDL-01, EH-RT-STD-01, 02; EH-RT-GDL-01; RM-BTM-DC-02; RM-CMA-DC-01, 03; RM-CMA-STD-01, 02).</p> <ul style="list-style-type: none"> <li>• Potential displacement or bear-human conflicts in developed sites, and potential for direct mortality, are addressed by FW-WL-GDL-02, FW-REC-DC-04, FW-REC-GDL-07; FW-RT-DC-04, FW-WL-DC-05, and FW-RSUP-GDL-01.</li> <li>• Habitat connectivity is provided by plan components that apply to a variety of species (DI-WL-GO-01; DI-WL-GDL-01; EH-WL-DC-01; HI-WL-DC-01; LB-WL-DC-01; UB-WL-GDL-01; FW-WTR-DC-02, FW-RMZ-DC-02, FW-RMZ-STD-03, FW-RMZ-GDL-04, 07, 08, 09, 11, 12; FW-FAH-GO-04; FW-RT-GO-03, FW-WL-DC-03, FW-WL-GO-04, FW-VEGT-DC-04, 08). Connectivity in several GAs would also be monitored (MON-WL-01).</li> <li>• Several plan components address potential stressors to wildlife and wildlife habitats associated with human developments and uses, including recreation, roads and access, livestock grazing, and timber harvest (FW-REC-DC-04; FW-REC-GDL-01; FW-RT-GDL-13; FW-GRAZ-GDL-04; FW-TIM-GDL-02; FW-OFP-GDL-03; EH-WL-GDL-02, 03; EH-ACCESS-DC-01; EH-ACCESS-GDL-01).</li> </ul> | <p>to 12; PCA-NCDE-GDL-01 to 10).</p> <p>In addition, other plan components call out the needs of grizzly bear, including avoiding human-bear conflicts (FW-WL-GDL-02; RM-WL-STD-01); providing large remote areas (FW-WILD-DC-03); and connectivity for grizzly bears (BB-WL-DC-03; CR-WL-DC-01; DI-WL-DC-01, EH-WL-DC-02; RM-WL-DC-01; and UB-WL-DC-01).</p> <p>Several monitoring items would be conducted for grizzly bear: MON-WL-02 would assess bear conflicts; and MON-WL-04 would assess changes to baseline habitat conditions.</p> |

## Plants Supplemental Information

### Species Habitat Associations

Table 6 lists the plant species that are listed under the Endangered Species Act, those that were determined to be SCC, as well as those that were Regional Forester Sensitive Species (RFSS) on the HLC NF prior to revising the forest plan and summarizes their habitat information. Not all RFSS were selected as SCC. SCC would be adopted with all of the action alternatives. If the no-action alternative was selected, SCC would not be adopted. Rather, RFSS would be managed for by 1986 plan components.

**Table 6. HLC NF plant species and associated habitat**

| Plant species                    | Conservation categories          | Habitat guild                   | Habitat description  |
|----------------------------------|----------------------------------|---------------------------------|--|
| <i>Adoxa moschatellina</i>       | SCC, RFSS, SOC, G3               | Mesic-Montane-Disturbance-Talus | Vernally moist places in the mountains at the bottom of undisturbed, open rock slides that have cold air drainage.   |
| <i>Amerorchis rotundifolia</i>   | SCC, RFSS, SOC, Adjacent SCC     | Wetland-riparian                | Spruce forest around seeps or along streams, often in soil derived from limestone. High fidelity to a very narrow range of ecological tolerance that typifies a stable or near climax community and does not tolerate disturbance.                     |
| <i>Aquilegia brevistyla</i>      | SCC, RFSS, SOC, S2               | Wetland-riparian                | Open woods and stream banks at mid-elevations in the montane zone.   |
| <i>Astragalus convallarius</i>   | SCC, SOC                         | Grasslands                      | Grasslands and open ponderosa pine woodlands in the valley and foothills. <i>Festuca scabrella</i> , <i>Festuca idahoensis</i> and <i>Elymus spicatus</i> are common bunchgrass associates.  |
| <i>Astragalus lackschewitzii</i> | SCC, SOC, RFSS, S2, G2           | Alpine                          | Open, gravelly and rocky slopes and ridgetops with calcareous soil and talus; subalpine to alpine.   |
| <i>Botrychium ascendens</i>      | RFSS, G3                         | Wetland-riparian                | Stream, floodplains of glaciated bottoms dominated by shrubs with lush cover by forbs, grasses, and mosses in NW Montana. Often associated with wetlands dominated by spruce and alder. Mostly in sub-irrigated habitats 2700-6000 (9500) ft elevation |
| <i>Botrychium crenulatum</i>     | SCC, RFSS, SOC, G3               | Wetland-riparian                | Various mesic sites from low to moderate elevations, including roadsides and other disturbed habitats. Can occur in open habitats, but more often in closed canopy habitats.   |
| <i>Botrychium paradoxum</i>      | SCC, RFSS, SOC, G3, Adjacent SCC | Wetland-riparian                | Mesic meadows associated with spruce and lodgepole pine forests in the montane and subalpine zones; also found in springy western red cedar forests.   |

| Plant species                                   | Conservation categories            | Habitat guild                   | Habitat description  |
|---|------------------------------------|---------------------------------|--|
| <i>Braya humilis</i>                            | SCC, SOC, S2 (S1 Nature Serve)     | Mesic-Montane-Disturbance-Talus | ( <i>Neotorularia humilis</i> ) Sparsely vegetated, vernal moist, calcareous soil in the alpine zone and similar sites with sparse vegetation cover dominated by <i>Potentilla fruticosa</i> , <i>Carex scirpoidea</i> , <i>Phlox kelseyi</i> and <i>Zigadenus elegans</i> in montane settings along the Rocky Mountain Front.           |
| <i>Carex chordorrhiza</i>                       | RFSS, Adjacent SCC, SOC            | Peatlands                       | Wet, organic soil of fens in the montane zone  |
| <i>Carex rostrata</i>                           | RFSS, SOC, S2                      | Peatlands                       | Wet, organic soils of fens in the montane zone, including floating peat mats   |
| <i>Castilleja kerryana</i>                      | SCC, SOC, G3                       | Alpine                          | Rocky or gravelly limestone substrates of Cambrian origin; slopes and ridges from upper subalpine krummholz or turf communities in upper alpine fell fields  |
| <i>Cypripedium parviflorum</i>                  | SCC, RFSS, S3                      | Wetland-riparian                | Fens, damp mossy woods, seepage areas, and moist forest-meadow ecotones in the valley to lower montane zones.  |
| <i>Cypripedium passerinum</i>                   | SCC, RFSS, SOC, S2, Adjacent SCC   | Wetland-riparian                | Fens, damp mossy woods, seepage areas, and moist forest-meadow ecotones in the valley to lower montane zones.  |
| <i>Delphinium bicolor</i> ssp. <i>calcicola</i> | SCC, T3 (variety equivalent to G3) | Grasslands                      | Shortgrass prairie and grass-sagebrush communities on limestone-derived soils, usually with coarse fragments at the surface, or on limestone outcrops. 4000-7000 m elevation.  |
| <i>Draba densifolia</i>                         | SCC, SOC, S2                       | Alpine                          | Gravelly, open soil of rocky slopes and exposed ridges in the montane to alpine zones.   |
| <i>Drosera anglica</i>                          | SCC, RFSS, SOC                     | Peatlands                       | With sphagnum moss in wet, organic soils of fens in the montane zone.  |
| <i>Drosera linearis</i>                         | SCC, RFSS, SOC, S2, Adjacent SCC   | Peatlands                       | With sphagnum moss in wet, organic soils of fens in the montane zone.  |
| <i>Erigeron lackschewitzii</i>                  | RFSS, SOC, G3                      | Alpine                          | Exposed alpine settings (gravelly talus) with water-retaining calcareous soil derived from a dolomite substrate, rock-covered surfaces impeding water loss from shallow soil beneath, exposed, windy sites (saddles, protruding outcrops, crests of updraft chutes), and areas with first snowmelt and late soil recharge above 6000 ft. |
| <i>Eleocharis rostellata</i>                    | SCC, RFSS, SOC, Adjacent SCC       | Peatlands                       | Wet, often alkaline soils, associated with warm springs or fens in the valley and foothills zones.   |
| <i>Elymus innovatus</i>                         | SCC, RFSS, SOC, S2                 | Grasslands                      | Moist meadows, forest margins and openings along rivers and streams in the valley and lower montane zones.   |
| <i>Epipactis gigantea</i>                       | SCC, RFSS, SOC, S2, Adjacent SCC   | Wetland-riparian                | Stream banks, lake margins, fens with springs and seeps, often near thermal waters.  |

| Plant species                                   | Conservation categories              | Habitat guild                   | Habitat description   |
|---|--------------------------------------|---------------------------------|---|
| <i>Erigeron flabellifolius</i>                  | SCC, SOC, G3                         | Mesic-Montane-Disturbance-Talus | Gravelly soil or talus in the subalpine and alpine zones.   |
| <i>Gentianopsis macounii</i>                    | SCC, RFSS, SOC, S2                   | Peatlands                       | Wet, organic soil of calcareous fens in the valley and foothill zones.  |
| <i>Goodyera repens</i>                          | SCC, RFSS, SOC                       | Mesic-Montane-Disturbance-Talus | North-facing, mossy forested slopes in the montane zone.  |
| <i>Grindelia howellii</i>                       | SCC, SOC, RFSS, G3, S2, Adjacent SCC | Grasslands                      | Vernally moist, lightly disturbed soil adjacent to ponds and marshes, as well as similar human-created habitats, such as roadsides and grazed pastures.         |
| <i>Juncus hallii</i>                            | RFSS                                 | Wetland-riparian                | Moist grassland and sedge meadows from the montane to alpine zones. Flats or benches on the gentle to mid-upper slopes (3500) 6000-8800 feet elevation          |
| <i>Lycopodium dendroideum</i>                   | SCC, RFSS, SOC, S2                   | Mesic-Montane-Disturbance-Talus | Moist, coniferous forest in the valley and lower montane zones.   |
| <i>Micranthes tempestiva</i>                    | RFSS, G2, S2, SOC                    | Mesic-Montane-Disturbance-Talus | Vernally moist, open soil in meadows and on rock ledges in subalpine and alpine zones 7500-9500 feet elevation  |
| <i>Oxytropis podocarpa</i>                      | RFSS, SOC, S1                        | Alpine                          | Gravelly ridges and slopes, often on limestone, in the alpine zone. Basins or on steep slopes and ridges with limestone-derived soils, 6500-8500 feet elevation |
| <i>Phlox kelseyi</i> var. <i>missoulensis</i>   | SCC, RFSS, SOC, G3                   | Grasslands                      | Open, exposed, limestone-derived slopes in the foothills to exposed ridges in the subalpine zone.   |
| <i>Pinus albicaulis</i>                         | TES - Proposed                       | Alpine                          | High elevation, harsh, exposed slopes and ridgetops   |
| <i>Polygonum austinae</i>                       | SCC, RFSS, SOC                       | Mesic-Montane-Disturbance-Talus | ( <i>Polygonum douglasii</i> var. <i>austinae</i> ) Gravelly, often shale-derived soil of open slopes and banks in the montane zone.                            |
| <i>Potamogeton obtusifolius</i>                 | SCC, RFSS, SOC                       | Aquatic                         | Open water; Shallow water of lakes, ponds, and sloughs in the valley, foothill, and montane zones.  |
| <i>Potentilla nivea</i> var. <i>pentaphylla</i> | RFSS, SOC                            | Alpine                          | Dry, shallow, gravelly soil or talus and scree of exposed ridges, slopes, and summits in the montane to alpine zones 4600-10000 ft elevation                    |
| <i>Ranunculus pedatifidus</i>                   | SCC, SOC                             | Wetland-riparian                | Moist meadows and open woodlands in the montane to alpine zones.  |
| <i>Salix barrattiana</i>                        | RFSS, S2, SOC                        | Alpine                          | Alpine habitat, 6500 – 9500 ft elevation  |
| <i>Schoenoplectus subterminalis</i>             | SCC, RFSS, SOC                       | Aquatic                         | Open water and boggy margins of ponds, lakes, and sloughs at 0.1-3 m depth in the valley, foothill, and montane zones.  |

| Plant species                  | Conservation categories          | Habitat guild                   | Habitat description   |
|--------------------------------|----------------------------------|---------------------------------|---|
| <i>Scorpidium scorpioides</i>  | SCC, RFSS, SOC, S2, Adjacent SCC | Peatlands                       | Exposed or submerged rocks in rivers and streams. Also found on wet soil in calcareous seeps and fens, and soil of bogs, ponds, and other wetlands. From low elevations to about 10,000 feet. |
| <i>Sphagnum fimbriatum</i>     | SCC, SOC, S1                     | Peatlands                       | Nutrient-rich wet soil and peat, at the edges of bogs and poor fens on mineral soil, somewhat exposed to wooded fens. Elevation: low to high.   |
| <i>Stipa lettermanii</i>       | SCC, SOC, S1                     | Mesic-Montane-Disturbance-Talus | Coniferous forest ( <i>Pinus contorta</i> and <i>Picea engelmannii</i> ) with openings.   |
| <i>Thalictrum alpinum</i>      | RFSS, S2, SOC                    | Mesic-Montane-Disturbance-Talus | Typically, moist meadows or stony slopes in montane and lower subalpine areas. Can occur on drier, upper portions of hummocks. Sometimes along streams 4500-8500 feet elevation.              |
| <i>Trichophorum cespitosum</i> | RFSS, S2, Adjacent SCC, SOC      | Peatlands                       | Sphagnum-dominated fens and wet meadows in the montane to alpine zones. Rare in Montana.  |
| <i>Veratrum californicum</i>   | RFSS, S2, SOC                    | Wetland-Riparian                | Wet meadows and streambanks in the montane and subalpine zones 5500-8000 feet elevation.  |

RFSS = Regional Forester Sensitive Species (alt A); SCC = Species of Conservation Concern (action alts); SOC = species of concern; S1 = state ranking 1; S2 = state ranking 2; G3 = global ranking 3.

## Plan Components and Monitoring Items for At-Risk Plant Species

The plan components in Table 7 provide management direction and monitoring that is relevant to at-risk plant species or species guilds on the HLC NF. Plan components may apply at the forestwide scale (FW) or the geographic area scale (GA).

**Table 7. Summary of plan components and monitoring that address at-risk plant species**

| Species   | Desired Conditions  | Objectives and Goals                             | Standards and Guidelines   | Suitability | Monitoring                 |
|---|---|--|--|-------------|----------------------------|
| SCC Plant Species<br>Peatlands Habitat<br>Group | FW-WTR-DC-01 to 06, 11,<br>12<br>FW-RMZ-DC-01, 02<br>FW-VEGT-DC-01 to 04<br>FW-PLANT-DC-01<br>FW-POLL-DC-01<br>FW-INV-DC-01 to 03<br>FW-REC-DC-04<br>FW-WILD-DC-04<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-GRAZ-DC-03, 04 | FW-RMZ-OBJ-01<br>FW-FAH-OBJ-01<br>FW-PLANT-GO-01 | FW-WTR-STD-01, 02<br>FW-WTR-GDL-02<br>FW-RMZ-STD-01, 04<br>FW-RMZ-GDL-03<br>FW-VEGT-GDL-01, 02<br>FW-PLANT-GDL-01<br>FW-TIM-GDL-01<br>FW-TIM-STD-01, 03<br>FW-OFP-DC-01<br>FW-OFP-GDL-03<br>FW-EMIN-GDL-01, 02<br>FW-INV-GDL-01 to 05<br>FW-INV-STD-01<br>FW-REC-GDL-03, 06<br>FW-WILD-GDL-01<br>FW-RNA-GDL-01<br>FW-LAND-GDL-02<br>FW-GRAZ-STD-01, 02<br>FW-GRAZ-GDL-01 to 07 |             | MON-PLANT-01<br>MON-INV-03 |
| SCC Plant Species<br>Alpine Habitat Group       | FW-SOIL-DC-01, 02<br>FW-VEGT-DC-01 to 04<br>FW-VEGNF-DC-01 to 03<br>FW-PLANT-DC-01<br>FW-POLL-DC-01<br>FW-INV-DC-01, 02<br>FW-REC-DC-04   | FW-PLANT-GO-01                                   | FW-SOIL-STD-01, 03<br>FW-VEGT-GDL-01, 02, 04<br>FW-PLANT-GDL-01<br>FW-INV-STD-01<br>FW-INV-GDL-01 to 05<br>FW-NRT-GDL-01<br>FW-RNA-GDL-01  |             | MON-PLANT-01<br>MON-INV-03 |

| Species  | Desired Conditions  | Objectives and Goals                             | Standards and Guidelines   | Suitability | Monitoring                  |
|--|---|--|--|-------------|-----------------------------|
|  | FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-GRAZ-DC-03<br>FW-CARB-DC-01<br>FW-WILD-DC-02, 03.  |  | FW-GRAZ-GDL-02, 04, 06<br>FW-OFP-DC-01<br>FW-OFP-GDL-03  |             |                             |
| SCC Plant Species<br>Wetland-Riparian<br>Habitat Group | FW-WTR-DC-01 to 06, 11, 12<br>FW-RMZ-DC-01, 02<br>FW-VEGT-DC-01 to 03<br>FW-VEGF-DC-11<br>FW-VEGNF-DC-01 to 03<br>FW-PLANT-DC-01<br>FW-POLL-DC-01<br>FW-INV-DC-01 to 03<br>FW-REC-DC-04<br>FW-WILD-DC-04<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-GRAZ-DC-03, 04 | FW-RMZ-OBJ-01<br>FW-FAH-OBJ-01<br>FW-PLANT-GO-01 | FW-WTR-STD-01, 02<br>FW-WTR-GDL-02<br>FW-RMZ-STD-01, 04<br>FW-RMZ-GDL-03<br>FW-VEGT-GDL-01, 02, 04<br>FW-PLANT-GDL-01<br>FW-INV-STD-01<br>FW-INV-GDL-01 to 05<br>FW-REC-GDL-03, 06<br>FW-WILD-GDL-01<br>FW-RNA-GDL-01<br>FW-LAND-GDL-02<br>FW-GRAZ-STD-01, 02<br>FW-GRAZ-GDL-01 to 07<br>FW-TIM-GDL-01<br>FW-TIM-STD-01, 03<br>FW-OFP-DC-01<br>FW-OFP-GDL-03<br>FW-EMIN-GDL-01, 02 |             | MON-PLANT-01;<br>MON-INV-03 |
| SCC Plant Species<br>Grasslands Habitat<br>Group       | FW-WTR-DC-05<br>FW-SOIL-DC-01, 02<br>FW-FIRE-DC-01<br>FW-VEGT-DC-01 to 04<br>FW-VEGNF-DC-01 to 03<br>FW-PLANT-DC-01<br>FW-POLL-DC-01<br>FW-INV-DC-01 to 03  | FW-PLANT-GO-01<br>FW-INV-OBJ-01                  | FW-SOIL-STD-01, 03<br>FW-FIRE-GDL-01<br>FW-WTR-GDL-02<br>FW-FIRE-GDL-04<br>FW-VEGT-GDL-01, 02, 04<br>FW-VEGNF-GDL-01<br>FW-PLANT-GDL-01<br>FW-INV-STD-01   |             | MON-PLANT-01<br>MON-INV-03  |

| Species   | Desired Conditions   | Objectives and Goals                             | Standards and Guidelines  | Suitability | Monitoring                  |
|---|--|--|---|-------------|-----------------------------|
|   | FW-REC-DC-04<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-WILD-DC-04<br>FW-GRAZ-DC-01, 03   |  | FW-INV-GDL-01 to 05<br>FW-WILD-GDL-01<br>FW-RNA-GDL-01<br>FW-GRAZ-STD-01, 02<br>FW-GRAZ-GDL-02, 04, 06<br>FW-TIM-GDL-01<br>FW-TIM-STD-01, 03<br>FW-OFP-DC-01<br>FW-OFP-GDL-03   |             |                             |
| SCC Plant Species<br>Aquatic Habitat<br>Group                             | FW-WTR-DC-01 to 09, 11,<br>12<br>FW-RMZ-DC-01, 02<br>FW-VEGT-DC-01, 03, 08<br>FW-PLANT-DC-01<br>FW-POLL-DC-01<br>FW-INV-DC-01 to 03;<br>FW-REC-DC-04<br>FW-WILD-DC-04<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-RT-STD-01<br>FW-GRAZ-DC-03, 04 | FW-RMZ-OBJ-01<br>FW-FAH-OBJ-01<br>FW-PLANT-GO-01 | FW-WTR-STD-01, 02<br>FW-WTR-GDL-02<br>FW-RMZ-STD-01, 04<br>FW-RMZ-GDL-03<br>FW-PLANT-GDL-01<br>FW-INV-STD-01<br>FW-INV-GDL-01 to 05<br>FW-REC-GDL-03, 06<br>FW-WILD-GDL-01<br>FW-RNA-GDL-01<br>FW-LAND-GDL-02<br>FW-GRAZ-STD-01, 02<br>FW-GRAZ-GDL-01 to 07<br>FW-EMIN-GDL-01, 02 |             | MON-PLANT-01<br>MON-INV-03. |
| SCC Plant Species<br>Mesic-Montane-<br>Disturbance-Talus<br>habitat Group | FW-SOIL-DC-01<br>FW-VEGT-DC-01 to 04<br>FW-PLANT-DC-01<br>FW-POLL-DC-01<br>FW-INV-DC-01, 02, 03<br>FW-REC-DC-04<br>FW-IRA-DC-01, 02<br>FW-RNA-DC-01<br>FW-GRAZ-DC-03   | FW-PLANT-GO-01                                   | FW-WTR-GDL-02<br>FW-SOIL-STD-01, 03<br>FW-VEGT-GDL-01, 02, 04<br>FW-PLANT-GDL-01<br>FW-INV-STD-01<br>FW-INV-GDL-01 to 05<br>FW-RNA-GDL-01<br>FW-GRAZ-STD-01, 02<br>FW-GRAZ-GDL-02, 04, 06   |             | MON-PLANT-01<br>MON-INV-03  |



| Species        | Desired Conditions   | Objectives and Goals | Standards and Guidelines  | Suitability  | Monitoring       |
|----------------|--|----------------------|---|--|------------------|
|                |  |                      | FW-TIM-GDL-01<br>FW-TIM-STD-01, 03<br>FW-OFP-DC-01<br>FW-OFP-GDL-03   |  |                  |
| Whitebark Pine | FW-VEGT-DC-01 to 04<br>FW-FIRE-DC-01<br>FW-VEGF-DC-01, 09<br>FW-PLANT-DC-02<br>PCA-NCDE-DC-04<br>FW-WILD-DC-02<br>FW-RECWILD-DC-02<br>FW-WSA-DC-01 | FW-PLANT-OBJ-01      | FW-FIRE-GDL-01, 04<br>FW-VEGT-GDL-01, 03<br>FW-TIM-GDL-01<br>FW-VEGF-GDL-03<br>FW-TIM-STD-01, 03<br>FW-OFP-DC-01<br>FW-OFP-GDL-03 | FW-WSA-SUIT-03<br>FW-IRA-SUIT-03<br>RM-BTM-SUIT-02 | MON-PLANT-02, 03 |

### Key Ecosystem Characteristics and Stressors for At-Risk Plant Species

Table 8 shows how key ecosystem characteristics and stressors for at-risk plants are addressed by coarse-filter and species-specific plan components. Some plan components deal with stressors or threats relevant to populations in the planning area, and some deal with the ecological conditions or key ecosystem characteristics required by the species. Plan components may apply at the forestwide scale (FW) or the geographic area scale (GA). The lists in Table 8 are not intended to be all inclusive.

**Table 8. Summary of how plan components address stressors, key ecosystem characteristics, and ecological conditions for at-risk plants**

| Species   | Key ecosystem characteristics or ecological conditions  | Stressors   | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components   |
|---|---|---|--|---|
| SCC Plant Species<br>Peatlands<br>Habitat Group | Wet to moist soils in or in the ecotone areas adjacent to peatlands, fens, and sometimes seepy areas or other types of wetlands | Primarily vulnerable to activities that could change the hydrology of the groundwater-dependent fen and wetland habitats; | Watershed desired conditions support ecological conditions and habitat requirements (FW-WTR-DC-01, 02, 03, 04, 05, 06, 11, 12); Watershed projects promote long-term ecological integrity and native species in watershed habitats (FW-WTR-GDL-02); Riparian Management Zones support ecological conditions that support peatland habitat (FW-RMZ-DC-01, 02); RMZs are actively improved to improve habitat quality and increase available SCC habitat (FW-RMZ-OBJ-01; FW-FAH-OBJ-01); RMZs established around | Desired condition to provide ecological conditions that sustain plant SCC (FW-PLANT-DC-01). Recovery and long-term persistence of SCC is supported with groups of partners (FW-PLANT-GO-01). Activities affecting vegetation in known |

| Species                                   | Key ecosystem characteristics or ecological conditions   | Stressors  | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components   |
|---|--|--|--|---|
|   |  | management activities that could impact habitat include livestock grazing, recreation, noxious weeds, timber harvest, development                          | all wetland features to reduce disturbance within the defined buffered areas and maintain habitat quality (FW-RMZ-STD-01, 04; FW-RMZ-GDL-03); Native vegetation is supported, and the natural range of variation is described (FW-VEGT-DC-01, 02, 04; FW-VEGT-GDL-01, 02); SCC, threatened and endangered species are supported (FW-VEGT-DC-03); Pollinator species and habitat needs are addressed and supported with support native plant communities (FW-POLL-DC-01). Management reduces the amount of invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-GDL-01, 02, 03, 04, 05; FW-INV-STD-01). Threats from management activities related to recreation, timber harvest and mineral activities that could impact SCC species are minimized (FW-REC-DC-04; FW-TIM-GDL-01; FW-TIM-STD-01, 03; FW-OFP-DC-01; FW-OFP-GDL-03; FW-EMIN-GDL-01, 02; FW-REC-GDL-03, 06; FW-LAND-GDL-02). Habitats are undisturbed in wilderness, IRA and Research Natural Areas (FW-WILD-DC-04; FW-IRA-DC-01, 02; FW-RNA-DC-01; FW-WILD-GDL-01; FW-RNA-GDL-01). Native species are maintained in grazing allotments (FW-GRAZ-DC-03, 04). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-01, 02, 03, 04, 05, 06, 07). | occurrences or suspected habitat of plants is designed to support long-term persistence (FW-PLANT-GDL-01). These components support each SCC at a species-specific level.   |
| SCC Plant Species<br>Alpine Habitat Group | Open, gravelly and rocky slopes and ridgetops with various soil and talus; subalpine to alpine | Direct impacts to rocky habitats and habitat degradation are threats to known occurrences; recreation, noxious weeds, livestock grazing and climate change | Soil quality and productivity are not impaired and support native vegetation (FW-SOIL-DC-01; FW-SOIL-STD-01, 03) Biological soil crusts on dry sites are maintained (FW-SOIL-DC-02). Native vegetation is supported, and the natural range of variation is described (FW-VEGT-DC-01, 02, 04; FW-VEGT-GDL-01, 02, 04); SCC, threatened and endangered species are supported (FW-VEGT-DC-03). Native vegetation is supported, and the natural range of variation is described (FW-VEGNF-DC-01, 02, 03). Pollinator species and habitat needs are addressed and supported with support native plant communities (FW-POLL-DC-01). Management reduces the amount of   | Desired condition to provide ecological conditions that sustain plant SCC (FW-PLANT-DC-01). Recovery and long-term persistence of SCC is supported with groups of partners (FW-PLANT-GO-01). Activities affecting vegetation in known occurrences or suspected habitat of plants is designed to support long-term |

| Species   | Key ecosystem characteristics or ecological conditions           | Stressors  | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components  |
|---|--|--|---|--|
|   |  |  | <p>invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-GDL-01, 02, 03, 04, 05; FW-INV-STD-01). Threats from management activities related to recreation that could impact SCC species are minimized (FW-REC-DC-04; FW-NRT-GDL-01). Habitats are undisturbed in wilderness, IRA and Research Natural Areas (FW-IRA-DC-01, 02; FW-RNA-DC-01; FW-WILD-DC-02, 03; FW-RNA-GDL-01). Native species are maintained in grazing allotments (FW-GRAZ-DC-03). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-02, 04, 06). Carbon storage and sequestration potential is sustained through maintenance or enhancement of ecosystem biodiversity and function, and forests are resilient to natural disturbance processes and changing climates (FW-CARB-DC-01). Forest products collection would occur in a sustainable way and consider impacts to at-risk species (FW-OFP-DC-01; FW-OFP-GDL-03).</p> | <p>persistence (FW-PLANT-GDL-01). These components support each SCC at a species-specific level.</p>   |
| <p>SCC Plant Species<br/>Wetland-Riparian Habitat Group</p> | <p>Swamps, marshes, riparian seeps and springs, stream banks</p> | <p>Changes to canopy cover, changes to site hydrology and habitat degradation are threats to this species; recreation, livestock grazing, noxious weeds, and timber harvest can impact species</p> | <p>Watershed desired conditions support ecological conditions and habitat requirements (FW-WTR-DC-01, 02, 03, 04, 05, 06, 11, 12); Watershed projects promote long-term ecological integrity and native species in watershed habitats (FW-WTR-GDL-02); Riparian Management Zones support ecological conditions that support peatland habitat (FW-RMZ-DC-01, 02); RMZs are actively improved to improve habitat quality and increase available SCC habitat (FW-RMZ-OBJ-01; FW-FAH-OBJ-01); RMZs established around all wetland features to reduce disturbance within the defined buffered areas and maintain habitat quality (FW-RMZ-STD-01, 04; FW-RMZ-GDL-03). Native vegetation is supported, and the natural range of variation is described including understory vegetation (FW-VEGT-DC-01, 02, 04; FW-VEGT-GDL-01, 02; FW-VEGF-DC-11; FW-VEGNF-DC-01, 02, 03). SCC, threatened and endangered species are supported (FW-VEGT-DC-03). Pollinator species and</p>      | <p>Desired condition to provide ecological conditions that sustain plant SCC (FW-PLANT-DC-01). Recovery and long-term persistence of SCC is supported with partners (FW-PLANT-GO-01). Activities affecting vegetation in known occurrences or suspected habitat of plants is designed to support long-term persistence (FW-PLANT-GDL-01). These components support each SCC at a species-specific level.</p> |

| Species   | Key ecosystem characteristics or ecological conditions             | Stressors  | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components  |
|---|--|--|---|--|
|   |  |  | <p>habitat needs are addressed and supported with support native plant communities (FW-POLL-DC-01). Management reduces the amount of invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-GDL-01, 02, 03, 04, 05; FW-INV-STD-01). Threats from management activities related to recreation, timber harvest and mineral activities that could impact SCC species are minimized (FW-REC-DC-04; FW-TIM-GDL-01; FW-TIM-STD-01, 03; FW-OFP-DC-01; FW-OFP-GDL-03; FW-EMIN-GDL-01, 02; FW-REC-GDL-03, 06; FW-LAND-GDL-02). Habitats are undisturbed in wilderness, IRA and Research Natural Areas (FW-WILD-DC-04; FW-IRA-DC-01, 02; FW-RNA-DC-01; FW-WILD-GDL-01; FW-RNA-GDL-01). Native species are maintained in grazing allotments (FW-GRAZ-DC-03, 04). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-01, 02, 03, 04, 05, 06, 07).</p>   |  |
| <p>SCC Plant Species<br/>Grasslands<br/>Habitat<br/>Group</p> | <p>Nonforested areas dominated by grasses, forbs and/or shrubs</p> | <p>Habitat degradation through non-native grasses and noxious weeds are threats to this species; development, noxious weed invasion, livestock grazing, recreation, conifer encroachment, project activities, and change in fire regime can impact species</p> | <p>Watershed desired conditions support ecological conditions and habitat requirements (FW-WTR-DC-05); Watershed projects promote long-term ecological integrity and native species in watershed habitats (FW-WTR-GDL-02); Soil quality and productivity are not impaired and support native vegetation (FW-SOIL-DC-01; FW-SOIL-STD-01, 03) Biological soil crusts on dry sites are maintained (FW-SOIL-DC-02). Native vegetation is supported, and the natural range of variation is described (FW-VEGT-DC-01, 02, 04; FW-VEGT-GDL-01, 02, 04; FW-VEGNF-DC-01, 02, 03; FW-VEGNF-GDL-01); SCC, threatened and endangered species are supported (FW-VEGT-DC-03). Pollinator species and habitat needs are addressed and supported with support native plant communities (FW-POLL-DC-01). Wildfire maintains desired habitat conditions and operates in its natural role on the landscape as much as possible, it is used to create healthy resilient ecosystems (FW-FIRE-DC-01; FW-FIRE-GDL-01; FW-FIRE-GDL-04).</p> | <p>Desired condition to provide ecological conditions that sustain plant SCC (FW-PLANT-DC-01). Recovery and long-term persistence of SCC is supported with groups of partners (FW-PLANT-GO-01). Activities affecting vegetation in known occurrences or suspected habitat of plants is designed to support long-term persistence (FW-PLANT-GDL-01). These components support each SCC at a species-specific level.</p> |

| Species  | Key ecosystem characteristics or ecological conditions   | Stressors  | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components  |
|--|--|--|---|--|
|  |  |  | <p>Management reduces the amount of invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-GDL-01, 02, 03, 04, 05; FW-INV-OBJ-01; FW-INV-STD-01). Threats from management activities related to recreation and timber harvest that could impact SCC species are minimized (FW-REC-DC-04; FW-TIM-GDL-01; FW-TIM-STD-01, 03; FW-OFP-DC-01; FW-OFP-GDL-03;). Habitats are undisturbed in wilderness, IRA and Research Natural Areas (FW-WILD-DC-04; FW-IRA-DC-01, 02; FW-RNA-DC-01; FW-WILD-GDL-01; FW-RNA-GDL-01). Native species are maintained in grazing allotments (FW-GRAZ-DC-01, 03). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-02, 04, 06).</p>   |  |
| <p>SCC Plant Species<br/>Aquatic Habitat Group</p> | <p>Shallow water of lakes, ponds, and sloughs and lotic streams in the valley, foothill, and montane zones</p> | <p>Habitat vulnerable to changes in water levels or increases in nutrient and sediment loads associated with development, agriculture, or adjacent timber harvesting</p> | <p>Watershed desired conditions support ecological conditions and habitat requirements (FW-WTR-DC-01, 02, 03, 04, 05, 06, 11, 12); Watershed projects promote long-term ecological integrity and native species in watershed habitats (FW-WTR-STD-01, 02; FW-WTR-GDL-02); Riparian Management Zones support ecological conditions that support peatland habitat (FW-RMZ-DC-01, 02); RMZs are actively improved to improve habitat quality and increase available SCC habitat (FW-RMZ-OBJ-01; FW-FAH-OBJ-01); RMZs established around all wetland features to reduce disturbance within the defined buffered areas and maintain habitat quality (FW-RMZ-STD-01, 04; FW-RMZ-GDL-03); Native vegetation is supported, and the natural range of variation is described (FW-VEGT-DC-01, 08); SCC, threatened and endangered species are supported (FW-VEGT-DC-03); Pollinator species and habitat needs are addressed and supported with support native plant communities (FW-POLL-DC-01). Management reduces the amount of invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-GDL-01, 02, 03, 04, 05; FW-INV-STD-01). Threats from management</p> | <p>Desired condition to provide ecological conditions that sustain plant SCC (FW-PLANT-DC-01). Recovery and long-term persistence of SCC is supported with groups of partners (FW-PLANT-GO-01). Activities affecting vegetation in known occurrences or suspected habitat of plants is designed to support long-term persistence (FW-PLANT-GDL-01). These components support each SCC at a species-specific level.</p> |

| Species  | Key ecosystem characteristics or ecological conditions  | Stressors   | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components  |
|--|---|---|---|--|
|  |   |   | <p>activities related to recreation, timber harvest and mineral activities that could impact SCC species are minimized (FW-REC-DC-04; FW-RT-STD-01; FW-EMIN-GDL-01, 02; FW-REC-GDL-03, 06; FW-LAND-GDL-02). Habitats are undisturbed in wilderness, IRA and Research Natural Areas (FW-WILD-DC-04; FW-IRA-DC-01, 02; FW-RNA-DC-01; FW-WILD-GDL-01; FW-RNA-GDL-01). Native species are maintained in grazing allotments (FW-GRAZ-DC-03, 04). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-01, 02, 03, 04, 05, 06, 07).</p>   |  |
| <p>SCC Plant Species<br/>Mesic-Montane-Disturbance-Talus habitat Group</p> | <p>Occur in a wide range of ecological conditions, from vernal moist places in the mountains at the bottom of undisturbed, open rock slides that have cold air drainage; sparsely vegetated calcareous montane to alpine zone; talus sites; north-facing mossy slopes in the montane zone; moist coniferous forest in montane</p> | <p>Activities that disturb vegetation or soils in their habitats, such as grazing, trampling, off-road vehicle use, road construction, timber harvesting, recreational activities (such as camping).<br/>Fire exclusion/changes in fire regimes, and resulting changes in vegetation succession, may be an issue for species associated with non-forest, open, or disturbed</p> | <p>Soil quality and productivity are not impaired and support native vegetation (FW-SOIL-DC-01; FW-SOIL-STD-01, 03) Biological soil crusts on dry sites are maintained (FW-SOIL-DC-02). Watershed projects promote long-term ecological integrity and native species in watershed habitats (FW-WTR-GDL-02). Pollinator species and habitat needs are addressed and supported with support native plant communities (FW-POLL-DC-01). Native vegetation is supported, and the natural range of variation is described (FW-VEGT-DC-01, 02, 04; FW-VEGT-GDL-01, 02, 04); SCC, threatened and endangered species are supported (FW-VEGT-DC-03). Management reduces the amount of invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-STD-01; FW-INV-GDL-01, 02, 03, 04, 05). Threats from management activities related to recreation and timber harvest that could impact SCC species are minimized (FW-REC-DC-04; FW-TIM-GDL-01; FW-TIM-STD-01, 03; FW-OFP-DC-01; FW-OFP-GDL-03;). Habitats are undisturbed in IRA and Research Natural Areas (FW-IRA-DC-01, 02; FW-RNA-DC-01; FW-RNA-GDL-01). Native species are maintained in grazing allotments (FW-GRAZ-DC-03). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-02, 04, 06).</p> | <p>Desired condition to provide ecological conditions that sustain plant SCC (FW-PLANT-DC-01). Recovery and long-term persistence of SCC is supported with groups of partners (FW-PLANT-GO-01). Activities affecting vegetation in known occurrences or suspected habitat of plants is designed to support long-term persistence (FW-PLANT-GDL-01). These components support each SCC at a species-specific level.</p> |

| Species        | Key ecosystem characteristics or ecological conditions  | Stressors  | How stressors are addressed by coarse filter plan components   | How stressors are addressed by species-specific plan components  |
|----------------|---|--|--|--|
|                | zone; gravelly shale-derived soils on open slopes; and coniferous forest openings.  | habitats. Non-native plant species are a threat where the SCC species occur.   |  |  |
| Whitebark Pine | Tolerates poor soils, steep slopes, windy exposures, and tree-line environments. Often found on warm, dry exposures in subalpine and alpine habitats. | White pine blister rust, mountain pine beetle, climate change, encroachment of other conifer species, fire exclusion | Desired condition to provide ecological conditions that sustain plant whitebark pine (FW-PLANT-DC-01). Recovery and long-term persistence of at-risk plants is supported with groups of partners (FW-PLANT-GO-01). Activities affecting vegetation in known occurrences or suspected habitat of at-risk plants is designed to support long-term persistence (FW-PLANT-GDL-01). Soil quality and productivity are not impaired and support native vegetation (FW-SOIL-DC-01; FW-SOIL-STD-01, 03) Biological soil crusts on dry sites are maintained (FW-SOIL-DC-02). Native vegetation is supported, and the natural range of variation is described (FW-VEGT-DC-01, 02, 04; FW-VEGT-GDL-01, 02, 04); SCC, threatened, endangered, candidate and proposed species are supported (FW-VEGT-DC-03). Native vegetation is supported, and the natural range of variation for forested areas supporting whitebark pine is described (FW-VEGF-DC-01, 02, 03). Vegetation within the grizzly bear primary conservation area supports the ecological needs of grizzly bears, which includes whitebark pine promotion as a valuable food source for bears (PCA-NCDE-DC-04). Wildfire maintains desired habitat conditions and operates in its natural role on the landscape as much as possible, it is used to create healthy resilient ecosystems with reduces a stressor to whitebark pine (FW-FIRE-DC-01; FW-FIRE-GDL-01; FW-FIRE-GDL-04). Management reduces the amount of invasive species and supports native species in all habitats (FW-INV-DC-01, 02, 03; FW-INV-GDL-01, 02, 03, 04, 05; FW-INV-STD-01). Threats from management activities related to recreation that could | Key whitebark pine sites are maintained on the landscape (FW-PLANT-DC-02) and 4,500 acres of whitebark pine would be restored over the life of the plan (FW-PLANT-OBJ-01). |

| Species | Key ecosystem characteristics or ecological conditions | Stressors | How stressors are addressed by coarse filter plan components  | How stressors are addressed by species-specific plan components |
|---------|--|-----------|---|---|
|         |  |           | <p>impact whitebark pine are minimized (FW-REC-DC-04; FW-TIM-GDL-01; FW-TIM-STD-01, 03; FW-OFP-DC-01; FW-OFP-GDL-03; FW-NRT-GDL-01). Habitats are undisturbed and natural processes are promoted in wilderness, wilderness study areas, IRA, recommended wilderness areas, and Research Natural Areas (FW-IRA-DC-01, 02; FW-WSA-DC-01; FW-RECWILD-DC-02; FW-RNA-DC-01; FW-WILD-DC-02, 03; FW-RNA-GDL-01) and restoration activities can occur in these areas, including the Badger-two medicine (FW-WSA-SUIT-03, 04; FW-IRA-SUIT-03; RM-BTM-SUIT-02). Native species are maintained in grazing allotments (FW-GRAZ-DC-03). The threats and impacts from invasive species are reduced (FW-GRAZ-STD-02; FW-GRAZ-GDL-02, 04, 06). Carbon storage and sequestration potential is sustained through maintenance or enhancement of ecosystem biodiversity and function, and forests are resilient to natural disturbance processes and changing climates (FW-CARB-DC-01).</p> |   |



# E. Recommended Wilderness Analysis Process

## Table of Contents

|   |     |
|---|-----|
| Wilderness Recommendation Process .....             | 1   |
| Introduction .....                                  | 1   |
| Public Participation, Comment, and Review.....      | 1   |
| Step 1: Identification and Inventory .....          | 2   |
| Criteria for including lands in the inventory ..... | 2   |
| Identified inventory areas.....                     | 5   |
| Step 2: Evaluation .....                            | 6   |
| Big Belts Geographic Area.....                      | 7   |
| Big Log Area (BB1).....                             | 7   |
| Hogback Area (BB2) .....                            | 12  |
| Trout Creek Area (BB3) .....                        | 17  |
| North Belts Area (BB4).....                         | 23  |
| Bilk Mountain Area (BB5).....                       | 28  |
| Camas Creek Area (BB6) .....                        | 33  |
| Mount Baldy Area (BB7) .....                        | 38  |
| Grassy Mountain Area (BB8).....                     | 44  |
| Willow Creek Area (BB11).....                       | 49  |
| Castles Geographic Area .....                       | 54  |
| Wapiti Peak Area (CA1).....                         | 54  |
| Whetstone Ridge Area (CA3) .....                    | 60  |
| Crazies Geographic Area .....                       | 65  |
| Loco Mountain Area (CR1).....                       | 65  |
| Bald Ridge Area (CR3) .....                         | 70  |
| Divide Geographic Area .....                        | 76  |
| Sweeney Creek Area (D2) .....                       | 76  |
| Electric Peak (Blackfoot Meadows) Area (D3) .....   | 82  |
| Colorado Mountain Area (D5).....                    | 88  |
| Continental Divide North Area (D13).....            | 93  |
| Elkhorns Geographic Area.....                       | 99  |
| Eagle Basin Area (E1) .....                         | 99  |
| Elkhorn Peak Area (E3).....                         | 105 |
| Highwoods Geographic Area .....                     | 110 |
| Highwood Baldy Area (H1).....                       | 110 |
| Arrow Prospect Area (H2) .....                      | 115 |
| Little Belts Geographic Area .....                  | 121 |
| Deep Creek Area (LB1).....                          | 121 |
| Big Horn Thunder Area (LB2) .....                   | 127 |
| Sun Mountain Area (LB3).....                        | 133 |
| McGee Sawmill Area (LB4).....                       | 138 |
| Peterson Mountain Area (LB5) .....                  | 143 |

|  |            |
|--|------------|
| Taylor Mountain Area (LB6) .....   | 148        |
| Big Baldy Area (LB8) .....   | 153        |
| Eagle Creek Area (LB10) .....  | 159        |
| Calf Creek Area (LB11) .....   | 164        |
| North Fork Smith Area (LB15) .....   | 169        |
| Middle Fork Judith Area (LB16) .....   | 174        |
| East Little Belts Area (LB18) .....  | 180        |
| <b>Rocky Mountain Range Geographic Area .....</b>  | <b>186</b> |
| Badger Two Medicine Area (RM1) .....   | 186        |
| Teton Blackleaf Area (RM2) .....   | 192        |
| Sun Canyon Willow Area (RM3) .....   | 198        |
| Sawtooth Ridge Area (RM4) .....  | 204        |
| Elk Smith Area (RM5) .....   | 210        |
| <b>Snowies Geographic Area .....</b>   | <b>215</b> |
| Big Snowies Area (S1) .....  | 215        |
| <b>Upper Blackfoot Geographic Area .....</b>   | <b>221</b> |
| Dearborn Silver King Area (UB1) .....  | 221        |
| Stonewall Area (UB2) .....   | 228        |
| Black Mountain Area (UB3) .....  | 234        |
| Anaconda Hill Area (UB4) .....   | 240        |
| Paige Gulch Area (UB5) .....   | 246        |
| Bear Gulch Area (UB9) .....  | 252        |
| Nevada Mountain Area (UB10) .....  | 257        |
| <b>Step 3: Analysis .....</b>  | <b>263</b> |
| Alternative A .....  | 264        |
| Alternatives B and C .....   | 269        |
| Alternative D .....  | 283        |
| Alternative E .....  | 299        |
| Alternative F (Preferred Alternative) .....  | 299        |
| Rationale for Excluding Wilderness Inventory Polygons .....                                | 311        |
| <b>Step 4: Recommendations .....</b>   | <b>318</b> |
| <b>Attachment 1. Determination of Substantially Noticeable Vegetation Treatments .....</b> | <b>319</b> |
| Introduction .....   | 319        |
| Treatments Evaluated and What a Viewer is Likely to See .....                              | 319        |
| Tree Heights and Timeframes Needed for Visual Recovery after Regeneration Harvest .....    | 320        |
| Activity Code Rationale (FACTS) and Example Photographs .....                              | 321        |
| Review of Vegetation Treatment Mapping and Assessing Effects of Wildfire .....             | 324        |
| Local Site-Specific Review .....   | 336        |
| <b>Attachment 2. Final Recommended Wilderness Area Maps .....</b>                          | <b>338</b> |
| Big Log Recommended Wilderness Area .....  | 338        |

|   |     |
|---|-----|
| Mount Baldy Recommended Wilderness Area .....     | 339 |
| Electric Peak Recommended Wilderness Area .....   | 340 |
| Big Snowies Recommended Wilderness Area .....     | 341 |
| Silver King Recommended Wilderness Area .....     | 342 |
| Red Mountain Recommended Wilderness Area .....    | 343 |
| Nevada Mountain Recommended Wilderness Area ..... | 344 |

## Acronyms

|        |   |
|--------|---|
| BLM    | Bureau of Land Management   |
| CDNST  | Continental Divide National Scenic Trail  |
| ESA    | Endangered Species Act  |
| FS     | Forest Service  |
| FSR    | forest system road  |
| GOTM   | Gates of the Mountains Wilderness   |
| GYE    | Greater Yellowstone Ecosystem   |
| HLC NF | Helena-Lewis and Clark National Forest  |
| IRA    | inventoried roadless area   |
| NCDE   | Northern Continental Divide Ecosystem   |
| NF     | National Forest   |
| NFS    | National Forest System  |
| OHV    | off-highway vehicle   |
| RNA    | research natural area   |
| ROW    | right-of-way  |
| TH     | trailhead   |
| WCC    | watershed condition class (Class 1=Fully functioning, Class 2= Functioning at Risk, Class 3=Impaired) |
| WCT    | westslope cutthroat trout   |
| WMA    | wildlife management area  |
| WQ     | water quality   |
| WSR    | wild and scenic river   |

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# Wilderness Recommendation Process

## Introduction

When developing or revising a land management plan, the Forest Service must identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands to be designated as wilderness. This is done in four steps: inventory, evaluation, analysis, and recommendation. This appendix describes the process and includes the outcomes of each of the four steps. Please see associated maps for detailed information.

Wilderness recommendations are only preliminary administrative recommendations; Congress has reserved the authority to make final decisions on wilderness designation.

The information used in the wilderness inventory and evaluation process was the best available information at the time of each step. The FEIS analysis may contain updated information (for example, vegetation conditions, wildlife habitat, and at-risk species status for plants, animals, and aquatic species). The updated information does not substantially change the findings of the evaluation of these polygons.

## Public Participation, Comment, and Review

The HLC NF actively engaged the public, tribes, other local governments, and State and Federal government agencies throughout this process to acquire feedback and input on the inventory, evaluation, and analysis of areas for wilderness recommendation.

Maps of the wilderness inventory polygons and documentation of the inventory process (step 1) were made available for public review in April-March of 2016. An informal public comment period was initiated for review of several resources including the wilderness inventory polygons, lands suitable for timber production, and the proposed desired conditions for the land management plan. Public forums were used to gather this public comment and review including comments gathered through a mapping tool on the web site, in-person community conversations/meetings, email responses, letters through postal mail, and through phone calls received.

In November 2016, the Proposed Action was released to the public and a formal comment period was initiated. The Proposed Action identified 9 recommended wilderness areas. Additionally, appendix F of the Proposed Action, detailed the wilderness evaluation (step 2) for each of the identified wilderness inventory polygons. Comments on the recommended wilderness areas and wilderness evaluation were used to develop alternatives for the DEIS.

The HLC NF Draft Forest Plan and DEIS were released for public comment and review in June 2018. The amount and acres of recommended wilderness varied by alternative with alternative E having the least amount of recommended wilderness (0 acres) and alternative D having the most amount of recommended wilderness (474,589 acres). The DEIS did not include a preferred alternative. The analysis of the recommended wilderness areas in the DEIS (step 3) also included the suitability of motorized and mechanized means of transportation within recommended wilderness areas. The Forest received many comments on the Draft Forest Plan and draft EIS regarding the acreage and management of recommended wilderness areas. Many of these comments were incorporated into the final EIS.

In May 2020 the 2020 Forest Plan and final EIS were released for public review. The final EIS and draft record of decision identified a preferred alternative (alternative F) with a recommendation for 7 recommended wilderness areas, a total of 153,325 acres. Once through the objection period, the final land

management plan and ROD will recommend wilderness areas and will conclude step 4 of the wilderness inventory and evaluation process.

## Step 1: Identification and Inventory

The first step in the Wilderness Inventory and Evaluation process is to efficiently and effectively identify all lands within the planning area that may have wilderness characteristics as defined in the Wilderness Act of 1964 (16 United States Code 1131–1136, 78 Stat 890), using a transparent process. Lands included in the inventory were documented, identified on a map, and carried forward for further evaluation.

To develop the inventory of lands on the HLC NF that might be suitable for recommendation as wilderness, the Forest used three categories of inventory criteria (size, forest road improvements, and other improvements) and information obtained from the Assessment of the HLC NF (USDA, 2015) as directed by the Forest Service Handbook. Lands included in the inventory provided a starting point for further evaluation, and their inclusion in the inventory is not a designation that conveys or requires a particular kind of management.

## Criteria for including lands in the inventory

### Size

A wilderness area must meet size criteria set forth in Forest Service Handbook (FSH) 1909.12, chapter 70. Lands included in the wilderness inventory within the HLC NF met one of the following size criteria:

- National Forest System Lands outside of existing designated wilderness that were at least 5,000 contiguous acres or greater;
- Areas contiguous to an existing wilderness, primitive area, administratively recommended wilderness, or wilderness inventory of other Federal ownership.

For areas less than 5,000 acres, each district ranger met with district staff to consider and determine whether such areas could be preserved in an unimpaired condition.

### Improvements

In addition to size criteria, lands within the HLC NF were studied to determine the level of development or “improvements” that were present within these landscapes. Improvements on the landscape can be thought of in two categories: road improvements and other improvements. These improvements and how they were utilized to develop the inventory are described below.

### Forest road improvements

Included in the inventory are the following areas with road improvements. Guidance on forest road improvement considerations can be found in Forest Service Handbook 1090.12 chap.70 sec 71.22a.

- Areas that contain maintenance level 1 roads.
- Areas with any routes that were decommissioned, unauthorized, or temporary, or forest roads that are identified for decommissioning in a previous decision document or identified as likely unneeded in a travel management plan.
- Areas with forest roads that will be reclassified to a maintenance level 1 through a previous decision document or travel plan.

- Areas with forest roads that have been proposed by the Forest Service for consideration as recommended wilderness as a result of a previous forest plan revision process; or areas with forest roads that the Responsible Official merits for inclusion in the inventory that were proposed for consideration through public involvement during the assessment or other public or intergovernmental participation opportunity.
- Areas with historic wagon routes, historical mining routes, or other settlement era transportation features considered part of the historical and cultural landscape of the area.
- Areas with maintenance level 2 roads that do not meet the criteria for exclusion.

Excluded from the inventory are areas that have the following road improvements:

- Permanently authorized roads validated by a Federal court or the Department of Interior for which a valid easement or interest has been properly recorded.
- Forest roads maintenance to levels 3, 4, or 5.
- Areas of forest roads maintained to level 2 (all Forest roads maintained to level 2 receive some type of mechanical treatment to ensure relatively regular and continued use).

### Other Improvements

Other improvements on the Forest were reviewed to determine whether to include or exclude certain areas in the inventory. Guidance on improvements considered can be found in Forest Service Handbook 1909.12 chap. 70 sec. 71.22b. Improvements included in the inventory:

- Heliports. Constructed features associated with heliports within the planning area are generally not visually evident.
- Timber harvest and other vegetation treatments that are not substantially noticeable. See Attachment 1.
- Areas with unpatented mining claims, since these claims tend to change year to year and location to location and generally create minimal impact.
- Areas with saleable mineral materials.
- Areas with oil and gas leases with no above ground developments.
- Areas considered for solar, wind, and geothermal where no above ground features currently exist.
- Range improvement areas with minor structural improvements such as wire and post and pole fencing. Minor spring developments (without obvious and lengthy pipelines) are also included in the inventory.
- Dispersed recreation improvements, including dispersed campsites, minor hunter and outfitter camps, occupancy spots, and minor trail access points.
- Improvements associated with motorized and nonmotorized trails such as signs, trail bridges, and drainage structures.
- Ground-return telephone lines, electric lines, and powerlines if a right-of-way has not been cleared or is not required through special use authorization.
- Watershed treatment areas that are not substantially noticeable.
- Structures, dwellings, and other relics of past occupation and activity that are considered a part of the historical and cultural landscape of the area.

- Structures and infrastructure associated with special use permits that are not substantially noticeable.
- Areas with improvements that have been proposed by the Forest Service for consideration as recommended wilderness as a result of a previous forest plan revision process or that the Responsible Official merits for inclusion in the inventory that were proposed for consideration through public or intergovernmental participation opportunities.

If an improvement was found to be substantially noticeable, it was excluded from the inventory. Several improvements were found to be substantially noticeable across the HLC NF landscape. These improvements were identified on the inventory maps and then buffered to provide for the proper maintenance and/or management of these improvements. Other improvements excluded from the inventory include:

- Airstrips. All airstrips within the HLC NF are located next to open roads that would be excluded from the inventory. By this association, the airstrips were also excluded from the inventory.
- Permanently installed vertical structures, such as electronic installations that support television, radio, telephone, or cellular communications. These sites were buffered with a radius of 150 feet.
- Timber harvest units and other vegetative treatments that are substantially noticeable. Areas with substantially noticeable timber harvest units were excluded where a series of noticeable units were found to be present within a larger area or a drainage. See attachment 1.
- Areas containing mine waste rock, tailings, mine waste repository sites, and areas with toxic heavy metals in concentration. Polygons boundaries were buffered by 200 feet.
- Areas with identified federal and state superfund sites. This would include Upper Blackfoot Mine Complex Comprehensive Environmental Cleanup Responsibility Act (CECRA), Barker-Hughesville Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Carpenter Creek-Snow Creek (CERCLA), and Tenmile Watershed (CERCLA). The Superfund site boundaries were used for exclusion.
- Range improvements with substantially noticeable structural improvements such as large-scale water troughs and pipelines associated with these improvements. Water troughs were buffered with a radius of 150 feet. Pipelines were buffered by 75 feet either side of the pipeline.
- Developed recreation sites, including developed fee campgrounds, picnic areas, group camping and picnic sites, and large trailheads. Developed recreation sites were buffered by 200 feet.
- Powerlines with cleared rights-of-way, pipelines, and other permanently installed linear rights-of-way structures. All powerlines, pipelines, and permanently installed linear features were buffered by 150 feet on either side of the linear structure.
- Lands adjacent to development or activities that impact opportunities for solitude.
- Structures and infrastructure associated with special use permits that are substantially noticeable. Such improvements might be connected to permitted cabins, recreation residences, lodges and resorts, ski area resorts, organizational camps, and individual special use permits for road and/or water access. These improvements were buffered by 150 feet.
- Administrative sites and miscellaneous buildings used by the Forest Service. These sites/buildings were buffered by 150 feet.
- Target ranges. The area excluded was the official target range boundary.



### *Substantially noticeable*

The term “substantially noticeable” as it relates to wilderness evaluation, is not directly defined in the Forest Service Handbook 1909.12, Chapter 70. This was done purposefully to give the Responsible Official discretion and judgement based on the unique factors associated with the forest on which the wilderness inventory is being conducted.

The forest plan revision team reviewed the list in the Forest Service Handbook and made determinations on what improvements might be considered “substantially noticeable”. These determinations were based on the type of materials used to construct or develop the improvement, the connected aspects associated with utilizing the improvement, and how evident the improvement and associated features appeared on the landscape. During these determinations, the principles of scenery management were considered, as were the degree to which the landscape appears unaltered by human activities.

## Identified inventory areas

Using both the size and the improvements criteria outlined in Forest Service Handbook 1909.12, the HLC NF identified 46 distinct areas (polygons) that had potential for inclusion based off this criterion. Each of the areas identified in the wilderness inventory step were evaluated to determine their potential suitability for inclusion in the National Wilderness Preservation System using the criteria included in the Wilderness Act of 1964. Table 1 describes the identified wilderness inventory polygons.

**Table 1. Wilderness inventory polygons**

| GA           | Wilderness inventory polygon name | Wilderness inventory polygon number | Wilderness inventory polygon acres |
|--------------|-----------------------------------|-------------------------------------|------------------------------------|
| Big Belts    | Big Log                           | BB1                                 | 10,254                             |
|              | Hogback                           | BB2                                 | 5,784                              |
|              | Trout Creek                       | BB3                                 | 39,383                             |
|              | North Belts                       | BB4                                 | 14,140                             |
|              | Bilk Mountain                     | BB5                                 | 25,787                             |
|              | Camas Creek                       | BB6                                 | 23,878                             |
|              | Mount Baldy                       | BB7                                 | 18,335                             |
|              | Grassy Mountain                   | BB8                                 | 6,194                              |
| Castles      | Wapiti Peak                       | CA1                                 | 33,002                             |
|              | Whetstone Ridge                   | CA3                                 | 8,676                              |
| Crazies      | Loco Mountain                     | CR1                                 | 25,605                             |
|              | Bald Ridge                        | CR3                                 | 13,210                             |
| Divide       | Sweeney Creek                     | D2                                  | 7,978                              |
|              | Electric Peak (Blackfoot Meadows) | D3                                  | 29,066                             |
|              | Colorado Mountain                 | D5                                  | 8,168                              |
|              | Continental Divide North          | D13                                 | 4,173                              |
| Elkhorns     | Eagle Basin                       | E1                                  | 57,279                             |
|              | Elkhorn Peak                      | E3                                  | 15,180                             |
| Highwood     | Highwood Baldy                    | H1                                  | 15,824                             |
|              | Arrow Prospect                    | H2                                  | 26,210                             |
| Little Belts | Deep Creek (Tenderfoot)           | LB1                                 | 89,321                             |

| GA                | Wilderness inventory polygon name     | Wilderness inventory polygon number | Wilderness inventory polygon acres |
|-------------------|---------------------------------------|-------------------------------------|------------------------------------|
|                   | Big Horn Thunder                      | LB2                                 | 45,334                             |
|                   | Sun Mountain                          | LB3                                 | 7,965                              |
|                   | McGee Sawmill                         | LB4                                 | 8,355                              |
|                   | Peterson Mountain                     | LB5                                 | 6,839                              |
|                   | Taylor Mountain                       | LB6                                 | 11,374                             |
|                   | Big Baldy                             | LB8                                 | 49,068                             |
|                   | Eagle Creek                           | LB10                                | 6,337                              |
|                   | Calf Creek                            | LB11                                | 12,598                             |
|                   | North Fork Smith                      | LB15                                | 9,817                              |
|                   | Middle Fork Judith                    | LB16                                | 98,312                             |
|                   | East Little Belts                     | LB18                                | 106,178                            |
|                   | Rocky Mountain Range                  | Badger Two Medicine                 | RM1                                |
| Teton Blackleaf   |                                       | RM2                                 | 56,002                             |
| Sun Canyon Willow |                                       | RM3                                 | 71,106                             |
| Sawtooth Ridge    |                                       | RM4                                 | 15,312                             |
| Elk Smith         |                                       | RM5                                 | 30,030                             |
| Snowies           | Big Snowies                           | S1                                  | 103,480                            |
| Upper Blackfoot   | Dearborn Silver King <sup>1</sup>     | UB1                                 | 44,141                             |
|                   | Stonewall<br>(Red Mountain, Arrastra) | UB2                                 | 30,046                             |
|                   | Black Mountain                        | UB3                                 | 10,220                             |
|                   | Anaconda Hill                         | UB4                                 | 21,539                             |
|                   | Paige Gulch                           | UB5                                 | 17,569                             |
|                   | Bear Gulch                            | UB9                                 | 5,636                              |
|                   | Nevada Mountain <sup>2</sup>          | UB10                                | 51,027                             |

<sup>1</sup> Inventory polygon is located on both the Upper Blackfoot and Rocky Mountain Range GAs.

<sup>2</sup> Inventory polygon and recommended wilderness area is located on both the Upper Blackfoot and Divide GAs.

## Step 2: Evaluation

The results of the wilderness evaluation process for 46 wilderness inventory polygons on the Helena-Lewis and Clark National Forest follow. Each of the 46 polygons in the wilderness inventory were evaluated using criteria from Forest Service Handbook 1909.12 chap. 70. The forest plan revision team developed measures for these criteria to address the specific questions posed by the criteria and provide a consistent way to evaluate each area in the wilderness inventory.

This section presents the wilderness evaluations for the 46 wilderness inventory polygons, presented by geographic area and are in alphabetical order.

## Big Belts Geographic Area

### Big Log Area (BB1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 2. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Over 35% of this area is dominated by dry grasslands, and over 22% has a ponderosa pine dominance type. Roughly 23% is dominated by Douglas-fir. Shrublands make up another 12%, and just over 5% is considered transitional (no vegetation type identified) due to recent wildfires. There are small or trace amounts of other dominance types present, including lodgepole pine, limber pine, and Rocky mountain juniper.  |
| Potential vegetation types  | This area is dominated by warm dry forest potential vegetation types (51%). Dry grassland potential types are also common, representing over 34%. Small amounts of other potential vegetation types are present, including cool moist forest, mesic grasslands, shrublands, riparian, and sparsely vegetated (cliffy) areas.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 1,226 acres within BB1 is associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitats: 75 acres potential lynx habitat (52 acres of mature multi-storied, which is optimal winter foraging habitat; note area not currently occupied by lynx) and 2600 acres of goshawk potential nesting habitat. Clark’s nutcracker presence indicates mature whitebark, ponderosa, and/or limber pine; flammulated owl and Lewis’s woodpecker presence indicate mature, open ponderosa pine.<br>Big game: Over 5,000 acres secure elk summer habitat. Possible moose presence in riparian.<br>Note that these habitats increase in extent and value in combination with similar in BB2 and BB3.<br>No westslope cutthroat trout. |
| Known non-native wildlife species                                     | Introduced population of mountain goats, a species native to MT but not to this mountain range. Occasional European starling, likely near perimeter of area.<br>No known aquatic species, possibly non-native trout.   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 3. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | There are no records of past timber harvest in this area.  |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 88% of BB1 is not associated with invasive plant inventories. |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%, no impacts within the polygon.  |

| Measures   | Outcome   |
|--|---|
| Miles of motorized road/trail within 300' of streams | 1.15 miles (southwest side of polygon, along intermittent stream)                     |
| Noticeable wildfire suppression impacts              | Meriwether Fire (2007): dozer lines still visible in Hunter's Gulch and Bear's Gulch. |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 4. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | Approximately 2% of the area has been influenced by prescribed fire treatments, which were determined not to be substantially noticeable because they appear similar to natural wildfire effects. The activities that occurred included broadcast burning, pile burning, and under burning from 1993 to 2009. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Hogback repeater is visible from within the polygon.  |
| Areas of mining activities including both abandoned and active mines  | None present.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data, there are no existing fences within B1.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed recreation sites located within the Missouri River corridor and throughout Big Log drainage.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Power and gas lines along Beaver Creek Road and the northeastern boundary of the polygon. These are not located in the polygon but visible from within it.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | American Bar Subdivision along western boundary of the polygon. Very active river corridor with recreation activities. Minimal developments on private lands along Beaver Creek Road.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Thirty-three recorded cultural resources, including one listing historic landscape. The sites range from occupational cabin ruins, tipi ring, mining and prehistoric rock art sites.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Recommended as wilderness in the 1986 Helena Forest Plan.   |
| Number of miles of maintenance level 1 road templates.  | 0.0 miles   |

| Improvement type   | Presence and extent of departure from naturalness                     |
|--|---|
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation | No historic roads recorded; however, their presence is highly likely. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 5. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | Summer motorized activities are concentrated in the Missouri River corridor.  |
| Area available for winter motorized opportunity                     | No current motorized winter activity.   |
| Proximity to private lands and non-Forest Service roads             | None present.   |
| Proximity to developed recreation sites outside of the polygon area | Refrigerator Canyon TH, Hunters Gulch TH, Big Log TH, and Missouri River Canyon TH. These THs have minimal effect on the solitude within the polygon. Coulter Campground and Meriwether Picnic Site are located along the Missouri River corridor. These sites have boat access only which creates a moderate feeling of solitude due to the sounds of boat motors. Mann Gulch Historic Landscape is located within the polygon has minimal impact to solitude. |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 6. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Except for the river corridor, which is semi-primitive motorized, the entire polygon is open for primitive and unconfined recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire polygon is open for primitive and unconfined recreation.   |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, cross country skiing, and dispersed camping.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Big Log Area (BB1) is 10,254 acres and lies adjacent to the Gates of the Mountains wilderness area. Much of this area is recognized as a recommended wilderness area in the 1986 Helena Forest Plan.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

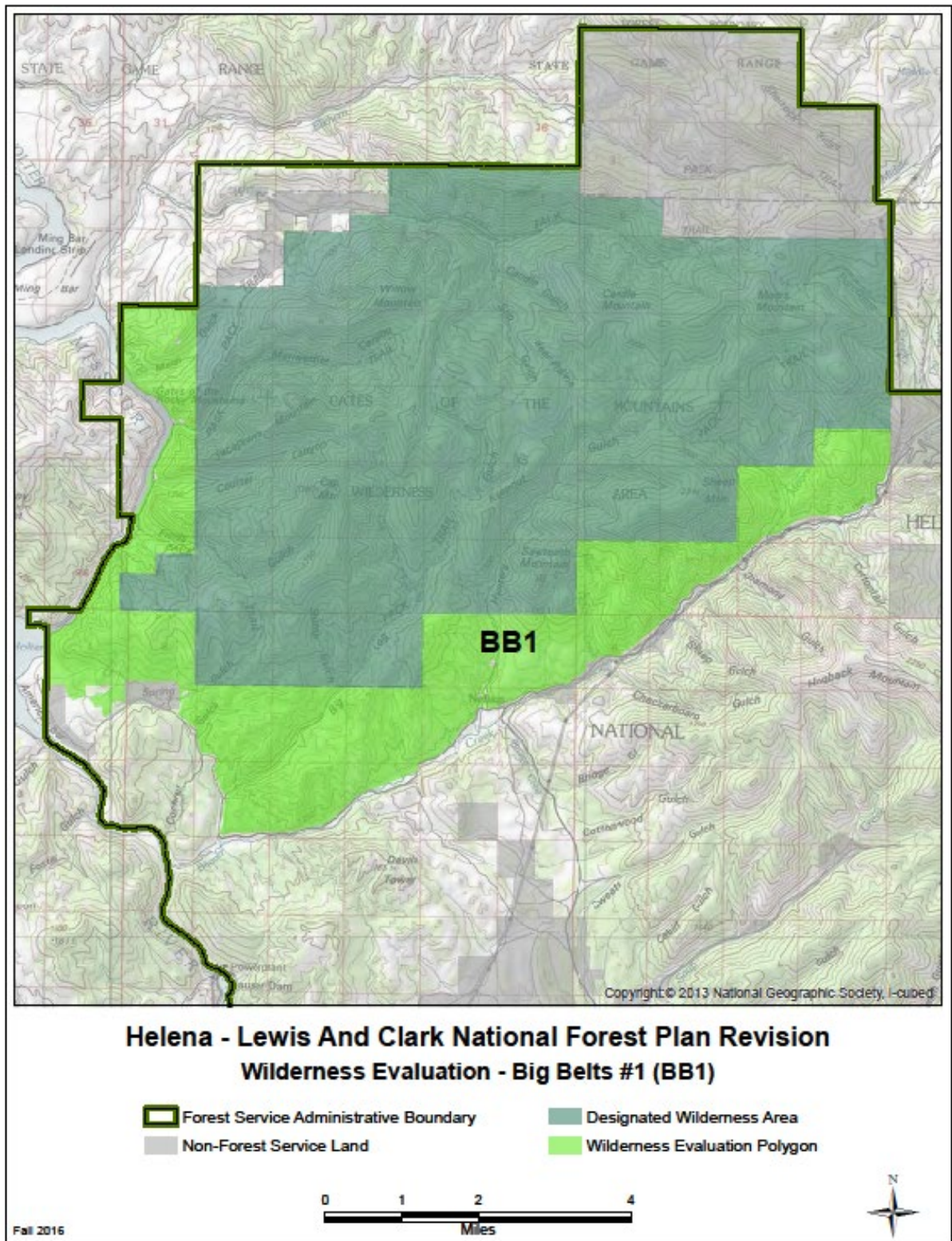
**Table 7. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | There are known occurrences of several potential plant species of conservation concern in this area, including <i>Astragalus convallarius</i> , <i>Polygonum douglasii</i> spp. <i>Austinae</i> ; <i>Lesquerella klausii</i> , and <i>Delphinium bicolor</i> spp. <i>Calcicola</i> . Limber pine, <i>Pinus flexilis</i> , is also present in trace amounts. |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: flammulated owl, Lewis’s woodpecker.<br>No rare aquatic species.            |
| Rare ecosystems  | Ponderosa pine forest is a community of interest for its wildlife value and is well-represented in this area.   |
| Outstanding landscape features                               | Cliffs and rock formations along the river corridor and Meriwether Canyon. Missouri River. Rock formations and slot canyon in Refrigerator Canyon.  |
| Historic and cultural resource sites                         | Thirty-three recorded cultural resources, including one listing historic landscape. The sites range from occupational cabin ruins, tipi ring, mining and prehistoric rock art sites, which all offer scientific and educational value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Beaver Creek (on the boundary between BB1 and BB2) is on the list of eligible WSRs, it is listed for outstanding fishing, geology, and cultural resources.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 8. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | This polygon consists of a band of land between designated motorized routes and the Gates of the Mountains Wilderness boundary.   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | No private land inholdings.   |
| Management of adjacent lands   | Designated wilderness immediately to the north and east of the polygon. Some small portions of private lands, primarily residential, to the south and southeast of the polygon. Devils Tower IRA on FS to the south. American Bar Subdivision to the south west. Missouri River corridor to the west. |



## Hogback Area (BB2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 9. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Nearly 36% of this area is dominated by dry grassland. Another 30% supports subalpine fir/Engelmann spruce dominance types. 15% is dominated by Douglas-fir forest. Mesic shrubs are present on roughly 7%, and nearly 5% is considered sparsely vegetated. Very small amounts of other dominance types are present, including ponderosa pine, limber pine, cottonwood, and Rocky Mountain juniper.  |
| Potential vegetation types  | The area is dominated by warm dry forest potential vegetation types (78%). Based on the extent of grassland dominance types, some of this area is currently non-forested. Cool moist forest types are also represented (7%), as are dry grassland potential types (8%). Small amounts of mesic grassland, xeric shrub, riparian, and sparse potential vegetation types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 73 acres within BB2 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest: 2700 acres potential goshawk nesting habitat, 875 acres potential lynx habitat with roughly 431 in mature multi-storied structure which is optimal lynx winter foraging habitat (note area not currently occupied by lynx and not contiguous with occupied lynx habitat). Note that these habitats increase in extent and value in combination with similar in BB1 and BB3. Possibly limited areas (up to 150 acres) of old growth habitat.</p> <p>Big game: 2800 acres secure elk habitat.</p> <p>Subalpine/alpine habitats: 155 acres potential wolverine habitat.</p> <p>No native aquatic species known.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range.</p> <p>No aquatic species known.</p>  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 10. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | There are no records of past harvest in this area.   |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.7% of BB2 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%, impacts primarily occur outside of polygon.   |
| Miles of motorized road/trail within 300’ of streams                         | 0.25 mile  |
| Noticeable wildfire suppression impacts                                      | Only 146 acres have had wildfire since 1980 and there are no noticeable impacts of fire suppression. |



*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 11. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | There are no substantially noticeable treatment activities in this area. There are no records of past harvest. Roughly 15% of the area, however, has been impacted by prescribed fire activities, including pile burning and under burning from 1980 to 1999. These treatments were associated with the Bull Sweats project and the effects appear similar to natural conditions. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Communication sites with antennae and buildings on Hogback Lookout. This site is located outside of the polygon but visible from within.  |
| Areas of mining activities including both abandoned and active mines  | None present.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are no fences or water developments within BB2.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Large component of dispersed camping within northeast corner (Indian Flats). No outfitter camps.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Cleared powerline right of way along Sweats Gulch. Located outside of polygon by is visible from within.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Powerlines and gas lines along the Beaver Creek access road that are visible from the polygon. Private land residential developments along Beaver Creek.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.   | Only one recorded cultural resource is known within this study area.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process.  | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.1 miles.  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | None known.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 12. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | No summer motorized recreation opportunities.   |
| Area available for winter motorized opportunity                     | Northern 1/3 of the polygon is available for motorized winter recreation (Indian Flats area).   |
| Proximity to private lands and non-Forest Service roads             | No private land inholdings.   |
| Proximity to developed recreation sites outside of the polygon area | Indian Flats rental cabin is accessible by vehicle and snowmobile. Has moderate impacts to solitude. Refrigerator Canyon trailhead lies along Beaver Creek road and has minimal impacts to solitude of the BB2 polygon. |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 13. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is open for primitive and unconfined recreation.             |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire polygon is open for primitive and unconfined recreation.                 |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, cross country skiing, and dispersed camping. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Hogback Area (BB2) is 5,783 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

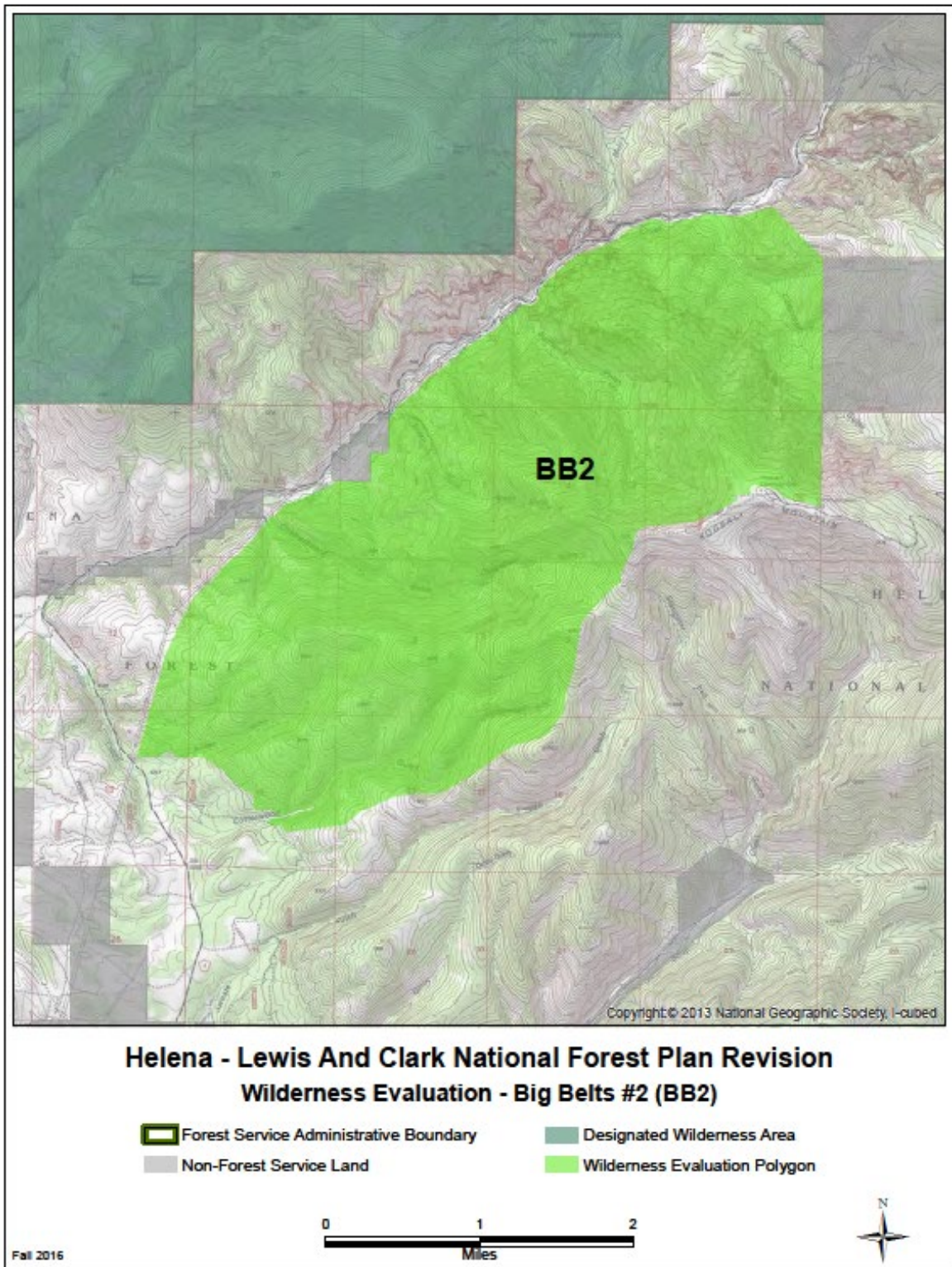
**Table 14. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | There are no records of rare plants or potential plant species of conservation concern in this area other than small amounts of limber pine ( <i>Pinus flexilis</i> ). Cottonwood is also present which is not common in general on NFS lands of the HLC NF.  |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: none documented<br>No known rare aquatic species. |
| Rare ecosystems  | Trace amounts of limber pine and cottonwood are present which are not abundant in many areas of the HLC NF.<br>No rare aquatic ecosystems.  |
| Outstanding landscape features                               | Steep and rugged. Beaver Creek canyon has unique rock formations and limestone cliffs. Views from Hogback lookout span the entire Helena valley.  |
| Historic and cultural resource sites                         | Only one cultural resource with the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Beaver Creek (on the boundary between BB1 and BB2) is on the list of eligible WSRs, it is listed for outstanding fishing, geology, and cultural resources.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 15. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Long rectangular piece of land that extends from the Beaver Creek drainage up to the Hogback Ridge.   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | No private inholdings.  |
| Management of adjacent lands   | Some small portions of private lands, primarily residential, to the north and east edges of the polygon. Forest Service system lands to the south and southeast. Old timber harvest on the southwest. |



### Trout Creek Area (BB3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 16. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | Most of this area (over 59%) supports Douglas-fir dominated forests. Ponderosa pine forest is also common (16%). Over 13% is made up of dry grasslands. Other dominance types are present in fairly small amounts, including shrublands, lodgepole pine, subalpine fir, Engelmann spruce, limber pine, cottonwood, aspen, and Rocky Mountain juniper. The Cave Gulch fire of 2000 burned the southern portion of this area; some of this area is still regenerating and/or was converted to grassland. Nearly 5% of the area overall is still considered transitional, where no vegetation type is yet identified post-disturbance.   |
| Potential vegetation types  | The area is strongly dominated by warm dry forest potential vegetation types (84%), with only 3% supporting cool moist forest types. Dry grassland potential vegetation types are also present (13%). Very small amounts of shrubland types exist.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 3,909 acres within BB3 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 2500 acres potential lynx habitat (1200 acres of mature multi-storied, which is optimal winter foraging habitat; but note that area not currently occupied by lynx). 22,000 acres of goshawk potential nesting habitat (3 known nesting territories). Likely flammulated owl nesting indicates presence of mature, open ponderosa pine. Up to 2000 acres of possible old growth habitat in patches of varying size.<br>Big game: Over 18,000 acres secure elk habitat. Possible moose presence in riparian.<br>Subalpine/alpine: Roughly 600 acres potential wolverine habitat, wolverine observed.<br>Note that these habitats increase in extent and value in combination with similar in BB1 and BB2.<br>Westlope cutthroat trout in Magpie Creek (on boundary of polygon). |
| Known non-native wildlife species                                     | Introduced population of mountain goats, a species native to MT but not to this mountain range.<br>Non-native trout likely.   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 17. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Over 99% of the area is unaffected by past harvest. Roughly 104 acres (less than 1% of the area) was harvested with a single tree selection cut; one area occurred in 1959 and the other in 1992. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 90.1% of BB3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2:71%, Class 3:29%  |

| Measures   | Outcome  |
|--|--|
| Miles of motorized road/trail within 300' of streams | 11.6 miles, concentrated in the southern portion of the polygon.   |
| Noticeable wildfire suppression impacts              | Cave Gulch (2000): Noticeable fire suppression evidence in Hedges Mountain, Magpie Creek, Trout Creek and Goodman Gulch.<br>Jimtown (2003): Noticeable fire suppression above the junction of Kingsberry and York gulches. |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 18. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | No substantially noticeable treatments occur within the area. Less than 1% was affected by past timber harvest, as noted above. This partial cutting blends back into the landscape fairly quickly. Roughly 3% of the area has been impacted by prescribed fire treatments, including broadcast burning, pile burning, and under burning from the 1980's to early 2000's, the effects of which may appear similar to a wildfire. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Electronic sites on Hogback Lookout and repeater site on Mount Hedges are visible from locations within the polygon.   |
| Areas of mining activities including both abandoned and active mines  | Some abandoned mines in the south end of the polygon in Never Sweat Gulch, Bar Gulch, Coxey Gulch, and Cave Gulch. Limited active mining in Kingsberry Gulch, outside of the polygon. Some active mining in Cave Gulch on private lands. These mines take away from the wilderness character of the south end of the polygon.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately ¼ mile of fencing within BB3.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed camping in Trout Creek, some of which takes place within the polygon. Dispersed camping along Magpie on the southeastern boundary of the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Powerlines along Trout Creek that lie outside of the polygon but are visible from within the polygon. Powerline that goes up to Hogback Lookout and communication site is visible from within the BB3 polygon.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | Some ditching along Trout Creek that lie within the polygon.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Community of York and residential areas up Trout Creek create moderate impacts to solitude. Seasonal motorized use in Middleman Mountain to the north of the polygon has moderate impacts to solitude and is very visible to locations within the polygon.   |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Thirty-five recorded cultural resources are within this evaluation area. Most of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 0.9 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | No recorded historic roads are within this evaluation area, however there is high likelihood they are present on the landscape, due to the heavy historic mining in the area.                      |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 19. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | Lands south of Trout Creek to Magpie Creek is open to motorized uses with approximately 20 + miles of open designated motorized routes. Use of these trails is seasonal but sights and sounds of motorized use is very evident from within the polygon.   |
| Area available for winter motorized opportunity                     | From Never Sweat Gulch to Magpie Meadows is open to winter motorized use. Magpie Road is a designated snowmobile route. Use of these routes and snowmobile areas are seasonal but sights and sounds of motorized use are evident from within the polygon.   |
| Proximity to private lands and non-Forest Service roads             | Private lands along Cabin Gulch, Trout Creek, and Cave Gulch create minor impacts to solitude within the polygon.   |
| Proximity to developed recreation sites outside of the polygon area | Cave Gulch and Never Sweat THs provide motorized access and create moderate to high impacts to solitude. Trout Creek Canyon TH, Hanging Valley TH, Magpie Meadows TH are all nonmotorized trailheads and create minimal impacts to solitude. Vigilante Campground is located at the end of a paved road in Trout Creek and creates moderate impact to solitude. Bar Gulch rental cabin is located in Magpie Creek and creates minimal impact to solitude. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 20. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation | Opportunities for primitive recreation are better in the northern 1/3 of the polygon, northwest of Trout Creek and the lands surrounding Soup Creek. Upper Trout Creek has semi-primitive hiking opportunities in the summer. Hanging Valley trail is designated as a National Scenic Trail and is accessed from Magpie Meadows. |

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized winter recreation                               | Same as the areas described above for summer nonmotorized areas.   |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Main recreation uses are OHV riding, snowmobiling, hiking, hunting, dispersed camping, Some cross-country skiing in Trout Creek. Mountain biking in Trout Creek and Bear Trap. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Trout Creek Area (BB3) is 39,383 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 21. Features present**

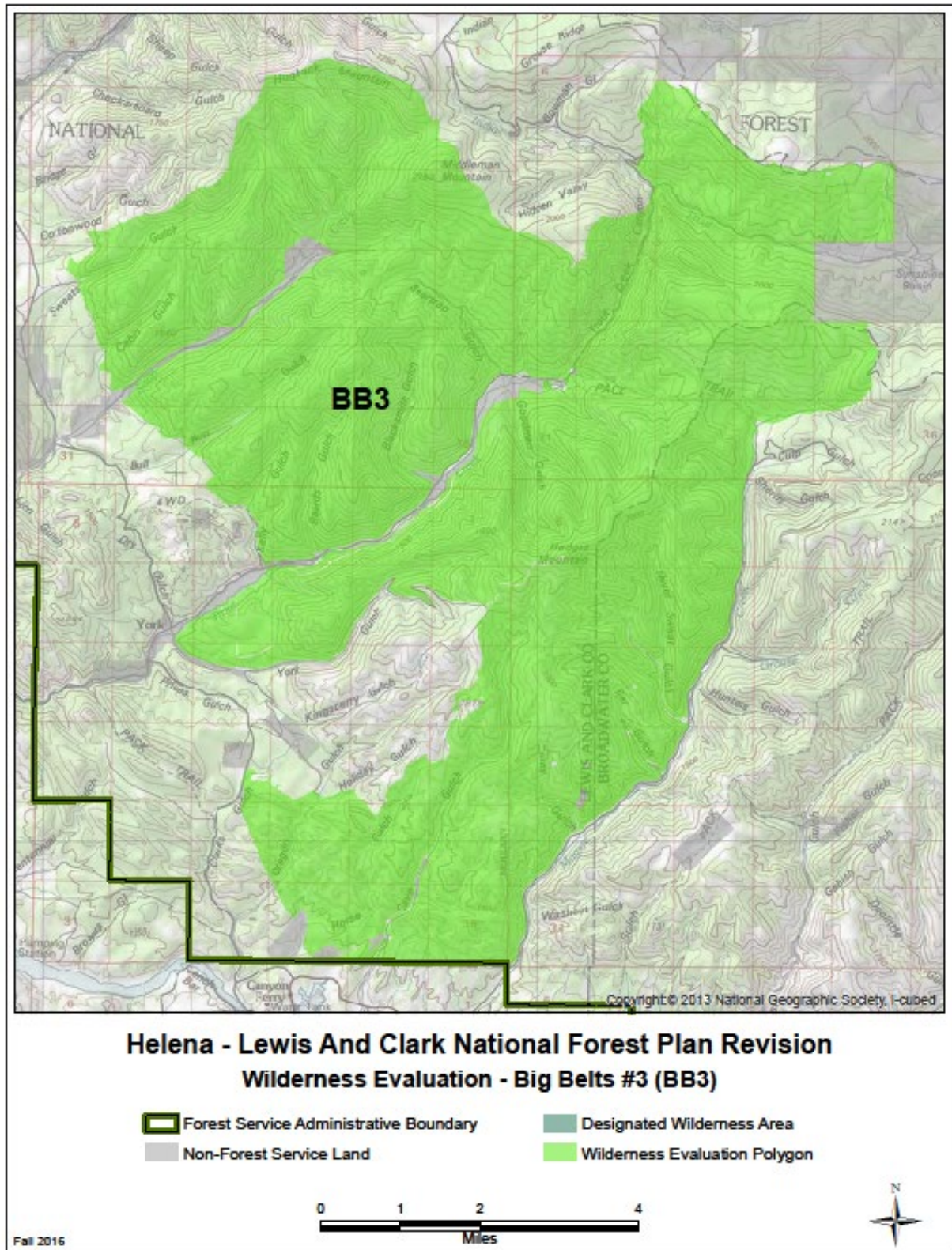
| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | Several potential plant species of conservation concern occur in the area, including <i>Pinus flexilis</i> , <i>Astragalus convallarius</i> , <i>Polygonum douglasii</i> spp. <i>Austinae</i> , and <i>Lesquerella klausii</i> . Antelope bitterbrush ( <i>Purshia tridentata</i> ) and mountain mahogany ( <i>Cercocarpus ledifolius</i> ) also present which are not potential SCC's but are plants of interest for the HLC NF due to their limited extent. |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: flammulated owl likely nesting in area, western toad.<br>No rare aquatic species known.   |
| Rare ecosystems  | Ponderosa pine, limber pine, cottonwood, and aspen are all forested communities of interest due to their wildlife value which are not abundant in many areas of the HLC NF. Grass and shrublands, particularly bitterbrush and mountain mahogany communities, are also important ecosystem components. No rare aquatic ecosystems known.  |
| Outstanding landscape features                               | Hanging Valley National Scenic Trail.   |
| Historic and cultural resource sites                         | Thirty-five recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations, which all have the potential to yield scientific, educational or historic value.   |
| Research natural areas                                       | Cabin Gulch RNA in northwestern part of the polygon.  |
| High quality water resources or important watershed features | None known.   |



Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 22. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Large landmass that extends south from Hogback Mountain to Magpie Creek. The area is fragmented by designated motorized routes and private land inholdings.  |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Private lands along Soup Creek and Trout Creek. Some private inholdings along the southern border the polygon in Cave Gulch.   |
| Management of adjacent lands   | North of the polygon there is heavily roaded and harvested landscape that is seasonally open to motorized recreation. Northeast corner is bordered by private lands. East and southeast is a continuation of Forest Service system lands that are fragmented by motorized use. South and southwest is Forest Service system lands impacted by logging, mining and motorized use. |



### North Belts Area (BB4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 23. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | About 48% of BB4 supports Douglas-fir dominated forests, and 19% is dry grassland. Ponderosa pine dominance types are found on roughly 6%, and dry shrublands on 5%. There are trace or small amounts of other dominance types present as well, including lodgepole pine, Engelmann spruce, limber pine, aspen, and Rocky Mountain juniper. Due to the Cave Gulch fire of 2000 that burned the western half of the area, a substantial portion (about 17%) is mapped as “transitional”, where the vegetation is likely to become forested but the type is not yet discernible via imagery. On this dry landscape, some of these areas may be grass/shrublands for an extended period of time. |
| Potential vegetation types  | Over 72% of the area has a warm dry forested potential vegetation type, and just over 20% has a dry grassland potential vegetation type. There are a few other potential types present in very small abundance, including cool moist forest, mesic grassland, dry shrubland, riparian, and sparse vegetation.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 1,283 acres within BB4 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest: 4700 acres of goshawk potential nesting habitat, but only 117 acres of mature multi-storied lynx habitat (optimal winter foraging habitat); lynx habitat scattered, not occupied. Note that these habitats increase in extent and value in combination with similar in BB5.<br>Big game: 2400 acres secure elk habitat; immediately adjacent to elk calving habitat on non-NFS land. Possible moose presence in riparian. Likely breeding habitat for Townsend’s big-eared bat.<br>Westslope cutthroat trout in Magpie and Avalanche Creeks.   |
| Known non-native wildlife species                                     | Introduced population of mountain goats, a species native to MT but not to this mountain range.<br>Non-native trout likely.   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 24. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | There are no records of past harvest in this area. It is possible that some historic tree cutting occurred prior to the time of detailed record keeping (prior to the 1950’s).                             |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 90.9%% of BB4 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 14%, Class 3: 86%<br>Ratings due to grazing and dewatering impacts, roads and trails, and water quality impairments. Avalanche and Hellgate Creeks on the State 303(d) list due to these impacts. |

| Measures   | Outcome  |
|--|--|
| Miles of motorized road/trail within 300' of streams | 13.7 miles   |
| Noticeable wildfire suppression impacts              | Cave Gulch (2000): dozer line evidence in Hunters and Carpenter's gulches. |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 25. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | There are no records of either past harvest or prescribed fire treatments in this area.  |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | Multiple abandoned mines are scattered across the polygon. These mines take away from the wilderness character of most of the polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately ¼ mile of fencing within BB4.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Some dispersed camping along Avalanche Road. No outfitter camps within the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Busy open roads that surround the polygon. Seasonal motorized trail system throughout the polygon. Snowmobiling during winter months.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Twenty-two recorded cultural resources are within this evaluation area. Most of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process.  | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 0.9 miles  |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation | No recorded historic roads in this evaluation area. However, there is a high probability they exist on the landscape. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 26. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)                   |
|---|---|
| Area available for summer motorized opportunity                     | Hellgate Ridge, Doolittle Gulch, Thompson Gulch, and Hunters Gulch are all available for motorized use in the summer. |
| Area available for winter motorized opportunity                     | Groomed snowmobile routes in Magpie Creek. Open to motorized use in the winter but does not receive a lot.            |
| Proximity to private lands and non-Forest Service roads             | Private lands in Hellgate Gulch and along Avalanche Road.   |
| Proximity to developed recreation sites outside of the polygon area | No developed recreation sites nearby.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 27. Primitive or unconfined types of recreation**

| Measures   | Descriptions and Locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Isolated locations within McGregor Gulch, Spilling Gulch, and Shannon Gulch.   |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire polygon is open to winter motorized use. Not much available for primitive and semi-primitive non-motorized winter recreation use. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Rock climbing in Hellgate Gulch. Busy with hikers during hunting season.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The North Belts Area (BB4) is 14,140 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 28. Features present**

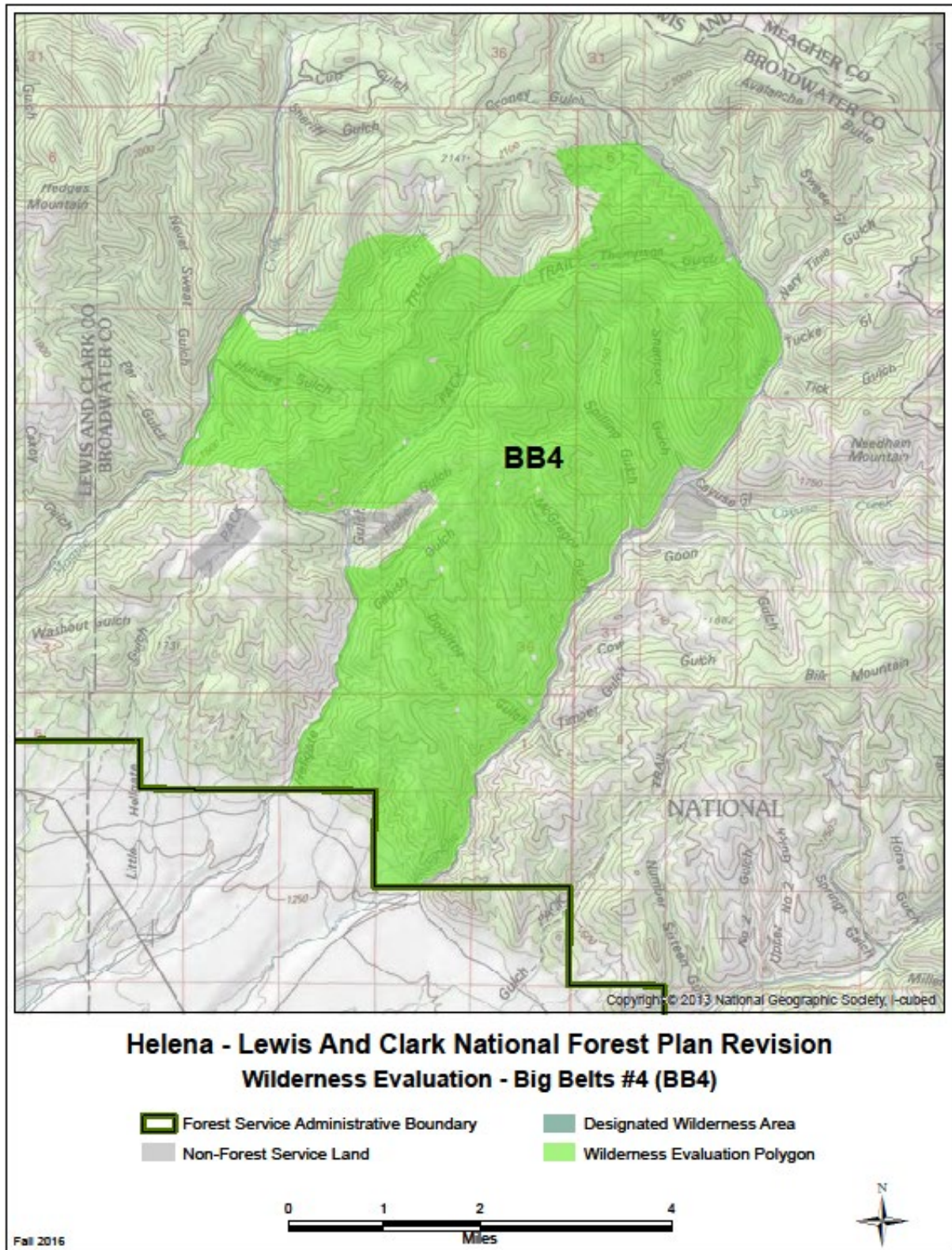
| Features               | Description and scale  |
|------------------------|--|
| Rare plant communities | Records show the presence of one potential plant species of conservation concern in this area, <i>Polygonus douglasii</i> spp. <i>Austinae</i> . Small amounts of limber pine, <i>Pinus flexilis</i> , are also present. |

| Features   | Description and scale  |
|--|--|
| Rare animal species or communities                           | <p>Federally listed species Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.</p> <p>Potential species of conservation concern and/or state at risk species: Townsend’s big-eared bat, evidence of possible breeding in or adjacent to area.</p> <p>Westslope cutthroat trout in Avalanche and Magpie Creeks.</p> |
| Rare ecosystems  | <p>Small areas of limber pine, ponderosa pine, and aspen are mapped in this area, which are not abundant forested communities in many areas on the HLC NF. Grass and shrublands are also important vegetative communities found in this area.</p> <p>No rare aquatic ecosystems known.</p>   |
| Outstanding landscape features                               | Cliffs and rock formation in Hellgate Gulch.   |
| Historic and cultural resource sites                         | <p>Twenty-two recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. The high concentration of rock art offers exceptional scientific, educational and historic value.</p>                                  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 29. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | This polygon is an irregular shape that includes portions of Hellgate Gulch, Fisher Gulch, and the west slopes of Avalanche Creek. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | All private lands are excluded from this polygon.  |
| Management of adjacent lands   | Forest Service system lands to the north, west, and east. Private lands to the south that are used primarily for agriculture.      |



### Bilk Mountain Area (BB5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 30. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance type in this area is Douglas-fir, which is mapped on over 66%. Dry grasslands are also common, found on nearly 14%. Lodgepole pine forests can be found on just under 10%. Very small amounts of other dominance types are also present, including shrublands, subalpine fir, Engelmann spruce, limber pine, Rocky Mountain juniper, and a tiny trace of whitebark pine.  |
| Potential vegetation types  | Warm dry forest potential vegetation types dominated the area, covering about 80%. Dry grassland and mesic grassland potential types together make up about 14%. Cool moist forest potential types are also present, on about 4%. Very small amounts of shrubland and riparian potential types are also present.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 1,206 acres within BB5 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest: 14,000 acres of goshawk potential nesting habitat (1 known nesting territory); 3000 acres potential lynx habitat (590 acres of mature multi-storied, which is optimal winter foraging habitat; but area not occupied by lynx). Note that these habitats increase in extent and value in combination with similar in BB4. Roughly 280 acres possible old growth habitat in patches of varying size.<br>Big game habitats: Over 14,000 acres secure elk habitat; immediately adjacent to elk calving habitat on non-NFS land. Possible moose presence in riparian.<br>Subalpine/alpine habitats: Roughly 2000 acres potential wolverine habitat.<br>Westslope cutthroat trout in Avalanche Creek and White Gulch, plus a tributary to White Gulch. |
| Known non-native wildlife species                                     | Introduced population of mountain goats, a species native to MT but not to this mountain range.<br>Non-native trout likely.   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 31. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There are no records of past harvest in the area. It is possible that some historic tree cutting occurred which predates these records (prior to the 1950’s). |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 95.3% of BB5 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2:47%, Class 3: 53% Impacts from grazing and dewatering. Avalanche Creek on 303(d) list for dewatering and grazing impacts.                             |



| Measures   | Outcome   |
|--|---|
| Miles of motorized road/trail within 300' of streams | 7.7 miles   |
| Noticeable wildfire suppression impacts              | No fire and no fire suppression impacts since 1980. |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 32. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | While no past harvest occurred, some prescribed burning activities did occur in this area which were determined to no longer be substantially noticeable. These treatments included under burning and broadcast burning which occurred primarily in 1988, with some small areas treated in the late 1990's and early 2000's. The effects of these treatments appear similar to wildfire.  |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mine.  | Multiple abandoned mines in southern portion of polygon and along Avalanche Creek. These mines take away from the wilderness character of the south portion of the polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 2.5 miles of fencing and 11 stock water tanks within BB5.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed camping along Avalanche Creek, Avalanche Butte, and the Ridge Road. No outfitter camps.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Motorized use heard and seen from roads on the perimeter.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Fifteen recorded cultural resources are within this evaluation area. Most of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. This evaluation area also lies within the Confederate Historic Mining District, which contains numerous unrecorded historic mining related features on the landscape. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Number of miles of maintenance level 1 road templates.   | 0.2 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation | One recorded historic wagon route (10 miles) is located within the evaluation area. However, there is a high probability of other historic routes related to the Confederate Historic Mining District. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 33. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | Nary Time motorcycle trail in Nary Time Gulch. White Gulch road and Spring Gulch roads are open. These routes are excluded but cut across the polygon in the south portion. |
| Area available for winter motorized opportunity                     | Upper end of White Gulch is open for snowmobile.  |
| Proximity to private lands and non-Forest Service roads             | Private land inholding in White Gulch and along Cayuse Creek.   |
| Proximity to developed recreation sites outside of the polygon area | No developed recreation sites near the polygon.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 34. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Majority of the area open to primitive and semi-primitive recreation in Bilk Mountain and Cayuse Creek.                             |
| Primitive and semi-primitive non-motorized winter recreation                               | All portions of the polygon except for White Gulch which is open to snowmobiles.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking and horseback riding, dispersed camping along the open roads around the perimeter. Area is popular with hunters in the fall. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Bilk Mountain Area (BB5) is 25,787 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

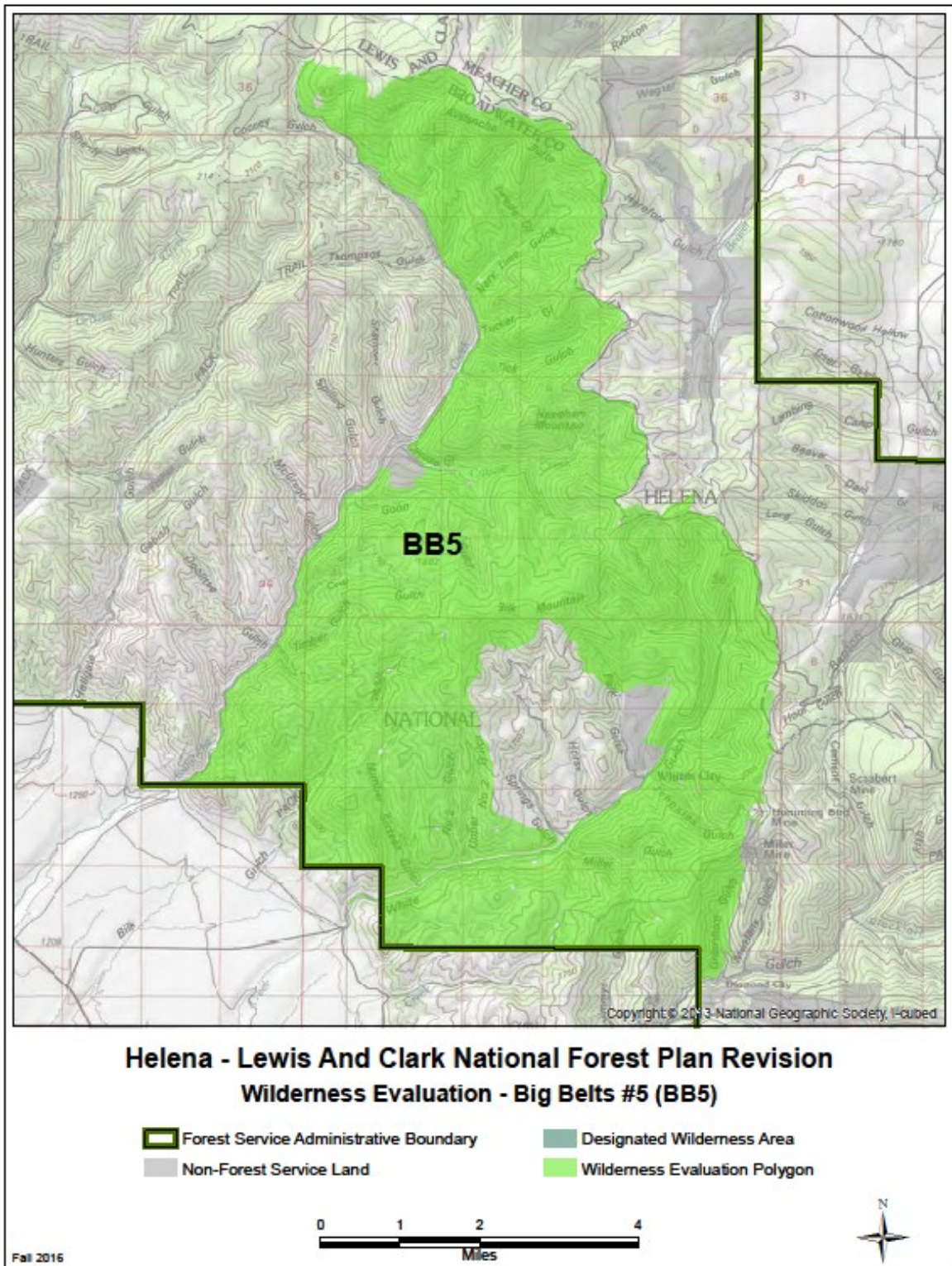
**Table 35. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | Several potential plant species of conservation concern are known to occur in the area, including <i>Cirsium longistylum</i> , <i>Lesquerella klausii</i> , <i>Pinus albicaulis</i> , and <i>Pinus flexilis</i> .  |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Westslope cutthroat trout in Avalanche and White Gulch   |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in small amounts in this area. Other ecosystem components found in this area, including limber pine, are not abundant in many areas of the HLC NF.<br>No rare aquatic ecosystems known   |
| Outstanding landscape features                               | Pretty vistas had off of Needham Mountain, Bilk Mountain, and Cayuse Mountain.   |
| Historic and cultural resource sites                         | Fifteen recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. In addition, this evaluation area lies within the Confederate Historic Mining District, which contains numerous unrecorded historic mining related features on the landscape. All of these sites have the potential for scientific, educational or historic value. |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | White Gulch is on the list of eligible WSRs, it is listed for outstanding its outstanding Westslope cutthroat trout fishery.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 36. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | This polygon is relatively narrow at the northern end then broadens to area that encompasses the landscapes between Avalanche Creek and Greenhorn Gulch to the east. There is a large exclusion area in the lower central part of the polygon. |
| Legally established rights or uses within the area   | Private land ROW to private land in White Gulch.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Private land in White Gulch and Cayuse Creek.  |
| Management of adjacent lands   | Timber management on Forest Service system lands on the north, east and western boundaries. Private land with agriculture use on the south boundary.   |



### Camas Creek Area (BB6)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 37. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | This area contains a mix of dominance types, ranging from Douglas-fir dominated forest (18%), to lodgepole pine (46%), to subalpine fir/Engelmann spruce mixes (25%). There are also dry grasslands (6%), and some whitebark pine forest (just over 2%). Very small amounts of other dominance types are also present, including shrublands, limber pine, aspen, and sparse vegetation.   |
| Potential vegetation types  | The area is dominated by cool moist forest potential vegetation types (69%), with warm dry forest types also common (20%). About 4% supports cold forest potential types, which is where whitebark pine would most likely thrive. There are also small amounts of grassland and shrubland potential types, and sparsely vegetated areas.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 22 acres within BB6 is associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest: 18,000 acres potential lynx habitat (2600 acres of mature multi-storied, which is optimal winter foraging habitat; note area not occupied by lynx); 13,000 acres of goshawk potential nesting habitat (1 known nesting territory); 2400 acres possible old growth habitat in patches of varying size, with substantial connected patches in the western portion of the area. Presence of Clark’s nutcracker indicates availability of mature 5-needle pine, likely whitebark pine.</p> <p>Subalpine/alpine habitat: 21,000 acres potential wolverine habitat, with approximately 9000 acres of that potential maternity habitat.</p> <p>Big game habitats: Nearly 22,000 acres secure elk habitat. Immediately adjacent to elk calving habitat on non-NFS land. Possible moose presence in riparian.</p> <p>No Westslope cutthroat trout.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range.</p> <p>Non-native trout likely.</p>  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 38. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | There is one small area with a record of past timber harvest; a single-tree selection harvest that occurred in 1960 and which affects less than 1% of the area (24 acres). |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9% of BB6 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 27%, Class 3:73%, however, the polygon is in the headwaters of the impaired watersheds, above the impacted areas.   |

| Measures   | Outcome  |
|--|--|
| Miles of motorized road/trail within 300' of streams | 1.9 miles, but they don't appear to be heavily impacted. |
| Noticeable wildfire suppression impacts              | Some fire activity but 0% affected by fire suppression.  |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 39. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | The only vegetation treatment on record is the small single tree harvest that occurred in 1960; this treatment affects less than 1% of the area and was determined to be no longer substantially noticeable. No prescribed fire activities have occurred.  |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Weather station on the ridge between Atlanta Creek and Pickfoot Creek. Weather station is a few small low structures less than ¼ acre in size.   |
| Areas of mining activities including both abandoned and active mines  | There are a few abandoned mines scattered throughout. They are insignificant spatially within the polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1.1 miles of fencing within BB6.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps, however, one outfitter/guide permit for the area. Dispersed camping in Duck Creek pass and Blacktail Creek.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Small water pipelines in Spruce Creek, Boulder Creek and Atlanta Creek.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Timber harvesting activity to the north and southeast.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Currently there are only two recorded sites within this evaluation area, which are relics of past occupations. However, the northern portion is located within the Confederate Historic Mining District, therefore there is high potential for un-recorded structures, dwellings for relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process.  | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 0.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | None known.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 40. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | None available for motorized use in summer.   |
| Area available for winter motorized opportunity                     | None available for motorized use in winter.   |
| Proximity to private lands and non-Forest Service roads             | No private land inholdings.   |
| Proximity to developed recreation sites outside of the polygon area | Stove Camp Trailhead on Duck Creek Pass on the edge of the polygon. Blacktail Trailhead on northern boundary in Blacktail Creek. This trailhead is about ¼ mile from boundary of the polygon. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 41. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Entire polygon is available for primitive and semi-primitive summer recreation.                                    |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire polygon is available for primitive and semi-primitive winter recreation but not heavily used in the winter. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, hunting, fishing, backpacking into high mountain lakes.                                  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Camas Creek Area (BB6) is 23,879 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 42. Features present**

| Features                           | Description and scale   |
|------------------------------------|---|
| Rare plant communities             | Several potential plants of conservation concern are known to occur in this area, including <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Cirsium longistylum</i> .  |
| Rare animal species or communities | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential state at risk species: wolverine<br>No known rare aquatics. |
| Rare ecosystems                    | Whitebark pine is a proposed species for listing under the ESA and is found in small amounts in this area. Limber pine communities are also of interest on the HLC NF.  |

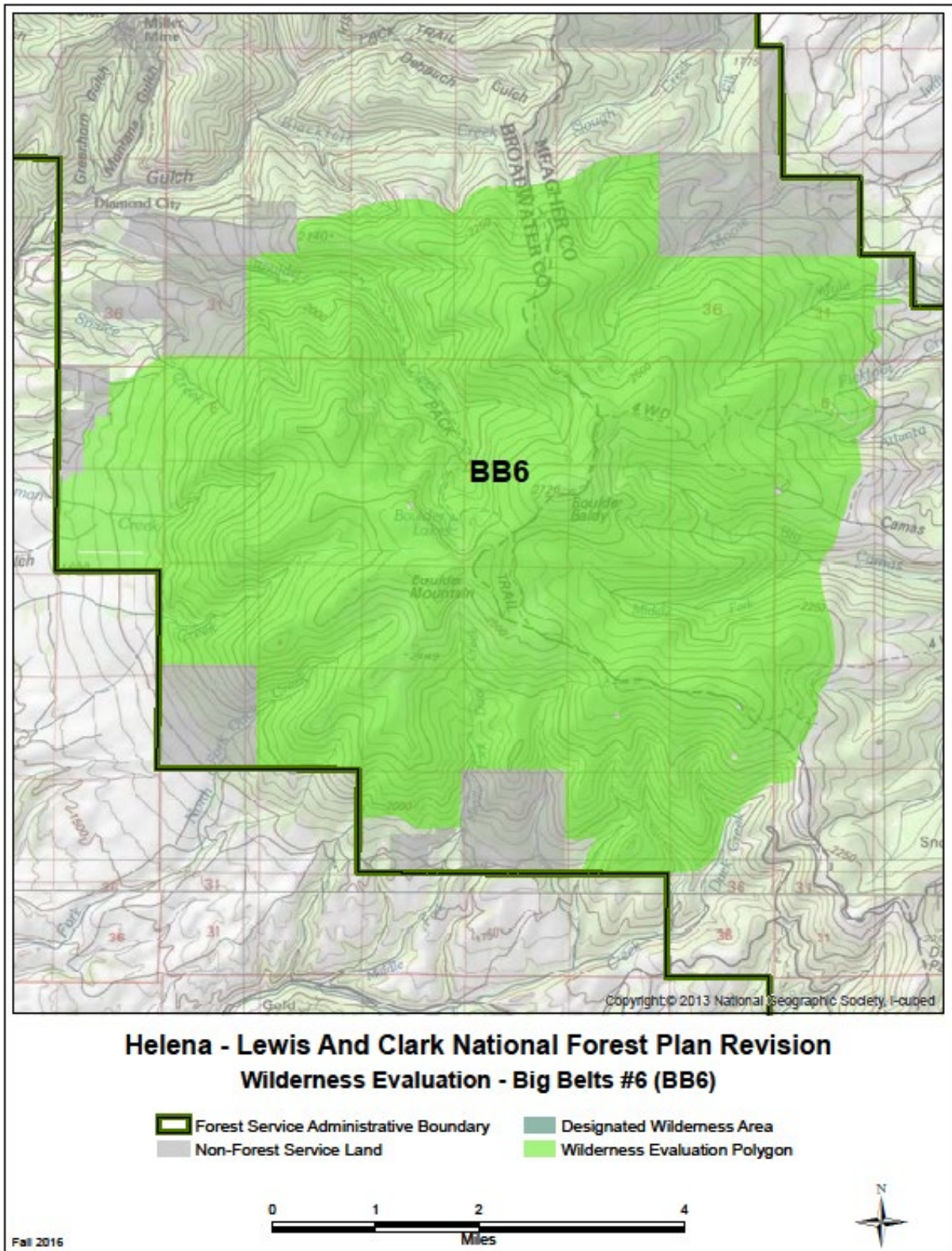
| Features   | Description and scale  |
|--|--|
|  | No known rare aquatic ecosystems.  |
| Outstanding landscape features                               | High mountains, wide vistas, small alpine lakes.   |
| Historic and cultural resource sites                         | Currently there are only two recorded sites within this evaluation area, which have the potential for scientific, educational or historic value. However, the northern portion is located within the Confederate Historic Mining District, therefore there is high potential for un-recorded historic sites associated with past mining. |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Isolated headwaters area, steep, no major disturbances.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 43. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | A large circular area surrounding Boulder Mountain and Boulder Baldy peaks.   |
| Legally established rights or uses within the area   | Water rights associated with the pipelines.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | No private inholdings.  |
| Management of adjacent lands   | Timber harvest and road building on Forest Service system lands to the north and south east. Private land with agricultural and timber harvest uses to the southwest. |





## Mount Baldy Area (BB7)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 44. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | This area is primarily dominated by higher elevation forests, including lodgepole pine dominance types (35%) and subalpine fir/Engelmann spruce mixes (35%). There are also some Douglas-fir forests (about 10%). Sparsely vegetated areas are also common (11%), and likely consist mainly of rocky alpine sites. Whitebark pine forest is present on about 6% of the area. Small amounts of other dominance types are also present, including grasslands, shrublands, and limber pine.  |
| Potential vegetation types  | Cool moist forest potential vegetation types dominate, representing about 68% of the area. Warm dry forests are present on about 6% at the lowest elevations, and cold forest potential types are found on about 11% at the highest elevations, representing the area where whitebark pine could most likely thrive. In addition to the sparsely vegetated (alpine) areas that cover about 11%, there are very small amounts of grassland and shrubland potential types present.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 108 acres within BB7 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest: Roughly 14,000 acres potential lynx habitat (2300 acres of mature multi-storied, which is optimal winter foraging habitat; note area not currently occupied by lynx); 7400 acres of goshawk potential nesting habitat. Roughly 1000 acres possible old growth habitat in patches of varying size. Presence of Clark’s nutcracker indicates availability of mature 5-needle pine, likely whitebark pine.</p> <p>Big game habitats: Nearly 16,000 acres secure elk habitat. Possible moose presence in riparian.</p> <p>Subalpine/alpine habitat: roughly 15,000 acres potential wolverine habitat, with approximately 3400 acres of that potential maternity habitat. Golden-mantled ground squirrel presence also indicative of subalpine/alpine habitats.</p> <p>Westslope cutthroat trout in Ray Creek.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range.</p> <p>Non-native trout likely</p>   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 45. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | There is a record of one small commercial thinning activity that occurred in this area in 1958, representing less than 1% of the area (30 acres).<br>There appears to be an old sale/with roads in the southwest corner of the polygon, (was private on old rec map)/section 28. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.4%% of BB7 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 19%, Class 2: 81% Polygon is in headwaters of these watersheds though, very little disturbance or impacts.  |
| Miles of motorized road/trail within 300' of streams                         | 0.0 miles  |
| Noticeable wildfire suppression impacts                                      | No recorded fire instances since 1980.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 46. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | The only record of past vegetation treatment found in this area is a 30-acre commercial thin from 1950 which was determined to no longer be substantially noticeable on the landscape. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Multiple permittees at a communication site in the northwest portion of the polygon and is visible from within the polygon.  |
| Areas of mining activities including both abandoned and active mines  | Not extensive. Only one mine mapped in northern portion of the polygon near Duck Creek Pass.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1.1 miles of fencing within BB7.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed camping along Duck Creek Pass and at all of the upper alpine lakes. Outfitter camp near the Needles.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Abandoned powerline west of the communication site which is still visible from within the polygon.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.  |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Lands adjacent to development or activities that impact opportunities for solitude   | Surrounded by timber harvest on all four sides. Forest Service system land harvest on north, west and south. Private land harvesting on the east.                                      |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | No recorded sites. There is the potential for two historic administrative structures (fire lookouts) that have been mentioned in references but have not been visited and/or recorded. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process.   | Recommended as wilderness in the 1986 Helena Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 0.7 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | None known.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 47. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)                            |
|---|--|
| Area available for summer motorized opportunity                     | Some motorized use on the road up the communication site in summer. Otherwise, the bulk of the area is nonmotorized.           |
| Area available for winter motorized opportunity                     | The entire polygon is nonmotorized in winter.  |
| Proximity to private lands and non-Forest Service roads             | No private land inholdings.  |
| Proximity to developed recreation sites outside of the polygon area | Gypsy Lake Campground and Trailhead to the north. Hidden Lake Trailhead on Duck Creek Pass. Edith Lake Trailhead to the south. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 48. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, hunting, fishing, backpacking into high mountain lakes.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Mount Baldy Area (BB7) is 18,335 acres. Much of this area is recognized as a recommended wilderness area in the 1986 Helena Forest Plan.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

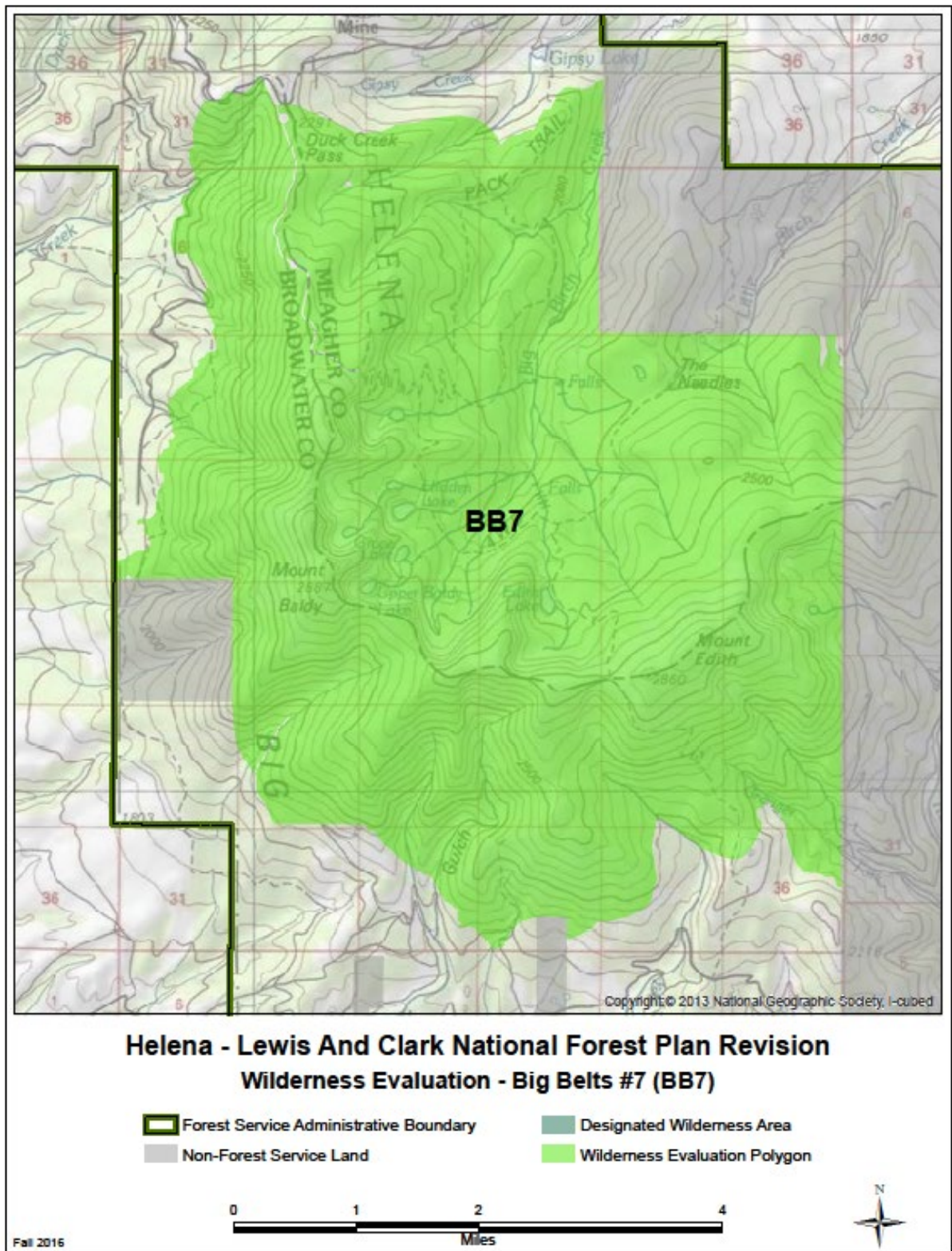
**Table 49. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | Several potential plant species of conservation concern can be found in this area, including <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Cirsium longistylum</i> , and <i>Juncus hallii</i> .   |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential state at risk species: wolverine, state at risk species: black rosy finch<br>Westslope cutthroat trout in Ray Creek.   |
| Rare ecosystems  | The mapped area of whitebark pine dominance (6% of the area, or about 1087 acres) represents one of the more abundant whitebark communities in the Big Belts GA. The additional area of cold forest potential vegetation types represents potential expansion opportunities for this species of concern. Whitebark pine and alpine ecosystems are relatively rare and important features on the HLC NF, and whitebark is a proposed species for listing under the ESA. Several whitebark stands in this area are identified as genetically diverse areas valued for their contributions to the Regional whitebark pine rust resistant seed program.<br>No known rare aquatic ecosystems. |
| Outstanding landscape features                               | The Needles, numerous alpine lakes, high mountain peaks and valley vistas.   |
| Historic and cultural resource sites                         | None known.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Ray Creek is on the list of eligible WSRs, for westslope cutthroat trout.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 50. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Large oval-shaped area that includes the Mount Baldy, Mount Edith, and Needles areas.   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | No private inholdings.  |
| Management of adjacent lands   | Timber harvest and road building on Forest Service system lands to the north, west and south. Heavily impacted private lands to the east. |



### Grassy Mountain Area (BB8)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 51. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Most of this area supports Douglas-fir dominated forests (78%). Dry grasslands are also common (12%). Small amounts of other dominance types are also present, including shrublands, ponderosa pine, lodgepole pine, subalpine fir, Engelmann spruce, cottonwood, and aspen. In addition, a small portion (280 acres) was burned in the Maudlow-Toston fire of 2000 and is classified as “transitional” (3%), where forest cover has not yet re-established. |
| Potential vegetation types  | The area is dominated by warm dry forest potential vegetation types (over 81%), with dry grassland types the next most common (just over 8%). There are small amounts of other potential types present, including cool moist forest, mesic grassland, dry shrublands, riparian/wetland, and sparsely vegetated areas.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 34 acres within BB8 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest minimal: Less than 800 acres potential lynx habitat based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 4600 acres of goshawk potential nesting habitat. Roughly 150 acres possible old growth<br>Approximately 2200 acres secure elk habitat. Possible moose presence in riparian. Less than 200 acres potential wolverine habitat.<br>No westslope cutthroat trout present.   |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented.<br>Non-native trout likely.   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 52. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | Records indicate that two small harvests occurred in this area in 1989, a seed tree seed cut and a shelterwood preparatory cut which together totaled 38 acres (less than 1% of the area). |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.4%% of BB8 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%  |
| Miles of motorized road/trail within 300’ of streams                         | 0.5 miles, but several motorized roads/trails cross through the polygon.   |
| Noticeable wildfire suppression impacts                                      | Maudlow-Toston: Dozer or feller-buncher fuel break through Sec. 30 and 29.   |



*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 53. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | Several small vegetation treatments occurred in this area which all together total nearly 2% of the area. In addition to the two small harvests in 1989, piles were burned on roughly 74 acres. However, the pile burning occurred twice on the same area, which is the same area that was harvested; therefore, the actual footprint of activity is only about 35 acres total. These treatments were determined to be no longer substantially noticeable due to the residual vegetation appearing natural today. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Multi-structure communications complex on Grassy Mountain on the east side of the polygon.  |
| Areas of mining activities including both abandoned and active mines.   | Several abandoned mine points within polygon  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 3.2 miles of fencing and 3 stock water tanks within BB8.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed camping in Klondike Pass, Blacktail road, and south of Skidway Campground. No outfitter camps.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None known.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Motorized use on open roads surrounding the polygon. Highway 12 forms the western boundary of the polygon.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | None recorded at this time. However, there is the potential of an unrecorded historic site since old ski runs are visible west of Skidway Campground.   |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.3 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | None known.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 54. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|---|---|
| Area available for summer motorized opportunity | The entire eastern boundary is a motorized trail and is open for summer motorized use.              |
| Area available for winter motorized opportunity | Area is not available for winter motorized recreation.  |
| Private land within the polygon                 | No private land inholdings.   |
| Developed recreation sites                      | Skidway Campground, Deep Creek Picnic area, and Blacktail Trailhead are located along Highway 12.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 55. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The influence of Highway 12 and the motorized routes along Grassy Mountain reduce opportunities for primitive and semi-primitive non-motorized summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | Closed to motorized winter recreation so opportunities to experience primitive and semi-primitive winter recreation are good.                                     |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, hunting, motorized recreation on eastern boundary, and cross-country skiing around Skidway.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Grassy Mountain Area (BB8) is 6,194 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

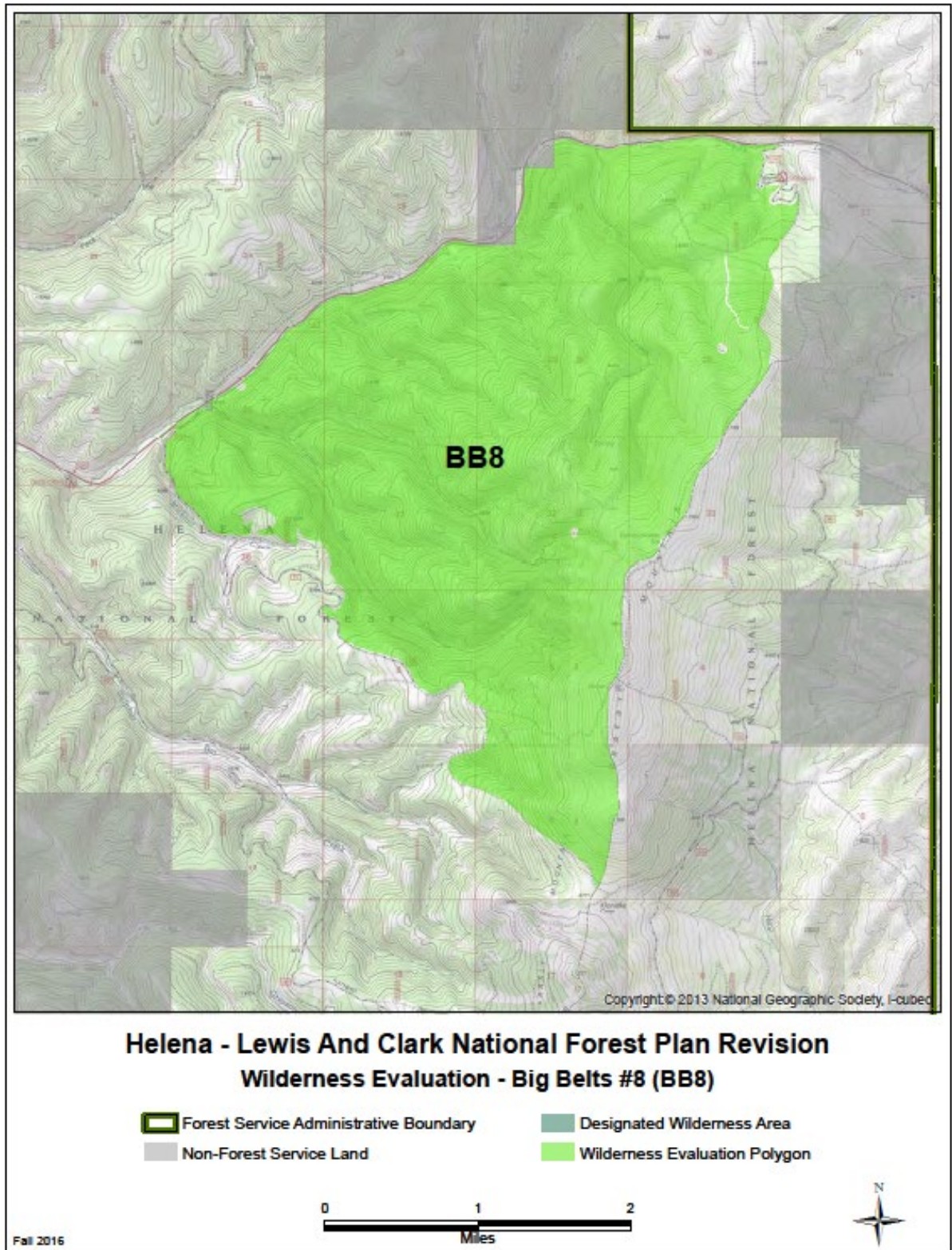
**Table 56. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The only potential plant of conservation concern known to occur in this area is <i>Polygonum douglasii ssp. Austinae</i> .   |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: none documented<br>No known rare aquatic species |
| Rare ecosystems  | There are no known rare ecosystem features related to vegetation, other than the minor presence of cottonwood and aspen which are limited in extent on the HLC NF.<br>No known rare aquatic ecosystems.  |
| Outstanding landscape features                               | High mountain vistas on Grassy Mountain.   |
| Historic and cultural resource sites                         | None known at this time.   |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 57. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Arrow-shaped land area on Grassy Mountain east of Deep Creek.                                   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | No private inholdings.  |
| Management of adjacent lands   | Timber harvest and road building on Forest Service system lands to the northwest and southwest. |



### Willow Creek Area (BB11)

This polygon includes four small parcels that all together equal 121 acres.

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. *What is the composition of plant and animal communities within the area?*

**Table 58. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Due to recent wildfire activity, over 60% of this small area is mapped as “transitional” in VMap, indicating that the vegetation type is not identifiable although tree seedlings may be re-establishing. Roughly a third of the area is classified as dry grassland, and about 6% maps as a Douglas-fir dominance type. There are trace amounts of ponderosa pine and shrublands. Given the location and elevation of this area, grasslands may dominate the burned areas for some time, although Douglas-fir and/or ponderosa pine may also establish. |
| Potential vegetation types  | About 68% of the area has a warm dry forested potential vegetation type, consistent with supporting Douglas-fir and ponderosa pine. 27% of the area is a dry grassland potential type, and nearly 5% is a dry shrubland potential type.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 2 acres within BB11 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Big game habitats: Roughly 50 acres secure elk summer habitat and roughly 125 acres bighorn sheep winter range. These habitats are not significant by themselves but increase in value paired with adjacent wilderness and potentially with BB1 and BB3.<br>No westslope cutthroat trout.  |
| Known non-native wildlife species                                     | Introduced population of mountain goats, a species native to MT but not to this mountain range. None others documented.<br>No known non-native aquatic species.  |

Question 1b. *What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 59. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There are no records of past timber harvest occurring in this area.                                 |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.2% of BB11 is not associated with invasive plant inventories. |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%, but no impacts in the polygons.  |
| Miles of motorized road/trail within 300’ of streams                         | 0.0 miles   |
| Noticeable wildfire suppression impacts                                      | None present.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 60. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness                                       |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | There are no records of past timber harvest or prescribed fire activities in this area. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | None.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | None.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Surrounded by undeveloped State of Montana lands.                                       |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | No known sites.   |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.                                  |
| Number of miles of maintenance level 1 road templates   | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | None known.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 61. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Areas available for summer motorized opportunity                    | Area not available for summer motorized recreation.  |
| Areas available for winter motorized opportunity                    | Area not available for winter motorized recreation.  |
| Proximity to private lands and non-Forest Service roads             | These parcels lie adjacent to state game management area.  |
| Proximity to developed recreation sites outside of the polygon area | No developed recreation sites in the area. Willow Creek Trailhead outside of the Gates of the Mountains Wilderness on Montana State lands. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 62. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Entire parcels available for primitive and semi-primitive summer recreation.                         |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire parcels available for primitive and semi-primitive winter recreation. Inaccessible in winter. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking and hunting.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Willow Creek Area (BB11) is only 121 acres. This polygon consists of 4 small parcels that lie adjacent to the northern boundary of the Gates of the Mountains Wilderness. There are no other Forest Service system lands in this area. They are effectively already being managed as if they are wilderness.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 63. Features present**

| Features                           | Description and scale   |
|------------------------------------|---|
| Rare plant communities             | There are no records of rare plants or potential plant species of conservation concern in this area.  |
| Rare animal species or communities | Federally listed species: Occasional, transient presence of grizzly or lynx likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: None documented |

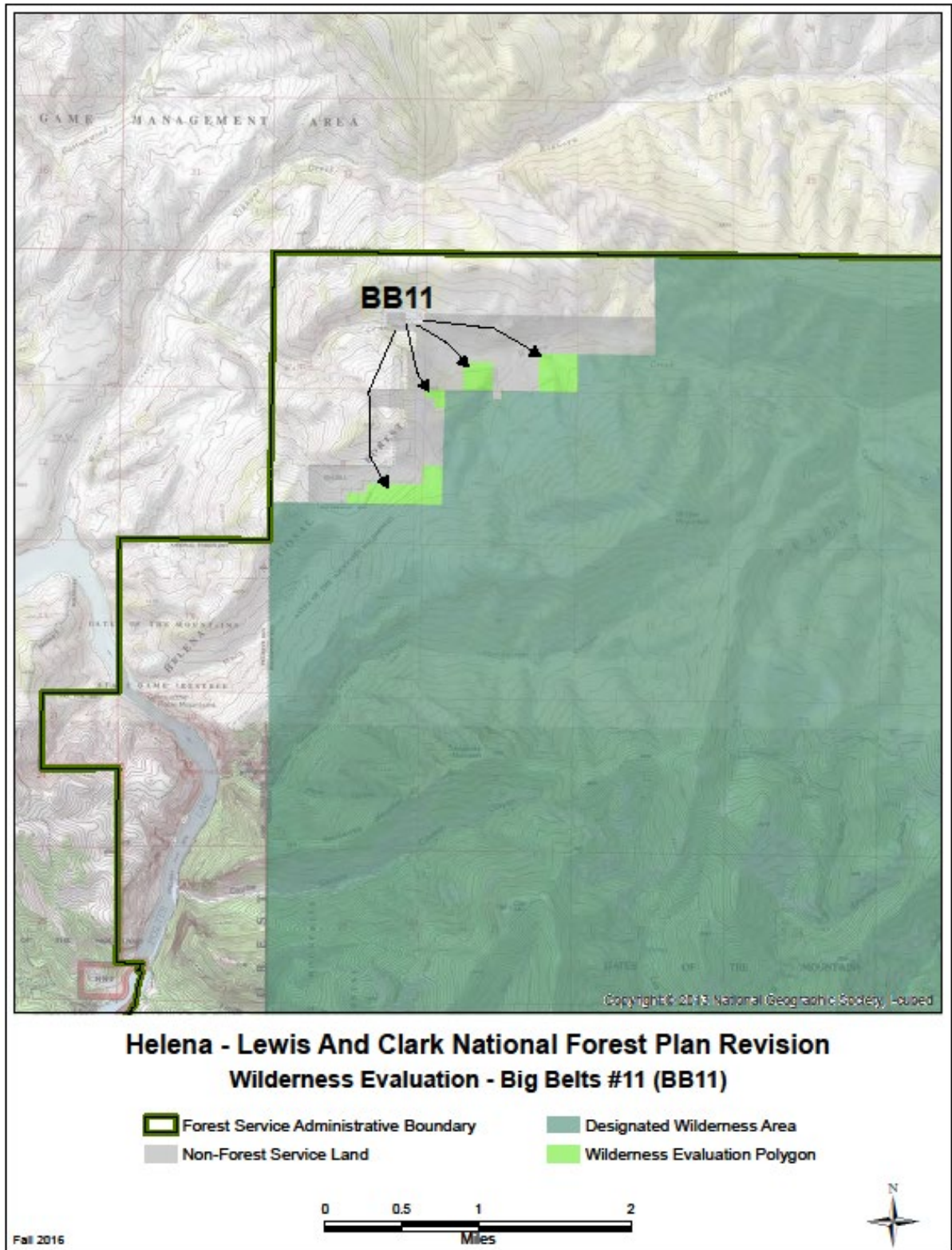
| Features   | Description and scale   |
|--|---|
|  | No rare aquatic species.  |
| Rare ecosystems  | Ponderosa pine is a species of management interest and is present in minor amounts in this area.<br>No rare aquatic ecosystems. |
| Outstanding landscape features                               | Geologic rock features.   |
| Historic and cultural resource sites                         | No known sites.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | None.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 64. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Four small parcels of Forest Service system lands adjacent to the northern boundary of the Gates of the Mountains Wilderness. |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Borders a state game management area that limits access.  |
| The presence and amount of non-Federal land in the area  | No private inholdings.  |
| Management of adjacent lands   | Gates of the Mountains Wilderness to the south and state wildlife management area on all other sides.                         |





## Castles Geographic Area

### Wapiti Peak Area (CA1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. *What is the composition of plant and animal communities within the area?*

**Table 65. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance type in this area is lodgepole pine (pure or mixed), which covers about 56%. Douglas-fir forest is also common, representing about 19%. Subalpine fir and Engelmann spruce forests (and mixes of the two) cover about 14%. Dry grasslands are present on nearly 7%. There are small areas dominated by whitebark pine or limber pine (about 2% each). There are very small amounts of other dominance types, including shrublands and cottonwood.  |
| Potential vegetation types  | The bulk of this area has a cool moist forest potential vegetation type (68%), consistent with the dominance of lodgepole pine and Douglas-fir forest. Warm dry forest potential types make up about 24%, and dry grassland types about 5%. Trace amounts of cold forest, mesic grassland, shrublands, and riparian types are also present.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 47 acres within CA1 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest: Roughly 16,000 acres potential lynx habitat, with over 4200 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (area is not currently occupied by lynx). Roughly 22,000 acres of goshawk potential nesting habitat and at least one known nest territory. Roughly 150 acres possible old growth habitat in patches of varying size. Presence of Clark’s nutcracker indicates availability of mature whitebark, limber, and/or ponderosa pine.</p> <p>Approximately 15,000 acres secure elk habitat, and 1600 acres elk winter habitat and up to 2000 acres elk calving habitat. Possible moose presence in riparian.</p> <p>Roughly 2600 acres potential wolverine habitat.</p> <p>Westslope cutthroat trout in SF Willow, Richardson, Fourmile, and Cottonwood Creeks.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely.  |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 66. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Over 99% of this area has been unaffected by past timber harvest. About 82 acres have been harvested, primarily consisting of a single-tree selection cut which occurred in 1959. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9%% of CA1 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 10%, Class 2: 85%, Class 3: 5% Class 3 impacts are downstream from polygon   |
| Miles of motorized road/trail within 300' of streams                         | 10.9 miles  |
| Noticeable wildfire suppression impacts                                      | No impacts to the polygon from wildfire suppression.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 67. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | Less than 2% of this area has been impacted by timber harvest and prescribed fire. Approximately 82 acres have been previously harvested, including a single-tree selection cut in 1959 (75 acres) and a commercial thin (7 acres) in 1982. Ample residual trees were left after these treatments, and enough time has passed that they are no longer substantially noticeable. In addition, about 437 acres have been treated with prescribed fire from 2000 to 2004, consisting of under burning, broadcast burning, and pile burning. These treatments were also determined to be not substantially noticeable, appearing similar to wildfire. A portion of the Castles vegetation project is located within this RWA. The planned activities, including harvest, would not be an irretrievable commitment of resources and would not result in any permanent improvements within the polygon. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | Repeater on Elk Peak. This has no tower, so minimal visual impact.  |
| Areas of mining activities including both abandoned and active mines  | Areas of abandoned mines scattered throughout.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there is approximately 16.6 miles of fencing and 7 stock water tanks within CA1.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping throughout the polygon. Specifically, along trails and along the periphery of the polygon.  |

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Water line in West Fork Cottonwood Creek.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | Ditch along Fourmile Creek. Water diversion for the city water system for White Sulphur Springs. This diversion sends water to an impoundment which is located on private land.                                |
| Lands adjacent to development or activities that impact opportunities for solitude  | Outfitters to the west and south that have developments on private lands that minimally impact solitude.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are approximately 35 recorded cultural sites in this evaluation area, which represent structures, dwellings and other relics of past occupations.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 0.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There is one recorded historic road and five record historic trails in this evaluation area. However, there is a high probability of many historic routes in this polygon related to the past mining activity. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 68. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity | Most of the area is available for summer motorized activity through authorized ATV and motorcycle trails. The sights and sounds from these trails affect solitude in the entire polygon.  |
| Area available for winter motorized opportunity | Majority of the area is open to snowmobile use in the winter. This includes uses on trails as well as cross country use.  |
| Private land within the polygon                 | Two small private land inholdings: one in Grasshopper Creek and one in Warm Springs Creek. The private inholding in Grasshopper Creek is authorized for full size vehicle access. The private inholding in Warm Springs Creek has authorized ATV only access. |
| Developed recreation sites                      | There are two campgrounds north of the polygon: Grasshopper and Richardson. Both of these campgrounds create moderate impacts to lands near by these sites. Campers use the trail system by hiking, motorcycle and horses.                                    |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 69. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | There is very little opportunity to have a primitive or semi-primitive non-motorized recreation experience in the summer.   |
| Primitive and semi-primitive non-motorized winter recreation                               | While the area is open for snowmobile use, the terrain and the vegetation make snowmobile travel impracticable. Because of this, there are many opportunities to have a primitive or semi-primitive non-motorized experience in the winter. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | ATVs and motorcycle riding, horseback riding, hiking, rock climbing, hunting, fishing, minimal snowmobiling, mountain biking, dispersed camping around the periphery, and recreational mining.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Wapiti Peak Area (CA1) is 33,001 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

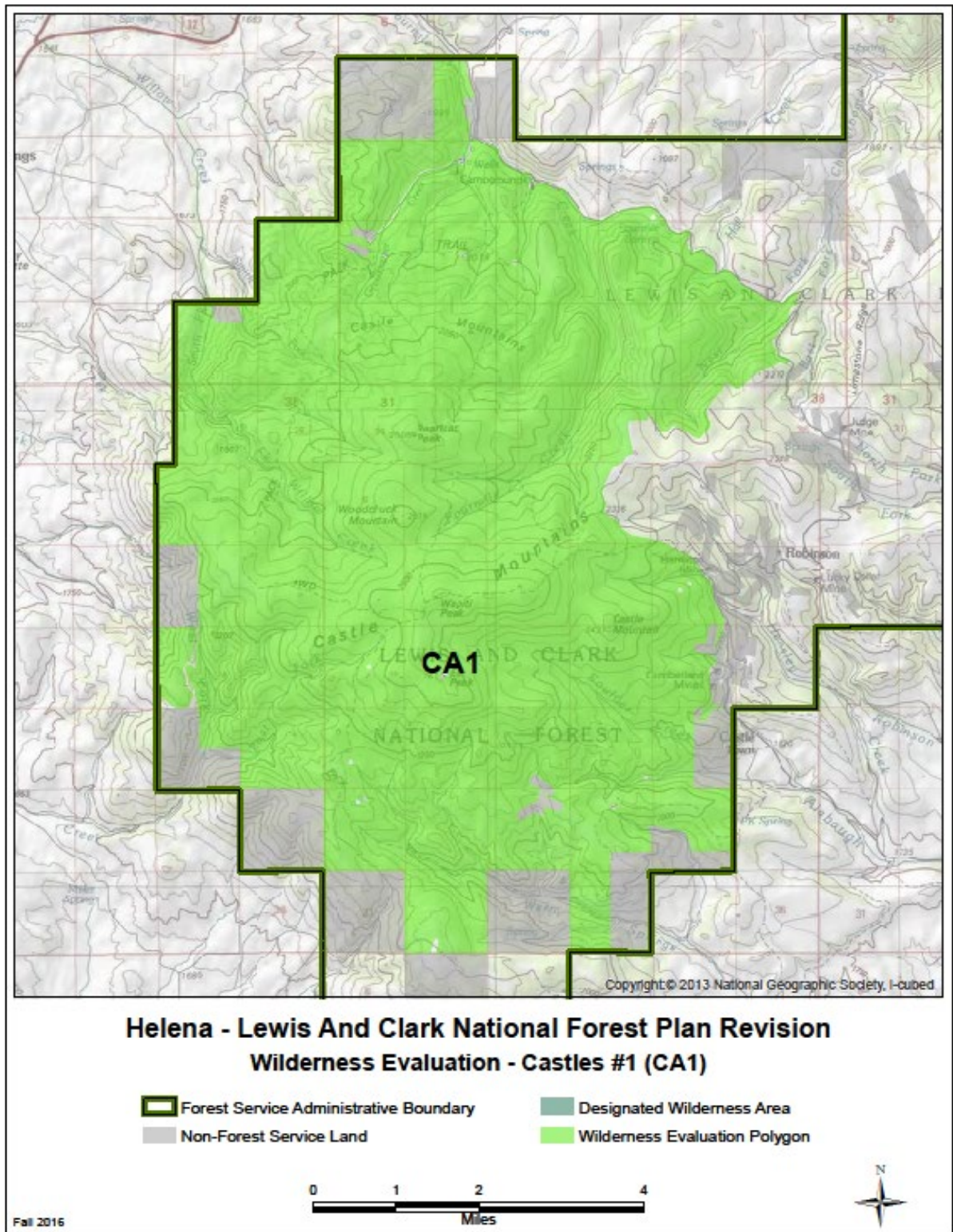
**Table 70. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | Several potential plants of conservation concern are known to be present in this area, including <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Agoseris lackschewitzii</i> , and <i>Cirsium longistylum</i> .  |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas.<br>Potential species of conservation concern and/or state at risk species: None documented<br>Westslope cutthroat trout in Fourmile, Richardson, SF Willow, and Cottonwood Creeks. |
| Rare ecosystems  | Whitebark pine and limber pine forests are considered to be relatively rare and important ecosystem components; these species are present in fairly small amounts. Whitebark pine is a proposed species for listing under the ESA.<br>No rare aquatic ecosystems known.   |
| Outstanding landscape features                               | Castle geology and outcroppings.  |
| Historic and cultural resource sites                         | All recorded cultural resources in the polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Polygon has streams with high quality water. Willow Creek is the municipal watershed for White Sulphur Springs. Area on north side of polygon has several sinkhole wetlands.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 71. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Large circular land area on the west end of the Castles.   |
| Legally established rights or uses within the area   | Private land inholdings are patented mining claims.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Two private inholdings: one in Warm Springs Creek and on in Grasshopper Creek.   |
| Management of adjacent lands   | Polygon surrounded by large private ranchlands on the south, west, and north. Forest Service system lands on the east. |



### Whetstone Ridge Area (CA3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 72. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | Pure Douglas-fir and Douglas-fir mixed forests dominate this area, making up about 56%. Dry grasslands are also common, present on about 26% of the area. Lodgepole pine dominance types are present on just over 7%. Limber pine dominated forests are notably present on about 6%. Other types are present in very small amounts, including subalpine fir, ponderosa pine, and shrublands.  |
| Potential vegetation types  | Warm dry forest potential vegetation types dominate the area, covering about 70%. Dry grassland types are the next most common, covering 24%. These potential vegetation types are consistent with the dominance of Douglas-fir forest, grasslands, and limber pine ecotone areas. Very small amounts of other potential types, including cool moist forest, mesic grassland, xeric shrubland, and riparian types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, there are currently no acres within CA3 associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 3100 acres potential lynx habitat, with over 2300 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 5000 acres of goshawk potential nesting habitat indicates. Roughly 200 acres possible old growth habitat and an additional 4000 acres potential as identified from aerial imagery. Both goshawk habitat and potential old growth habitat increase in value to wildlife in combination with similar habitat in NFS lands immediately east of this WE polygon.</p> <p>Approximately 1300 acres secure elk habitat reflects generally open vegetation types but increases in value when combined with secure areas to east of polygon. Roughly 2800 acres elk winter habitat contiguous with additional winter range on adjacent non-NFS lands.</p> <p>Gray-crowned rosy finch and black rosy finch indicate presence of specific subalpine/alpine habitats.</p> <p>Observations of bird species associated with native grasslands indicates importance of that habitat type in and adjacent to this area.</p> <p>No westslope cutthroat trout.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely, but area mostly dry.  |



Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 73. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | 100% of this area has had no timber harvest, according to available records. It is possible that historic harvest could have occurred prior to detailed record keeping (generally the 1950's). |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 100% of CA3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%  |
| Miles of motorized road/trail within 300' of streams                         | 15.2 miles, primarily along Flagstaff Creek.   |
| Noticeable wildfire suppression impacts                                      | No fires since 1980.   |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 74. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | No past timber harvest has occurred in this area. Roughly 270 acres were impacted by an under-burn treatment in 1999 (just over 3% of the area). This treatment was determined to not be substantially noticeable, with effects like wildfire. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | Abandoned mines likely throughout.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately ½ mile of fencing and 11 stock water tanks within CA3.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Not a lot of dispersed camping within the polygon.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Pipelines associated with stock tanks.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | None known.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are 16 recorded cultural resources which represent, structures, dwellings or other relics of past occupations. Some of these may not take away from the naturalness.   |

| Improvement type  | Presence and extent of departure from naturalness      |
|---|--|
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process | Not recommended as wilderness in the 1986 Forest Plan. |
| Number of miles of maintenance level 1 road templates   | 0.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation    | None known.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 75. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|---|---|
| Area available for summer motorized opportunity                     | Motorized ATV and jeep trails dissect the polygon.  |
| Area available for winter motorized opportunity                     | Most of the area is available for snowmobiling in the winter.                                       |
| Proximity to private lands and non-Forest Service roads             | Private lands border the polygon on the north and the south.  |
| Proximity to developed recreation sites outside of the polygon area | No developed trailheads or campgrounds.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 76. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Very little of the area is available for primitive or semi-primitive non-motorized recreation in the summer due to the motorized trail network. |
| Primitive and semi-primitive non-motorized winter recreation                               | Very little of the area is available for primitive or semi-primitive non-motorized recreation in the winter due to the motorized trail network. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, ATV riding, Jeep trail riding, motorcycling, hiking, and snowmobiling in the winter.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Whetstone Area (CA3) is 8,676 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

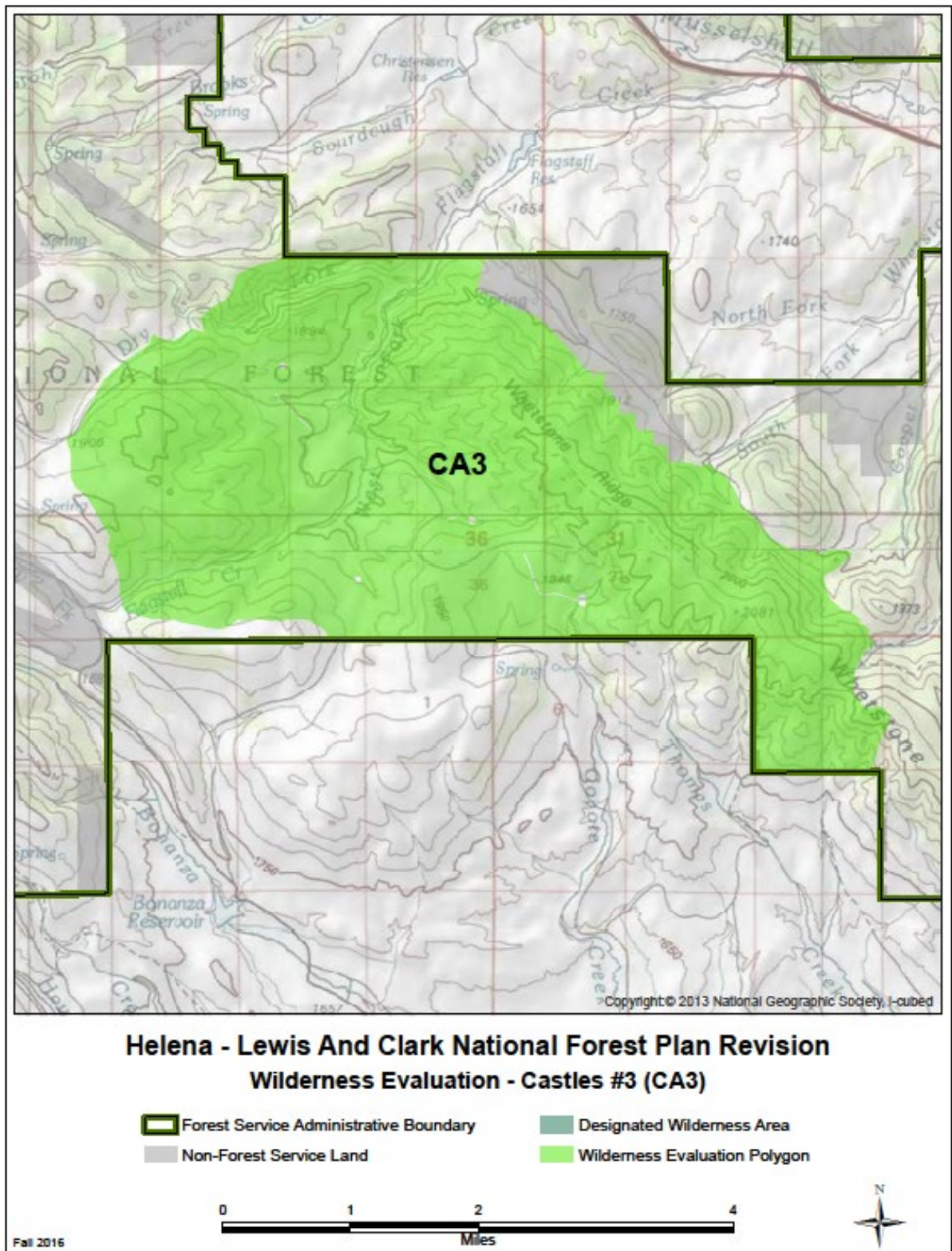
**Table 77. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | Several potential plants of conservation concern are known to occur in this area, including <i>Pinus flexilis</i> and <i>Cirsium longistylum</i> .   |
| Rare animal species or communities                           | Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas. Historic and possible occasional present occurrence of Sprague’s pipit (primary habitat on adjoining non-NFS lands).<br>Potential species of conservation concern and/or state at risk species: Lewis’s woodpecker, Gray-crowned rosy finch, black rosy finch. Possible occasional presence of greater sage grouse, Chestnut-collared longspur, although insufficient habitat in area to support these species; primary habitats likely on adjoining non-NFS lands.<br>No rare aquatic species known. |
| Rare ecosystems  | Limber pine-dominated areas are rare on the HLC NF, representing important ecotone ecosystems. These communities are present, generally on ridges with limestone substrate, in this area.<br>No rare aquatic ecosystems known.   |
| Outstanding landscape features                               | None known.  |
| Historic and cultural resource sites                         | All recorded cultural resources in this polygon have the potential for scientific, educational or historical value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None known   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 78. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Elliptical shaped and somewhat narrow. Fairly small.  |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | None within the polygon.  |
| Management of adjacent lands   | Private farm and ranchlands to the north and south. Forest Service system lands to the east and west. |



## Crazies Geographic Area

### Loco Mountain Area (CR1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 79. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | This area includes a mix of dominance types, including lodgepole pine and lodgepole pine mixes (22%), subalpine fir and Engelmann spruce mixes (22%), dry grasslands (15%), and Douglas-fir mixes (12%). A fairly substantial proportion of sparsely vegetated areas (rock, scree) are also present (19%). Roughly 5% of the area supports whitebark pine-dominated forest, and another 5% is limber pine. Trace amounts of other dominance types are also present, including shrublands and juniper.  |
| Potential vegetation types  | The most common potential vegetation type is cool moist forest (48%), with warm dry forest potential types and cold forest potential types (where whitebark pine is most likely to thrive) each present on about 9%. Sparsely vegetated potential vegetation type areas (rock and scree) represent about 23%. A small amount of this area had enough vegetation on it to be given a dominance type above. Dry grassland and mesic grassland potential types are also present on about 5% each. There are trace amounts of shrubland and riparian types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 7 acres within CR1 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 10,000 acres potential lynx habitat, with over 7000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 8200 acres of goshawk potential nesting habitat. Less than 100 acres possible old growth habitat but an additional &gt;10,000 acres potential as identified from aerial imagery. These habitats increase in value to wildlife in combination with similar habitat in NFS lands immediately west of this WE polygon.</p> <p>Approximately 22,000 acres secure elk habitat, and roughly 4200 acres elk winter habitat contiguous with additional winter range on adjacent non-NFS land. Roughly 2100 acres mule deer winter range contiguous with winter range on non-NFS lands. Possible moose presence in riparian/wetlands.</p> <p>Over 9000 acres potential wolverine habitat, with less than 100 acres identified as possible maternal habitat.</p> <p>No westslope cutthroat trout.</p> |
| Known non-native wildlife species                                     | <p>Possibly occasional mountain goats from introduced population to south; this species is native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented.</p> <p>No other non-native terrestrial wildlife species documented.</p> <p>Likely non-native trout present.</p>   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 80. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Nearly 100% of this area has never been impacted by timber harvest. A trace amount of acreage (0.05 acres) was impacted by a commercial thin in 1974 – this is a tiny mapping sliver on the boundary. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9% of CR1 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 49%, Class 2: 51%; Impacts related primarily to areas downstream of the polygon, but area is heavily impacted by grazing and motorized travel.   |
| Miles of motorized road/trail within 300' of streams                         | 0.23 miles, some motorized routes on east side and north-western corner of polygon.   |
| Noticeable wildfire suppression impacts                                      | No noticeable evidence of wildfire suppression impacts.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 81. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | There are essentially no harvest or prescribed fire treatments in this area, aside from a tiny mapping sliver (0.04 acres) impacted by a commercial thin in 1974. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None present.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 2 miles of fencing and 2 stock water tanks within CR1.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Heavily used hunting camp in Big Elk Creek. Minor dispersed camp sites scattered throughout the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Checkerboard ownership north of the polygon receives a lot of use during hunting season.  |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Only one recorded cultural resource is known in this polygon. This site represents a relic of past occupation; however, it most likely does not take away from the naturalness. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest plan.  |
| Number of miles of maintenance level 1 road templates  | 0.1 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | None known.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 82. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | Motorized use along the open roads in the eastern part of the polygon. Cherry stem roads.   |
| Area available for winter motorized opportunity                     | The western 1/3 of the polygon in Middle Fork of Cottonwood Creek if available for over the snow motorized vehicles both on and off the road system.                  |
| Proximity to private lands and non-Forest Service road.             | Polygon bordered on north and east by private ranch lands. Checkboard on north side is busy during hunting season. Large inholding near Forest Lake on the west side. |
| Proximity to developed recreation sites outside of the polygon area | Forest Lake campground is located to the west of the polygon.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 83. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Most of the polygon is available for primitive and semi-primitive non-motorized recreation in the summer.                                |
| Primitive and semi-primitive non-motorized winter recreation                               | Eastern 2/3 of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.                         |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, hunting, fishing, dispersed camping, and wildlife viewing. Snowmobiling in the western portion of the polygon. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Loco Mountain Area (CR1) is 25,605 acres and borders a large undeveloped area on the Gallatin National Forest to the south.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 84. Features present**

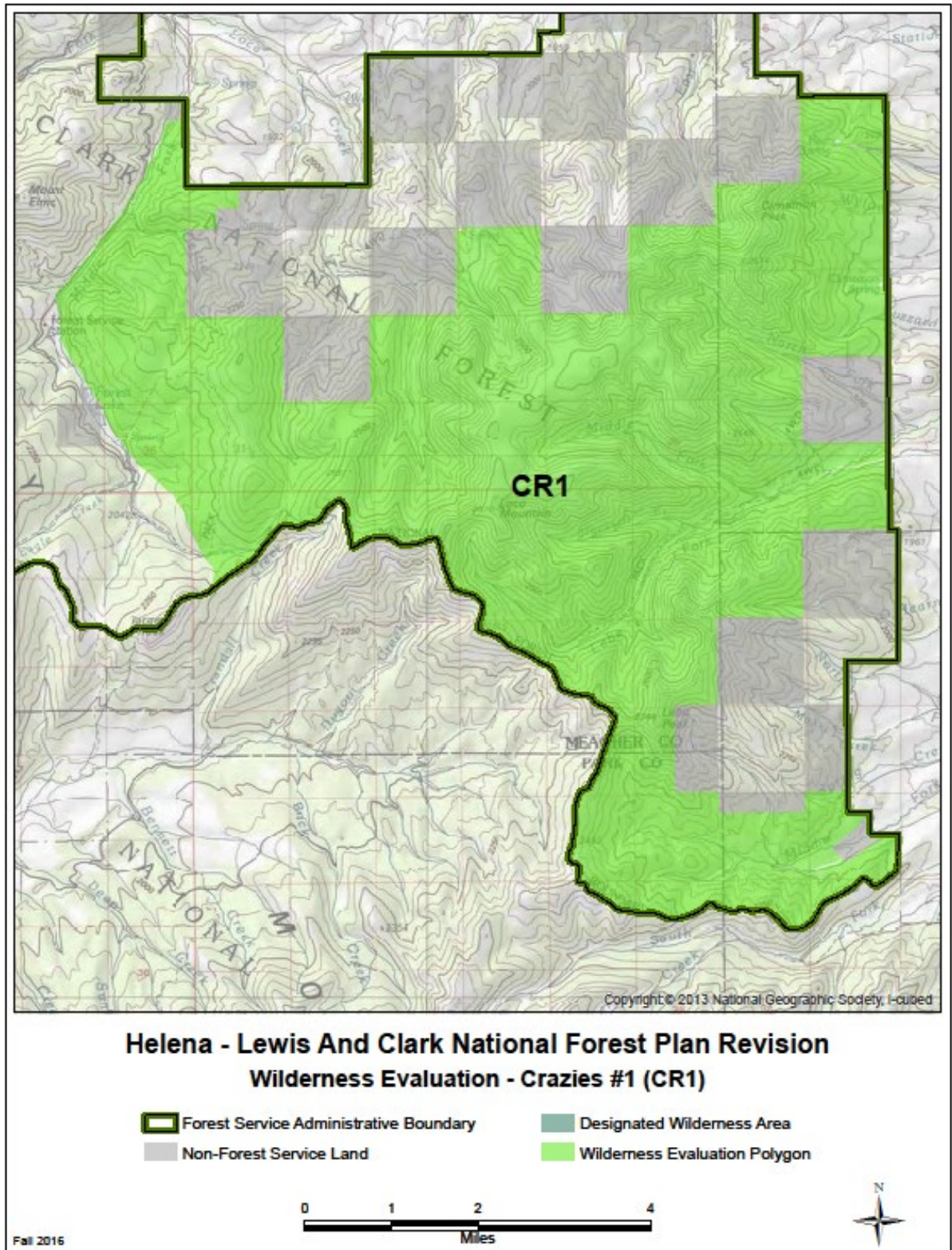
| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The only potential plants of conservation concern that are known to be present in this area are five needled pines: <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .  |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas.<br>Potential species of conservation concern and/or state at risk species: harlequin duck<br>No rare aquatic species. |
| Rare ecosystems  | Whitebark pine and limber pine ecosystems are considered relatively rare and important ecosystem components on the HLC NF. Whitebark pine is a proposed species for listing under the ESA.<br>No westslope cutthroat trout populations.                          |
| Outstanding landscape features                               | Bare, rocky, and high mountain peaks.  |
| Historic and cultural resource sites                         | The one recorded cultural resource and the surrounding landscape have the potential for scientific, educational or historic value.   |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None known.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 85. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Irregular shaped polygon that abuts checkerboard ownership patterns on the north and the east boundaries. Southern boundary with the Gallatin National Forest. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Checkerboard ownership to the north and the south east but none within the polygon.  |
| Management of adjacent lands   | Polygon surrounded by large ranchlands on the north and east, Gallatin National Forest to the south, and HLC NF to the west.                                   |





### Bald Ridge Area (CR3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 86. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | Lodgepole pine and lodgepole pine mixes are the most common dominance types, representing about 33% of the area. Douglas-fir and Douglas-fir mixes are present on 25%. Dry grasslands also make up about 25%. Subalpine fir and Engelmann spruce mixes are fairly common (9). Whitebark pine dominates on about 3%, and limber pine on about 4%. Trace amounts of other dominance types can also be found, including shrublands, mesic grasslands, and sparsely vegetated (scree) areas.  |
| Potential vegetation types  | The most common potential vegetation types are cool moist forests (44%), with warm dry forest potential types also common (21%). Cold forest potential types, where whitebark pine is most likely to thrive, are found on just over 9%. Dry and mesic grassland types together represent about 23%. Very small amounts of shrubland, riparian, and sparse potential types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, there are no acres within CR3 associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 6000 acres potential lynx habitat, with over 3000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 6900 acres of goshawk potential nesting habitat indicates presence of mature forest; at least 3 known nesting territories. Roughly 100 acres possible old growth habitat and an additional &gt; 7000 acres potential as identified from aerial imagery. Both goshawk habitat and potential old growth habitat increase in value to wildlife in combination with similar habitat in NFS lands immediately east and to west of this WE polygon. Approximately 3300 acres secure elk habitat. Roughly 9000 acres elk winter habitat contiguous with additional winter range on adjacent non-NFS land; northern half of this polygon potential elk winter range. Roughly 5800 acres mule deer winter range contiguous with winter range on non-NFS lands. Possible moose presence in riparian/wetlands.</p> <p>Functioning alpine habitat: Over 4000 acres potential wolverine habitat.</p> <p>No known westslope cutthroat trout.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented.</p> <p>Non-native trout likely.</p>   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 87. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | The only harvest found in the FACTS database for this area is about 40 acres of salvage in 1990, representing less than 1% of the area. However, additional harvests occurred on formerly private lands in this polygon which were acquired by the FS in a land exchange; these activities are not found in the database because they were not FS lands when the treatment occurred. If carried forward, additional work may need to be done to identify these areas and determine if they are still substantially noticeable; and, if so, exclude from the area potentially suitable for wilderness |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 100% of CR3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 55%, Class 2: 45%, Impacts in Class 2 watersheds area primarily not for impacts in the polygon, but area is heavily grazed.   |
| Miles of motorized road/trail within 300' of streams                         | 5.7 miles  |
| Noticeable wildfire suppression impacts                                      | No evidence of wildfire suppression impacts.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 88. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | The only records of vegetation management in this area is a 40 acre stand which had a salvage harvest in 1990, followed by pile burning. These activities represent less than 1% of the area. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None present.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 3/4 mile of fencing and 12 stock water tanks within CR3.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | One outfitter guide camp in Box Canyon. Moderate number of dispersed recreation camping sites uses during hunting season. Several authorized ATV trails throughout the entire polygon.        |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Two Dot high voltage powerline on the northern boundary, outside of the polygon, but visible from within it. Pipelines associated with range water line developments.                         |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Presence of watershed treatment areas including contouring, diking, and channeling   | Old water line ditch in Box Canyon in western edge of the polygon.  |
| Lands adjacent to development or activities that impact opportunities for solitude   | Surrounded by ranchlands on the west and north.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Two recorded cultural resources are within this polygon, however there is the high probability of un-recorded cultural resources which represent structures, dwellings or other relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | Old historic logging roads scar the landscape on the interior of the polygon. These are result from logging on private lands that the FS acquired in a land exchange.<br>One recorded historic trail.       |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 89. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|---|---|
| Area available for summer motorized opportunity                     | Entire polygon is bisected by seasonal ATV trails and loop trails.                                  |
| Area available for winter motorized opportunity                     | The southern 1/3 of the polygon is open to snowmobile use.  |
| Proximity to private lands and non-Forest Service roads             | Bordered by private lands on the west and north sides of polygon.                                   |
| Proximity to developed recreation sites outside of the polygon area | Forest Lake campground to the east but is about 3 miles away from the polygon.                      |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 90. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Very little of the polygon is available for primitive and semi-primitive non-motorized recreation in the summer.  |
| Primitive and semi-primitive non-motorized winter recreation                               | The northern 2/3 of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.   |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Authorized ATV and motorcycle riding, outfitting, horseback riding, hunting, fishing, limited hiking, dispersed camping during hunting season. Low to moderate level of snowmobiling in the winter. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Bald Ridge Area (CR3) is 13,210 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

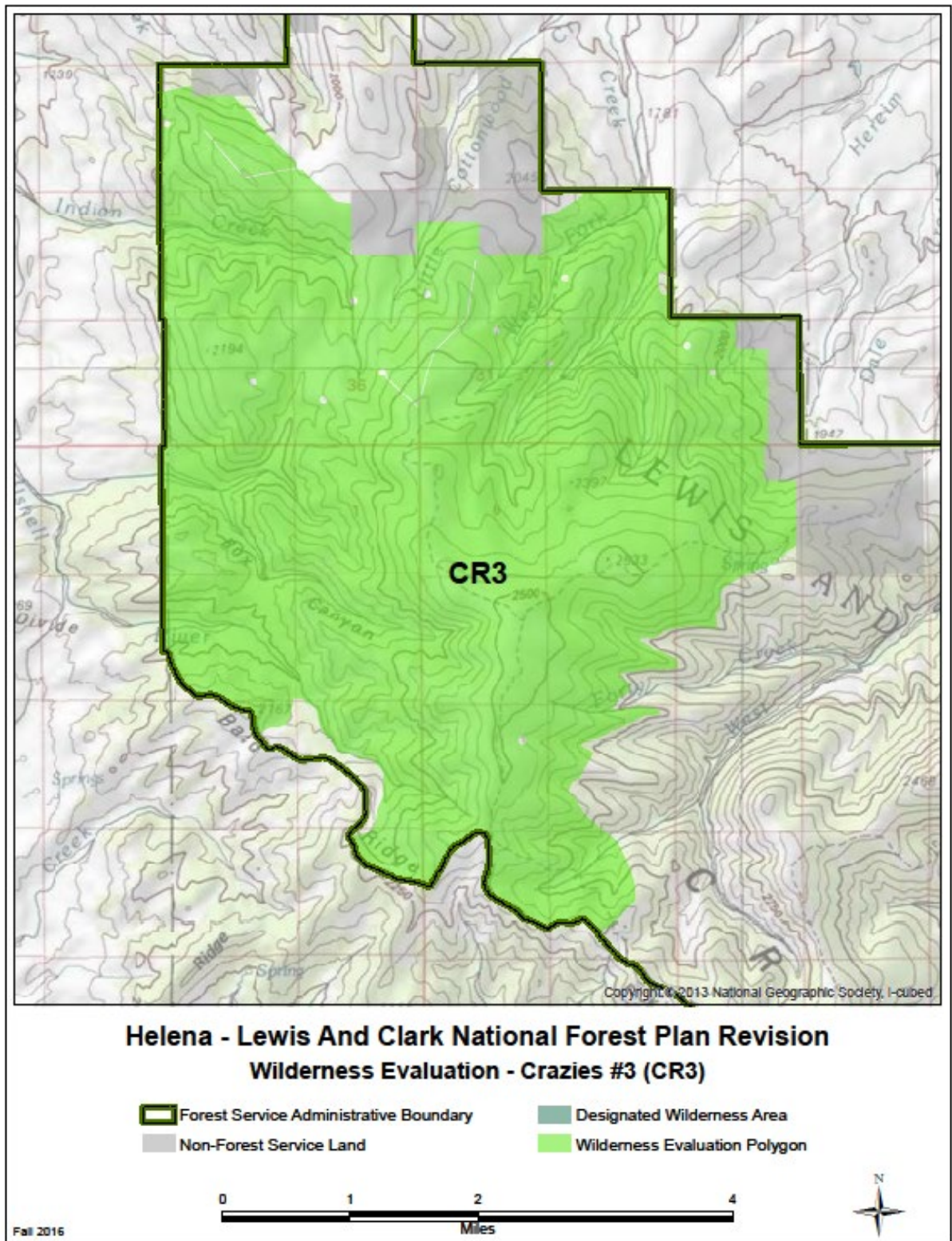
**Table 91. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only known potential plant species of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .   |
| Rare animal species or communities                           | Federally listed species: Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas.<br>Potential species of conservation concern and/or state at risk species: None documented<br>No rare aquatic species known. |
| Rare ecosystems  | Whitebark pine and limber pine are considered relatively rare but important ecosystem components on the HLC NF. Whitebark pine is a proposed species for listing under the ESA. No rare aquatic ecosystems  |
| Outstanding landscape features                               | Big, bald, grassy ridge.  |
| Historic and cultural resource sites                         | All recorded sites and the surround landscape have the potential for scientific, educational or historic value.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | None known  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 92. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Large undeveloped area on the northwest edge of the Crazy Mountains.   |
| Legally established rights or uses within the area   | None known within the polygon.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | No private land inholdings.  |
| Management of adjacent lands   | Large private ranch land on the west and north, Gallatin National Forest to the south, and HLC NF to the east. |



## Divide Geographic Area

### Sweeney Creek Area (D2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 93. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance type in this area is Douglas-fir and Douglas-fir mixed forest, covering about 49% of the area. Lodgepole pine and lodgepole pine mixes are also abundant, growing on about 33% of the area. Ponderosa pine is also common, found on about 11%. About 4% of the area is made up of dry grasslands. Very small amounts of other dominance types are present (about 1% or less each), including mesic grasslands, shrublands, Engelmann spruce, and aspen.   |
| Potential vegetation types  | Warm dry forest potential vegetation types are the most dominant, representing about 89% of the area. This is consistent with the abundance of Douglas-fir and ponderosa pine forests. Cool moist forest potential types are found on just over 4% of the area, and grassland potential types represent roughly 4%. Small amounts of shrubland and riparian potential types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 122 acres within D2 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest but largely dry types: Observed probable breeding flammulated owl indicates areas of open mature Ponderosa pine. Roughly 5900 acres of goshawk potential nesting habitat. Only 400 acres potential lynx habitat, with only about 200 acres mature multi-storied (optimal lynx winter forage). Goshawk habitat increases in value to wildlife in combination with similar habitat in area to west (WE polygon D13). Roughly 700 acres possible old growth habitat.<br>Approximately 4000 acres secure elk habitat, immediately adjacent to winter range on non-FS system lands. Possible moose presence in riparian/wetlands.<br>No westslope cutthroat trout. |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented.<br>Non-native trout likely.  |



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 94. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | Over 99% of the area has not been impacted by past timber harvest. Records show just one harvest has occurred, 58 acres of single-tree selection in 1981. It is possible that historic harvests occurred prior to detailed record keeping which began in the 1950's. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.5% of D2 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 71%, Class 3: 29%; however, impacts occur downstream of the polygon.  |
| Miles of motorized road/trail within 300' of streams                         | 3.6 miles  |
| Noticeable wildfire suppression impacts                                      | No fire occurrence since 1980.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 95. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | Less than 1% of the area (58 acres) was impacted by a single tree selection harvest in 1981; this treatment was determined to be no longer substantially noticeable. About 2% of the area has been treated with prescribed fire treatments, including broadcast burning, burning of piles, and under burning which occurred from 1981 to 2006. These treatments were also determined to be no longer substantially noticeable on the landscape. Over 97% of the area has been unaffected by treatments. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | The northern portion of this polygon is within the historic Austin Mining District. High potential for unrecorded past mining activity.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 3 miles of fencing within D2.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping along the south western edge of the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Pipeline and railroad on the northern boundary noticeable from within the polygon.  |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Presence of watershed treatment areas including contouring, diking, and channeling   | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude.  | Railroad to the north. Open roads surrounding the polygon. Highway 12 to the south is noticeable from within the polygon.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 3 recorded cultural resources within this polygon, all represent structures, dwellings or relics of past occupation. The northern portion of this polygon is within the historic Austin Mining District. High potential for unrecorded past mining activity. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 1.4 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | A portions of the historic Mullan Road runs through the northern portions of this polygon. There is also the high potential of unrecorded historic routes associated with past mining.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 96. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|---|---|
| Area available for summer motorized opportunity                     | None available within the polygon.  |
| Area available for winter motorized opportunity                     | Closed to snowmobiling within the polygon.  |
| Proximity to private lands and non-Forest Service roads.            | Private lands surround the polygon on north, east, and south.                                       |
| Proximity to developed recreation sites outside of the polygon area | Snowmobile parking lot of Sweeney Creek and Austin Road.  |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 97. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Highway 12 noise affects the opportunities for primitive and semi-primitive summer recreation.                                |
| Primitive and semi-primitive non-motorized winter recreation                               | Highway 12 noise and snowmobiling on open roads affects the opportunities for primitive and semi-primitive winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Dispersed camping, hiking, mountain biking, hunting, and a short segment of the CDNST.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Sweeney Creek Area (D2) is 7,978 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

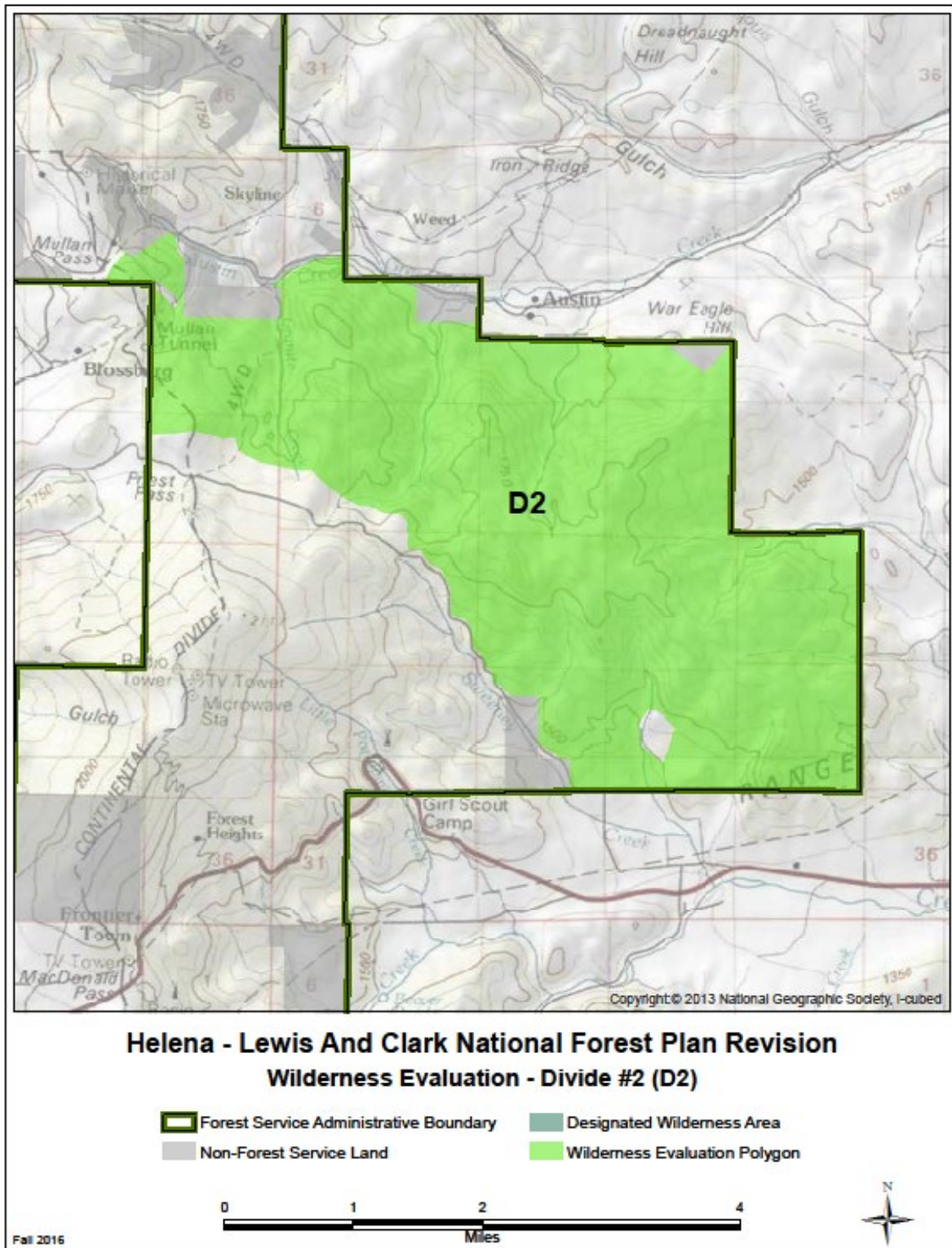
**Table 98. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | No known potential plant species of conservation concern.   |
| Rare animal species or communities                           | Federally listed species: Lynx critical habitat, and within occupied area; lynx probably at very low density. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: Flammulated owl probable breeding. Wolverine documented although little if any identified breeding habitat.<br>No rare aquatic species present. |
| Rare ecosystems  | No known rare vegetation communities in this area.<br>No rare water related ecosystems.   |
| Outstanding landscape features                               | None.   |
| Historic and cultural resource sites                         | The historic Mullan Road has high scientific, educational and historic value. The remaining recorded cultural resources have the potential for scientific, educational and historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | None.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 99. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Large irregular-shaped polygon north and east of Sweeney Creek and Priest Pass.   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | National Systems Trails Act (CDNST)   |
| The presence and amount of non-Federal land in the area  | Private lands along edges. No private inholdings.   |
| Management of adjacent lands   | Private lands to the north, south, east and a portion of the west. Forest Service system lands with past timber harvest and road building to the southwest. |



### Electric Peak (Blackfoot Meadows) Area (D3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 100. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance type in this area is lodgepole pine forests and lodgepole pine mixes, which are found on over 60% of the area. Douglas-fir and Douglas-fir mixed forests are also common, found on over 17% of the area. Subalpine fir and Engelmann spruce mixes make up the third most common vegetation dominance type, representing about 13% of the area. Dry grasslands are present on about 6%. Very small amounts (1% or less) of other dominance types are present, including bunch grasses and mesic grasses, shrublands, sparsely vegetated areas, and whitebark pine mixes.   |
| Potential vegetation types  | Cool moist forest potential vegetation types dominate the area, representing about 69% of the area. Warm dry forest types are also common, on 23%. Mesic grassland potential types are found on about 4%. Small amounts of other potential vegetation types are also present, including cold forest types (where whitebark pine is most likely to thrive), shrublands, and sparsely vegetated areas.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 112 acres within D3 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 21,000 acres potential lynx habitat, with about 5600 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 22,000 acres of goshawk potential nesting habitat. Roughly 2100 acres possible old growth habitat in patches of varying size.</p> <p>Approximately 23,000 acres secure elk habitat. Possible moose presence in riparian/wetlands.</p> <p>Functioning subalpine/alpine habitat: Approximately 6000 acres potential wolverine habitat.</p> <p>Potential Bull Trout in Little Blackfoot River, WCT in Little Blackfoot River, Monarch Creek, No Grass Creek, Bison Creek, Ontario Creek, Larabee Gulch, Conners Gulch, and North Fork Spotted Dog Creek.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely.   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 101. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Records show that one small area (15 acres) in this polygon were harvested with a clearcut in 1939. This represents less than 0.5% of the area overall. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.6% of D3 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 67%, Class 3: 33% (Most class 3 impacts are outside of the wilderness polygon.)  |
| Miles of motorized road/trail within 300' of streams                         | 3.4 miles   |
| Noticeable wildfire suppression impacts                                      | No fire occurrence since 1980.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 102. Improvements and extent of departure from naturalness**

| Improvement Type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | In total, about 16% of this polygon has been impacted by either harvest or prescribed fire. The small 15-acre clearcut that occurred in 1939 was determined to be no longer substantially noticeable due to the age of the regeneration and impacted less than .05% of this area. Fairly extensive underburns have occurred in this area, across over 4600 acres or 16% of the area. These burns occurred in 1987 and 1993 and were generally focused in grasslands. These treatments were determined to be no longer substantially noticeable on the landscape. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | This polygon is within the Elliston Historic Mining District with numerous abandoned mine features and several active mining claims. Little Blackfoot River on State 303(d) list for impacts that may be from old mining activities.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1.2 miles of fencing and 5 stock water tanks within D3.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping throughout.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.  |

| Improvement Type   | Presence and extent of departure from naturalness  |
|--|--|
| Presence of watershed treatment areas including contouring, diking, and channeling   | None   |
| Lands adjacent to development or activities that impact opportunities for solitude   | Activities along the Little Blackfoot road are noticeable with the polygon. Some influence from Highway 12 on the northern boundary of the polygon.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 8 recorded cultural resources and the high potential for unrecorded historic mining features associated with the Elliston Mining District. All of the recorded sites are relics of past occupations and main have standing structures. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 2.4 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | One recorded historic trail (7miles) is within the polygon. There is a high probability of unrecorded routes associate with past mining.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 103. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)                       |
|---|---|
| Area available for summer motorized opportunity                     | Lindberger Springs trail is motorized. Bulk of the area is nonmotorized.  |
| Area available for winter motorized opportunity                     | Lindberger Springs trail is part of the groomed snowmobile system. Bulk of the area is nonmotorized.                      |
| Proximity to private lands and non-Forest Service roads             | Private inholding along Little Blackfoot Road.  |
| Proximity to developed recreation sites outside of the polygon area | Kading Campground, Kading Rental Cabin, Blackfoot Meadows Trailhead, Monarch Creek Trailhead and Larabee Gulch Trailhead. |



Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 104. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Entire polygon south of the Little Blackfoot drainage has good opportunities for primitive and semi-primitive summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire polygon south of the Little Blackfoot drainage has good opportunities for primitive and semi-primitive winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, hunting, fishing, mountain biking, and camping.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Electric Peak Area (D3) is 29,066 acres. This area lies adjacent to a recommended wilderness area on the Beaverhead Deerlodge National Forest which lies to the southwest of the area. Most of this area is recognized as a recommended wilderness area in the 1986 Helena Forest Plan.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

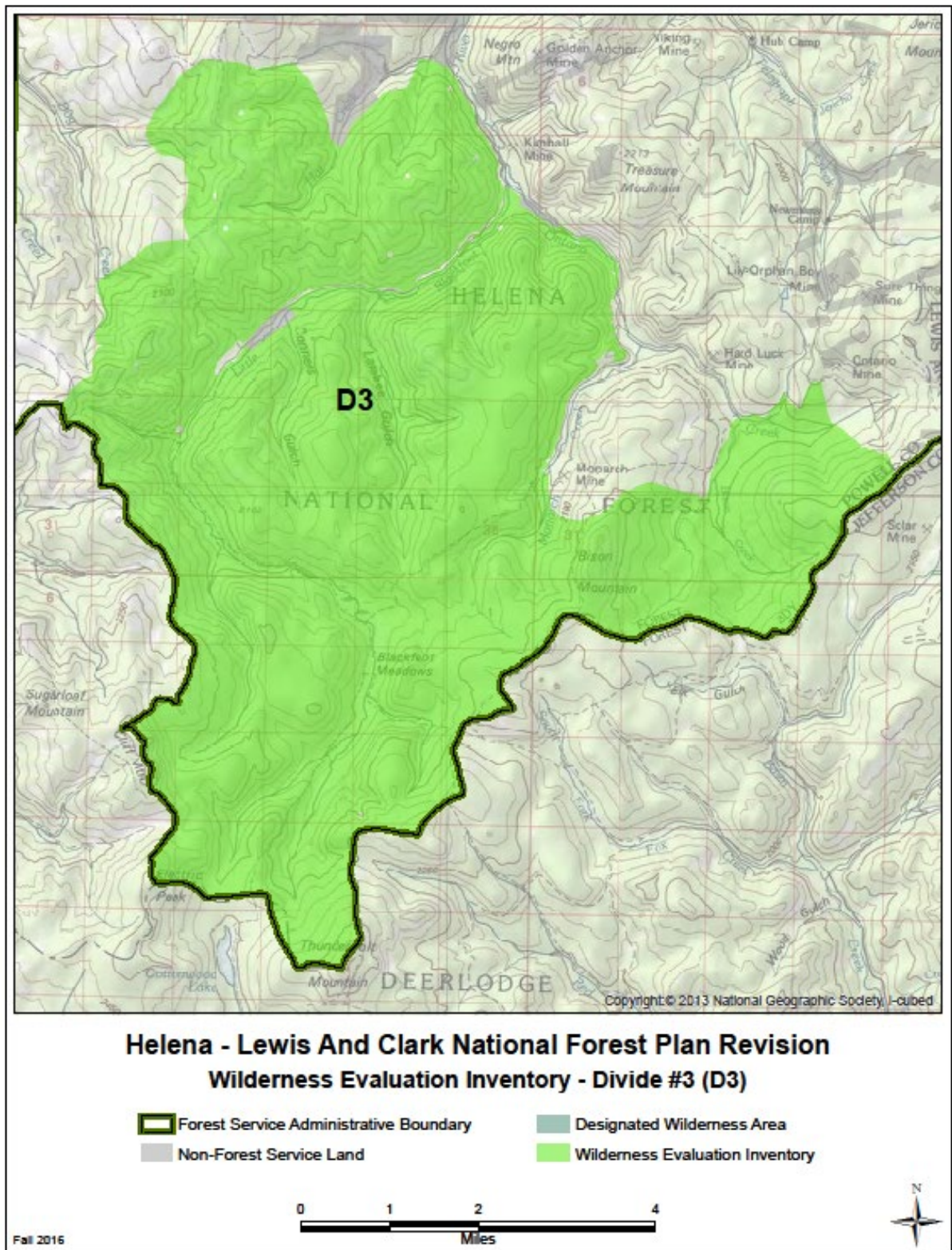
**Table 105. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only known potential plant species of conservation concern that occur in this area are <i>Botrychium spp.</i> and <i>Pinus albicaulis</i> .   |
| Rare animal species or communities                           | Wolverine documented although little if any identified breeding habitat. Lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Bull Trout and westslope cutthroat trout present, see above. |
| Rare ecosystems  | Whitebark pine is a relatively rare and important ecosystem component which is found in very small amounts in this area. Whitebark pine is a proposed species for listing under the ESA.<br>No rare aquatic ecosystems  |
| Outstanding landscape features                               | Blackfoot Meadows, Bison Mountain, Thunderbolt, Electric Peak and Cliff Mountains.  |
| Historic and cultural resource sites                         | All recorded cultural resources have the potential for scientific, educational or historic value.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Little Blackfoot on list of eligible WSRs, it is listed for outstanding WCT fishery, potential bull trout fishery, and cultural resources.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 106. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Large, irregular-shaped polygon that follows the boundary with the Beaverhead-Deerlodge National Forest to the south and incorporates Electric Peak, Thunder Bolt Mountain, and Bison Mountain. Area surrounds landscapes around the Little Blackfoot road but does not include lands immediately adjacent to the road which were excluded from the inventory. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | National Systems Trails Act (CDNST)  |
| The presence and amount of non-Federal land in the area  | Private inholding along Little Blackfoot road.   |
| Management of adjacent lands   | Beaverhead Deerlodge National Forest (B-D NF) to the southwest and southeast. The B-D NF Electric Peak Recommended Wilderness area is adjacent to the polygon on the South. Timber harvesting and road building to the northeast and northwest on FS system lands.   |



## Colorado Mountain Area (D5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 107. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Douglas-fir forests (pure and mixed) are the most common dominance type in the area, covering about 63%. Lodgepole pine forests are also common, found on 33%. Dry grasslands can be found on about 4%. Small amounts of other dominance types can also be found, generally 2% or less, including mesic grasslands, shrublands, ponderosa pine, subalpine fir, Engelmann spruce, cottonwood, and aspen.  |
| Potential vegetation types  | The most common potential vegetation type in this area are warm dry forest types, covering 85%. Cool moist forest types are found on about 8%, and grasslands potential types make up nearly 5%. Small amounts of other potential types are also present, including shrublands and riparian types.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 112 acres within D5 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: Observed breeding flammulated owl indicates areas of open mature Ponderosa pine. Roughly 1300 acres potential lynx habitat, with only about 750 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx); habitat has value largely when connected to more extensive lynx habitat to south of this polygon. Roughly 6900 acres of goshawk potential nesting habitat indicates presence of mature forest; at least one known nest territory. Roughly 500 acres possible old growth habitat in patches of varying size.<br><br>Approximately 7300 acres secure elk habitat. Possible moose presence in riparian/wetlands.<br><br>No westslope cutthroat trout. |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented.<br><br>Non-native trout likely  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 108. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Nearly 100% of the area has had no timber harvest. Records show some very small areas of commercial thin, improvement cutting, and single-tree selection which occurred in 1968 and 1972, and amounted to about 6 acres total, or .08% of the area. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.6% of D5 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 10%, Class 3:90%, Class 3 is due to mining impacts primarily located downstream from the polygon.  |

| Measures   | Outcome                        |
|--|--------------------------------|
| Miles of motorized road/trail within 300' of streams | 0.13 miles                     |
| Noticeable wildfire suppression impacts              | No fire occurrence since 1980. |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 109. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | Roughly 6 acres of this area has been harvested in the past, in 1968 and 1972, with intermediate and uneven-aged cuts which left many residual trees. Due to the type and age of treatment, these treatments were no longer substantially noticeable and make up only 0.08% of the area. There are no records of past prescribed fire treatments. A portion of the Castles vegetation project is located within this RWA. The planned activities, including harvest, would not be an irretrievable commitment of resources and would not result in any permanent improvements within the polygon. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | This polygon straddles the divide between the Helena, Rimini and Clancy Historic Mining Districts. There is a high probability of un-recorded abandoned mines and/or historic mine features, including 2 mapped abandoned mine points within polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 2 miles of fencing and 3 stock water tanks within D5.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping in southern half of the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None known.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None  |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Lands adjacent to development or activities that impact opportunities for solitude   | Highway 12 to the north of the polygon and can be heard from within the polygon. Residential area in Colorado Gulch may be seen and heard from within the polygon.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are only two recorded sites within this polygon, however there is a high probability of un-recorded historic mine site and features. Portions of the Historic Red Mountain Flume run through this polygon. This flume is still used as part of the municipal water system for the City of Helena. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 2.4 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | No recorded historic routes, however, there is a high probability of un-recorded routes associated with past mining.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 110. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | No motorized opportunities present in summer.   |
| Area available for winter motorized opportunity                     | No motorized opportunities present in winter.   |
| Proximity to private lands and non-Forest Service roads             | Abuts private/BLM land on north and southeast sides.  |
| Proximity to developed recreation sites outside of the polygon area | Moose Creek Picnic area on Tenmile road to the west. Blackhall Meadows Trailhead on southeastern flank. Park City Trailhead on northeastern boundary. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 111. Primitive or unconfined types of recreation**

| Measures  | Descriptions and locations   |
|---|--|
| Primitive and semi-primitive non-motorized summer recreation.                               | Entire polygon available for primitive and semi-primitive summer recreation.               |
| Primitive and semi-primitive non-motorized winter recreation.                               | Entire polygon available for primitive and semi-primitive winter recreation.               |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses. | Hiking, horseback riding, snowshoeing, cross country skiing, mountain biking, and hunting. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Colorado Mountain Area (D5) is 8,168 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

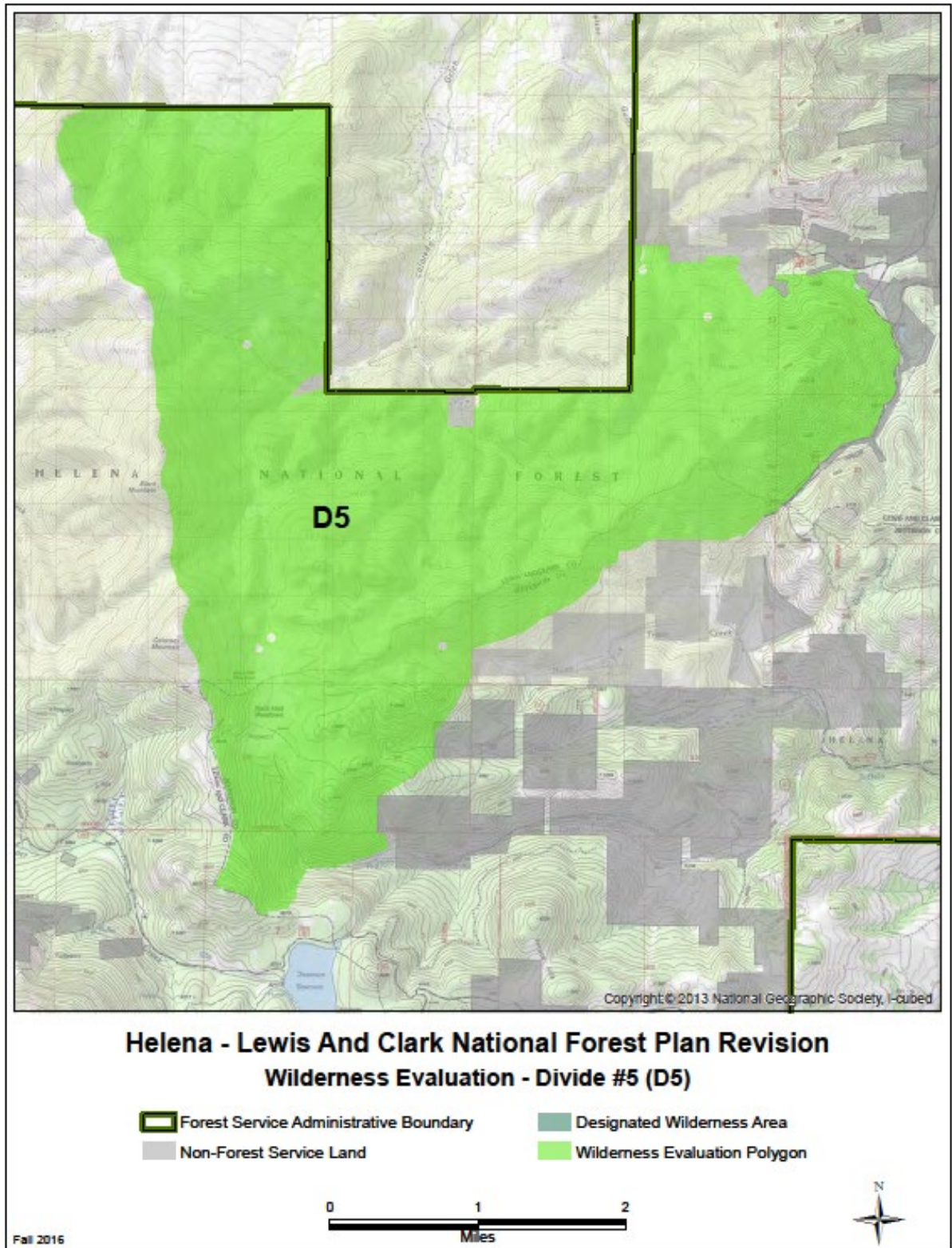
**Table 112. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plant species of conservation concern that are known to occur in this area are <i>Cypripedium parviflorum</i> .  |
| Rare animal species or communities                           | Federally listed species: lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: flammulated owl, wolverine documented<br>No rare aquatic species. |
| Rare ecosystems  | There are no know rare terrestrial ecosystems in this area. No rare aquatic ecosystems present.   |
| Outstanding landscape features                               | Black Mountain, Colorado Mountain.  |
| Historic and cultural resource sites                         | All recorded sites within this polygon have the potential for scientific, educational and historic value. This is especially true for the Red Mountain Flume since it is still in operation.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Part of municipal watershed for the City of Helena.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 113. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Irregular polygon. The northern, eastern, and southern boundaries are influenced by private lands and BLM parcels. The western boundary is formed by the outer boundary of the superfund site. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Superfund site to the west but not within the polygon.   |
| The presence and amount of non-Federal land in the area  | Two private land parcels along the northern border of the polygon in Colorado Gulch.   |
| Management of adjacent lands   | Private residential lands and BLM parcel to the north. Areas influenced by historical mining surround this polygon.  |





## Continental Divide North Area (D13)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. *What is the composition of plant and animal communities within the area?*

**Table 114. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Two primary dominance types cover most of this area: Douglas-fir and Douglas-fir mixed forest (46%); and lodgepole pine and lodgepole pine mixed forest (47%). About 3% of the area is covered by dry grassland. Very small amounts, 1% or less, are represented by other dominance types including mesic grasslands, shrublands, ponderosa pine, subalpine fir, Engelmann spruce, whitebark pine, aspen, and sparsely vegetated areas.  |
| Potential vegetation types  | The area is fairly evenly split between the warm dry forest potential types (49%), and the cool moist forest types (46%). All other potential vegetation types make up about 1% or less of the area each and include cold forest (where whitebark pine may thrive), xeric grassland types, mesic grassland types, xeric shrub types, riparian types, and sparsely vegetated areas.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 38 acres within D13 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: Roughly 2200 acres potential lynx habitat, with nearly 1000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 3500 acres of goshawk potential nesting habitat; goshawk habitat increases in value to wildlife in combination with similar habitat in area to east (WE polygon D2). Roughly 1100 acres possible old growth habitat. Observed probable breeding flammulated owl indicates areas of open mature Ponderosa pine.<br><br>Approximately 900 acres secure elk habitat. Possible moose presence in riparian/wetlands.<br><br>Potential westslope cutthroat trout in Rich Spur Creek. |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented.<br>Non-native trout likely present.   |

Question 1b. *What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 115. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There is one record of a past harvest in this area; in 1981 about 82 acres had a single-tree selection harvest. This impacted nearly 2% of the area but is no longer substantially noticeable. 98% of the area has not been impacted by timber harvest. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.1% of D13 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2:11%, Class 3: 89% impacts are downstream of the polygon in the superfund site.  |

| Measures   | Outcome                        |
|--|--------------------------------|
| Miles of motorized road/trail within 300' of streams | 0.11 miles                     |
| Noticeable wildfire suppression impacts              | No fire occurrence since 1980. |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 116. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | In addition to the 82-acre single tree selection cut in 1981 which impacted 2% of the area, roughly 72 acres have pile burning treatments which occurred from 1981 to 2005 which impacted another 2%. A total of about 96% of the area as currently drawn has not been impacted by vegetation treatments. These treatments were determined to be no longer substantially noticeable. A scattering of past timber harvest does exist within the perimeter of the area which are substantially noticeable, along with loop roads and treated corridors. These areas are excluded from the wilderness inventory and appear as cherry stems and donut holes in the polygon. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Macdonald Pass Communication Site is a complex communication site with numerous structures and towers. It is visible from within the polygon. Open road accesses site.  |
| Areas of mining activities including both abandoned and active mines  | Abandoned mine sites are scattered throughout the polygon.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1.6 miles of fencing within D13.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping near Priest Pass.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | The area has numerous utility corridors related to the Mac Pass Communication site as well as to the recreation residences in the southern portion of the polygon.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | There is a permitted shooting range on the southeast boundary. Highway 12 makes up the south boundary of the polygon and is both heard and visible from within the polygon.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Buildings associated with the shooting range and the recreation residences are visible from locations within the polygon.<br><br>Three recorded cultural resources which represent structures, dwellings or other relics of past occupations are within this polygon.   |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process | Not recommended as wilderness in the 1986 Forest Plan.                                    |
| Number of miles of maintenance level 1 road templates   | 2.2 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation    | None known. High potential of unrecorded historic routes associated with past occupation. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 117. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | Road to the communication site is open for summer use.  |
| Area available for winter motorized opportunity                     | Motorized equipment used on the Mac Pass groomed ski trails. Area is not open for snowmobiling.   |
| Proximity to private lands and non-Forest Service roads             | Frontier Town is a private inholding in the south part of the polygon.  |
| Proximity to developed recreation sites outside of the polygon area | Nordic Ski Trail system parking lot in southern boundary off of Highway 12. Prickly Pear shooting range in the southeast portion of the polygon. Sweeney Creek snowmobile parking area south east of the polygon. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 118. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | A portion of the CDNST within the polygon is nonmotorized. Opportunities for primitive and semi-primitive non-motorized recreation occur in areas away from the communication site, shooting range, and the Priest Pass road.                           |
| Primitive and semi-primitive non-motorized winter recreation                               | Opportunities for primitive and semi-primitive non-motorized winter recreation occurs in areas away from the communication site, shooting range, and the Mac Pass groomed cross-country ski trails. A portion of the CDNST passes through this polygon. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking the CDNST, mountain biking, and cross-country skiing.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Continental Divide North Area (D13) is 4,123 acres. This polygon is less than 5,000 acres in size. Year-round motorized access to the communication site and the groomed cross-country ski trails in the core portion of the polygon would make it difficult to manage as wilderness. Additionally, the sights and sounds from Highway 12 reduce opportunities for solitude within the polygon; however, this area is very special to many members of the public and was evaluated for this analysis.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

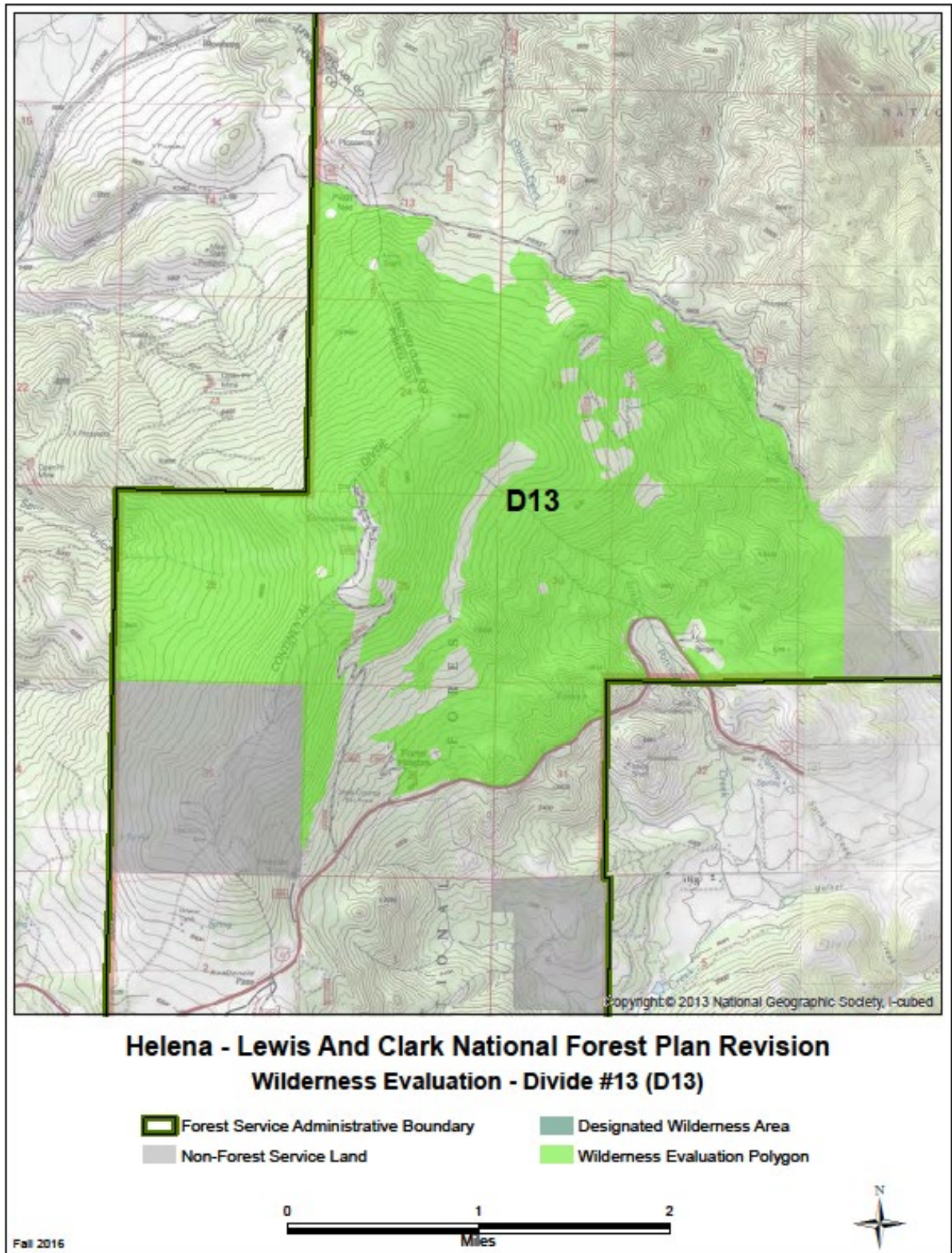
**Table 119. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | No known potential plant species of conservation concern are known to occur in this area, aside from very small amounts of <i>Pinus albicaulis</i> indicated by VMap.   |
| Rare animal species or communities                           | Federally listed species: Lynx critical habitat, and within occupied area; lynx probably at very low density. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br><br>Potential species of conservation concern and/or state at risk species: flammulated owl probable breeding. Wolverine documented although little if any identified breeding habitat. |
| Rare ecosystems  | There are no known rare ecosystems, aside from the small occurrence of whitebark pine which is a relatively rare and important ecosystem component on the HLC NF. Whitebark pine is a proposed species for listing under the ESA.<br>No known rare aquatic ecosystems.  |
| Outstanding landscape features                               | Continental Divide  |
| Historic and cultural resource sites                         | All recorded cultural resources in this polygon have the potential for scientific, educational or historic value.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | None.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 120. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Irregular polygon shape. The outer boundary is formed by private lands on the west and portions of the south and east. An open road forms the boundary on the north and east and the boundary of the superfund site forms much of the southern boundary. |
| Legally established rights or uses within the area   | Communication site is significant to Helena, the county, and the state.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | National Systems Trails Act (CDNST)  |
| The presence and amount of non-Federal land in the area  | Frontier Town in the southern portion of the polygon.  |
| Management of adjacent lands   | Superfund site to the south. Private land for agriculture purposed to the south and southwest. Forest Service system lands to the north and northeast.   |



## Elkhorns Geographic Area

### Eagle Basin Area (E1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 121. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance type in this area is lodgepole pine and lodgepole pine mixes, which cover about 50%. A substantial portion of this area burned in the Warm Springs fire of 1988, and the majority of regeneration is lodgepole pine. Douglas-fir and Douglas-fir mixed forests are also common at lower elevations, covering about 18% of the area. Subalpine fir and Engelmann spruce forests can also be found on 14%. Sparsely vegetated areas, such as scree/rock, are present on about 9%. Dry grasslands represent 5%. Small amounts of other dominance types, covering about 1% or less each, also occur, including mesic grasslands, shrublands, ponderosa pine, whitebark pine, aspen, juniper, and trace amounts of limber pine.  |
| Potential vegetation types  | This area is dominated by cool moist forest potential vegetation types, which are found on about 49% of the area, and where lodgepole pine, subalpine fir, and Engelmann spruce are most likely found. About 30% of the area has warm dry forest potential vegetation types. A small area, about 6%, has cold forest potential types, where whitebark pine is most likely to thrive. Xeric and mesic grassland potential types together make up about 5%, and sparsely vegetated potential areas about 9%. Trace amounts of shrubland and riparian potential types are also present.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 2,812 acres within E1 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 15,000 acres potential lynx habitat, with only about 750 acres mature multi-storied (optimal lynx winter forage (area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 28,000 acres of goshawk potential nesting habitat; at least one known nest territory. Roughly 1100 acres possible old growth habitat in patches of varying size.</p> <p>Approximately 48,000 acres secure elk habitat. Possible moose presence in riparian/wetlands. Over 22,000 acres bighorn sheep habitat in eastern portion although disease transmission from domestic sheep has caused significant die-offs.</p> <p>Over 27,000 acres potential wolverine habitat with roughly 3200 acres maternal habitat but note that this area is not contiguous with other areas of wolverine occupancy.</p> <p>Westslope cutthroat trout in multiple drainages: Warm Springs, Dutchman, Prickly Pear, EF McClellan, Tepee, Beaver, Longfellow, Eureka, and SF Crow Creeks.</p> |
| Known non-native wildlife species                                     | Introduced population of mountain goats, a species native to MT but not to this mountain range; competition with native   |

| Plant and animal communities | Composition  |
|------------------------------|--|
|                              | bighorn sheep may be an issue. No other non-native terrestrial wildlife species documented.<br>Non-native trout likely present |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 122. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There are no records of past harvest in this area. 100% of the area is unaffected by harvest. Detailed harvest records are available starting generally in the 1950's. Anecdotally it is likely that some historic logging in accessible areas, such as the removal of fuelwood and mining timbers, occurred during initial settlement of the area. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 95.1% of E1 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 99%, Class 3: 1% primarily rated at risk for water quality, aquatic habitat, and road and trail impacts.   |
| Miles of motorized road/trail within 300' of streams                         | 3.5 miles, primarily along eastern and southern edges   |
| Noticeable wildfire suppression impacts                                      | Warm Springs Fire (1988): hand lines still evident in Badger Creek.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 123. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | No modern harvest has occurred in this area. However, about 3,410 acres, or 6% of the area, has had prescribed fire treatments. These treatments include broadcast burning, pile burning, and underburning which has occurred from 1987 to 2005. These activities were determined to not be substantially noticeable, with effects similar to wildfire. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | None present within the polygon.  |
| Areas of mining activities including both abandoned and active mines  | Mining impacts in multiple watersheds. Middle Fork Warm Springs, Prickly Pear, Wilson, Crow and Beaver Creek are all 303(d) listed for mining impacts/channel modifications. Multiple abandoned mines throughout polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there is approximately 1/2 mile of fencing and 10 stock water tanks within E1.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping throughout the polygon.   |



| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Pipeline located on the western edge of the polygon.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Timber harvest, road building, urban interface surrounding the polygon.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Twenty-four recorded cultural resources within this polygon. This polygon is also within the Park-Indian Historic Mining district which has numerous associated mining sites and features. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates.  | 2.9 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | No recorded historic routes, however, there is a high probability of unrecorded routes associated with past mining.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 124. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | No motorized recreation within the polygon.  |
| Area available for winter motorized opportunity                     | No motorized recreation within the polygon.  |
| Proximity to private lands and non-Forest Service roads             | Two small parcels of private inholdings for mining purposes.   |
| Proximity to developed recreation sites outside of the polygon area | Pole Creek Trailhead, Tizer Lakes Trailhead, Poe Park Trailhead, Hall Creek Trailhead, Jump Off Trailhead, Eagle Guard Station Rental Cabin, Edith Basin Trailhead, South Crow Lakes Trailhead, Willard Creek Trailhead, and Crow Creek Trailhead. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor's ability to feel a part of nature?

**Table 125. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive summer recreation.             |
| Primitive and semi-primitive non-motorized winter recreation                               | Moderate to low motorized access into Tizer Basin for winter recreation.                        |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, fishing, mountain biking, limited snowmobiling, and camping. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Eagle Basin Area (E1) is 57,279 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

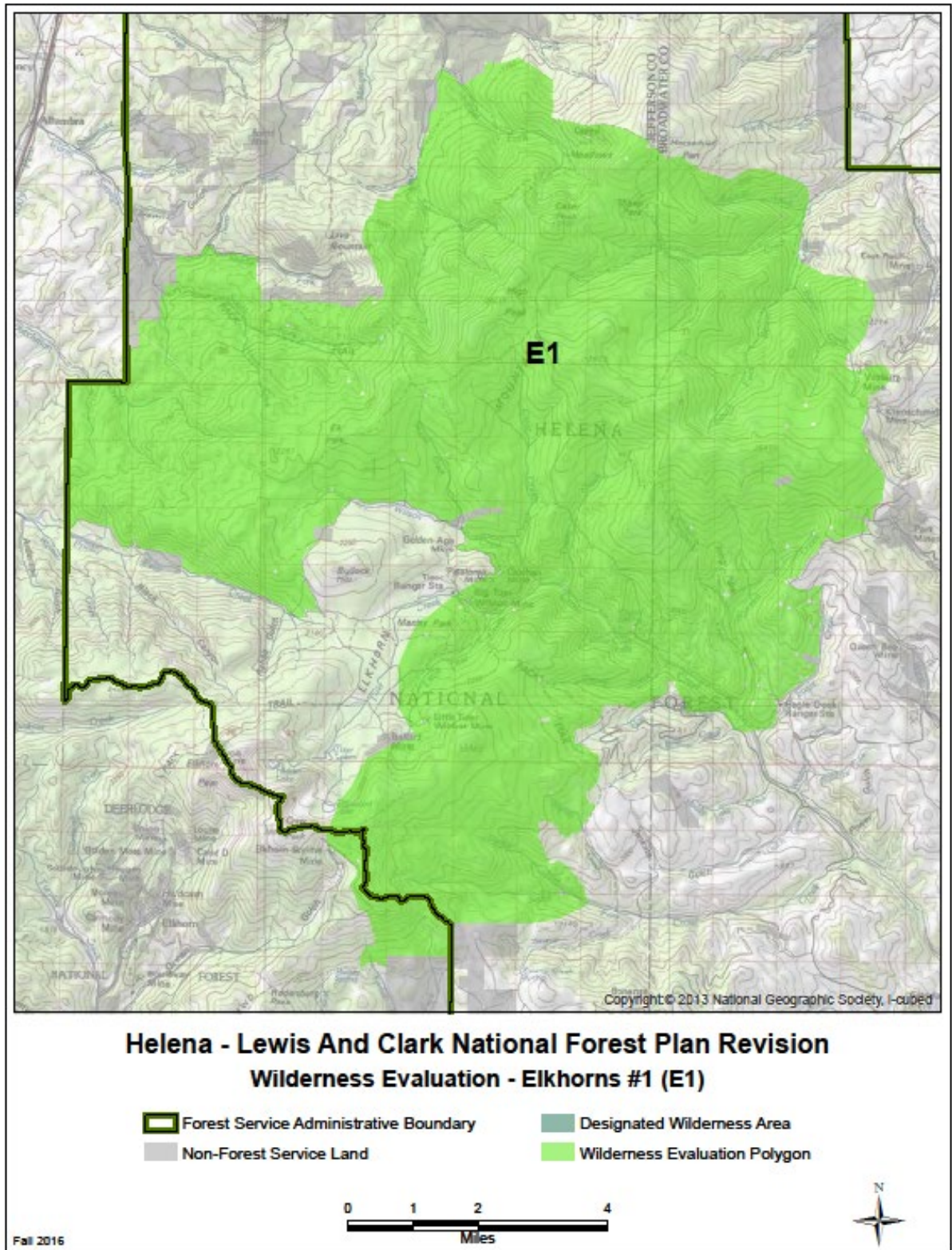
**Table 126. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Phlox kelseyii</i> var. <i>Missoulensis</i> .   |
| Rare animal species or communities                           | Federally listed species: Lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: wolverine documented, western toad.<br>Several drainages with westslope cutthroat trout, see above. |
| Rare ecosystems  | Limber pine, whitebark pine, aspen, and ponderosa pine are all vegetative communities of interest on the HLC NF due to their relatively low abundance and value for wildlife habitat. These communities are present in small amounts in this area. Whitebark pine is a proposed species for listing under the ESA. No rare aquatic ecosystems.  |
| Outstanding landscape features                               | High elevation vistas and Crow Creek waterfalls.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, education or historic value.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | McClellan Creek is a municipal watershed for East Helena.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 127. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Large irregular-shaped polygon within the interior of the Elkhorns Mountain range.                                  |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | Small private inholdings.   |
| Management of adjacent lands   | Timber harvest and road building to the southeast, north, and northwest. Mining activities surrounding the polygon. |



### Elkhorn Peak Area (E3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 128. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | This area is dominated by lodgepole pine and lodgepole mixed forests (41%) and subalpine fir and Engelmann spruce mixed forests (31%). Douglas-fir and Douglas-fir mixed forests area also common, covering about 23%. Sparsely vegetated areas (such as rock/scree) are found on just under 3%. Very small amounts of other dominance types are also present, representing less than 1% of the area each, including grasslands, shrublands, ponderosa pine, whitebark pine, and aspen.   |
| Potential vegetation types  | Most of the area supports cool moist forest potential vegetation types (nearly 76%). Warm dry forest potential types are found on 16%, and cold forest types (where whitebark pine is most likely to thrive) are found on just over 4%. Very small amounts of other potential types are also present, including grassland, shrubland, and riparian potential vegetation types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 237 acres within E3 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 6,000 acres potential lynx habitat, with about 2700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 9200 acres of goshawk potential nesting habitat; at least one known nest territory. A minimum of 6 acres possible old growth habitat; old growth data not available for BDNF portion.</p> <p>Approximately 8700 acres secure elk habitat, and up to 2700 acres elk winter range contiguous with additional winter range on adjacent non-NFS land. Possible moose presence in riparian/wetlands.</p> <p>Functioning subalpine/alpine habitat: Over 8300 acres potential wolverine habitat with roughly 600 acres maternal habitat but note that this area is not contiguous with other areas of wolverine occupancy.</p> <p>Westslope cutthroat trout in Muskrat and Prickly Pear Creeks.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented.</p> <p>Non-native trout are likely to be present.</p>   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 129. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | There are no records of past harvest occurring in this area; 100% is unaffected by this activity. However, it is possible that some historic logging could have occurred prior to record keeping, during initial settlement of the area. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.4% of E3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 32%, Class 2: 68%, but the polygon is mostly in the headwaters of these watersheds, upstream of mining impacts  |
| Miles of motorized road/trail within 300' of streams                         | 3.4 miles (along Ninety-cent Gulch and a tributary of Rawhide Gulch).  |
| Noticeable wildfire suppression impacts                                      | No evidence of fire suppression since 1980.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 130. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | No known harvests or prescribed fire treatments have occurred in this area.                               |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | There are several mines within the polygon, most are downstream or outside of the polygon.                |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there no range improvements within E3.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping on the eastern boundary near Tizer Lakes and the Bullock Hill area. |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None known.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None  |
| Lands adjacent to development or activities that impact opportunities for solitude  | None.   |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Only one recorded cultural resource within this polygon. However, the Elkhorn Historic Mining District shares the eastern border, so there is a high probability of un-recorded historic mine sites and features. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | None known.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 131. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)                                  |
|---|--|
| Area available for summer motorized opportunity                     | Open roads on north, east and south around the edges of the polygon. Year-round motorized trails in southern portion of the polygon. |
| Area available for winter motorized opportunity                     | Year-round motorized trails in southern portion of the polygon.  |
| Proximity to private lands and non-Forest Service roads             | Private lands along Tizer road. No private inholdings within the polygon.  |
| Proximity to developed recreation sites outside of the polygon area | None present.  |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 132. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The northern portion of the polygon is available for primitive and semi-primitive summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | The northern portion of the polygon is available for primitive and semi-primitive winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, ATV riding, and mountain biking.                                  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Elkhorn Peak Area (E3) is 15,180 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 133. Features present**

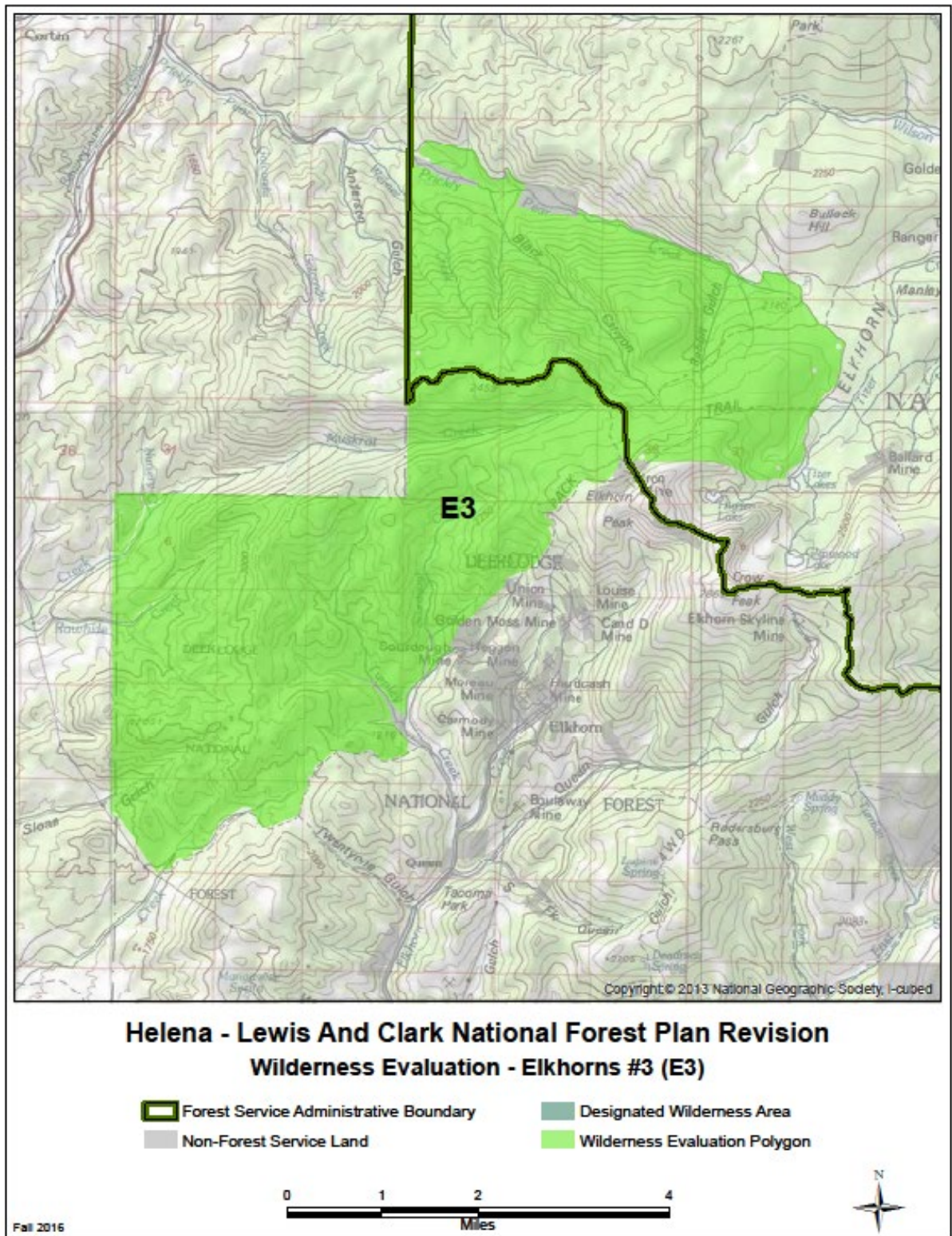
| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plant species of conservation concern known to occur in this area is <i>Pinus albicaulis</i> .   |
| Rare animal species or communities                           | Federally listed species: Lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population.<br>Potential species of conservation concern and/or state at risk species: none documented<br>Several streams with westslope cutthroat trout, see above. |
| Rare ecosystems  | Whitebark pine, ponderosa pine, and aspen forests are all vegetation communities of interest on the HLC NF due to their relatively low abundance and importance for habitat. These species are present in small quantities in this area. Whitebark pine is a proposed species for listing under the ESA.<br>No rare aquatic ecosystems.   |
| Outstanding landscape features                               | Elkhorn Peak on southern boundary.  |
| Historic and cultural resource sites                         | The one recorded site has the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | There are high quality areas above mining locations which contain westslope cutthroat trout, possibly protected by poor water quality "barrier".  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 134. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | A large irregular block of undeveloped land in the southwestern portion of the Elkhorn Mountains. Western boundary follows private land. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | No private inholdings.   |
| Management of adjacent lands   | Western boundary is formed by private lands. Forest Service system lands to the north, east, and south.                                  |





## Highwoods Geographic Area

### Highwood Baldy Area (H1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 135. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance type in this area is Douglas-fir dominated forest, which is found on about 38% of the area. Lodgepole pine dominated forests are also common, covering about 29% of the area. Dry grasslands can be found on 20%. Subalpine fir and Engelmann spruce mixed forests grow on about 5% of the area, at the highest elevations. Aspen dominated areas cover about 4% of the area. Other dominance types are present in very small amounts, including mesic grasslands, shrublands, ponderosa pine, limber pine, and cottonwood.  |
| Potential vegetation types  | The most common potential vegetation types are warm dry forest types, representing about 64% of the area. Cool moist forest types can be found on nearly 9%. Dry grassland potential types are found on 17% of the area. Riparian types, where aspen and cottonwood can be found, represent 5% of the area. Small amounts of mesic grassland and shrubland potential types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 442 acres within H1 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 5800 acres potential lynx habitat, with about 3000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 10,300 acres of goshawk potential nesting habitat; known nest territories. Approximately 6000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 11,000 acres secure elk habitat. Roughly 6000 acres elk winter range and 3200 acres mule deer winter range contiguous with additional winter range on adjacent non-NFS lands.</p> <p>Less than 150 acres potential wolverine habitat; this area is not contiguous with other areas of wolverine occupancy.</p> <p>Westslope cutthroat trout in North Fork and Middle Fork of Little Belt Creek.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented.</p> <p>Non-native trout likely.</p>  |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 136. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There are no records of past harvest in this area; 100% of the polygon is unaffected by this activity. It is possible that historic logging could have occurred prior to detailed record keeping which generally began in the 1950's. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 97.2% of H1 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1:35%, Class 2: 65%. Most impacts are downstream of the polygon, but the area within the polygon has been heavily impacted by grazing, especially the east side.  |
| Miles of motorized road/trail within 300' of streams                         | 0.2 miles   |
| Noticeable wildfire suppression impacts                                      | No fire occurrence since 1980.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 137. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | No past harvest is known to have occurred. About 71 acres, or 0.45% of the area, has been impacted by a prescribed fire treatment (an underburn in 1985 and 1988). This treatment was determined to be no longer substantially noticeable. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Highwood Baldy electronic site is a large, busy development and is visible from within the polygon.  |
| Areas of mining activities including both abandoned and active mines.   | None known.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 7.7 miles of fencing and 22 stock water tanks within H1.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Some dispersed camping, most prevalent during hunting season. No outfitter camps in the area.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Buried electric lines under the road to Highwood Baldy. May be others that provide service to private inholdings. Some of the stock tanks have small water lines associated with them.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Busy residential subdivision on the western edge of the polygon. Helicopter use at Highwood Baldy.   |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Nine recorded cultural resources within this polygon. All represent structures, dwellings or other relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 0.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | None known.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 138. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | FSR 8830, 8816, and 8832. FSR 8832 is the road to the communication site on Highwood Baldy. South Fork Highwood Creek road (FSR 121) bisects H1 and H2. This route has 8-9 fords on it and is traveled by 4 x4 vehicles. |
| Area available for winter motorized opportunity                     | No cross-country travel at all but all the roads and the motorized trail system is open.   |
| Proximity to private lands and non-Forest Service roads             | Private lands surround the polygon on the north, west and south sides. Forest Service Road 121 provide the eastern boundary. There are some private land inholdings accessed by this road.                               |
| Proximity to developed recreation sites outside of the polygon area | There is a campground and trailhead in Thain Creek in H2 that are outside of and to the east of H1.  |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 139. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire area, except for the area around Highwood Baldy, is available for primitive or semi-primitive non-motorized recreation. Only two nonmotorized trails in H1, located in North Fork of Little Belt Creek and Deer Creek. |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon except for the area by Highwood Baldy, FSR 8832 and 8816, is available for primitive and semi-primitive non-motorized recreation in winter.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Fishing, limited hiking, hunting, wildlife viewing, mountain biking, motorcycle riding, and ATV riding. Snowmobiling in the winter.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Highwood Baldy Area (H1) is 15,824 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

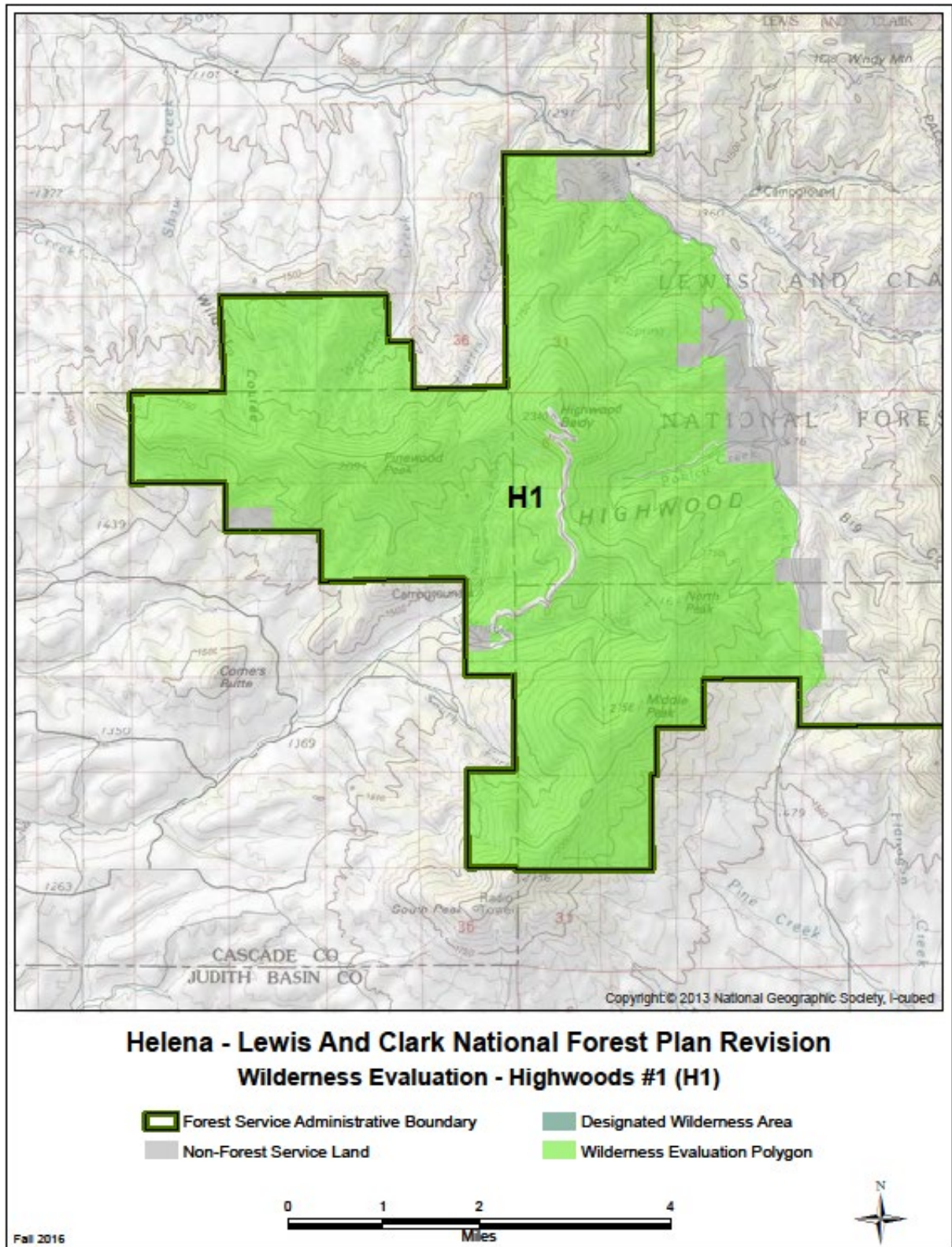
**Table 140. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The only potential plant species of conservation concern known to occur in this area is <i>Pinus flexilis</i> .  |
| Rare animal species or communities                           | Federally listed species: none documented.<br>Potential species of conservation concern and/or state at risk species: none documented.<br>Westslope cutthroat trout in North Fork and Middle Fork Little Belt Creeks.  |
| Rare ecosystems  | Limber pine forests are a vegetation community of interest on the HLC NF due to their relatively low abundance and habitat importance. Aspen forests and riparian areas are also of interest, and this polygon contains one of the higher proportions of aspen dominated riparian areas on the HLC NF. No known rare aquatic ecosystems. |
| Outstanding landscape features                               | Steep open parks and unique geology.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None significant.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 141. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | The west half of the Highwood Mountain range.  |
| Legally established rights or uses within the area   | None known. Maybe water rights.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | There are large private land inholdings along FSR 121.   |
| Management of adjacent lands   | Polygon is surrounded by large private ranches on the south, west, and north sides. Large block of roadless Forest Service system lands on the east. |



## Arrow Prospect Area (H2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 142. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types found in this area are relatively evenly split between lodgepole pine dominated forests (covering 36% of the area); Douglas-fir dominated forests (29%), and dry grasslands (27%). In addition, subalpine fir and Engelmann spruce mixed forests cover about 3%; and aspen dominated forests are found on 2%. Other dominance types are present in very small amounts (less than 1% each), including mesic grasslands, shrublands, ponderosa pine, limber pine, cottonwood, and juniper.  |
| Potential vegetation types  | The most common potential vegetation types are warm dry forest types, which occur on over 63% of the area. Dry grassland potential types are also common, representing 23%. Cool moist forest types are found on 6%, and riparian potential vegetation types represent 4%. Trace amounts of mesic grassland, xeric shrubland, and mesic shrubland potential vegetation types can also be found.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 195 acres within H2 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 8000 acres potential lynx habitat, with about 2800 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 16,000 acres of goshawk potential nesting habitat; known nest territories. Approximately 6900 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Nearly 14,000 acres secure elk habitat. Roughly 8600 acres elk winter range and 2100 acres mule deer winter range contiguous with additional winter range on adjacent non-NFS lands.</p> <p>Less than 200 acres potential wolverine habitat; this area is not contiguous with other areas of wolverine occupancy.</p> <p>Westslope cutthroat trout in Big Coulee, Cottonwood (Arrow), and Boyd Creeks.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented.</p> <p>Non-native trout likely present.</p>   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 143. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Over 99.9% of the area has been unaffected by past timber harvest. The only harvest on record in this area is 12 acres of commercial thinning that occurred in 1973, although it is possible that additional “historic logging” could have occurred prior to FS record-keeping. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.3% of H2 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 44%, Class 2:56%. Impacts include riparian disturbance due to grazing and road and trail impacts.  |
| Miles of motorized road/trail within 300’ of streams                         | 19.2 miles  |
| Noticeable wildfire suppression impacts                                      | No fire suppression evidence on the landscape.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 144. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | The only harvest known to have occurred in this area is a small commercial thin (12 acres) that occurred in 1973. Due to the residual trees being left and the time since treatment, it was determined that this area is no longer substantially noticeable. However, a substantial portion of the area has been impacted by prescribed fire treatments. From 1986 to 1989, approximately 8,634 acres (33% of the area) was treated with broadcast burning or underburning. These treatments were focused in grassland areas. Due to the time since treatment and effects like wildfire, these treatments were determined to be no longer substantially noticeable. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | None present but electronic site on Highwood Baldy is visible from within the polygon.  |
| Areas of mining activities including both abandoned and active mines  | None known.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there is approximately 26.3 miles of fencing and 37 stock water tanks within H2.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed camping sites along the Thain Creek Road, Cottonwood Creek, and Shonkin Road. No outfitters in this polygon.  |



| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structure. | Missile site in the southwest corner of the polygon probably has a buried line of some kind. Some of the stock tanks have small water lines associated with them.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Developments associated with large ranch lands. Helicopter use at Highwood Baldy and around missile site.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Recreation residence tracts along Thain Creek Road. Buildings associated with Cow Camps along FSR 121, and next to the road in Shonkin Creek.<br>There are approximately 20 recorded cultural resources within this polygon. These cultural resources represent structures, dwellings and other relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are 10 recorded historic routes in this polygon (40 miles).   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 145. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | There are approximately 25 + miles of motorcycle loop trails in the northern portion of the polygon.  |
| Area available for winter motorized opportunity                     | The motorized trail system is open to over snow vehicles in the winter.   |
| Proximity to private lands and non-Forest Service roads             | Private lands surround the polygon on the north, east, and south sides. Forest Service Road 121 provides the western boundary. There are some private land inholdings accessed by this road.  |
| Proximity to developed recreation sites outside of the polygon area | There is a campground and trailhead in Thain Creek. Activities from these developments are heard from within the polygon. There are 3 recreation residences along Thain Creek and Thain Creek Guard station is located within the drainage. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 146. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The 1/3 of the area, away from the motorized trails, is available for primitive and semi-primitive non-motorized recreation.        |
| Primitive and semi-primitive non-motorized winter recreation                               | The 1/3 of the area, away from the motorized trails, is available for primitive and semi-primitive non-motorized recreation.        |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Fishing, limited hiking, hunting, wildlife viewing, mountain biking, motorcycle riding, and ATV riding. Snowmobiling in the winter. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Arrow Prospect Area (H2) is 26,210 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

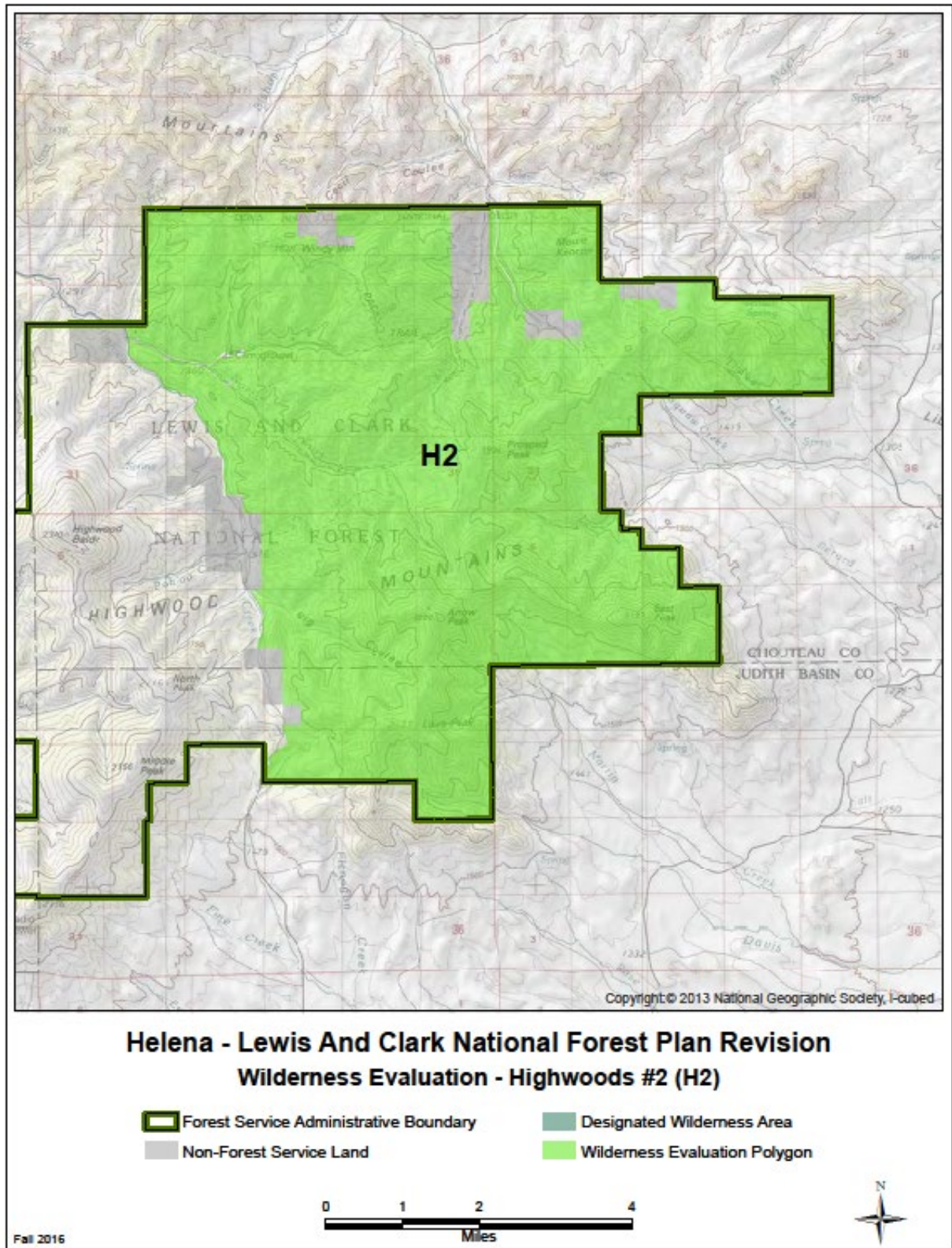
**Table 147. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plant species of conservation concern known to occur in this area is <i>Pinus flexilis</i> .   |
| Rare animal species or communities                           | Federally listed species: Transient lynx documented; area not considered occupied and not contiguous with occupied areas. Historic record of Sprague’s pipit: this is a grassland bird and primary habitat on adjacent non-NFS lands. Potential species of conservation concern and/or state at risk species: gray-crowned rosy finch, dwarf shrew; historic records of greater sage grouse, chestnut-collared longspur; both species grassland types and primary habitat on adjacent non-NFS lands. Lewis’s woodpecker. Westslope cutthroat trout in Boyd, Cottonwood (Arrow), and Big Coulee Creek. |
| Rare ecosystems  | Limber pine, ponderosa pine, and aspen forests are all considered vegetation communities of interest on the HLC NF due to their relatively low abundance and importance for habitat. These are present in fairly small amounts in this area. No rare aquatic ecosystems.  |
| Outstanding landscape features                               | Steep open parks and unique geology.  |
| Historic and cultural resource sites                         | All recorded cultural resources in this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | North Fork Highwood and Big Coulee Creeks are on the draft list in the 2015 Wild and Scenic Rivers Eligibility Study; they are listed for their outstanding westslope cutthroat trout fisheries.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 148. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | The east half of the Highwood Mountain range. Public access to this polygon is limited by lack of legal access through private lands.                |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | There are large private land inholdings along FSR 121.   |
| Management of adjacent lands   | Polygon is surrounded by large private ranches on the south, east, and north sides. Large block of roadless Forest Service system lands on the west. |



## Little Belts Geographic Area

### Deep Creek Area (LB1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 149. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types in this area are Douglas-fir dominated forests, which cover about 67%, and lodgepole pine dominated forests, which cover about 17%. Dry grasslands and subalpine fir/Engelmann spruce mixed forests are also common, each covering about 5%. Nearly 3% of the area supports ponderosa pine forest. Very small amounts (less than 1% each) of other dominance types are also present, including shrublands, whitebark pine, limber pine, cottonwood, aspen, and juniper.   |
| Potential vegetation types  | The bulk of this area supports either warm dry forest potential vegetation types (58%) or cool moist forest potential types (34%). Dry grassland potential types are found on about 5%. Small amounts of other potential types are also present, including cold forest types (where whitebark pine may grow), shrublands, riparian, and sparsely vegetated areas.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 532 acres within LB1 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: roughly 27,000 acres potential lynx habitat, with about 14,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 67,000 acres of goshawk potential nesting habitat indicates presence of mature forest. Approximately 1600 acres existing, and 46,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Nearly 53,000 acres secure elk habitat. Roughly 23,000 acres elk winter range, 11,000 acres elk calving habitat, and 27,000 acres mule deer winter range all contiguous with additional winter range on adjacent non-NFS lands. Moose may be present in riparian areas.</p> <p>Roughly 6300 acres potential wolverine habitat.</p> <p>Probable golden eagle and possible peregrine falcon nesting areas in NE portion along Smith River.</p> <p>Westslope cutthroat trout in North Fork and South Fork Deep Creek, South Fork Tenderfoot, and Logging Creeks.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely present.   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 150. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There are no records of past harvest in this area. 100% of the area is unaffected by this activity. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.4% of LB1 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 61%, Class 2: 39%; Impacts are mainly outside/downstream of polygon                        |
| Miles of motorized road/trail within 300' of streams                         | 27.1 miles  |
| Noticeable wildfire suppression impacts                                      | No evidence of fire suppression.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 151. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | There are no records of past harvest or prescribed fire activities in this area.   |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Radio communications site on Monument Peak Lookout.  |
| Areas of mining activities including both abandoned and active mines  | Active recreational gold mine in Placer Creek. Other abandoned mines along FSR 839, within the polygon.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 5 miles of fencing and 11 stock water tanks within LB1.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Outfitter camps in Lobley Gulch, Double Gulch, junction of the Smart Fork, and Parker Ridge. Boat camps along the Smith River. Dispersed camping throughout the polygon, both during summer and hunting seasons. |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Electric line along Logging Creek road might be seen from the interior of the polygon.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Private inholding where they outfit from Deep Creek Park, recreation residences along the periphery, Monument peak rental cabin with communication site.   |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Monument Peak. Mine adits.<br>There are approximately 23 recorded cultural resources within this polygon. They all represent relics of past occupations.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 1.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | Old wagon roads into Deep Creek Park in the western part of the polygon. Remnants of old telephone line from Monument Peak down Daisy Creek.<br>Two recorded historic routes (8 miles) are within this polygon. However, there is a high potential for unrecorded routes. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 152. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | Motorized trail around Deep Creek Park to the Smith River. Motorized trails on the eastern portion of the polygon (motorcycle and ATV trails). National motorized recreation trails on Monument Ridge, Deep Creek Ridge, and Blankenbaker Flats. |
| Area available for winter motorized opportunity                     | Snowmobile corridor from Monument Peak, Bald Hills to Tenderfoot. Snowmobile corridor along boundary with FSR 839. All other areas closed to winter motorized uses.  |
| Proximity to private lands and non-Forest Service roads             | Private inholding in Deep Creek Park. Private lands along the Smith River to the west and along the northern boundary.   |
| Proximity to developed recreation sites outside of the polygon area | Logging creek Campground, Monument Peak Lookout Cabin rental, recreation residences along the Logging Creek Road. Deep Creek, Taylor Hills, Balsinger, and Pilgrim Trailheads.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 153. Primitive or unconfined types of recreation**

| Measures  | Descriptions and locations   |
|---|--|
| Primitive and semi-primitive non-motorized summer recreation                                | There are two areas with primitive and semi-primitive non-motorized summer recreation. One is located south of Deep Creek Park and north of the Tenderfoot. The other is located north of motorized trail 311 to the forest boundary, excluding the area west of Blankenbaker Flats. |
| Primitive and semi-primitive non-motorized winter recreation                                | Very little opportunity for primitive or semi-primitive non-motorized winter recreation.   |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses. | Hunting, fishing, backpacking, horseback riding, boating on the Smith River, mountain biking, ATV riding, motorcycle riding, and snowmobiling in the two corridors.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Deep Creek Area (LB1) is 89,321 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 154. Features present**

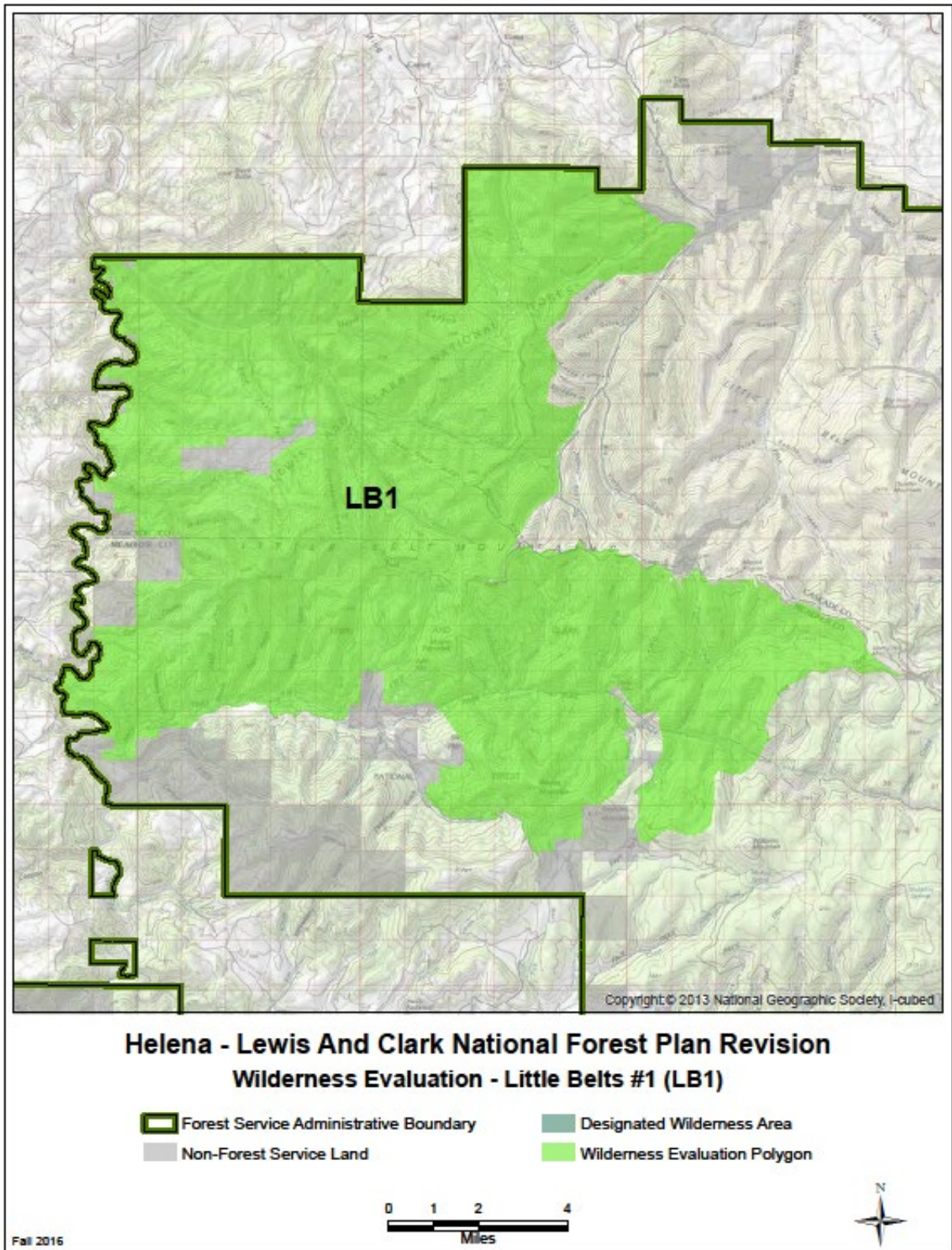
| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | Several potential plants of conservation concern are known to occur in this area, including <i>Pinus flexilis</i> , <i>Pinus albicaulis</i> , and <i>Funaria americana</i> .   |
| Rare animal species or communities                           | Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: wolverine, possibly harlequin duck (Smith River)<br>Westslope cutthroat trout in North Fork and South Fork Deep Creek, Logging Creek and South Fork Tenderfoot Creek. |
| Rare ecosystems  | Ponderosa pine, limber pine, and whitebark pine are vegetation ecosystem components of interest on the HLC NF due to their limited abundance and habitat value. Whitebark pine is a proposed species for listing under the ESA. These species are present in very small amounts in this area.  |
| Outstanding landscape features                               | Smith River and waterfalls on Tenderfoot Creek.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Tenderfoot Creek and tributaries have very high-water quality. Tenderfoot Creek and the Smith River (on western boundary of polygon) are both eligible WSR segments. Deep Creek has high water quality and high value westslope cutthroat trout population.  |



Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 155. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Large irregular shaped polygon in the west end of the Little Snowies GA. Polygon extends from the Smith River east to Logging Creek and the Divide Road along the ridgeline. |
| Legally established rights or uses within the area   | Special Uses ROW access to Deep Creek Park.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Deep Creek Park private land inholding.  |
| Management of adjacent lands   | Private ranch lands to the north. Subdivisions, ranch lands, and the Smith River corridor on the west. Forest Service system lands to the east and south.                    |



## Big Horn Thunder Area (LB2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 156. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types found in this area are Douglas-fir dominated forests, which cover about 56% of the area. Lodgepole pine dominated forests are also common, found on about 22%. Subalpine fir and Engelmann-spruce mixes can be found at higher elevations, covering about 13% of the area. Other types are relatively rare; dry grasslands and sparsely vegetated areas (rock and scree) are found on about 3% each, and ponderosa pine dominated forests are found on 2%. Other types are rare but present, making up less than 1% each, including shrublands, whitebark pine, limber pine, cottonwood, and aspen.  |
| Potential vegetation types  | The main potential vegetation types found in this area are warm dry forest types (42%) and cool moist types (52%), consistent with the abundance of Douglas-fir and lodgepole pine forests. Dry grassland and sparsely vegetated potential types are found on between 2-3% each. Trace amounts of other types occur, include the cold forest type (where whitebark pine may grow), shrubland types, and riparian types where cottonwood and aspen are most likely found.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 64 acres within LB2 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 22,000 acres potential lynx habitat, with approximately 11,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 29,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 4000 acres existing and over 30,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Presence of Clark’s nutcracker indicates mature whitebark, ponderosa, and/or limber pine. Also functioning snag habitat.</p> <p>Approximately 30,000 acres secure elk habitat; 5800 acres mule deer winter range along northern edge contiguous with same on non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Approximately 8,000 acres potential wolverine habitat.</p> <p>Westslope cutthroat trout in Pilgrim, Deer, Horn and Tillinghast Creeks.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely present.  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 157. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | There are no records of past harvest in this area; 100% is unaffected by this activity.   |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9% of LB2 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 37%, Class 2: 63%. Impacts in class 2 watersheds are primarily downstream/ outside of polygon.                                   |
| Miles of motorized road/trail within 300' of streams                         | 17.3 miles, motorized trail along the entire length of Pilgrim Creek  |
| Noticeable wildfire suppression impacts                                      | Goblin Gulch Fire (2012): Some handlines constructed/rehabed, helispot constructed/rehabbed. However, break in timber continuity evident. |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 158. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | There are no known areas of timber harvest in this area. A minimal amount of prescribed burning has occurred, consisting of 15 acres of pile burning in 1995. This activity makes up only 0.04% of the area and was determined to no longer be substantially noticeable on the landscape. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | Historic mining in patented mining inholding. Abandoned historic mine in Timber Gulch. Private land withholding with historic mining in Pilgrim Creek. Abandoned mining exploration pits on Thunder Mountain in Goblin Gulch.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are approximately 2 miles of fencing and 4 stock water tanks within LB2.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Hunting camps along Pilgrim Creek and Thunder Mountain trail.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Electric line along Logging Creek road might be seen from the interior of the polygon.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Lands adjacent to development or activities that impact opportunities for solitude   | Recreation residences along the periphery in Logging Creek. Deer Creek Estates on the south boundary of LB2.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Cabins in Big Timber Creek and top of Iron Creek, close to the private inholding.<br>There are 12 recorded cultural resources within this polygon, all represent relics of past occupations.                                  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 2.4 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | Historic road from Belt Creek up Holter Gulch to mining claim. Historic road from Logging Creek up to Big Timber Gulch. Old roadbed up Pilgrim Creek.<br>There are 2 recorded historic routes (67 miles) within this polygon. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 159. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | All nonmotorized except for Pilgrim Creek, Tobin Gulch, and Deer Creek trails which are open seasonally for motorcycles.   |
| Area available for winter motorized opportunity                     | Snowmobile corridor along boundary with FSR 839. All other areas closed to winter motorized uses.  |
| Proximity to private lands and non-Forest Service roads             | Two private land inholdings. One is on the north side of Big Horn Mountain. One is in the bottom of Pilgrim Creek at the junction with Deer Creek. Deer Creek Estates subdivision to the south of the polygon. |
| Proximity to developed recreation sites outside of the polygon area | Logging creek Campground, recreation residences along the Logging Creek Road. Deep Creek, Taylor Hills, Balsinger, and Pilgrim Trailheads.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 160. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Areas east and west of the Pilgrim Creek Trail are available for primitive and semi-primitive non-motorized summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | Majority of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.                  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Motorcycle riding, horseback riding, fishing, archery, rifle hunting, and mountain biking.                                     |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Big Horn Thunder Area (LB2) is 45,334 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

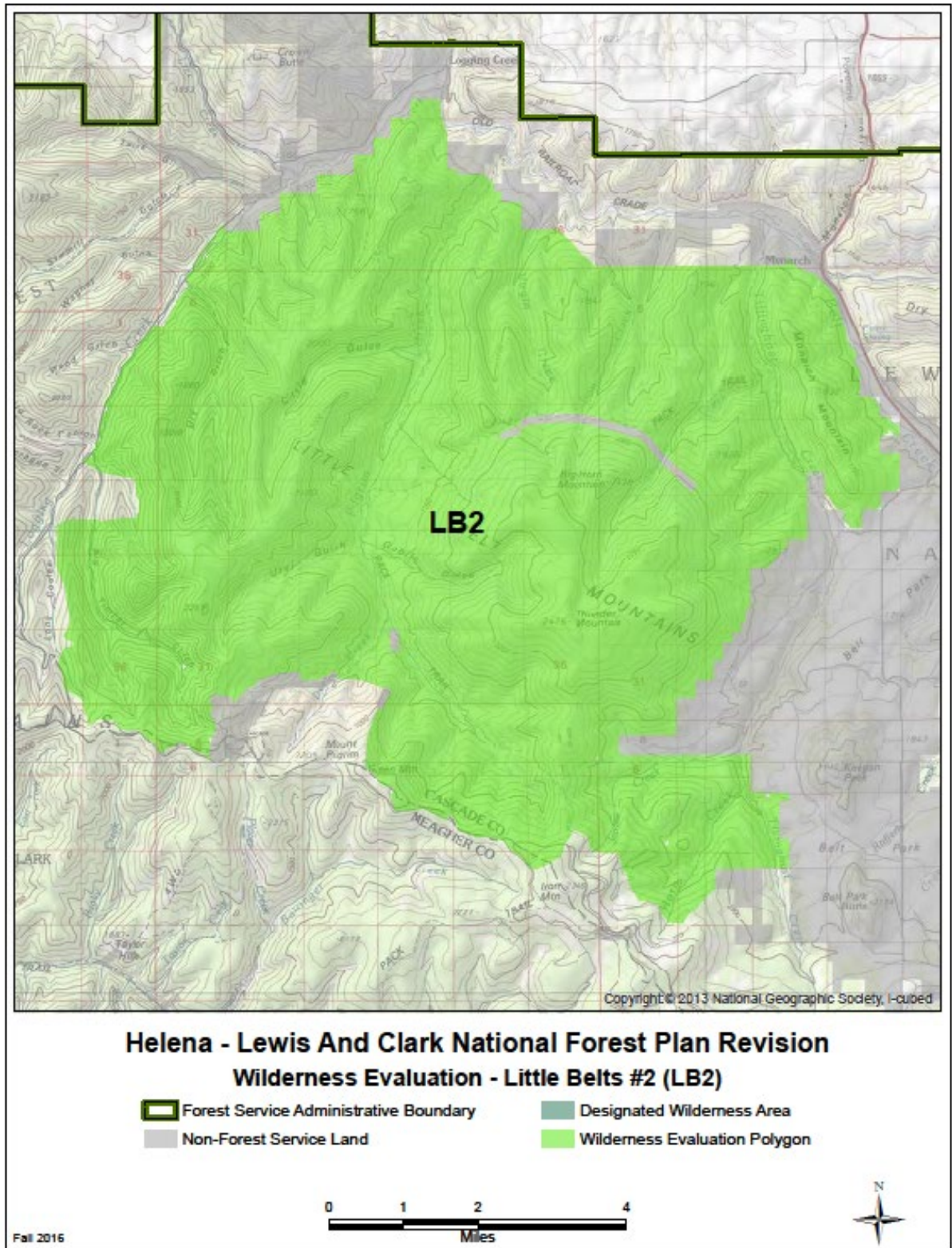
**Table 161. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The potential plant species of conservation concern known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Elymus innovates</i> .  |
| Rare animal species or communities                           | Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: none documented<br>Westslope cutthroat trout in Pilgrim, Deer, Horn and Tillinghast Creeks.                 |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under ESA. Whitebark pine, limber pine, ponderosa pine, and aspen vegetation communities are all of interest on the HLC NF due to their limited abundance and importance for habitat. These types are present in very small amounts in this area.<br>No rare aquatic ecosystems |
| Outstanding landscape features                               | Big Horn Mountain, Thunder Mountain, Pilgrim Creek, Tillinghast Creek, and rock scree around Thunder Mountain.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Pilgrim Creek has high quality WCT fishery, good water quality, and is included in the draft list of potential WSRs for its high quality westslope cutthroat trout fishery. Tillinghast Creek also is high quality up high in the watershed, above cattle impacts.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 162. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | A large undeveloped landscape east of Logging Creek and southwest of Monarch. The polygon includes all of the Thunder Mountain and the main stem of Pilgrim Creek.  |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | Private land inholdings in Deer Creek and Thunder Mountain.   |
| Management of adjacent lands   | Private ranch lands to the east in Belt Park. Forest Service system lands and privates along the north boundary. Logging Creek and Divide road on the west and south boundaries. Deer Creek Estates on the southern border. |





### Sun Mountain Area (LB3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 163. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | Nearly 54% of this small area is dominated by Douglas-fir forests, and lodgepole pine forests are found on about 15%. A fairly large proportion, 16%, is considered transitional where forest regeneration is still initiating after the Monarch fire of 2001. About 6% of the area (at higher elevations) supports subalpine fir and Engelmann spruce mixed forest, and ponderosa pine dominated areas are found at the lowest elevations (3%). Dry grasslands are found on nearly 3%. Other dominance types are found in trace amounts, generally 1% or less, and include shrublands, limber pine, and aspen.   |
| Potential vegetation types  | Warm dry forest potential vegetation types are the most common, found on 76% of the area, and commonly support limber pine, ponderosa pine, and Douglas-fir. Cool moist forest types cover about 18%, where lodgepole, spruce, and fir are more likely to grow. Dry grassland potential types are found on 4%. Trace amounts of other types are present, including shrublands and riparian potential vegetation types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 67 acres within LB3 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 3400 acres potential lynx habitat, with approximately 1400 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 4600 acres of goshawk potential nesting habitat.</p> <p>Approximately 700 acres existing, and 3500 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 4600 acres secure elk habitat; 1900 acres mule deer winter range contiguous with same on non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Fewer than 70 acres of potential wolverine habitat.</p> <p>No westslope cutthroat trout.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. If present, non-native trout likely  |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 164. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Some records of past harvest are found in this area, indicating that roughly 4% was impacted. Treatments consisted of a commercial thin in 1974 and 1976. 96% of this area is unaffected by harvest treatments. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.2% of LB3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%, but impacts are primarily downstream/ outside of polygon.  |
| Miles of motorized road/trail within 300' of streams                         | 0.0 miles   |
| Noticeable wildfire suppression impacts                                      | Monarch Fire (2011): visible breaks in the timber from old hand lines and helispot.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 165. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | Roughly 4% of this area (304 acres) was harvested in the 1970's. This treatment included the retention of leave trees; due to this and the time since treatment, these areas were determined to be no longer substantially noticeable. In addition, roughly 40 acres had the prescribed burning treatment of burning piles in 2001; this was also determined to not be substantially noticeable and impacted less than 0.5% of the area. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | None known.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1/2 mile of fencing and 70.5 acres of vegetation treatments are within LB3.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping in Dry Fork Belt Creek.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Utility corridors outside of the polygon on the southwest boundary. Powerline corridor along Dry Fork Belt Creek.  |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Presence of watershed treatment areas including contouring, diking, and channeling   | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude   | Community of Monarch. Subdivisions on the western and southern boundaries. Heavily used dispersed area in Dry Fork Belt Creek. |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | None known.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 0.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | None known.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 166. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | No authorized motorized trails.  |
| Area available for winter motorized opportunity                     | Closed to snowmobiles and winter motorized use.  |
| Proximity to private lands and non-Forest Service roads             | Dry Fork Belt Creek is a Cascade County road. Private roads accessing residential areas on the south border of the border of polygon. Highway 89 to the west of the polygon. |
| Proximity to developed recreation sites outside of the polygon area | Borders a high use, heavily impacted dispersed recreation area in Dry Fork Belt Creek.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 167. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, and hunting.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Sun Mountain Area (LB3) is 7,965 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

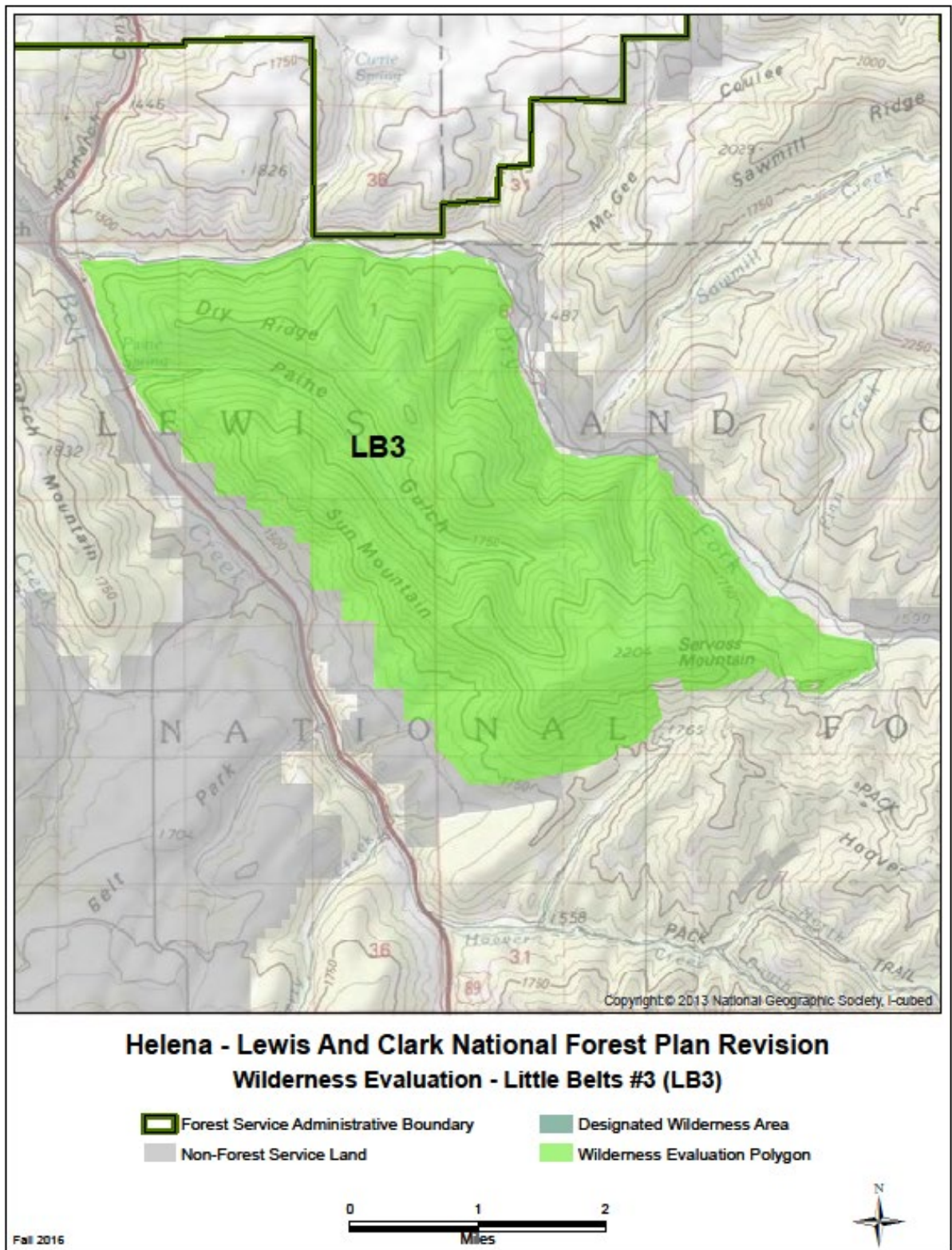
**Table 168. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plants of conservation concern known to occur in this area include <i>Pinus flexilis</i> and <i>Cirsium longistylum</i> .   |
| Rare animal species or communities                           | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: none documented.<br>No rare aquatic species known. |
| Rare ecosystems  | Very small amounts of ponderosa pine, aspen, and limber pine vegetation communities are found in this area, which are types of interest on the HLC NF due to their low abundance and habitat importance.<br>No known rare aquatic ecosystems.                           |
| Outstanding landscape features                               | Limestone cliffs.   |
| Historic and cultural resource sites                         | No recorded cultural resources in this polygon.   |
| Research natural areas                                       | Paine Gulch RNA.  |
| High quality water resources or important watershed features | Madison limestone.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 169. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Relatively narrow rectangle between State Highway 89, Dry Fork Belt Creek road (county road), and the Ruby Hen Road (FSR).  |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | None within the polygon.  |
| Management of adjacent lands   | Rural and private residential developments along Highway 89 and Belt Creek to the southwest. Dispersed recreation and private lands in Dry Fork Belt Creek to the east. Forest Service system lands to the south. Forest Service system and state lands to the north. |



## McGee Sawmill Area (LB4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 170. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area are Douglas-fir dominated forests (covering 40%) and lodgepole pine dominated forests (covering 33%). Subalpine fir and Engelmann spruce mixed forests are also common, found on 13%. Sparsely vegetated areas, such as rock and scree, are found on nearly 7%, and dry grasslands dominate on just over 3%. Ponderosa pine and limber pine forests make up just under 2% each. Very small amounts (less than 1% each) of other dominance types are also present, including shrublands, whitebark pine, and cottonwood.   |
| Potential vegetation types  | The area is fairly evenly dominated by two main potential vegetation groups: warm dry forest types (45%), and cool moist forest types (44%). Sparsely vegetated areas represent 7%, and dry grassland potential types are found on 2%. Other types making up 1% or less each include cold forest types (where whitebark pine may grow), shrubland types, and riparian types.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 21 acres within LB4 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 3500 acres potential lynx habitat, with approximately 1500 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 5200 acres of goshawk potential nesting habitat, some known nesting territories. Approximately 915 acres existing, and 3500 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 7000 acres secure elk habitat; fewer than 1000 acres elk winter range and 3500 acres mule deer winter range contiguous with same on non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Roughly 1100 acres of potential wolverine habitat.</p> <p>Westslope cutthroat trout in Sawmill Creek.</p> |
| Known non-native wildlife species                                     | <p>No non-native terrestrial wildlife species documented.</p> <p>Non-native trout likely present.</p>  |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 171. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | About 99.9% of the area has been unaffected by harvest, according to available harvest records. About 9 acres were harvested with a commercial thin in 1974, representing 0.11% of the area. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.79% of LB4 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%; impacts are primarily outside of polygon  |
| Miles of motorized road/trail within 300' of streams                         | 0.0 miles.   |
| Noticeable wildfire suppression impacts                                      | No fire occurrence records since 1980.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 172. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | The only known vegetation treatment to have occurred in this area is the 9-acre commercial thin in 1974 which was determined to be no longer substantially noticeable. No known prescribed fire treatments have occurred within the polygon, although some large fuel reduction treatment units lie adjacent to the boundary. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None.   |
| Areas of mining activities including both abandoned and active mines  | None known.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1/10 <sup>th</sup> mile of fencing and 1 stock water tank within LB4. There are approximately 140 acres of vegetation treatments within LB4.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps within polygon. Numerous dispersed camping sites along Dry Fork Belt Creek.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Powerline corridor along Dry Fork Belt Creek. Missile communication line is located in McGee Coulee.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Heavily used dispersed area in Dry Fork Belt Creek. Superfund site to the east.   |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Old cabin in an unnamed drainage of Sawmill Creek.<br>No recorded cultural resources within this polygon, however there is the potential for unrecorded cultural resources. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 1.4 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | No recorded historic routes.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 173. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | Area is not available for summer motorized use.  |
| Area available for winter motorized opportunity                     | Area is not available for winter motorized use.  |
| Proximity to private lands and non-Forest Service roads             | Polygon borders private lands along the Dry Fork Belt Creek road. Polygon borders private ranch lands to the north. Dry Fork Belt Creek road is a Cascade County road. |
| Proximity to developed recreation sites outside of the polygon area | Borders a high use, heavily impacted dispersed recreation area in Dry Fork Belt Creek.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor's ability to feel a part of nature?*

**Table 174. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, fishing and hunting.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The McGee Sawmill Area (LB4) is 8,355 acres.



Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

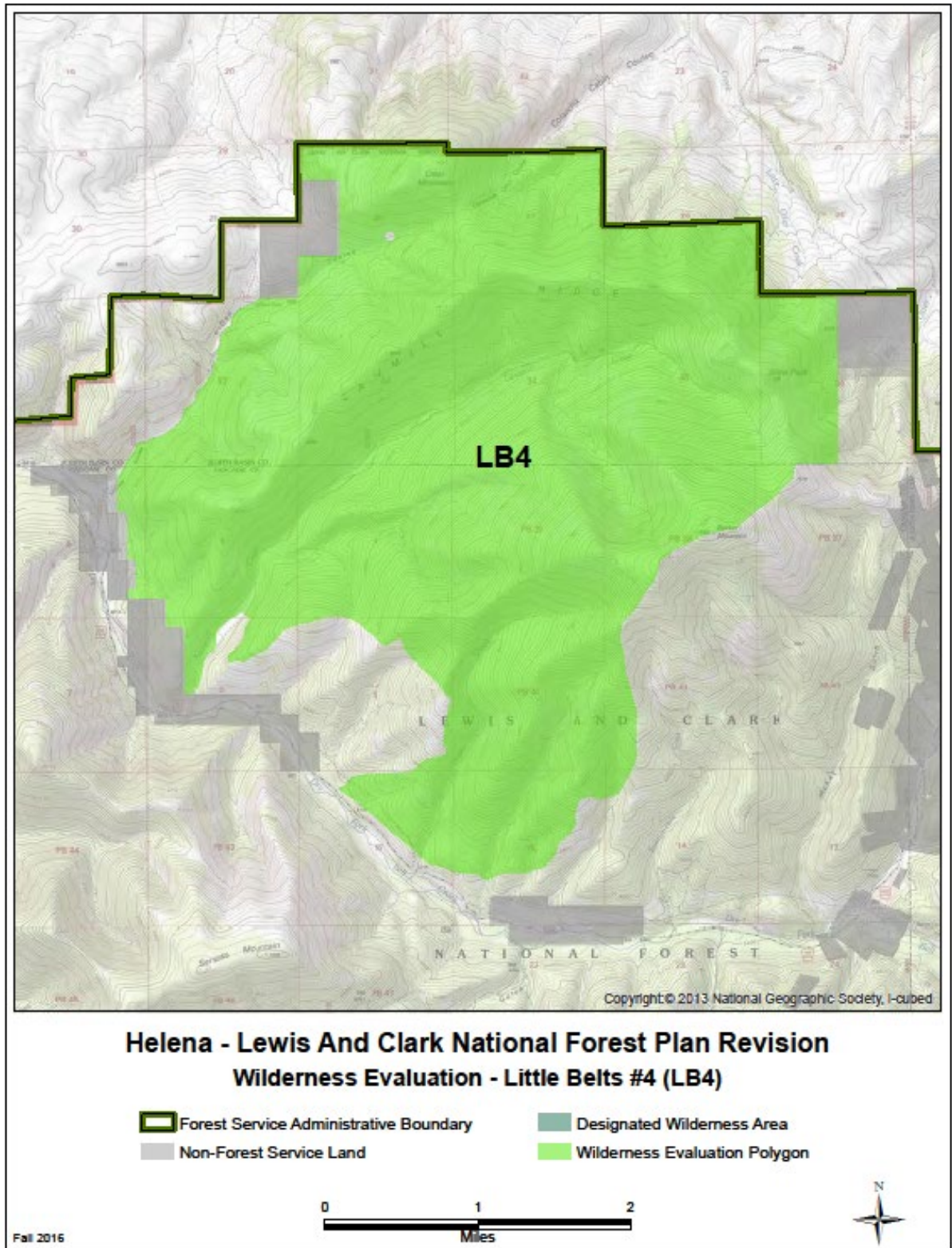
**Table 175. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plant species of conservation concern known to occur in this area include <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .  |
| Rare animal species or communities                           | Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: none documented.<br>Westslope cutthroat trout in Sawmill Creek.  |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under ESA. Whitebark pine, limber pine, and ponderosa pine are all vegetation communities of interest on the HLC NF due to their limited abundance and habitat importance. These are present in very small amounts in this area.<br>High quality WCT habitat in Sawmill Creek, segment goes dry below population due to limestone, so the population is protected. |
| Outstanding landscape features                               | A few limestone cliffs.   |
| Historic and cultural resource sites                         | None known.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | High quality westslope cutthroat trout population.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 176. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Irregular shaped polygon north of Dry Fork of Belt Creek road. Polygon is formed by private land to the north and private lands and the Barker-Hughesville superfund site on the south and the east. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | None present.  |
| Management of adjacent lands   | Ranch lands to the north. National Forest system lands to the south. Superfund to the east and west. Dry Fork Belt Creek road to the west.   |



### Peterson Mountain Area (LB5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 177. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types in this area include lodgepole pine dominated forests (covering 42%) and Douglas-fir dominated forests (found on 29%). Subalpine fir and Engelmann spruce mixed forests are also common at higher elevations, growing on about 11% of the area. Dry grasslands are found on 10% of the area, and limber pine dominated forests are found on nearly 5%. Trace amounts (covering less than 1% of the area each) are also found, including shrublands, ponderosa pine, whitebark pine, aspen, and juniper.   |
| Potential vegetation types  | Two main potential vegetation type groups occur in this area: cool moist forest types (49%) and warm dry forest types (38%). Dry grassland potential types are the next most common, representing about 6% of the area. Other types found include shrubland, riparian, and sparse vegetation potential types.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 60 acres within LB5 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 2300 acres potential lynx habitat, with approximately 970 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 4200 acres of goshawk potential nesting habitat, some known nesting territories. Approximately 200 acres existing, and 4300 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 5600 acres secure elk habitat; fewer than 150 acres elk winter range and 1700 acres mule deer winter range contiguous with same on non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Roughly 1100 acres of potential wolverine habitat.</p> <p>Westslope cutthroat trout in Lost Creek.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely present  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 178. Ecological conditions**

| Measures                                     | Outcome  |
|--|--|
| Percent of area without past timber harvest  | 100% of the area has no record of past timber harvest.   |
| Percent of area without known invasive weeds | According to data as of 2/10/2016, 99.1% of LB5 is not associated with invasive plant inventories. |

| Measures   | Outcome   |
|--|---|
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2:100%, but sits at headwaters of 3 watersheds, impacts are occurring downstream of polygon |
| Miles of motorized road/trail within 300' of streams                         | 0.1 mile  |
| Noticeable wildfire suppression impacts                                      | No fire occurrence records since 1980.  |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 179. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | No harvest is known to have occurred in this area. However, records show that roughly 150 acres have been impacted by prescribed fire treatment, consisting of underburns from 1983 to 2005 that occurred along the boundary. These treatments were determined to not be substantially noticeable and make up about 2% of the area. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are approximately 5 miles of fencing and 1 stock water tank and 72 acres of vegetation treatments within LB5.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Limited dispersed camping along the southeast edges of the polygon.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Water line in Peterson Creek.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Ranching activity on private land surrounding the polygon.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | No recorded cultural resources within this polygon.   |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.0 miles   |

| Improvement type  | Presence and extent of departure from naturalness |
|---|---|
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation. | None known.                                       |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 180. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)                       |
|---|---|
| Area available for summer motorized opportunity                     | None of the area is open or available for summer motorized recreation.  |
| Area available for winter motorized opportunity                     | Snowmobile use allowed along Lone Tree corridor. Rest of the polygon to the north is restricted for winter motorized use. |
| Proximity to private lands and non-Forest Service roads.            | Private lands surround the polygon on the north, south, portions on the east and the west.                                |
| Proximity to developed recreation sites outside of the polygon area | None present.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 181. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking and fishing.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Peterson Mountain Area (LB5) is 6,839 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

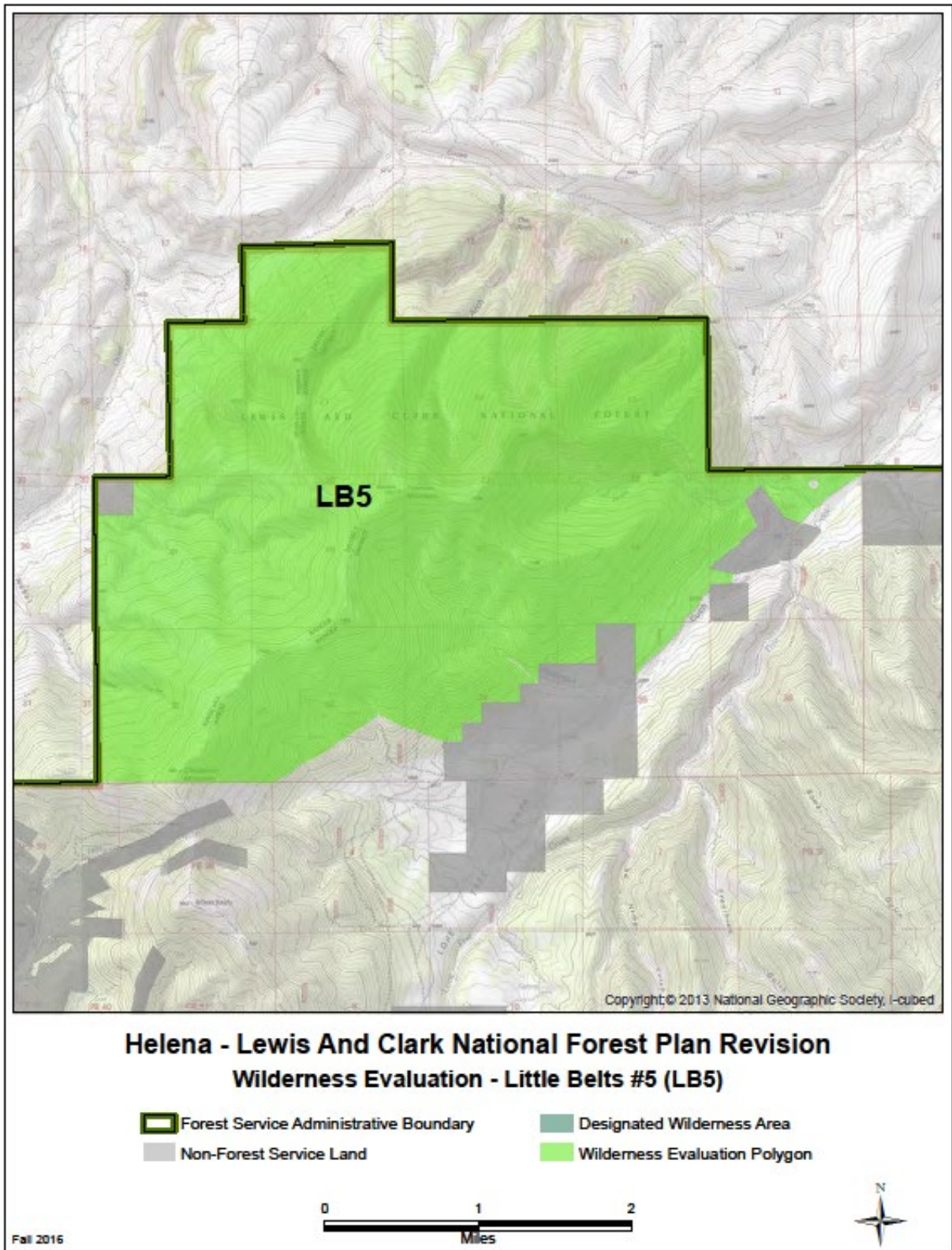
**Table 182. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The only potential plants of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .   |
| Rare animal species or communities                           | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: none documented.<br>Westslope cutthroat trout population in Lost Creek. |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA. Whitebark pine, limber pine, ponderosa pine, and aspen are all considered vegetative communities of interest on the HLC NF and are present in very small amounts in this area.<br>No rare aquatic ecosystems.                |
| Outstanding landscape features                               | Peterson Mountain  |
| Historic and cultural resource sites                         | None known.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None, area is relatively dry.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 183. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Remote and undeveloped polygon formed by private ranchlands on the west, north, and portions of the east and south.  |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Private land surrounds the polygon but no private inholdings.  |
| Management of adjacent lands   | Private agriculture lands to the north west and portion of the east of the polygon. BLM parcels on the west and north. Forest Service system lands on the south and portions of the eastern boundary. Superfund site surrounding Barker-Hughesville on portion of the southern boundary. |



## Taylor Mountain Area (LB6)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 184. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The two most common dominance types in this area are lodgepole pine dominated forests (covering 37% of the area), and Douglas-fir dominated forests which are found on about 36% of the area. Subalpine fir and Engelmann spruce mixed forests are also common at higher elevations, growing on about 11% of the area. Limber pine dominated forests cover nearly 8%. Dry grasslands and sparsely vegetated areas (rock/scree) each cover about 4%. Other types are present in very small amounts, covering less than 1% of the area each, including shrublands, ponderosa pine, whitebark pine, and aspen.   |
| Potential vegetation types  | The two potential vegetation types that dominate this area are warm dry forest types (49%) and cool moist forest types (43%). Dry shrubland potential types are found on 3% and are likely encroached with conifers since shrub dominated areas are less common. Very small amounts of other potential types that occur include cold forest (where whitebark may grow) and riparian types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 19 acres within LB6 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 3900 acres potential lynx habitat, with approximately 1900 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 7400 acres of goshawk potential nesting habitat, some known nesting territories. No existing but up to 5000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 7200 acres secure elk habitat; fewer than 150 acres elk winter range and only 400 acres mule deer winter range contiguous with same on non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Roughly 1000 acres of potential wolverine habitat.</p> <p>No known westslope cutthroat trout populations.</p> |
| Known non-native wildlife species                                     | <p>No non-native terrestrial wildlife species documented.</p> <p>No known aquatic non-natives.</p>  |



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 185. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | 100% of this area is unaffected by past harvest, according to available records.                   |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.8% of LB6 is not associated with invasive plant inventories. |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 8%, Class 2: 92%<br>Polygon is upstream of most impacts.                                  |
| Miles of motorized road/trail within 300' of streams                         | 2.2 miles, but streams are primarily intermittent.   |
| Noticeable wildfire suppression impacts                                      | No fire occurrence since 1980.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 186. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | There are no records of past harvest in this area. However, records show that roughly 291 acres have had a prescribed fire treatment, consisting of underburns that occurred from 2003 to 2005, and pile burning in 1996. These treatments affected nearly 3% of the area, are located along the edge of the area, and were determined to not be substantially noticeable (with effects similar to wildfire). |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 2 miles of fencing and 4 stock water tanks and 161 acres of vegetation treatments within LB6.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed recreation along private land boundary on the west. No outfitter camps.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | Ranching activity on private land surrounding the polygon.  |

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area. | One recorded cultural resource in this polygon, which represents a relic of past occupation. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process.    | Not recommended as wilderness in the 1986 Forest Plan.                                       |
| Number of miles of maintenance level 1 road templates.  | 4.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.       | None known.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 187. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)          |
|---|--|
| Area available for summer motorized opportunity                     | Polygon is not open for motorized use in summer.   |
| Area available for winter motorized opportunity                     | Snowmobile use allowed along Lone Tree corridor. Rest of the polygon is restricted for winter motorized use. |
| Proximity to private lands and non-Forest Service roads             | Private lands surround the polygon.  |
| Proximity to developed recreation sites outside of the polygon area | None present.  |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 188. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized recreation. |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, and horseback riding.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Taylor Mountain Area (LB6) is 11,374 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

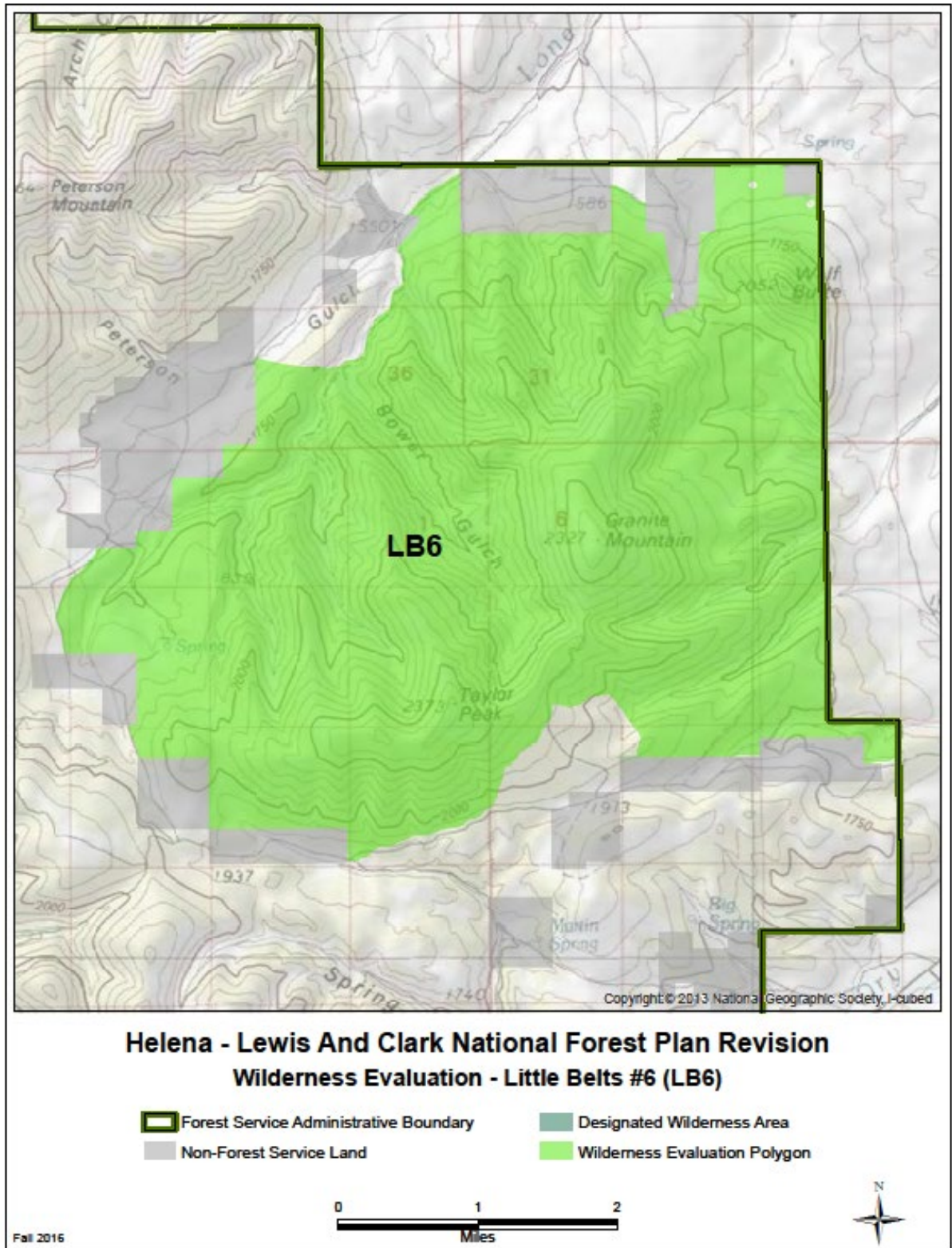
**Table 189. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plants of conservation known to occur in this area are <i>Pinus ablicaulis</i> and <i>Pinus flexilis</i> .   |
| Rare animal species or communities                           | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: none documented.<br>No rare aquatic species known.   |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA. Limber pine dominated forests are more common in this polygon than in most areas on the HLC NF. Whitebark pine, limber pine, ponderosa pine, and aspen are all vegetation communities of interest on the HLC NF are present in low amounts in this area.<br>No rare aquatic ecosystems known. |
| Outstanding landscape features                               | Taylor Peak, Taylor Mountain, Wolf Butte  |
| Historic and cultural resource sites                         | The one recorded cultural resource has the potential for scientific, educational or historic value.   |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | No high-quality resources, area primarily dry.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 190. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Semi-circular polygon shape with irregular boundaries. Encompasses Wolf Butte, Granite Mountain, Taylor Peak, and Taylor Mountain.   |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | No private inholdings. Polygon surrounded by private.  |
| Management of adjacent lands   | Private agriculture lands to the north, east, portions on the west of the polygon. Small BLM parcels on the east. Montana State lands on portions of the north. Forest Service system lands on the south and portions of the western boundary. |



### Big Baldy Area (LB8)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 191. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | Lodgepole pine dominated forests are the most common dominance type in this area, covering over 41%. Douglas-fir dominated forests are also common at lower elevations (covering about 22% of the area), as are subalpine fir and Engelmann spruce mixed forests at higher elevations (covering 21%). Dry grasslands and sparsely vegetated areas (rock and scree) each cover about 6% of the area. Limber pine dominated forests are found on just over 2%. Other types are present in very small amounts (covering less than 1% of the area each), and include shrublands, ponderosa pine, whitebark pine, aspen, and juniper.   |
| Potential vegetation types  | Cool moist forest potential vegetation types dominate the area, found on about 70%. Warm dry forest types are the next most common at 16%. Dry grassland potential types are found on about 5%, and sparse vegetation types cover 6%. A small area, about 3%, are cold forest types where whitebark pine may grow. Trace amounts of shrublands and riparian types are present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 149 acres within LB8 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 23,000 acres potential lynx habitat, with approximately 9700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 28,000 acres of goshawk potential nesting habitat, some known nesting territories. 3900 acres existing but up to 24,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Presence of Clark’s nutcracker indicates mature whitebark, limber, and/or ponderosa pine.</p> <p>Approximately 18,000 acres secure elk habitat. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Roughly 22,000 acres of potential wolverine habitat; presence of black rosy finch, pika. Westslope cutthroat trout populations in Dry Wolf, Placer, Dry Fork Belt, Oti Park, NF Hoover, Carpenter (above mining impacts—acts as barrier), Bender, Palisade, and Chamberlain Creeks.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout are likely present   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 192. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | About 99.8% of the area has been unaffected by past harvest. Records indicate that about 106 acres have been previously harvested, consisting primarily of a commercial thin in 1968. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.7% of LB8 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 35%, Class 2: 65%, however, the polygon is upstream of most of the impacted areas. There are some mining impacts in the polygon.   |
| Miles of motorized road/trail within 300' of streams                         | 23.4 miles  |
| Noticeable wildfire suppression impacts                                      | No fire suppression evidence on the landscape.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 193. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | The past commercial thin activity (1968) which affected less than 0.3% of this area was determined to not be substantially noticeable due to the residual trees left and time since treatment. In addition, some pile burning from 2000 to 2010 has occurred along the boundary in this area, affecting about 24 acres (less than 0.1% of the area) and was also determined to not be substantially noticeable. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Communication repeater on Big Baldy. There is a small building associated with this site.   |
| Areas of mining activities including both abandoned and active mines  | Past mining activities concentrated in areas outside of but next to the polygon. Abandoned mines scattered throughout the polygon.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately ¾ of a mile of fencing and 1 stock water tank within LB8.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping throughout the polygon. Motorized trails throughout.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Pipeline along northern boundary. No powerlines within the polygon but visible from the within the polygon.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Lands adjacent to development or activities that impact opportunities for solitude   | Obvious mining activity in the Carpenter Creek area as well as the Barker-Hughesville area.            |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 55 recorded cultural resources within this polygon, all represent relics of past occupation. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 0.1 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | Twenty recorded historic routes (156 miles) are within this polygon.                                   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 194. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | There are motorized trails throughout the entire polygon.   |
| Area available for winter motorized opportunity                     | No groomed trails. From Lucy Park up to Pioneer Ridge and from Pioneer Ridge to Big Baldy are open for cross country snowmobile use.  |
| Proximity to private lands and non-Forest Service roads             | Private land inholding in North Fork of Hoover Creek. Private mining lands in Neihart Carpenter Creek and in the Barker-Hughesville area. Residential areas in the Neihart area. Western boundary formed by Highway 89. |
| Proximity to developed recreation sites outside of the polygon area | Bender Trailhead, Memorial Falls, Dry Wolf Campground, Dry Wolf rental cabin, Hoover Trailhead, Aspen Campground, and Many Pines Campground.  |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 195. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation | Opportunities exist in places away from motorized trails throughout the polygon.  |
| Primitive and semi-primitive non-motorized winter recreation | Majority of the area is available for primitive and semi-primitive nonmotorized recreation north of the snowmobiling along Lucy Park, Pioneer Ridge and Big Baldy in the south portion of the polygon. Jefferson Creek is a heavily used nonmotorized winter recreation area that is surrounded by motorized use. |

| Measures   | Descriptions and locations   |
|--|--|
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, horseback riding, fishing, hiking, cross country skiing, snowshoeing, back country skiing, snowmobiling, motorbike riding, ATV riding, and dispersed camping. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Big Baldy Area (LB8) is 49,068 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 196. Features present**

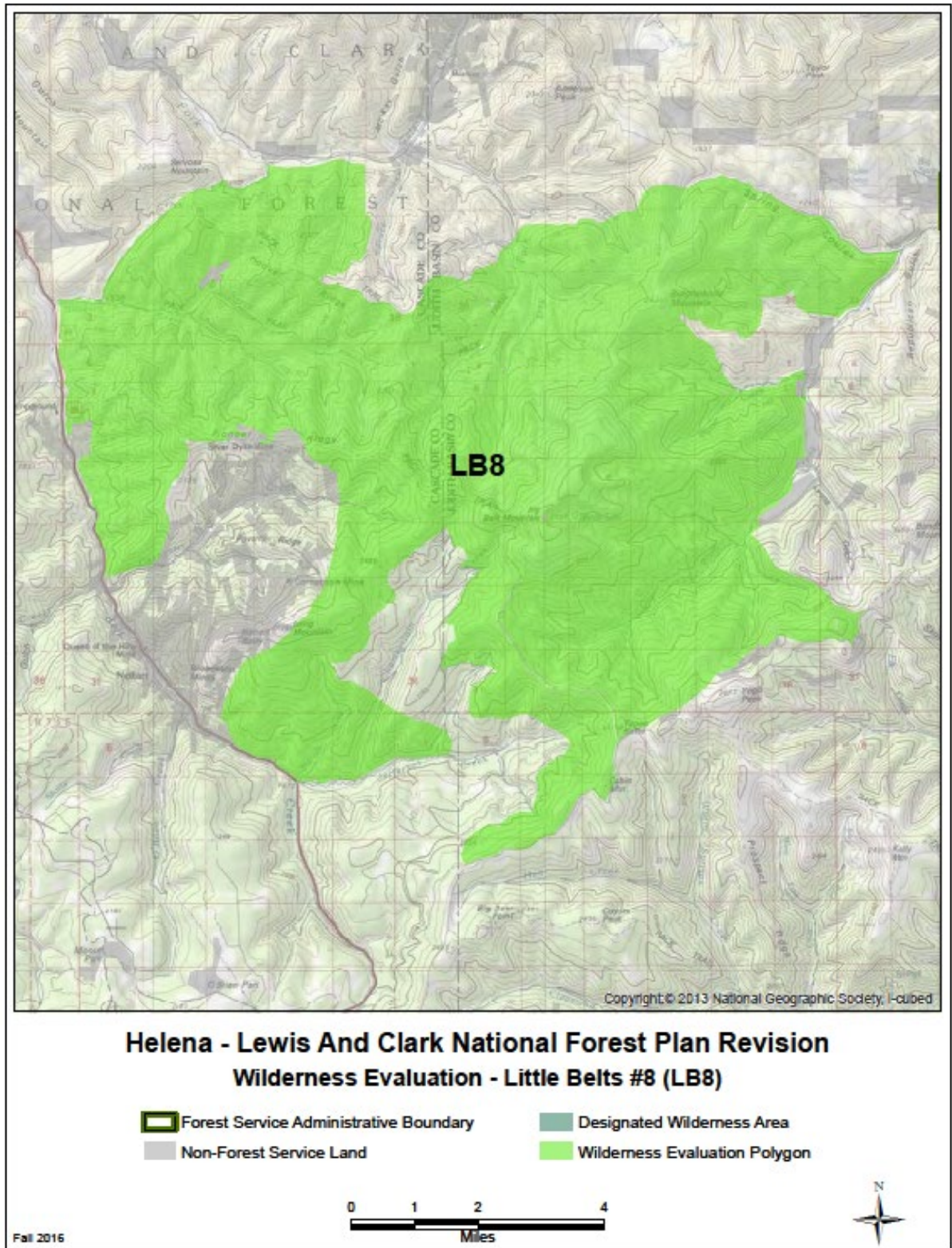
| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Botrychium spp.</i> , <i>Goodyera repens</i> , and <i>Cirsium longistylum</i> .   |
| Rare animal species or communities                           | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: Townsend’s big-eared bat, black rosy finch, wolverine<br>Several westslope cutthroat trout populations, see above. |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in trace amounts in this area. Limber pine, ponderosa pine, and aspen are also vegetative communities of interest on the HLC NF and are present in small amounts in this area.<br>Hoover Creek has high quality westslope cutthroat trout population.     |
| Outstanding landscape features                               | Big Baldy, Memorial Falls   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Hoover Creek has high water quality. Other streams not impacted by mining have high quality as well.  |



Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 197. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Very large, irregular shaped polygon extending from Highway 89 on the west to Dry Wolf Creek road on the east. Summit of the area is Big Baldy Mountain.   |
| Legally established rights or uses within the area   | Likely some related to mining.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Superfund sites located adjacent to the polygon on the north and the south.  |
| The presence and amount of non-Federal land in the area  | Private land inholding in the North Fork of Hoover Creek.  |
| Management of adjacent lands   | Private mining lands in the Neihart-Carpenter Creek and Barker-Hughesville areas. Forest Service system lands surround the polygon. Private residential areas in Neihart, Carpenter Creek, and Dry Wolf areas. |



### Eagle Creek Area (LB10)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 198. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The diversity of dominance types is relatively low in this area. Most of the area is covered by lodgepole pine dominated forests (62%), although Douglas-fir dominated forests are also common, growing on about 21%. Dry grasslands are found on 11%. Very small amounts (representing about 1% or less of the area each) of other dominance types are present, including shrublands, rock/scree, Engelmann spruce, and aspen.  |
| Potential vegetation types  | The most common potential vegetation types in this area include cool moist forest types (found on 47%) and warm dry forest types (found on 37%). Dry grassland potential types are also common (11%). Minor amounts of other potential vegetation types also occur, including shrubland and riparian types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 7 acres within LB10 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 1400 acres potential lynx habitat, with less than 200 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 4900 acres of goshawk potential nesting. Approximately 50 acres existing, and 4000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Nearly 4000 acres secure elk habitat. Moose may be present in riparian areas.</p> <p>Roughly 3600 acres elk calving habitat contiguous with additional calving habitat in WE polygon LB11 and other NF and non-NFS lands.</p> <p>Less than 30 acres potential wolverine habitat.</p> <p>No westslope cutthroat trout populations.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely present.  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 199. Ecological conditions**

| Measures                                     | Outcome   |
|--|---|
| Percent of area without past timber harvest  | 100% of this area is unaffected by past harvest according to available records.                     |
| Percent of area without known invasive weeds | According to data as of 2/10/2016, 99.9% of LB10 is not associated with invasive plant inventories. |

| Measures   | Outcome   |
|--|---|
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 79%, Class 2: 21%<br>Area has heavy grazing impacts. |
| Miles of motorized road/trail within 300' of streams                         | 0.40 miles  |
| Noticeable wildfire suppression impacts                                      | No fire occurrence records since 1980.                        |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 200. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | There are no records of either past harvest or prescribed fire treatments in this area.                                      |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | None   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1/2 mile of fencing and 4 stock water tanks within LB10.                    |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping on the periphery of the polygon, especially on the north and east boundaries.          |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Private agricultural lands to the west, south, and north. These lands are used primarily for ranching and timber harvesting. |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are four recorded cultural resources within this polygon, which represent relics of past occupations.                  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 0.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are two recorded historic routes (9 miles).  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 201. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | Entire polygon is nonmotorized.  |
| Area available for winter motorized opportunity                     | Entire polygon is open to snowmobiling but dense timber limits travel throughout the entire polygon. |
| Proximity to private lands and non-Forest Service roads             | Private lands on the north, west, and south boundaries of the polygon.                               |
| Proximity to developed recreation sites outside of the polygon area | None.  |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 202. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Entire polygon is available for primitive and semi-primitive non-motorized recreation in the summer.                         |
| Primitive and semi-primitive non-motorized winter recreation                               | Entire polygon is available for primitive and semi-primitive non-motorized recreation in the winter.                         |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, fishing, snowmobiling, cross country skiing, outfitting for hunting, and mountain biking. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Eagle Creek Area (LB10) is 6,337 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 203. Features present**

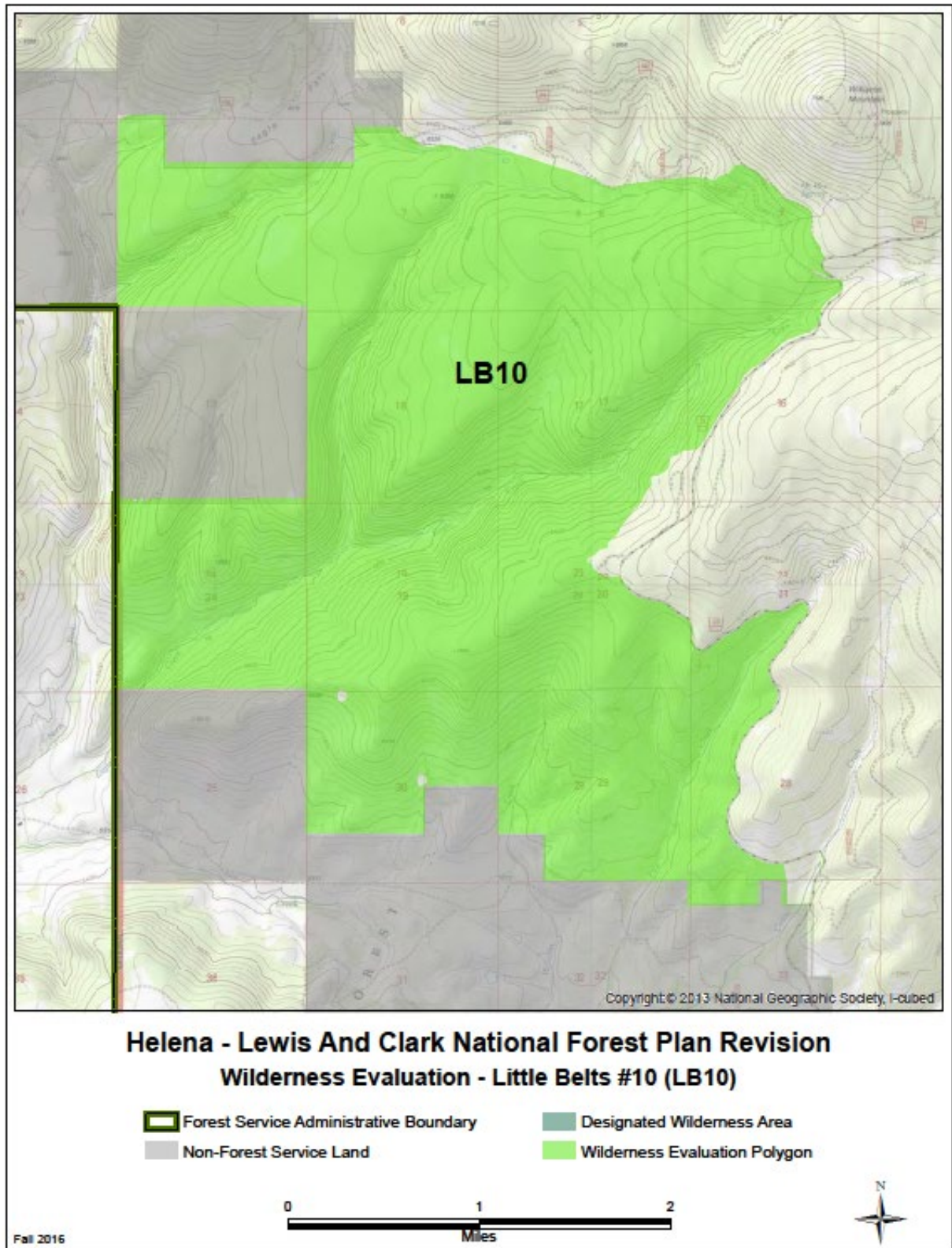
| Features                           | Description and scale   |
|------------------------------------|---|
| Rare plant communities             | No potential plant species of conservation concern are known to occur in this area.   |
| Rare animal species or communities | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: western toad<br>No rare aquatic species. |

| Features   | Description and scale  |
|--|--|
| Rare ecosystems  | Aspen communities are of interest on the HLC NF due to their limited abundance and habitat importance; aspen is present in very small amounts in this area.<br>No rare aquatic ecosystems. |
| Outstanding landscape features                               | No outstanding features.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 204. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Irregular polygon of moderate size. North, west and south sides are formed by private checkerboard ownership.   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | Private lands surrounding on north, west, and south but no private land inholdings.                             |
| Management of adjacent lands   | Private lands used for timber harvest, road building, and agriculture. Forest Service system lands on the east. |



### Calf Creek Area (LB11)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 205. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area are lodgepole pine dominated forests, which cover about 68% of the area. Douglas-fir dominated types are also common and growing on about 22% of the area. Subalpine fir and Engelmann spruce mixed forests are found at higher elevations, on 5% of the area. Dry grasslands cover about 3%. Trace amounts of other dominance types are present, representing 1% or less of the area each: shrublands, rock/scree, whitebark pine, limber pine, and aspen.   |
| Potential vegetation types  | The most common potential vegetation types are the cool moist forest types, representing 67% of the area. Warm dry forest types make up about 28%. Xeric grassland and xeric shrubland potential types each are found on about 2%. Trace amounts of riparian types can also be found.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 31 acres within LB11 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 3500 acres potential lynx habitat, with approximately 675 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 10,000 acres of goshawk potential nesting habitat. Approximately 700 acres existing, and 7000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 3500 acres secure elk habitat. Roughly 1600 acres elk calving habitat contiguous with additional calving habitat in WE polygon LB10 and other NFS and non-NFS lands. Moose may be present in riparian areas.</p> <p>Approximately 2700 acres potential wolverine habitat.</p> <p>No westslope cutthroat trout populations.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely.  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 206. Ecological conditions**

| Measures                                     | Outcome   |
|--|---|
| Percent of area without past timber harvest  | Records show that over 99.9% of this area is unaffected by past timber harvest. About 11 acres (0.08%) were impacted by harvests (salvage and clearcut) in 1957 and 1958. |
| Percent of area without known invasive weeds | According to data as of 2/10/2016, 99.8% of LB11 is not associated with invasive plant inventories.   |



| Measures   | Outcome  |
|--|--|
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 9%, Class 2: 91%<br>Grazing Impacts, motorized trails |
| Miles of motorized road/trail within 300' of streams                         | 11.6 miles, motorcycle trails along Calf and Allan Creeks.     |
| Noticeable wildfire suppression impacts                                      | No fire suppression impacts evident on landscape.              |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 207. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | The 11 acres of past harvest that occurred in this area in the 1950's affected 0.08% of the area and are no longer substantially noticeable due to the time that has passed. In addition, about 217 acres (1.72% of the area) have been impacted by prescribed fire treatments, consisting of underburns in 2012 and 2014. These treatments occurred near the southern boundary and were also determined to not be substantially noticeable due to their effects appearing similar to low severity wildfire. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | None   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1/10 <sup>th</sup> of a mile of fencing within LB11.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed camping on the periphery of the polygon and dispersed camping along Moose Creek Road.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Polygon has several motorized trails that cross the middle of the polygon.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are 20 recorded cultural resources within this polygon, all represent relics of past occupations.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.   |

| Improvement type   | Presence and extent of departure from naturalness |
|--|---|
| Number of miles of maintenance level 1 road templates.   | 0.4 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation | There are 12 recorded historic routes (75 miles). |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 208. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)          |
|---|--|
| Area available for summer motorized opportunity                     | Motorized trails throughout the polygon.   |
| Area available for winter motorized opportunity                     | Entire polygon is open for snowmobile use.   |
| Proximity to private lands and non-Forest Service roads             | Private lands to the south have harvest activities and cattle grazing. No private inholdings in the polygon. |
| Proximity to developed recreation sites outside of the polygon area | Calf Creek Rental Cabin, Sheep Creek Fishing Access, Moose Creek Campground.                                 |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 209. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation.                              | Two nonmotorized trail segments in West Fork of Calf Creek and Cabin Creek. Primitive nonmotorized recreation is limited.        |
| Primitive and semi-primitive non-motorized winter recreation                               | Most of the polygon is available for snowmobiling. Trail in West Fork of Calf Creek is available for primitive nonmotorized use. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, mountain biking, fishing, motorcycle use, dispersed camping and snowmobiling.                 |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Calf Creek Area (LB11) is 12,598 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

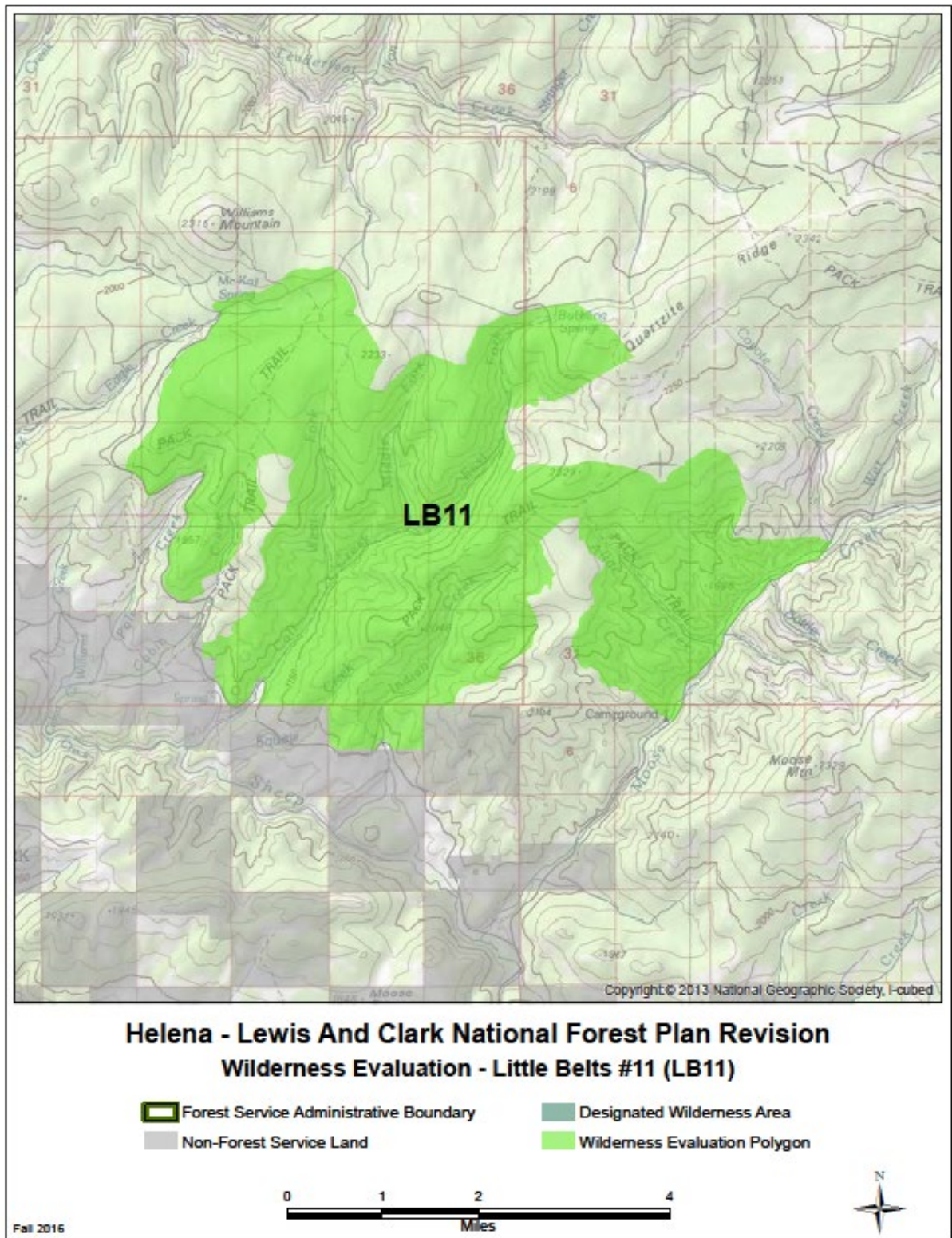
**Table 210. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Agoseris lackschewitzii</i> .   |
| Rare animal species or communities                           | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential state at risk species: wolverine.<br>No rare aquatic species.  |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and may be present in trace amounts in this area. Ponderosa pine, limber pine, and aspen are all vegetative communities of interest on the HLC NF and are also present in very small amounts.<br>No rare aquatic ecosystems. |
| Outstanding landscape features                               | Allen Park, Crescent Park, Williams Park  |
| Historic and cultural resource sites                         | All recorded cultural resource within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | None.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 211. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Moderate sized irregular shaped polygon south of Tenderfoot Creek Experimental Forest in Calf Creek and Pole Creek. Substantially noticeable timber harvesting and road building make intrusions into the polygon area. |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | Private lands to the south outside of the polygon. No private land inholdings.  |
| Management of adjacent lands   | Private lands to the south. Forest Service to the north, west, and east. Tenderfoot Creek Experimental Forest to the north.   |



## North Fork Smith Area (LB15)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 212. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area include subalpine fir and Engelmann spruce mixed forests, which cover about 34% of the area, and Douglas-fir dominated forests, which cover about 31%. Lodgepole pine forests are also found on 6%, and dry grasslands on 9%. A substantial portion – about 15% - of this area is considered “transitional”, where no dominance type is identified yet as forests are regenerating after a disturbance (the Ant Park fire). Whitebark pine forests are found on over 3% of this area. Other dominance types can be found in trace amounts – less than 1% of the area each – including shrublands and limber pine.   |
| Potential vegetation types  | The most common potential vegetation types are warm dry forest types, covering 46% of the area. Cool moist forest potential types are also common (39%), and cold forest types (where whitebark pine grows best) are found on about 5%. Dry grassland potential types are found on about 7% of the area. Other types that are present in small amounts include mesic grassland, mesic shrubland, and xeric shrubland potential types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 2 acres within LB15 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: Roughly 2500 acres potential lynx habitat, with approximately 1700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 3500 acres of goshawk potential nesting habitat, with some known nest territories. Both lynx and goshawk habitat of greatest value when in combination with similar habitat to SE, not in WE polygons. Approximately 400 acres existing, and 5400 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Presence of boreal owl also indicates functioning mature, high elevation forest with complex structure in some areas.</p> <p>Approximately 4200 acres secure elk habitat. Roughly 300 acres elk calving habitat and less than 150 acres winter range contiguous with additional calving and winter habitat on adjacent non-NFS lands.</p> <p>Approximately 5000 acres potential wolverine habitat with roughly 540 acres of potential maternal habitat. Moose may be present in riparian areas.</p> <p>No westslope cutthroat trout populations.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely present.  |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 213. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | 100% of this area has been unaffected by past harvest, according to available records.   |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9% of LB15 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 100%, but most impacts occur outside the polygon.   |
| Miles of motorized road/trail within 300' of streams                         | 0.2 miles  |
| Noticeable wildfire suppression impacts                                      | Lost Fork Fire (2001) & Ant Park Fire (2003): Dozer line rehabbed; dozer/hand lines in grass habitats/recovered; breaks in timber continuity in N. Fork Smith River & N. Fork Musselshell River. |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 214. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | This area has been unaffected by harvest. However, about 207 acres (just over 2% of the area) have been affected by prescribed burning, consisting of underburning in 1997 and 1998, and less than an acre of pile burning in 2003. Due to the type of treatment and time since treatment, these treated areas were determined to be no longer substantially noticeable. More expansive treatment areas do exist adjacent to the polygon. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 4.6 miles of fencing within LB15.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No outfitter camps. Dispersed recreation areas around Spur Park, Ant Park, along FSR 47 on the eastern boundary, and along the northern boundary of the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Two Dot powerline forms the east and northeast boundary.  |
| Presence of watershed treatment areas including contouring, diking, and channeling.   | None  |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Lands adjacent to development or activities that impact opportunities for solitude   | None present.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Ant Park Warming Hut. There are 4 recorded cultural resources within this polygon, all represent relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates  | 3.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | One recorded historic routes (6miles) lies within this polygon.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 215. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|---|---|
| Area available for summer motorized opportunity                     | No motorized trails within the polygon.   |
| Area available for winter motorized opportunity                     | Entire polygon available for snowmobiling.  |
| Proximity to private lands and non-Forest Service roads             | Private lands and BLM parcels to the south.   |
| Proximity to developed recreation sites outside of the polygon area | Ant Park Warming Hut.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 216. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized recreation in the summer.   |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized recreation in the winter, but cross-country snowmobiling is allowed but use is limited due to heavy timber. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, fishing, and snowmobiling.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The North Fork Smith Area (LB15) is 9,817 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 217. Features present**

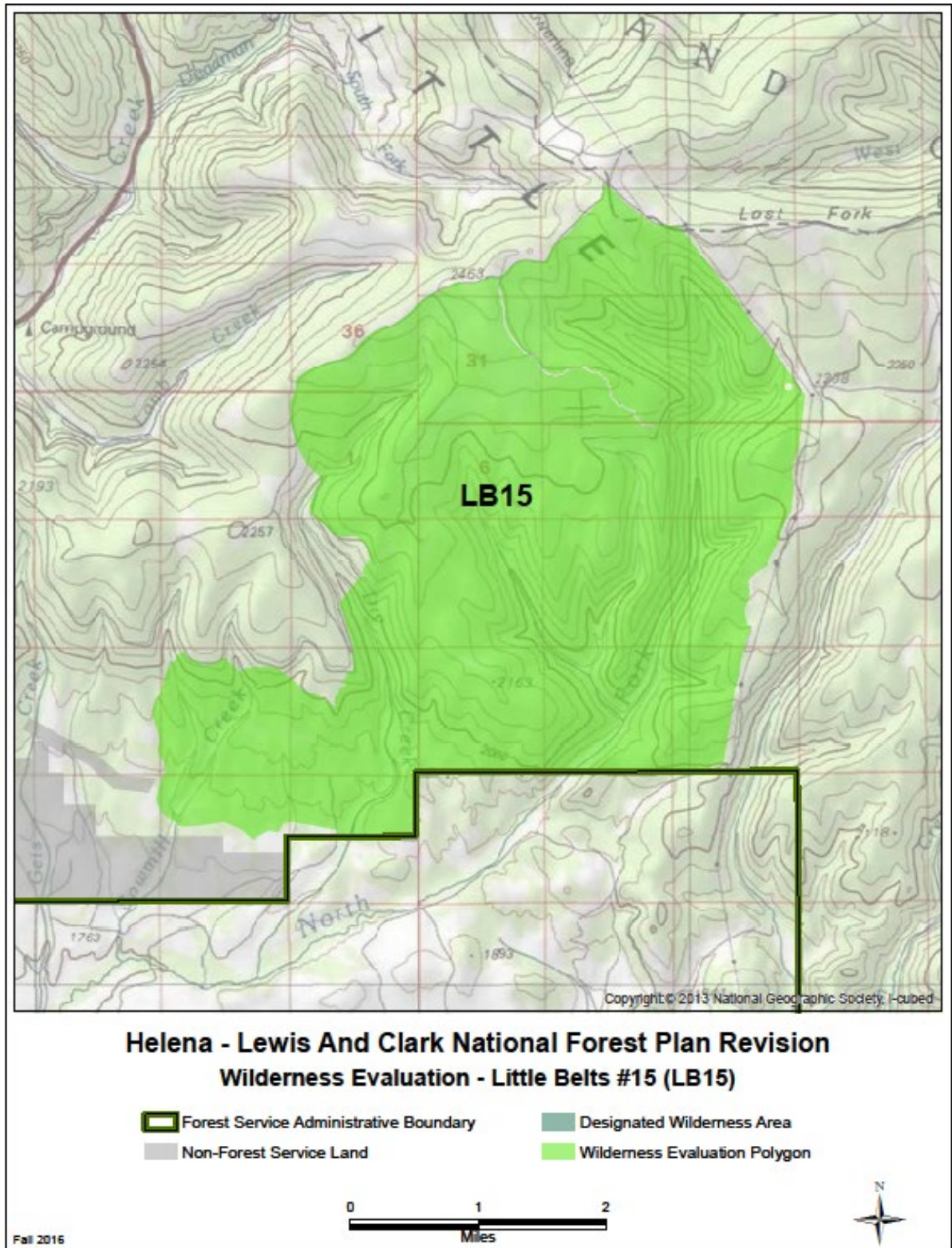
| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Cirsium longistylum</i> , and <i>Phlox kelseyii</i> var. <i>Missoulensis</i> .                           |
| Rare animal species or communities                           | Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: western toad.<br>No rare aquatic species. |
| Rare ecosystems  | Whitebark pine is a proposed species under the ESA and is present in this area. Limber pine communities are also of interest on the HLC NF and are found in small quantities.<br>No rare aquatic ecosystems.   |
| Outstanding landscape features                               | None present.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Very little water in polygon. Large spring (head of NF Smith) is on edge of polygon, but stream is dry within polygon.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 218. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | Smaller polygon in the upper end of the North Fork of Smith Creek.                       |
| Legally established rights or uses within the area   | Two Dot electrical line.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | None present.  |
| Management of adjacent lands   | Forest Service system lands on north, west and east. Private lands and BLM on the south. |





## Middle Fork Judith Area (LB16)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 219. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area consist of Douglas-fir dominated forests which can be found on about 41% of the area. Subalpine fir and Engelmann spruce mixes are also common, growing on over 22%. Lodgepole pine forests dominate about 15%. Dry grasslands are the next most common and are found on about 8% of the area. Limber pine forests are present on nearly 6%. Other dominance types are present in very small amounts – covering 1% or less of the area each – including shrublands, ponderosa pine, rock/scree, and whitebark pine. Although several large fires have occurred in this area over the years, only 2% are still considered in “transition” (or regenerating).   |
| Potential vegetation types  | This area is dominated by cool moist forest potential vegetation types, which are found on 55% of the area and likely to support lodgepole pine, subalpine fir, and Engelmann spruce along with Douglas-fir. About 33% of the area has warm dry forest potential types, where Douglas-fir is also common. About 7% of the area has a dry grassland potential type, and nearly 2% has a cold forest type where whitebark pine is most likely to grow. Small amounts of other potential vegetation types are present, including shrubland and riparian types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 104 acres within LB16 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 46,000 acres potential lynx habitat, with approximately 34,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 50,000 acres of goshawk potential nesting habitat, with some known nest territories. Both lynx and goshawk habitat of greatest value when in combination with similar habitat to SE, not in WE polygons. Approximately 19,000 acres existing and over 40,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</p> <p>Approximately 57,000 acres secure elk habitat. Roughly 17,000 acres elk calving habitat and less than 1200 acres winter range contiguous with additional calving and winter habitat on adjacent non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Approximately 41,000 acres potential wolverine habitat with roughly 5700 acres of potential maternal habitat. Black rosy finches documented. Westslope cutthroat trout populations in Elk, Yogo, WF Stiner, Corral, Harrison, Cleveland, and Weatherwax Creeks and Lost Fork Judith River.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native fish likely present.   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 220. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | Over 99% of the area is unaffected by past timber harvest. Records indicate that about 199 acres have been harvested in the past, consisting of commercial thinning, salvage, shelterwood, and clearcutting activities that occurred from 1958 to 1985.   |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9% of LB16 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 25%, Class 2: 50%, Class 3: 25%; Lower Middle Fork Judith River (and watershed) heavily impacted by road crossings and grazing. Upper Watershed, Cleveland Creek, high quality.  |
| Miles of motorized road/trail within 300' of streams                         | 27.8 miles  |
| Noticeable wildfire suppression impacts                                      | <p><i>Sandpoint fire (1985) &amp; Russian Flats Fire (2008)</i>: All dozer/handlines rehabbed; breaks in timber continuity; old rotten stumps from fireline suppression efforts.</p> <p><i>Lost Fork Ridge Fire (2000)</i>: Dozerline rehabbed; dozer/hand lines in grass habitats/recovered; breaks in timber continuity in W. Fork Lost Fork Creek, Burris and Sandpoint Creek.</p> <p><i>Lost Fork Fire (2001)</i>: Dozerline rehabbed; dozer/hand lines in grass habitats/recovered; breaks in timber continuity in N. Fork Smith River &amp; N. Fork Musselshell River.</p> <p><i>Ant Park (2003)</i>: Dozerline rehabbed; 200' wide fuel break created by fellerbuncher and 100% timber removed within corridor; breaks in timber continuity. Powerline ROW clearing. Hazardous tree harvest along road to N.fork Smith River and where ties in with Sandpoint fire scar.</p> |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 221. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | Russian Flats Airstrip not in but south of the polygon.   |
| Presence of timber harvest or prescribed fire areas   | Past harvest has impacted less than 1% of the area (199 acres) from 1958 to 1985 – due to the time since treatment and/or type of treatment, these areas have been determined to not be substantially noticeable today. Additional areas (about 414 acres) have been impacted by prescribed burning treatments as well, consisting primarily of pile burning from 1982 to 2003. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters | None present.   |
| Areas of mining activities including both abandoned and active mines  | A few abandoned mines on north and west side of polygon.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements                                | According to current data there is approximately 1/10 <sup>th</sup> of a mile of fencing and 7 stock water tanks within LB16. In addition, there have been 321 acres of vegetation improvements conducted   |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| (chaining, burning, spraying, potholing, and so forth)  | within LB16.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Two outfitter camps on Forest Service; both within the Lost Fork Judith. Dispersed camping scattered throughout.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Two Dot electrical line borders the polygon on the southwest side.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Motorized roads and trails on the north side of the polygon including: Woodchopper Ridge trail, Kelly Mountain trail and Middle Fork Judith road. Private land in the middle of the polygon. Additional motorized trails and use on the periphery of the polygon. |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Burris Cabin in Lost Fork Judith Creek.<br>There is approximately 84 recorded cultural resources within this polygon, all represent relics of past occupations.   |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are 21 recorded historic routes (97 miles) within this polygon.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 222. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | Motorized trails limited to the northeast portion of the polygon. Open road to private lands in the Middle Fork Judith drainage.   |
| Area available for winter motorized opportunity                     | Open to snowmobile use in the outer 1-mile perimeter of the polygon. Core of the polygon is closed to snowmobile use.  |
| Proximity to private lands and non-Forest Service roads             | Private land inholdings within the core of the polygon. Private lands in the Grendah Mountain and Yogo Peak areas.   |
| Proximity to developed recreation sites outside of the polygon area | Judith Guard Station cabin rental, Judith Campground. Holiday Camp Trailhead, Indian Hill Campground, Hay Canyon Campground, Dry Pole Campground, Musselshell Warming Hut, Bear Gulch SST, recreation residences in Middle Fork Judith and on Sandpoint Ridge. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 223. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Majority of the area is available for primitive and semi-primitive non-motorized recreation in summer.   |
| Primitive and semi-primitive non-motorized winter recreation                               | Majority of the area is available for primitive and semi-primitive non-motorized recreation in winter.   |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Horseback riding, fishing, hunting, mountain biking, motorcycle riding, ATV riding, dispersed camping, cross country skiing, snowshoeing outfitting in the fall, and snowmobiling along the periphery. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Middle Fork Judith Area (LB16) is 98,311 acres. This area is also a wilderness study area.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

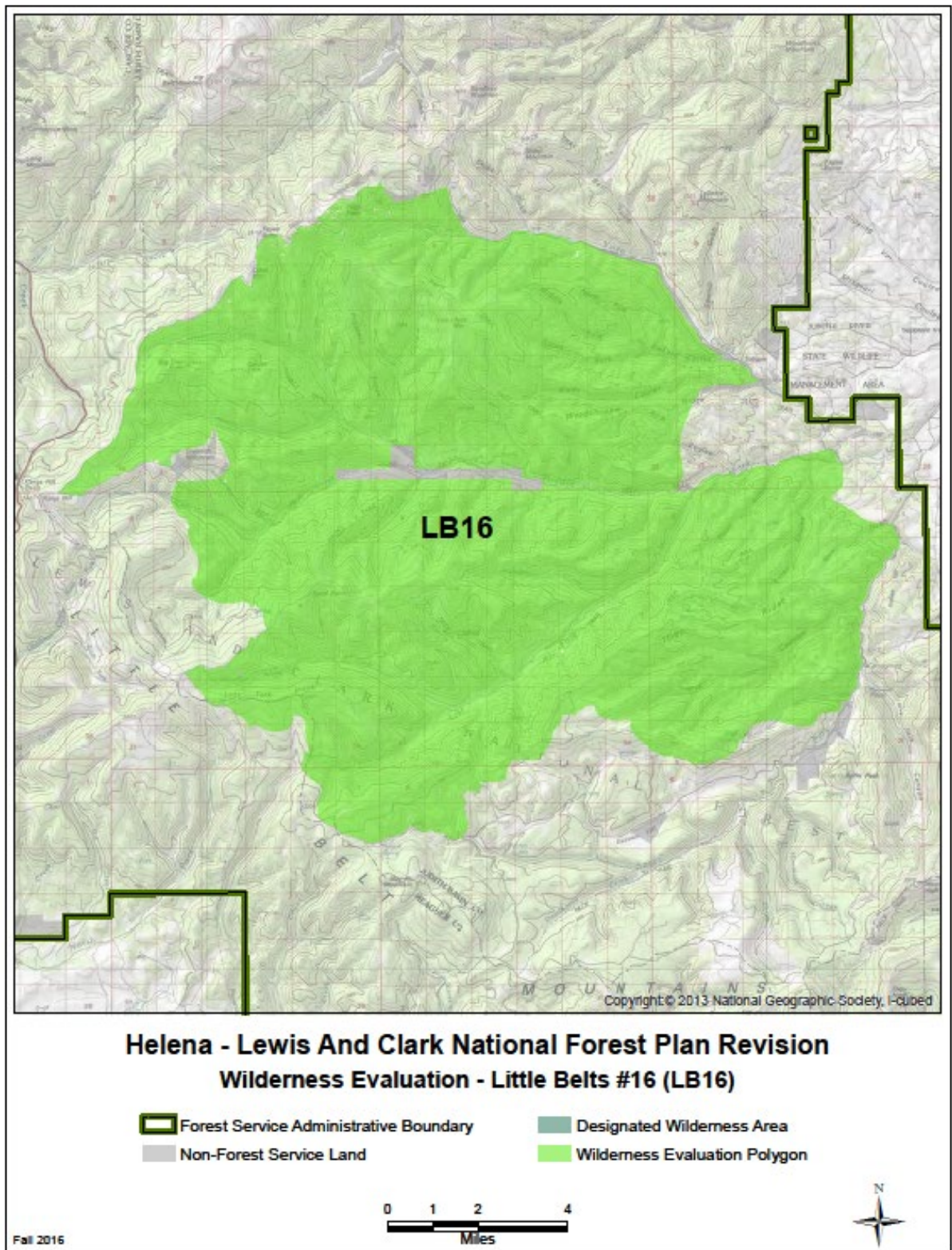
**Table 224. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Phlox kelseyii</i> var. <i>Missoulensis</i> , <i>Goodyera repens</i> ; <i>Cirsium longistylum</i> , and <i>Aquilegia brevistyla</i> .  |
| Rare animal species or communities                           | Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: wolverine, black rosy finch, western toad, dwarf shrew<br>Multiple drainages with westslope cutthroat trout populations, see above. |
| Rare ecosystems  | Whitebark pine is a proposed species under ESA and is present in small amounts in this area. Limber pine forests are more extensive here and are a vegetative community of interest on the HLC NF.<br>No rare aquatic ecosystems known   |
| Outstanding landscape features                               | Middle Fork Judith River, Yogo Peak is on the northern boundary.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Upper watershed/ Cleveland Creek high quality. Middle and South Fork (on southeast boundary of polygon) Judith River on list of potentially eligible WSRs. Both streams are listed for outstanding cultural values, and the South Fork is also listed for the outstanding westslope cutthroat trout fishery.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 225. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | This large polygon takes in the upper most reaches of the Middle Fork of the Judith River. There are some private land inholdings within the center of the polygon but otherwise very little development. |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Majority of the area is designated the Middle Fork Judith Wilderness Study Area.  |
| The presence and amount of non-Federal land in the area  | Private land inholdings in the center of the polygon. Private lands in the Grendah Mountain and Yogo Peak area.   |
| Management of adjacent lands   | Polygon surrounded by Forest Service system lands. Judith River State Wildlife Management area outside of the polygon to the northeast.   |



### East Little Belts Area (LB18)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 226. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area are forests dominated by Douglas-fir, which cover over 42% of the area. Roughly 21% of the area has lodgepole pine dominated forest cover, and subalpine fir and Engelmann spruce mixes are found on 15%, at the higher elevations. Limber pine dominated forests also represent a fairly substantial amount of the area (over 13%), and dry grasslands are present on about 4%. Trace amounts (generally covering 1% or less of the area each) of other dominance types are also present, including shrublands, ponderosa pine, whitebark pine, and juniper. Nearly 2% is considered sparsely vegetated (i.e., scree or rock).   |
| Potential vegetation types  | The most common potential vegetation types are warm dry forest types, representing over 56% of the area. These sites likely support most of the ponderosa pine, limber pine, and Douglas-fir forests described above. Cool moist forest potential vegetation types are also common, on 38% of the area, and likely correspond to the lodgepole pine, subalpine fir, and Engelmann spruce forests. Dry grassland types are found on about 3%. Trace amounts of other potential vegetation types are also present, including cold forest (where whitebark pine may be found), shrubland, and riparian types.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 1,369 acres within LB18 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 37,000 acres potential lynx habitat, with approximately 21,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 58,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 6500 acres existing and over 50,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Clark’s nutcracker presence indicates mature whitebark, limber, and/or ponderosa pine communities.</p> <p>Approximately 36,000 acres secure elk habitat. Roughly 5700 acres elk calving habitat and 11,000 acres winter range contiguous with additional calving and winter habitat on adjacent non-NFS lands. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Approximately 25,000 acres potential wolverine habitat with roughly 900 acres of potential maternal habitat.</p> <p>No westslope cutthroat trout populations.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely present.  |



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 227. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | About 99.9% of this area has had no past timber harvest. Roughly 102 acres were affected by past harvest according to available records, consisting of commercial thinning, salvage cutting, and single-tree selection cutting that occurred from 1960 to 1993. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.7% of LB18 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 36%, Class 2: 62%, Class 3: 2%<br>Impacts are primarily motorized trails and grazing.  |
| Miles of motorized road/trail within 300' of streams                         | 105 miles   |
| Noticeable wildfire suppression impacts                                      | No fire suppression impacts evident on landscape.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 228. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | In addition to the 102 acres of past harvest (0.1% of the area), consisting of commercial thinning, salvage cutting, and single-tree selection cutting that occurred from 1960 to 1993, there have also been about 1,514 acres (1.43% of the area) of prescribed fire treatments in this area. The fire treatments consisted of broadcast burning, jackpot burning, and underburning from 1963 to 2015. 98.48% of the area remains unaffected by vegetation treatments. Due to the time since treatment and/or the type of treatment (fire), none of the treatments within the evaluation boundary are considered to be substantially noticeable. The treatments are generally clustered in one area (near Jellison Place) and could be excluded from the polygon if desired. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | Communication sites on Mount High and one on Stevens Butte. Mount High has a small building. The site on Steven Butte has a large cinder block building and towers with evidence of old electrical lines.   |
| Areas of mining activities including both abandoned and active mines  | There are a few abandoned mines on the west end of the polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there is approximately 4 miles of fencing and 15 stock water tanks within LB18.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Outfitter camps in Jellison Place and Antelope Gorge. Dispersed camping throughout.   |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Old electrical lines to Stevens Butte communication site.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Heavy dispersed recreation on the southern and western borders of the polygon. Motorized trails throughout the polygon.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Stevens Butte building. Buildings associated with Lucky Boy mine in Basin Creek.<br>There are approximately 60 recorded cultural resources within this polygon, all represent relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.4 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are 16 recorded routes (67 miles) within this polygon.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 229. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | The entire polygon has authorized motorized jeep, ATV and motorcycle trails for summer recreational use.   |
| Area available for winter motorized opportunity                     | Southern portion of the polygon is open for snowmobile motorized use. Bartleson RNA is closed for winter motorized use.  |
| Proximity to private lands and non-Forest Service roads             | Private agriculture lands on the northern, eastern and southern boundaries of the polygon.   |
| Proximity to developed recreation sites outside of the polygon area | Jellison Place Trailhead and Campground, Basin Creek, Spring Creek Campground, Daisy Dean Campground and Trailhead, Haymaker dispersed site, Dry Pole dispersed site, Pierce Park Trailhead. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 230. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | There are limited opportunities for primitive and semi-primitive non-motorized recreation in the summer.                             |
| Primitive and semi-primitive non-motorized winter recreation                               | The northern portion of the polygon has some opportunity for primitive and semi-primitive non-motorized recreation in the winter.    |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, horseback riding, fishing, hiking, snowmobiling, motorbike riding, ATV riding, jeep trail/UTV riding and dispersed camping. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The East Little Belts Area (LB18) is 106,178 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

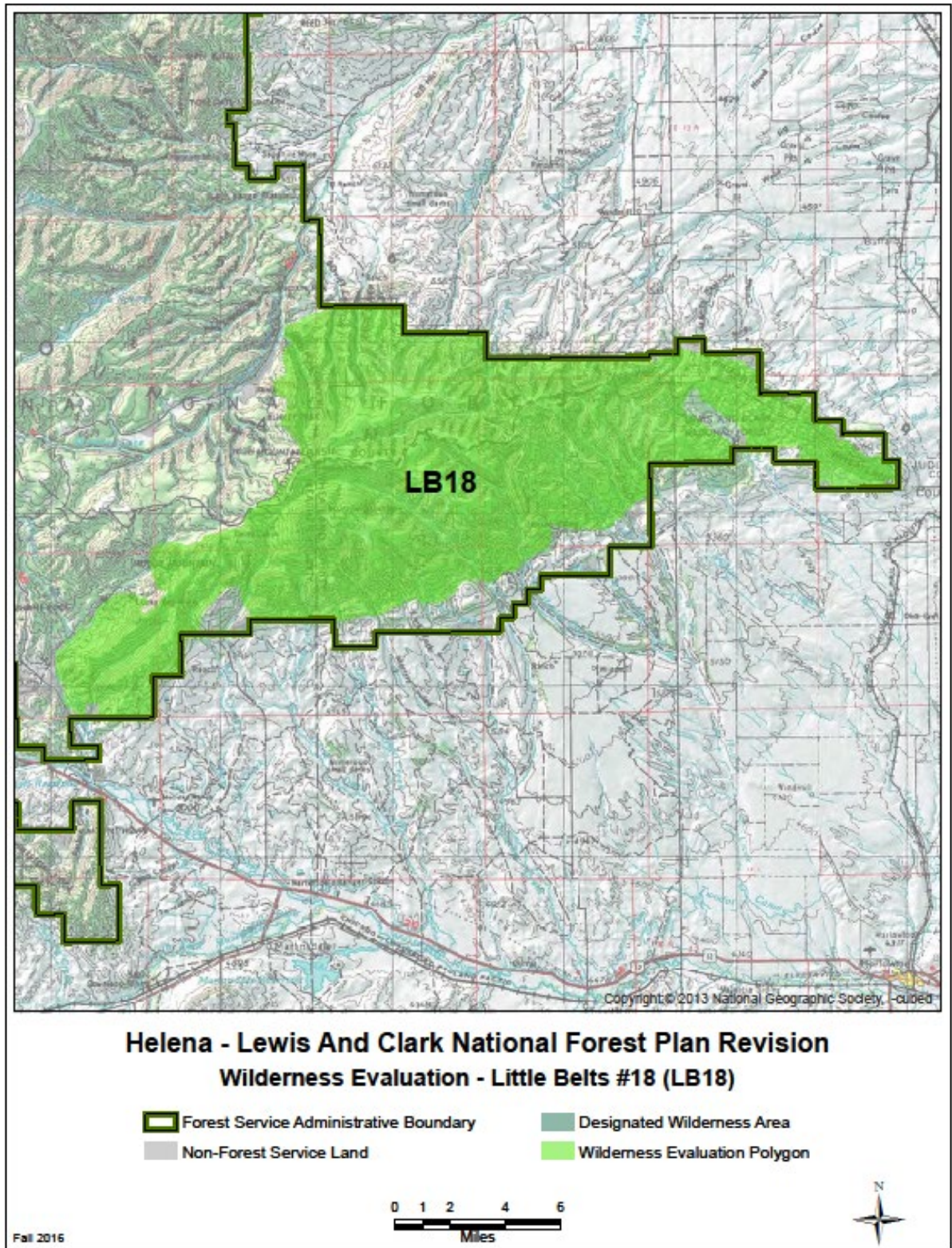
**Table 231. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Aquilegia brevistyla</i> , <i>Goodyera repens</i> , <i>Cirsium longistylum</i> , and <i>Polygonum douglasii</i> spp. <i>Austinae</i> .  |
| Rare animal species or communities                           | Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx.<br>Potential species of conservation concern and/or state at risk species: none documented.<br>No rare aquatic species present.   |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in trace amounts in this area. Limber pine communities are also of interest on the HLC NF because they are generally rare and under consideration as a potential SCC; this forest type is present in relatively high abundance in this area, as are the characteristic rocky, limestone ridges where it thrives.<br>No rare aquatic ecosystems present. |
| Outstanding landscape features                               | Daisy Notch, Morrisy Narrows, Haymaker Narrows, Nevada Narrows, Daisy Narrows   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.   |
| Research natural areas                                       | Bartleson Peak  |
| High quality water resources or important watershed features | None  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 232. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | A large linear shaped polygon that stretches from Dry Pole Canyon/Daisy Peak east to the Forest Service boundary in Roberts Creek. The polygon includes both sides of the divide between the Musselshell and Judith Ranger Districts.   |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Haymaker WMA is located south and outside of the polygon.   |
| The presence and amount of non-Federal land in the area  | Private lands surround the polygon but no private land inholdings.  |
| Management of adjacent lands   | Private agriculture lands on the norther, eastern and southern boundaries of the polygon. Forest Service system lands along portions of the southern boundary as well as the western boundaries. BLM lands along the northern boundary. |



## Rocky Mountain Range Geographic Area

### Badger Two Medicine Area (RM1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 233. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types in this area include Douglas-fir dominated forests (covering about 22%); lodgepole pine dominated forests (covering 15%), and subalpine fir and Engelmann spruce mixed forests (covering 24%). There is a substantial amount of the area that is sparsely vegetated (14%), due to rocky and cliffy areas; and about 7% is covered by grasslands. In addition, a substantial proportion of the area (15%) is considered to be “transitional” in terms of vegetation due to recent wildfire activity. In these areas, forests will likely regenerate but are not yet typed. The recent fires include the Skyland, Challenge Creek, and Family Peak fires which affected more than half of the area. Trace amounts of other dominance types are also present, including shrublands, whitebark pine, limber pine, cottonwood, and aspen.  |
| Potential vegetation types  | The area is dominated by cool moist forest potential vegetation types, which are found on about 52% and likely support mixes of Douglas-fir, lodgepole pine, subalpine fir, and Engelmann spruce. About 22% of the area has a warm dry forest potential vegetation type, where Douglas-fir is also common. About 4% of the area has a cold forest potential type, where whitebark pine is most likely to be found. Dry grassland types make up about 4%, and mesic grasslands about 2%. The sparsely vegetated areas (14%) do not have a potential vegetation type. Trace amounts of shrubland and riparian potential types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 2,596 acres within RM1 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 55,000 acres potential lynx habitat, with approximately 17,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 28,000 acres of goshawk potential nesting habitat, at least 3 known nesting territories.</p> <p>Big game: Approximately 120,000 acres secure elk habitat. 24,000 acres elk winter range and 9500 acres elk calving habitat, both tied to similar on adjoining Blackfeet Indian Reservation. Moose present. Up to 60,000 acres mountain goat habitat including kidding areas</p> <p>Functioning subalpine/alpine habitat: Roughly 84,000 acres of potential wolverine habitat including 46,000 acres potential maternal habitat.</p> <p>Grizzly bears, wolves present.</p> <p>Harlequin ducks in most major streams.</p> <p>Westslope cutthroat trout present in South Fork Two Medicine River and tributaries as well as North Badger, Lee, Badger Cabin, Red Poacher, South Badger, Lonesome, Muskrat, and</p> |

| Plant and animal communities      | Composition  |
|-----------------------------------|--|
|                                   | Elbow Creeks. The South Badger and tributaries portion is a meta-population.       |
| Known non-native wildlife species | No non-native terrestrial wildlife species documented.<br>Non-native trout likely. |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 234. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | Over 99.8% of the area has been unaffected by past timber harvest. Available records show that about 224 acres were harvested in the past, consisting of commercial thinning and single-tree selection in 1987 and a patch clearcut in 2002. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 97.9% of RM1 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 85%, Class 2: 15%; All impacts are downstream of the polygon  |
| Miles of motorized road/trail within 300' of streams                         | 2.3 miles  |
| Noticeable wildfire suppression impacts                                      | Skyland Fire (2007) & Family Peak Fire (2015): Dozer and hand lines rehabbed, some still evident on landscape on northeastern boundary of fire perimeter.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 235. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | Over 99% of the area has been unaffected by past vegetation treatments. In addition to the 224 acres of harvest that occurred, about 17 acres were affected by pile burning. None of these treatments are considered substantially noticeable. Substantial recover time has occurred since the thinning and selection treatments which left ample reserve trees. A patch clearcut would typically be considered noticeable, but aerial imagery and District expertise determined that this treatment was also not noticeable. There may have been other historic treatments in the area, or the exercising of tribal rights related to harvest, which are not recorded in the available data. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | Electronic site on Mount Baldy and Half Dome Crag are visible from within RM1.  |
| Areas of mining activities including both abandoned and active mines  | One abandoned mine in Muskrat Creek.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | Fences in the northern and eastern part of the parcel.  |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | One active outfitter base camp at the confluence of Benson and Two Medicine River. Summit Campground and Trailhead along Highway 2 (not touching the polygon). There is a trail access point at Palookaville. |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Utility corridor along Highway 2 but is outside of polygon. None within polygon.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Railway, utility corridor, and campground along Highway 2. Electronic site on Mount Baldy which is access by SUP road.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are 69 recorded cultural resources within this polygon, all represent relics of past occupation. The Badger-Two Medicine Traditional Cultural District is also within this polygon.                     |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.1 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | Twenty-four recorded historic routes (122 miles) are within this polygon. Most of these routes are historic trails.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. *What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 236. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | There are no areas available for summer motorized recreation in this polygon.  |
| Area available for winter motorized opportunity                     | There are no areas available for winter motorized recreation in this polygon   |
| Proximity to private lands and non-FS roads                         | Private land inholdings on the north and east.   |
| Proximity to developed recreation sites outside of the polygon area | Summit Campground, Summit TH, False Summit, and Lubec TH along Highway 2. Can hear these activities from within the polygon. Can hear the train from the Badger Cabin. |

Question 2b. *What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*



**Table 237. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.  |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized winter recreation.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, outfitting, horseback riding, hiking, fishing, mountain biking (not specifically designed), cross country skiing in the north end. Unauthorized snowmobiling occurring in Pool Creek and Crescent Cliffs. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Badger Two Medicine Area (RM1) is 125,795 acres. This area lies adjacent to the Bob Marshall wilderness complex to the west.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 238. Features present**

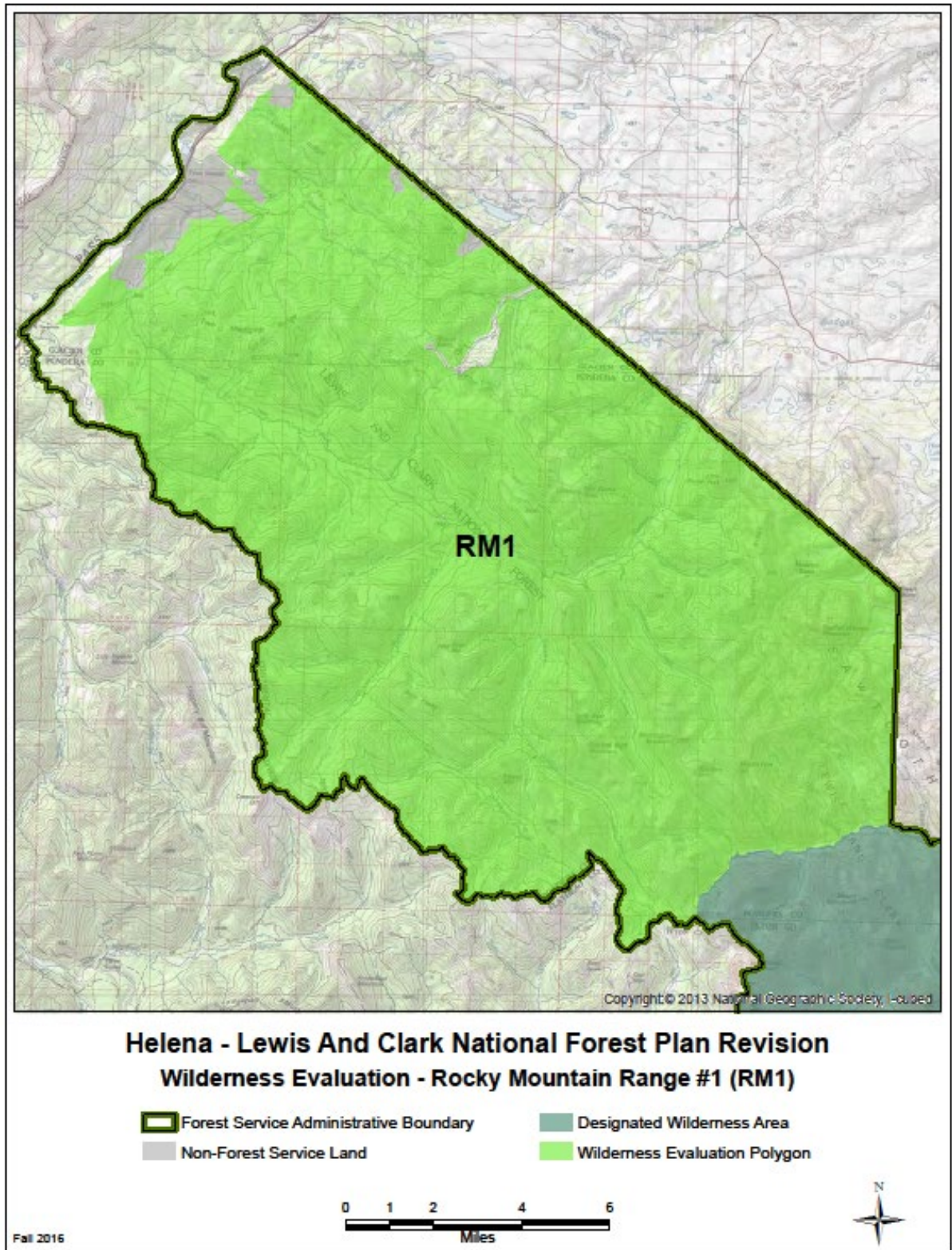
| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Polygonum douglasii</i> spp. <i>Austinae</i> , <i>Saussurea densa</i> , <i>Potentilla nivea</i> var. <i>pentaphylla</i> , <i>Physaria saximontana</i> far. <i>Dentate</i> , Northern wildrye, <i>Cypripedium passerinum</i> , <i>Antennaria pulvinata</i> , and <i>Allium fibrillum</i> . |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (within designated Critical Habitat).<br>Potential species of conservation concern and/or state at risk species: wolverine, harlequin duck, western toad, possibly transient fisher, possibly white-tailed ptarmigan.<br>Westslope cutthroat trout populations, see above.   |
| Rare ecosystems  | A relatively long list of potential plant SCC's are found here. Whitebark pine is a proposed species for listing under the ESA and is found in trace amounts.<br>Westslope cutthroat trout meta-population in Badger Creek and tributaries.   |
| Outstanding landscape features                               | Waterfalls and river canyons on Badger Creek and Two Medicine River. Scenic river drainages in Two Medicine River, Badger, and North Fork Birch Creek (WSR). Really high subalpine and alpine mountains along the southern portion of the polygon. Unique place names such as Kill 'em Quick Creek and adopted native names for mountains in there.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value, especially the Badger-Two Medicine Traditional Cultural District.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | High quality water throughout polygon, high quality fisheries habitat. North Badger Creek and 3 tributaries (Lee Creek, Red Poacher Creek and Badger Cabin Creeks) are included on the  |

| Features | Description and scale  |
|----------|--|
|          | draft list of eligible WSRs for their outstanding westslope cutthroat trout meta-population. South Fork Two Medicine, North Fork and South Fork Badger, and North Fork Birch Creeks are all included on the draft list of eligible WSRs for their outstanding cultural values. |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 239. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | The Badger Two Medicine is a large, well known landscape at the northern tip of the Rocky Mountain Ranger district. It borders the Bob Marshall Wilderness complex as well as the Blackfoot Reservation and is influenced by private lands and activity along the Highway 2 corridor along the northern boundary. |
| Legally established rights or uses within the area   | The 1895 Agreement with Blackfeet Nation concerning the ceded strip which gives rights to value of ceremonial, spiritual and personal use. There are 4 oil and gas lease holders with 19 leases predominantly within the northwest half of the area.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | National Systems Trails Act (CDNST)   |
| The presence and amount of non-Federal land in the area  | Private land inholdings on the north end and along the reservation boundary.  |
| Management of adjacent lands   | Bob Marshall Wilderness Complex to the south and southwest on both the Flathead and the HLC NF. Flathead NFS lands are non-wilderness to the west. Glacier Park to the northwest. Blackfeet Reservation land on the east and northeast.   |



## Teton Blackleaf Area (RM2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 240. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area include Douglas-fir dominated forests, which are found on 32% of the area, and subalpine fir and Engelmann spruce forests, which are found on 25%. Lodgepole pine forests are less common, covering about 5%, and grasslands can also be found on about 7%. A notably high proportion of this area is sparsely vegetated (20%), such as cliffy rocky areas. In addition, about 10% of the area is “transitional”, meaning that the site is reforesting after a disturbance and doesn’t have a vegetation type yet. These areas are associated with recent wildfire areas, primarily the Fool Creek fire. Small amounts of other dominance types are also present, generally making up about 1% or less of the area each: shrublands, whitebark pine, limber pine, cottonwood, and aspen.  |
| Potential vegetation types  | The most common potential vegetation types in this area are warm dry forest potential types and cool moist forest types (each found on about 33% of the area). Much of the remainder of the area is covered by sparsely vegetated areas (rock/scree often found above treeline and making up 20% of the area). Cold forest potential types are also found on about 6%, where whitebark pine would most likely be found, and dry grassland types represent nearly 5%. Riparian potential types are found on about 2%, where aspen and cottonwood are most likely to be found. Trace amounts of shrubland types are also present.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 601 acres within RM2 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 19,000 acres potential lynx habitat, with approximately 5300 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 9,000 acres of goshawk potential nesting habitat, at least 3 known nesting territories. Presence of Clark’s nutcracker indicating mature whitebark and/or limber pine.</p> <p>Big game: Approximately 40,000 acres secure elk habitat. 11,000 acres elk winter range part of which adjoins state managed Blackleaf and Ear Mountain Wildlife Management Areas; and 7900 acres elk calving habitat. Moose present adjoins key moose winter habitat in Pine Butte Swamp Preserve (owned by The Nature Conservancy). Up to about 35,000 acres mountain goat habitat including kidding areas; up to 13,000 acres bighorn sheep habitat including about 2200 acres lambing habitat.</p> <p>Functioning subalpine/alpine habitat: Roughly 31,000 acres of potential wolverine habitat including 3900 acres potential maternal habitat.</p> <p>Grizzly bears, wolves present.</p> <p>Harlequin ducks in most major streams.</p> |

| Plant and animal communities      | Composition  |
|-----------------------------------|--|
|                                   | Habitat for cliff-nesting raptors, including peregrine falcon, golden eagle, prairie falcon.<br>Westslope cutthroat trout in NF and SF Dupuyer, North Fork, Middle Fork, and South Fork Teton Creeks, Green Gulch, Rierdon Gulch, and Waldron, SF Waldron Creeks |
| Known non-native wildlife species | No non-native terrestrial wildlife species documented.<br>Likely non-native trout present.   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 241. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | About 96.6% of this area has been unaffected by previous harvest. Available records show that about 1,891 acres have been harvested from 1982 to 1999. The most common treatment was the creation of fuel breaks. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.9% of RM2 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 84%, Class 2: 9%, Class 3: 6%. Impacts from past fire to water quality, channel conditions   |
| Miles of motorized road/trail within 300' of streams                         | 13.08 miles   |
| Noticeable wildfire suppression impacts                                      | Fool Creek Fire (2007): hand lines rehabbed; little to no impacts evident on landscape due to use of existing roads/trails and terrain features.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 242. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None preset  |
| Presence of timber harvest or prescribed fire areas   | When considering both fire and prescribed fire, about 93% of this area has been unaffected by treatments. In addition to the 1,891 acres of harvest, primarily fuel break creation from 1997 to 1999, there have also been about 1,446 acres of pile burning from 1980 to 2010. Many of this pile burn areas overlap and are associated with the fuel break treatments; therefore, the actual footprint of affected area is less than indicated by these numbers. Further, aerial photography and District personnel expertise determined that none of these treatment areas are substantially noticeable today. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters | Electronic site visible on Mount Wright.   |
| Areas of mining activities including both abandoned and active mines  | One abandoned mine within polygon  |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data, there are no range improvements within RM2.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Teton Pass Ski Resort. West Fork, Cave Mountain, Mill Falls, and Elko CG. West Fork, Blackleaf, Cave Mountain, Rierdon, Jones creek, and South Fork Teton THs. Snowmobile parking lot on North Fork Teton Road. Dispersed camping along Blackleaf Canyon road, north fork Teton road, south fork Teton road and green gulch road. Outfitter end of road facility at West Fork Teton confluence with North Fork Teton. 7 Lazy P Guest ranch located on the Middle fork of the Teton river. Seven rec. residences along the North Fork Teton River. |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Utilities up the Teton River to the Ski area. Power also to Cave Mountain and the 7 lazy P. Phone lines are buried in the shoulder.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | Signs of dozer work for channeling of Middle Fork and North Fork Teton Rivers subsequent to the 1964 flood.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | None present.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are 43 recorded cultural resources within this polygon, all represent relics of past occupation.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 1.8 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are 16 recorded historic routes (103 miles) in this polygon.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. *What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 243. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity | The North Fork Teton and South Fork Teton roads provide the only motorized access into this polygon. |

| Impacts  | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|--|--|
| Area available for winter motorized opportunity                      | Snowmobiles are permitted along the North Fork Teton, South Fork Teton and South Waldron river corridors. There is a small winter play area in the upper South Waldron Creek area.   |
| Proximity to private lands and non-Forest Service roads.             | None present.  |
| Proximity to developed recreation sites outside of the polygon area. | Teton Pass Ski Resort. West Fork Campground, Cave Mountain, Mill Falls, and Elko CG. West Fork, Blackleaf, Cave Mountain, Rierdon, Jones creek, and South Fork Teton THs. Snowmobile parking lot on North Fork Teton Road. Dispersed camping along Blackleaf Canyon road, north fork Teton road, south fork Teton road and green gulch road. Outfitter end of road facility at West Fork Teton confluence with North Fork Teton. 7 Lazy P Guest ranch located on the Middle fork of the Teton river. Seven Rec Residences along the North Fork Teton River. West Fork Rental cabin which sits on the North Fork Teton River. Activities at these sites create sights and sounds that are visible within the polygon. The road system and activities along create noise but there is still lots of opportunity for solitude once away from these roads. |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 244. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Except for the North Fork Teton and South Fork Teton roads, the entire polygon provides opportunities for primitive and semi-primitive non-motorized summer recreation.                |
| Primitive and semi-primitive non-motorized winter recreation                               | Except for the North Fork Teton, South Fork Teton and South Waldron areas, the entire polygon provides opportunities for primitive and semi-primitive non-motorized winter recreation. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, fishing, snowshoeing, cross country skiing, backcountry downhill skiing and snowboarding, technical rock climbing, snowmobiling, and outfitting.                      |

**Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.**

The Teton Blackleaf Area (RM2) is 54,251 acres. This area lies adjacent to the Bob Marshall Wilderness Complex to the west.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 245. Features present**

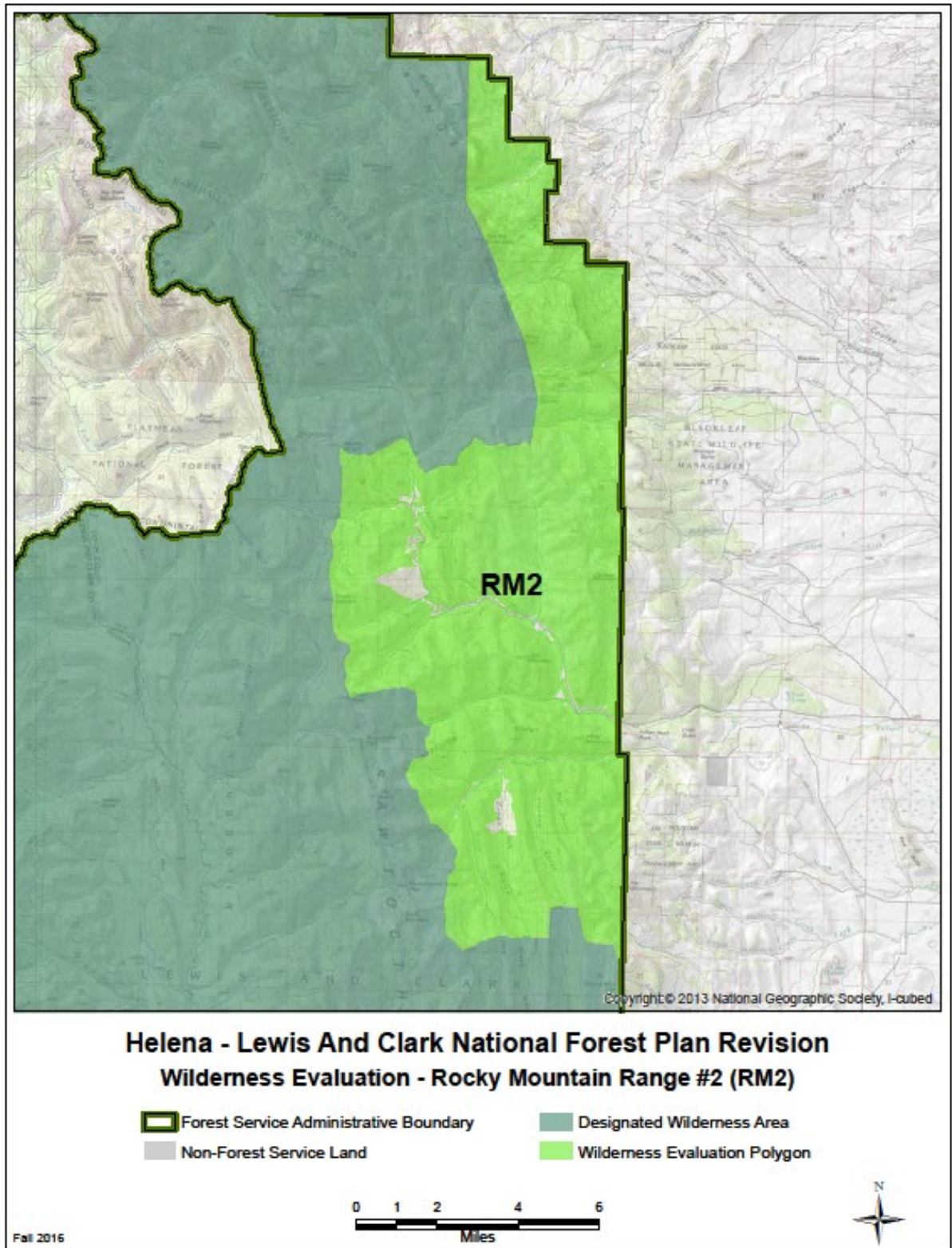
| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Ranunculus pedatifidus</i> , <i>Erigeron lackschewitzii</i> , <i>Physaria saximontana var. dentate</i> , <i>Oxytropis podocarpa</i> , <i>Saussaurea densa</i> , <i>Botrychium spp.</i> , and <i>Astragalus lackschewitzii</i> .                             |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (within designated Critical Habitat).<br>Potential species of conservation concern and/or state at risk species: wolverine, harlequin duck, pika, peregrine falcon (including nesting), western toad.<br>Westslope cutthroat trout, see above.   |
| Rare ecosystems  | The most notable unique ecosystem in this area are the treeline and sparsely vegetated areas. Trace amounts of whitebark pine are present, which is a proposed species for listing under the ESA. Small amounts of other vegetation communities are of interest, including riparian areas. A fairly high number of potential plant species of conservation concern are found here.<br>No rare aquatic ecosystems. |
| Outstanding landscape features                               | Walling Reef, cliff faces, canyons and waterfalls, Muddy Creek, mountain peaks.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | None.   |
| High quality water resources or important watershed features | High water quality outside of burned areas.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 246. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | An elongated polygon just east of the Bob Marshall Wilderness complex that includes lands around the North Fork Teton and South Fork Teton rivers.  |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Polygon resides within the Conservation Management Area   |
| The presence and amount of non-Federal land in the area  | None.   |
| Management of adjacent lands   | Wilderness to the north, south, and west of the polygon. Agriculture and grazing lands to the east. Blackleaf State Wildlife Management Area to the east of the polygon and a little south of Blackleaf canyon. |





### Sun Canyon Willow Area (RM3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 247. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types in this area are Douglas-fir dominated forests, which cover about 51% of the area. Subalpine fir and Engelmann spruce mixed forests are also common, found on about 16%, and lodgepole pine forests cover about 9%. Sparsely vegetated areas (rock/scree) are found on about 11%, and grasslands cover nearly 8%. Small amounts of other dominance types, generally covering 1% or less of the area each, also occur, including shrublands, whitebark pine, limber pine, cottonwood, aspen, and a slight trace of ponderosa pine.   |
| Potential vegetation types  | The most common potential vegetation types in this area are in the cool moist forest group, covering about 42% of the area. Warm dry forest types are present on about 32%, and cold forest potential types (where whitebark pine is most likely to grow) are present on 5%. Xeric grassland and mesic grassland types each make up about 3%, and both shrublands and riparian types are represented in very small amounts. The remainder of the area is considered sparsely vegetated (11%), primarily consisting of cliffy areas or high peaks above treeline.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 1,205 acres within RM3 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 22,000 acres potential lynx habitat, with approximately 2700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 21,000 acres of goshawk potential nesting habitat, at least 10 known nesting territories. Presence of Clark’s nutcracker indicating mature whitebark and/or limber pine.</p> <p>Big game: Approximately 51,000 acres secure elk habitat. 23,000 acres elk winter range part of which adjoins state-managed Sun River Wildlife Management Area; and 9800 acres elk calving habitat. Moose may be present. Up to about 10,000 acres mountain goat habitat. Key area for nationally significant bighorn sheep population: over 27,000 acres bighorn sheep habitat including over 17,000 acres lambing habitat.</p> <p>Functioning subalpine/alpine habitat: Roughly 27,000 acres of potential wolverine habitat including 6000 acres potential maternal habitat. Golden mantled ground squirrel also present. Grizzly bears, wolves present.</p> <p>Habitat for cliff-nesting raptors, including peregrine falcon, golden eagle, prairie falcon.</p> <p>Westslope cutthroat trout in Little Willow and North Fork Ford Creeks.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely.   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 248. Ecological conditions**

| Measures   | Outcome   |
|--|---|
| Percent of area without past timber harvest                                  | About 94% of this area has been unaffected by past timber harvest. Records show that over 4,300 acres have been harvested, primarily consisting of fuel break treatments (3,717 acres total) that occurred in 1997 and 1999. The other harvests consisted of thinning, partial cuts, and clearcuts that occurred from 1982 to 1992. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.3% of RM3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 61%, Class 2: 39%  |
| Miles of motorized road/trail within 300' of streams                         | 10.4 miles  |
| Noticeable wildfire suppression impacts                                      | No fire suppression impacts evident on the landscape.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 249. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | In addition to the harvest treatments (about 4,300 acres) that have occurred, prescribed fire treatments have also been conducted in this area. The fire treatments consisted primarily of broadcast burning and underburning from 1990 to 2010, as well as pile burning from 1982 to 2011. In total, all vegetation treatment acres represent about 15% of the area, leaving 85% untouched. However, many of the prescribed fire areas overlap with past timber harvest areas, so the actual footprint of treatment is less. In addition, aerial photography and District personnel expertise determine that none of these treatments are substantially noticeable on the landscape. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | Electronic site visible on Renshaw Mountain.  |
| Areas of mining activities including both abandoned and active mines  | Patented mining claim Lange Creek.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there are approximately 8 miles of fencing and 6 stock water tanks and 1632 acres of vegetation treatments within RM3.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed sites associated with roads but none interior.  |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Both buried and above ground along Sun Canyon and Beaver Willow roads.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | Gibson Dam and dozer channeling along the road but visible from within the polygon.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | None known.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Reclamation Flats Cabin – SUP with FWP. Ford Coulee Cabin at the head of Gibson Reservoir. Old Whites Cabin tract. There are 103 recorded cultural resources within this polygon, all represent relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 0.7 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are 18 recorded historic routes (~110 miles) in this polygon. Most of these routes are trails.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 250. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | While most of the polygon is nonmotorized, there is an open ATV route along the Beaver Willow Road.   |
| Area available for winter motorized opportunity                     | There is some snowmobiling that occurs on the Benchmark road at the south end of and outside of the polygon. The rest of the polygon is not available for motorized winter recreation.  |
| Proximity to private lands and non-Forest Service roads             | Lange Creek mining claim. K-L guest ranch at head of Gibson Reservoir, Mortimer Gulch Subdivision on Beaver Willow Road, Hidden Valley Ranch on Beaver Willow Road, Reissing Ranch on Willow Creek.   |
| Proximity to developed recreation sites outside of the polygon area | Multiple activities along the Sun Canyon, Beaver Willow and Benchmark roads that impact the polygon through sight and sound. Including Campgrounds, Trailheads, Outfitter facilities, resorts, administrative sites, and recreation residences. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 251. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.  |
| Primitive and semi-primitive non-motorized winter recreation                               | Except for areas near the open roads, the entire polygon is available for primitive and semi-primitive non-motorized winter recreation.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting and trapping, hiking, horseback riding, camping, recreation aviation, mountain biking, cross country skiing, snowshoeing, snowmobiling along the roads and uses by recreation residence and resorts in the area. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Sun Canyon Willow Area (RM3) is 67,328 acres. This area lies adjacent to the Bob Marshall Wilderness Complex to the west.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

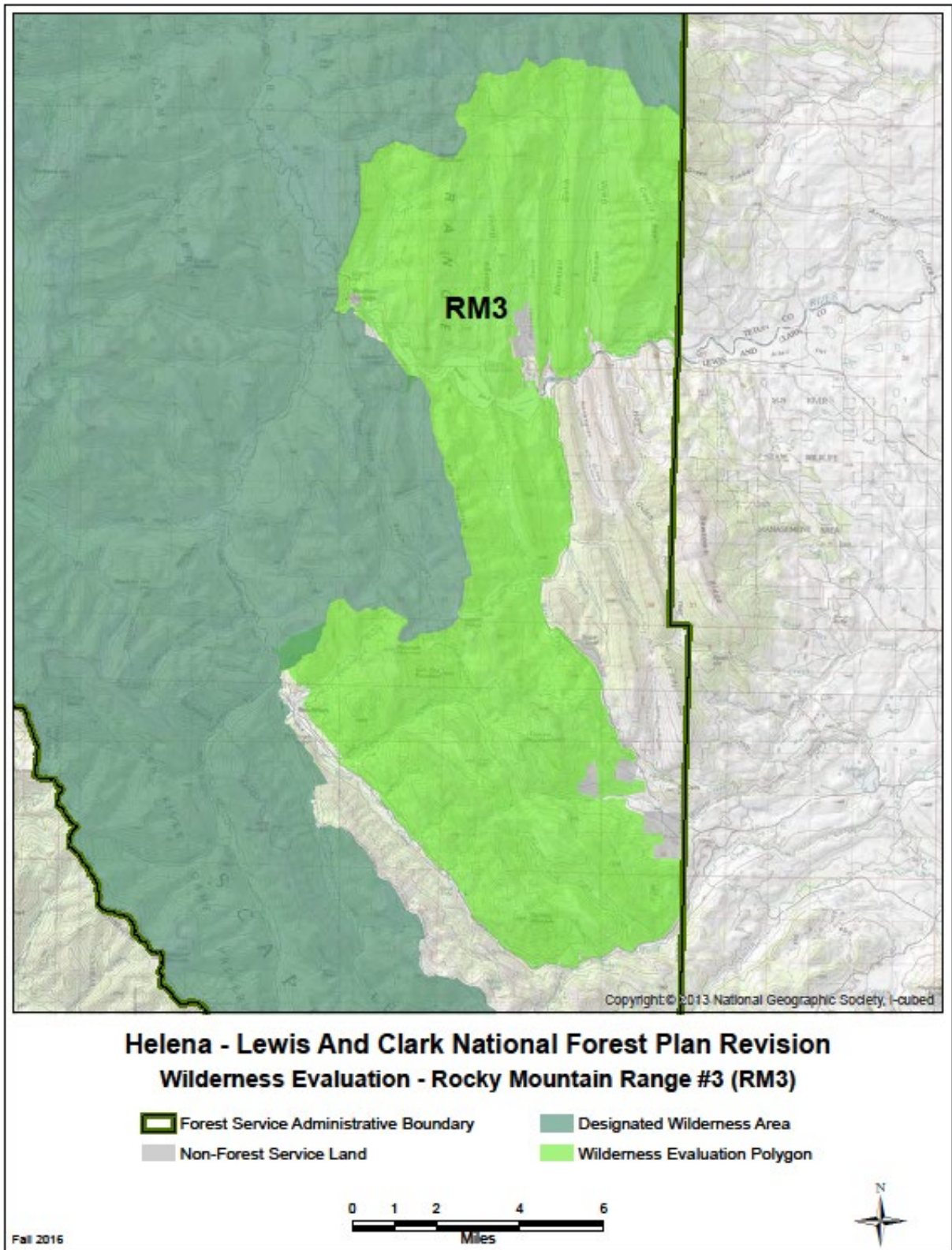
**Table 252. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that occur here include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Antennaria pulvinata</i> , <i>Emerorchis rotundifolia</i> , <i>Cypripedium passerinum</i> , <i>Cypripedium parviflorum</i> , <i>Epipactis gigantea</i> , <i>Gentianopsis macounii</i> , <i>Botrychium spp.</i> , and <i>Polygonium douglasii ssp. Austinae</i> |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (portion of area within designated Critical Habitat)<br>Potential species of conservation concern and/or state at risk species: wolverine, western toad, harlequin duck.<br>Two creeks with westslope cutthroat trout present, see above.  |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in small amounts in this area. Many other potential plant species of conservation occur here as well. Trace amounts of ponderosa pine are present, which are very rare in this geographic area.   |
| Outstanding landscape features                               | Sun Canyon, dramatic cliff facing.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | Wagner Basin RNA.   |
| High quality water resources or important watershed features | Headwaters of Sun Creek very unique. High quality water throughout polygon.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 253. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | An elongated and irregular-shaped polygon adjacent to the Bob Marshall Wilderness Complex. This polygon includes undeveloped landscapes surrounding the Sun River and Benchmark area. |
| Legally established rights or uses within the area   | Gibson Reservoir and dam managed by the Bureau of Reclamation.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | The polygon resides in a conservation management area.  |
| The presence and amount of non-Federal land in the area  | Private inholdings at Mortimer Gulch in Sun Canyon, K-L at head of Gibson Reservoir, along Willow Creek and Beaver Willow Road, and the Lange Creek mining claim.                     |
| Management of adjacent lands   | Wilderness to the north and west. RM4 polygon to the east along with private lands mostly agriculture and grazing. Benchmark Road forms the southern boundary of the polygon.         |



## Sawtooth Ridge Area (RM4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 254. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The primary dominance types that occur in this area are Douglas-fir dominated forests, which cover about 77% of the area. Dry grasslands and sparsely vegetated areas (rock/scree) cover about 8% each. Lodgepole pine forests, as well as subalpine fir/Engelmann spruce forests, are each represented at about 3% each. Other dominance types are present only in trace amounts, covering less than 1% of the area each, and include shrublands, whitebark pine, limber pine, and aspen.   |
| Potential vegetation types  | The most common potential vegetation types are warm dry forest types, which make up about 58% of the area and likely support the bulk of the Douglas-fir forests. About 25% of the area has cool moist forest potential types, likely supporting mixed Douglas-fir, lodgepole pine, subalpine fir, and Engelmann spruce forests. Xeric and mesic grassland types each cover just over 3% each. Small amounts of cold forest, shrubland, and riparian types are also present. The remainder of the area is made up of sparsely vegetated areas (8%).  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 368 acres within RM4 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 4000 acres potential lynx habitat, with approximately 730 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 5000 acres of goshawk potential nesting habitat.</p> <p>Big game: Approximately 1200 acres secure elk habitat. 6600 acres elk winter range part of which adjoins state-managed Sun River Wildlife Management Area; and 400 acres elk calving habitat. Moose may be present. Key area for nationally significant bighorn sheep population: over 8000 acres bighorn sheep habitat and over 6000 acres lambing habitat.</p> <p>Functioning subalpine/alpine habitat: Roughly 3000 acres of potential wolverine.</p> <p>Grizzly bears, wolves present.</p> <p>Habitat for cliff-nesting raptors, including golden eagle, prairie falcon</p> <p>Westslope cutthroat trout in Little Willow Creek and Lime Gulch.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native fish likely.   |



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 255. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | About 99.5% of this area has been unaffected by timber harvest. Roughly 71 acres have been harvested, consisting of partial selection cutting (uneven-aged management) in 1989 and 1993. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 97.6% of RM4 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 78%, Class 2: 22%   |
| Miles of motorized road/trail within 300' of streams                         | 15.4 miles   |
| Noticeable wildfire suppression impacts                                      | No fire occurrence records found since 1980.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 256. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | In addition to the 71 acres of past harvest, there have been prescribed fire treatments in this area totaling about 1,958 acres and consisting of underburns from 1993 to 1996, broadcast burning in 2009, and burning of piles from 1988 to 2011. In total, all of these treatment acres represent about 13% of the area. However, some of these treatments overlapped on the same area, so the actual footprint of treatment is less. In addition, a review of aerial photography and District personnel expertise confirmed that none of these treatments are substantially noticeable on the landscape. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | None present.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are approximately 1.6 miles of fencing, 3 stock water tanks and 595 acres of vegetation treatments within RM4.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | None present.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Utility lines buried in the open road system in Sun Canyon and Beaver Willow.   |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Presence of watershed treatment areas including contouring, diking, and channeling   | Some diking along the Beaver Creek Road system. Not within the polygon.                                 |
| Lands adjacent to development or activities that impact opportunities for solitude   | None present.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 28 recorded cultural resources within this polygon, all represent relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | There are 8 recorded historic routes (~100 miles) in this polygon.                                      |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 257. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | While most of the polygon is nonmotorized, there is an open ATV route along the Beaver Willow Road. This route lies outside of the polygon area but potentially impacts solitude within it. |
| Area available for winter motorized opportunity                     | None of the polygon is available for winter motorized recreation.   |
| Proximity to private lands and non-Forest Service roads             | Stoner Place Subdivision along the Beaver Willow road.  |
| Proximity to developed recreation sites outside of the polygon area | Home Gulch Campground, Beaver Creek TH, Stoner Place TH, Lime Gulch TH.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 258. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire area is available for primitive and semi-primitive non-motorized summer recreation.       |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire area is available for primitive and semi-primitive non-motorized winter recreation.       |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, mountain biking, cross country skiing, open ATV route along the Beaver Willow Road. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Sawtooth Ridge Area (RM4) is 15,423 acres. This area lies adjacent to the Bob Marshall Wilderness Complex to the west.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 259. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Amerorchis rotundifolia</i> .  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (portion of area within designated Critical Habitat)<br>Westslope cutthroat trout in Little Willow and Lime Gulch.                  |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in small amounts in this area. Limber pine and aspen communities are also of interest, but present only in trace amounts.<br>No rare aquatic ecosystems known. |
| Outstanding landscape features                               | Sawtooth Ridge, north-south running reefs, cliffs.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.   |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | None, area is relatively dry.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 260. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | An elongated and irregular-shaped polygon that is located between the Beaver Willow Road to the west and private agricultural lands on the east. |
| Legally established rights or uses within the area   | None present.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Stoner Place subdivision along Beaver Willow Road, piece of the Hidden Valley Ranch along Beaver Willow Road.                                    |
| Management of adjacent lands   | State Sun River Wildlife Management Area, BLM, and private agriculture and grazing.  |



## Elk Smith Area (RM5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 261. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types in this area are lodgepole pine dominated forests, which cover about 44% of the area. Douglas-fir forests are also common, growing on over 29%. Subalpine fir and Engelmann spruce mixed forests are found on 10%, and dry grasslands cover about 6%. Sparsely vegetated areas, likely rock/scree above treeline, are found on about 9%. Other dominance types are present only in trace amounts (covering 1% or less of the area), and include shrublands, whitebark pine, limber pine, cottonwood, and aspen. Although most of the area burned in the Canyon Creek fire of 1988, most of the area regenerated leaving only a trace area still considered to be transitional.  |
| Potential vegetation types  | Cool moist forest potential vegetation types are the most common in the area, representing about 54%. Warm dry forest potential types are also common, found on 29%. Xeric and mesic grassland types each make up about 3%, and riparian types are found on nearly 2%. Other types are present only in trace amounts and include cold forest (where whitebark pine is most likely to grow) and shrubland types. The remainder of the area is sparsely vegetated (8%).   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 157 acres within RM5 are associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 16,000 acres potential lynx habitat, with approximately 2000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 5900 acres of goshawk potential nesting habitat, at least 6 known nesting territories.</p> <p>Big game: Approximately 18,000 acres secure elk habitat. 1400 acres elk winter range; and 9000 acres elk calving habitat. Moose present. Approximately 1200 acres bighorn sheep winter habitat and 1400 acres lambing habitat.</p> <p>Functioning subalpine/alpine habitat: Roughly 9600 acres of potential wolverine habitat including 2400 acres potential maternal habitat.</p> <p>Well-developed bog/fen habitat in northwestern portion, with northern bog lemming documented.</p> <p>Grizzly bears, wolves present.</p> <p>Habitat for cliff-nesting raptors, including peregrine falcon, golden eagle, prairie falcon.</p> <p>Westslope cutthroat trout populations in Moudess and Petty Creeks.</p> |
| Known non-native wildlife species                                     | No non-native terrestrial wildlife species documented. Non-native trout likely.   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 262. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | About 98.6% of the area has been unaffected by past harvest. Available records show that about 409 acres have had a past harvest, consisting primarily of commercial thins, salvage, and single tree selection cuts from 1981 to 1989. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.5% of RM5 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 49%, Class 2: 51% Impacts are all downstream of the polygon.  |
| Miles of motorized road/trail within 300' of streams                         | 11.8 miles   |
| Noticeable wildfire suppression impacts                                      | Canyon Creek (1988): Suppression lines rehabbed, but still evident along the northern fire perimeter boundary.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 263. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | Along Benchmark road which is excluded from the polygon.   |
| Presence of timber harvest or prescribed fire areas   | In addition to the past harvests that occurred in the 1980's and affected about 1.4% of the area, there were pile burning activities conducted on about 708 acres from 1984 to 1997, impacting an additional 2.4%. A total of 97.6% of the area was unaffected by treatments. In addition, the pile burning may have overlapped some of the past harvest areas. None of these treatments were determined to be substantially noticeable today. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Steamboat Mountain repeater.   |
| Areas of mining activities including both abandoned and active mines  | Abandoned mine in Horse Mountain. Historic mining in Smith Creek.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 1/10 <sup>th</sup> mile of fencing and 3 stock water tanks within RM5.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Dispersed camping along Benchmark and Elk Creek. End of the road outfitter camps but none within the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Utilities along and under parts of the Benchmark and the Elk Creek Roads.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | Post 1964 streambed manipulation in Benchmark, and Wood Creek. Outside of polygon along main roads.  |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Lands adjacent to development or activities that impact opportunities for solitude   | Benchmark Airstrip along the Benchmark road.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 17 recorded cultural resources within this polygon, all represent relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 1.8 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | There are 8 recorded historic routes (21 miles) in this polygon.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 264. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | There are motorcycle trails in the Petty Crown and Elk Creek/Bailey Basin areas.  |
| Area available for winter motorized opportunity                     | None of the area is available for winter motorized recreation.  |
| Proximity to private lands and non-Forest Service roads             | Private inholding in Elk Creek.   |
| Proximity to developed recreation sites outside of the polygon area | Campground, recreation residences, trailheads, livestock facilities, airstrip along the Benchmark road. There are minimal impacts out of the road corridor. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 265. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Primitive and semi-primitive non-motorized recreation in the summer away from Petty Crown and Elk Creek areas. There are impacts to solitude to areas that lie near the Benchmark road.                               |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized recreation in the winter. Due to snowmobiling along the Benchmark road, there are impacts to solitude to areas that lie near the road. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, fishing, skiing, camping, recreation aviation, snowmobiling, and uses by recreation residence and resorts in the area.   |



Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Elk Smith Area (RM5) is 30,030 acres. This area lies adjacent to the Bob Marshall Wilderness Complex to the west.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

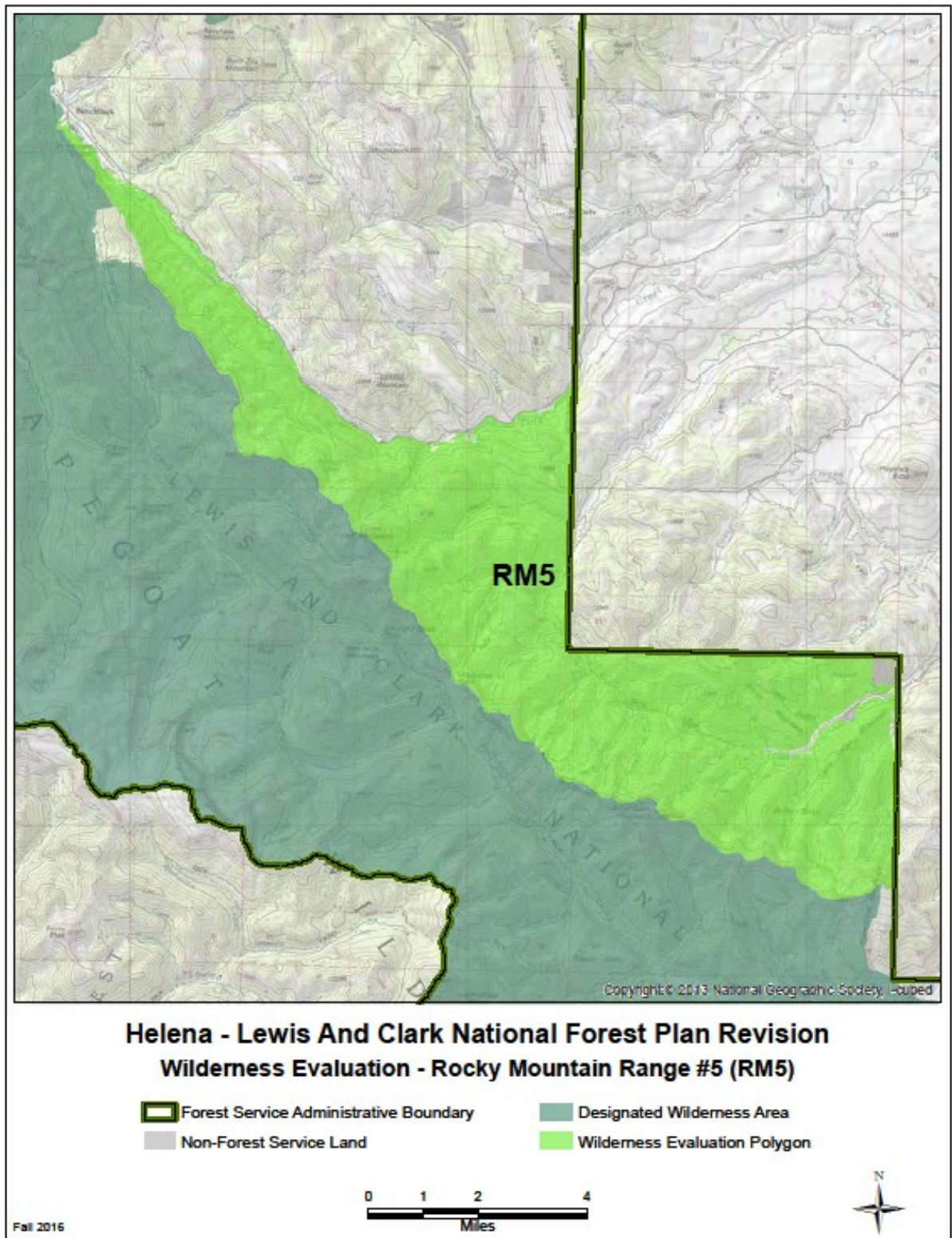
**Table 266. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Scorpidium scorpioides</i> , <i>Listera borealis</i> , <i>Platanthera obtusata</i> , <i>Cardamine rupicola</i> , and <i>Erigeron lackschewitzii</i> .  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (most of area within designated Critical Habitat)<br>Potential species of conservation concern and/or state at risk species: wolverine, western toad, harlequin duck, northern bog lemming.<br>Westslope cutthroat trout in Moudess and Petty Creeks. |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in trace amounts in this area. Other potential plants of conservation concern occur here, and other vegetation communities of interest (limber pine and aspen) are present in very small amounts. Beaver complex in Elk Smith area.  |
| Outstanding landscape features                               | Cliffs and reefs and waterfalls, Crown mountain and White-Water Creek.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.   |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Beaver complex in Elk Smith area. Wood Creek on the draft list of eligible WSRs for outstanding wildlife habitat.  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 267. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | An elongated polygon that is bordered by the Bob Marshall Wilderness Complex on the southwest, the Benchmark road on the north and private lands on the north and east. |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Conservation management area.   |
| The presence and amount of non-Federal land in the area  | Private inholding in Elk Creek.   |
| Management of adjacent lands   | Wilderness to the south and west. Benchmark Road to the north, private lands to east (mostly ranch lands).  |



## Snowies Geographic Area

### Big Snowies Area (S1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 268. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The dominance types in this area gradate from Douglas-fir dominated forests (covering about 31% of the area), to lodgepole pine forest (22%), to subalpine fir and Engelmann spruce forests (29%). Sparsely vegetated areas (such as rock/scree) are found on about 8%, and dry grasslands cover 5%. Whitebark pine dominated forest is found on about 4%, at the highest elevations. Trace amounts of other dominance types, representing less than 1% of the area each, are also present, including shrublands, ponderosa pine, limber pine, cottonwood, and aspen.  |
| Potential vegetation types  | The common potential vegetation types are evenly split between warm dry forest potential types (40%) and cool moist forest types (42%). Cold forest potential vegetation types are present on about 3%, which is where whitebark pine is most likely to grow. Dry grassland types also make up about 5%. Trace amounts of shrublands and riparian types are also present. Sparsely vegetated areas (rock/scree) make up the remainder of the area.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 65 acres within S1 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 39,000 acres potential lynx habitat, with approximately 11,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 34,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 1400 acres existing and roughly 50,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Clark’s nutcracker presence indicates mature whitebark, limber, and/or ponderosa pine communities.</p> <p>Approximately 85,000 acres secure elk habitat. Roughly 2400 acres elk winter range and 7800 acres mule deer winter range contiguous with additional calving and winter habitat on adjacent non-NFS lands largely on south boundary. Moose may be present in riparian areas.</p> <p>Functioning subalpine/alpine habitat: Approximately 31,000 acres potential wolverine habitat with roughly 3900 acres of potential maternal habitat.</p> <p>Westslope cutthroat trout populations in WF Cottonwood, WF Cottonwood, Cottonwood, EF Big Spring, and Halfmoon Creeks.</p> |
| Known non-native wildlife species                                     | <p>Introduced population of mountain goats, which are native to Montana but not native to this mountain range.</p> <p>Non-native trout likely present.</p>   |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 269. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | About 99.8% of this area is unaffected by past timber harvest. Available records indicate that about 205 acres have been harvested, including shelterwood cuts and overstory removals in the 1950's, and a small salvage cut in 1990. These treatments are located in the Timber Creek area. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.9% of S1 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 82%, Class 2: 18%, some grazing impacts in polygon, NF Flatwillow Creek on 303(d) list.   |
| Miles of motorized road/trail within 300' of streams                         | 29.0 miles   |
| Noticeable wildfire suppression impacts                                      | Windy Point Fire (1994): hand line rehabbed; break in timber continuity (hard edges along west and south flanks of fire).  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 270. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | The 205 acres of past timber harvest affected about 0.2% of this area, and due to the age since treatment and/or type of treatment are no longer substantially noticeable on the landscape. Several more recent or notable harvests nearby are excluded from the evaluation boundary. The only prescribed fire treatments that have occurred in the boundary are 377 acres of pile burning, mostly occurring in 2004. A few of these acres (43) were done in 1991 on the same acres as the salvage harvest. Over 99.6% of the area is unaffected by vegetation treatments. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | Radio communication site on West Peak which is very low profile and creating minimal effects.  |
| Areas of mining activities including both abandoned and active mines  | A couple of abandoned mines in Swimming Woman Creek.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there is approximately 0 miles of fencing and 20 stock water tanks within S1.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | No overnight outfitter and guide camps within the polygon. Some minor overnight use by hikers and permitted hiker outfitters adjacent to the trail system. Northwest portion of the polygon receives moderate hunting with permit.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Water pipeline for agricultural use for the Half Moon Ranch in Half Moon Creek.  |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Presence of watershed treatment areas including contouring, diking, and channeling   | Channeling associated with the water pipeline for Half Moon Ranch.                                      |
| Lands adjacent to development or activities that impact opportunities for solitude   | Minimal ranchland, dude ranching, and outfitting developments.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 26 recorded cultural resources within this polygon, all represent relics of past occupations. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 2.1 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | There are 2 recorded historic routes (7 miles) in this polygon.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?

**Table 271. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | Southern ¼ of the polygon is open to motorized use on designated trails. Trails number 653 and 652 and FS roads 8954, 656, 823, 15878 and 270A. These roads and trails are located in Swimming Woman Creek, Careless Creek, East Fork Timber Creek, East Fork Blake Creek and motorized road (FSR 275 and 275A) into the Crystal Lake complex. |
| Area available for winter motorized opportunity                     | Over snow motorized recreation in the western portion of the polygon in West Gulch, Dry Pole, and up to West Peak. Also snowmobiling permitted in Black Ridge, Green Pole Canyon and East Fork up to Jump Off Peak. From Neil Creek to Swimming Woman along 652 and 653 trails.<br>Winter motorized uses around Crystal Lake.                  |
| Proximity to private lands and non-Forest Service roads             | Polygon is primarily surrounded by private ranchlands. Also bordered by BLM on the southeastern side of the range.   |
| Proximity to developed recreation sites outside of the polygon area | Crystal Lake complex is heavily used during the summer months. There is dispersed camping in Swimming Woman, Careless Creek, and Timber Creek canyons, particularly during the fall hunting season. Trailheads at Neil Creek, Ulhorn and Cottonwood Creek  |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 272. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | Best opportunities for primitive and semi-primitive non-motorized recreation in the summer is the entire polygon north of Trails 652 and 653.                                |
| Primitive and semi-primitive non-motorized winter recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized recreation, except for those areas open to snowmobiles on the western portion of the polygon. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hiking, horseback riding, dispersed camping, back country skiing, fishing, mountain biking, caving, hunting, snowmobiling, ATV riding, and motorcycling.                     |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Big Snowies Area (S1) is 103,480. Much of this area lies within the Big Snowies Wilderness Study Area.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

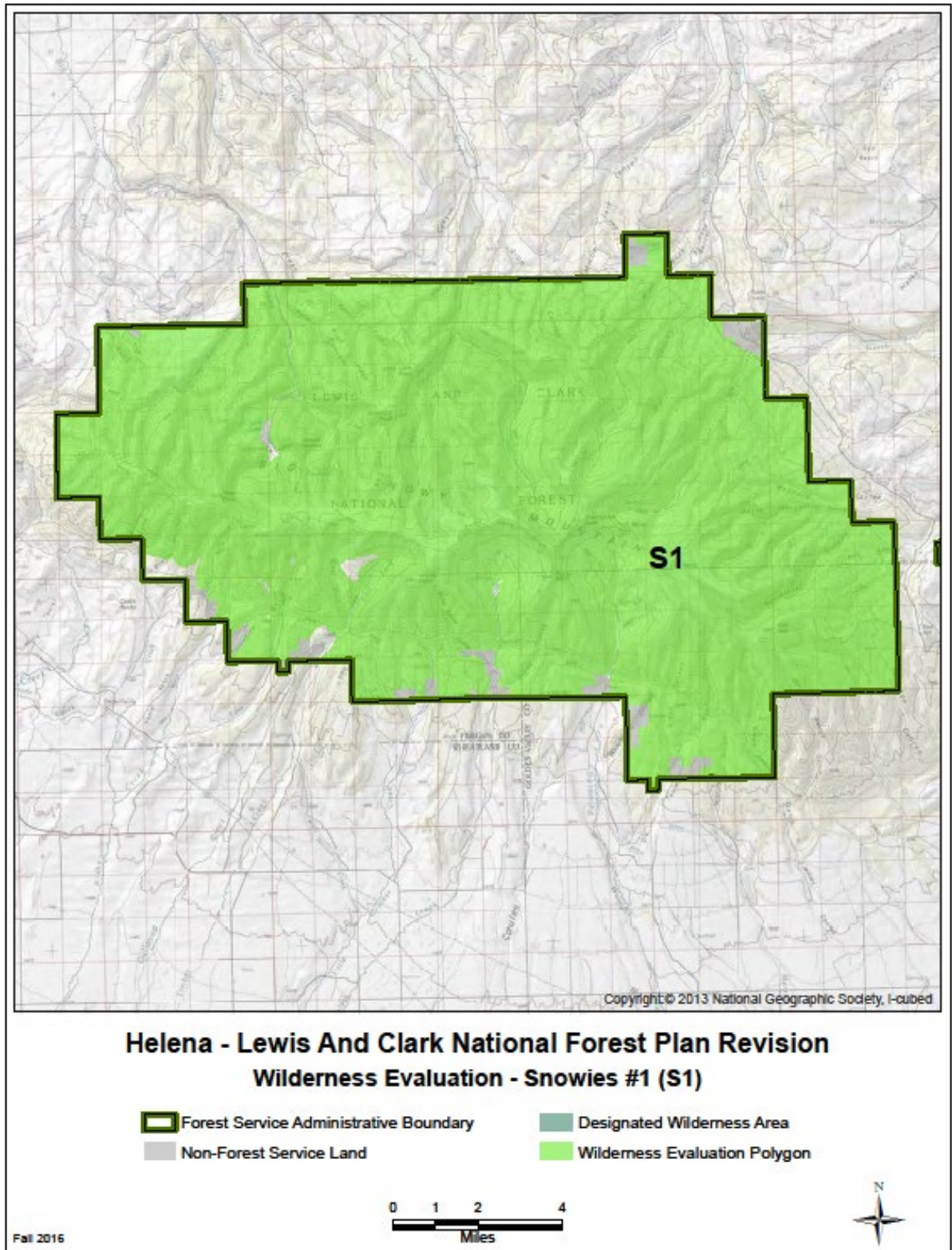
**Table 273. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Cirsium longistylum</i> , <i>Goodyera repens</i> , <i>Dryas integrifolia</i> , and <i>Physaria saximontana var. dentate</i> .   |
| Rare animal species or communities                           | Federally listed species: historic record of a Canada lynx, but area is not occupied and is isolated from occupied areas<br>Potential species of conservation concern and/or state at risk species: dwarf shrew.<br>Several westslope cutthroat trout populations, see above.   |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in this area. <i>Goodyera repens</i> is particularly noted as occurring across this mountain range. Other vegetation communities of interest on the HLC NF are also present in very small amounts, including limber pine, ponderosa pine, and aspen.<br>No rare aquatic ecosystems. |
| Outstanding landscape features                               | Big cirque basins in Careless Creek and Swimming Woman Creek. Ice Caves, big broad open ridge.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | Big Snowy – Greathouse Peak (1279 acres).<br>Big Snowy – Old Baldy (1866 acres).  |
| High quality water resources or important watershed features | Swimming Woman Creek eligible for WSR listing for its outstanding geologic features. The stream also has high water quality. Big Spring is the municipal watershed for Lewistown.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 274. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | The major portion of the Big Snowy Mountain range.   |
| Legally established rights or uses within the area   | Water right in Half Moon Creek.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known. Much of this polygon has also been designated by Congress as the Big Snowies Wilderness Study Area.  |
| The presence and amount of non-Federal land in the area  | Some minor private land adjacent to the polygon, scattered along the southern and northeastern boundaries.   |
| Management of adjacent lands   | Large component of large ranches and agriculture lands. Residential subdivision in Neil Creek. Trailheads on BLM and private in Ulhorn, Cottonwood Creek. Half Moon Ranch, outfitting, and dude ranches. |





## Upper Blackfoot Geographic Area

### Dearborn Silver King Area (UB1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 275. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The area is commonly dominated by Douglas-fir and lodgepole pine dominance types, each making up roughly 30% of the overall composition (60% total). Mixes of Douglas-fir and lodgepole pine represent an additional 5%. Dry grasslands are fairly common, present on roughly 16% of the area. Subalpine fir mixes make up nearly 8%. Small amounts of other dominance types occur in small amounts (less than 2% each), including Engelmann spruce, whitebark pine, limber pine, cottonwood, aspen, and Rocky Mountain juniper. In addition, just over 7% of the area is considered “transitional”, where recent disturbance has removed forest cover but regeneration is expected.   |
| Potential vegetation types  | The area contains a high proportion of cool moist forest potential vegetation types (44%), with warm dry forest types also common (37%). The xeric grassland and mesic grassland potential types each represent roughly 7%. The cold forest potential vegetation type, at high elevations where whitebark pine is most likely to thrive, is present on 1%. Small amounts of mesic shrublands, riparian/wetland, and sparse potential types are also present.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 527 acres UB1 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | <p>Functioning mature forest habitat: 18,000 acres potential lynx habitat, with approximately 4900 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 15,000 acres of goshawk potential nesting habitat; some known nesting territories. About 1900 acres low-moderate probability fisher habitat in south portion.</p> <p>Big game: Approximately 41,000 acres secure elk habitat. 1300 acres elk winter range; and over 5000 acres elk calving habitat. Moose likely present.</p> <p>Functioning subalpine/alpine habitat: Roughly 11,000 acres of potential wolverine habitat including 800 acres potential maternal habitat.</p> <p>Grizzly bears, wolves present.</p> <p>Westslope cutthroat trout populations present in Alice Creek and tributaries (including Toms, Wildcat, and Telephone Gulches and Bear Creek) as well as Landers Fork Creek, Falls Creek and Indian Meadows Creek. No mapped Bull Trout populations, but habitat is present, especially Landers Fork Creek.</p> |
| Known non-native wildlife species                                     | European starlings and house sparrows documented but location unclear; likely at periphery near off-Forest dwellings. Non-native trout are likely to be present.   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 276. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | 99.72% of this area has no record of past harvest in the FACTS database, although it is possible “historic” logging treatments occurred prior detailed record-keeping (generally the 1950’s). The small area with recorded harvest is roughly 124 acres, most of which occurred in the 1960’s although one unit was harvested in the 1990’s. |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 98.8% of UB1 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 57%, Class 2: 43%. Primary impacts in the Class 2 areas are non-native aquatic species, and road and trail effects.   |
| Miles of motorized road/trail within 300’ of streams                         | Possibly 3.4 miles but may be nonmotorized.  |
| Noticeable wildfire suppression impacts                                      | Snow/Talon Fire (2003): dozer line & staging areas rehabbed but remain evident on landscape; breaks in timber continuity in Falls Creek and Indian Meadows Creek.<br>Canyon Creek Fire (1988): suppression lines rehabbed, but still evident along the northern and southeastern fire perimeter boundary; hard vegetation edge.              |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 277. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | Substantially noticeable treatments were determined with a detailed methodology and excluded from the evaluation area. Some past treatments which are no longer considered noticeable occur in the evaluation area. The FACTS database shows roughly 4,999 acres of such treatments total (11% of the total UB1 area), 33 acres of timber harvest and 4,966 acres of prescribed fire. Some of the fire activities may overlap (i.e., a pile burn and a broadcast burn could occur on the same acre at different times) and therefore actual acres impacted could be slightly less. The harvest (salvage) was intermediate in nature (leaving residual trees) and occurred in the 1990’s; it has likely had sufficient time to be visually recovered from the treatment. The fire treatments have occurred since the 1980’s, but the most acres have been implemented after 2000 as part of the Alice Creek restoration project. Although not much time has passed since implementation (including burning of piles and broadcast burning), local specialists indicated that these areas are natural in appearance. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters | Repeater/electronic site on Silver King Mountain. This has a buffer of 150 feet diameter around it but will be visible from within UB1.  |
| Areas of mining activities, including both abandoned and active mines   | No significant historic mining activity is known to occur in this area.  |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)  | According to current data there is five miles of fencing and two stock water tanks within UB1. Fences to exclude grazing in the aspen stands along the bottom of Alice Creek. These are temporary in nature and will be removed after aspen grows up.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area  | Heavily used dispersed camp sites are located with 300 feet along Alice Creek Road. The Lewis and Clark pass trail is a very popular day hike.   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines pipelines, and other permanently installed linear right-of-way structures | None present.  |
| Presence of watershed treatment areas including contouring, diking, and channeling   | None Known   |
| Lands adjacent to development or activities that impact opportunities for solitude   | Alice Creek Ranch and Silver King Ranch are located along the southern border of UB1. There are also outfitter corrals and the Indian Meadows trailhead and guard station at the south west corner of UB1.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area   | Several past occupational sites can be found within this area. These sites represent occupational use of this location which span thousands of years. No historic (complete or fully) standing structures are known to be present, however intact subsurface deposits are known to exist.<br>Several interpretive signs exist in the area for the Alice Creek National Registered Historic District and the Lewis and Clark National Historic Trail. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process  | Not recommended as wilderness in the 1986 Forest Plans.  |
| Number of miles of maintenance level 1 road templates  | 1.0 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes or other settlement era transportation  | There are two historic road segments in the south east portion of UB1, east of Alice Creek Road.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 278. Impacts influencing solitude**

| <b>Impacts</b>  | <b>Mitigating factors</b><br>(include topography and screening that influence pervasive sights and sounds)   |
|---|--|
| Area available for summer motorized opportunities                   | Alice Creek Road in the bottom of the drainage. It is a low speed road, so intrusions are generally minimal. Cannot see or hear the road from the CDNST or popular hiking trails in the area. There are not motorized trails within the polygon. |
| Area available for winter motorized opportunities                   | Snowmobiles are allowed on Alice Creek road in the winter but is route is not heavily used by snowmobiles at this time. Other than Alice Creek road, cross country snowmobile use is prohibited in the remainder of the polygon.                 |
| Proximity to private lands and non-Forest Service roads             | Alice Creek Ranch and Silver King ranch at the southern border. Currently low intrusiveness of sights and sounds from these private ranches. Subdivision to the north in Falls Creek-Joslin area and big ranches to the east of the polygon.     |
| Proximity to developed recreation sites outside of the polygon area | Alice Creek Trailhead at the end of Alice Creek Road. Indian Meadows Trailhead, guard station, campground, and outfitter corrals at the southwestern edge.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 279. Primitive or unconfined types of recreation**

| <b>Measures</b>  | <b>Descriptions and locations</b>  |
|--|--|
| Primitive and semi-primitive non-motorized areas available for summer recreation           | Except for the area immediately adjacent to the Alice Creek road, the entire polygon is available for primitive and semi-primitive summer recreation.  |
| Primitive and semi-primitive non-motorized areas available for winter recreation           | Except for the area immediately adjacent to the Alice Creek road, the entire polygon is available for primitive and semi-primitive winter recreation.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, fishing, hiking, horseback riding, dispersed camping, snowshoeing, cross country skiing, and snowmobiling along Alice Creek road. Historic interpretation along the upper portions of Alice Creek, Landers Fork and in the Lewis and Clark pass area. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Dearborn Silver King Area (UB1) is 44,140 acres. This area lies adjacent to the Scapegoat wilderness area.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

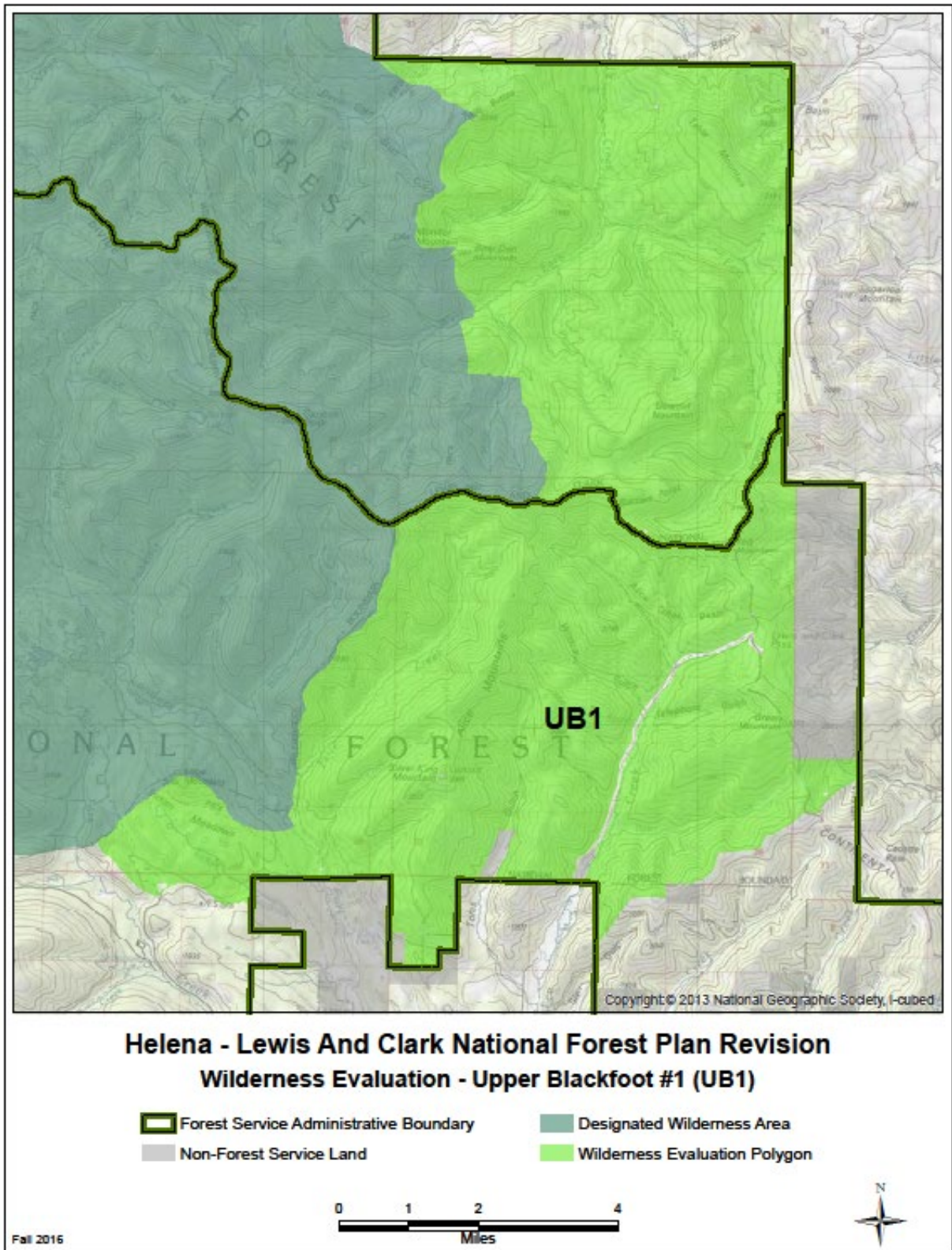
**Table 280. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | Records indicate that the following potential species of conservation concern are present in this area: <i>Pinus albicaulis</i> ; <i>Pinus flexilis</i> ; <i>Erigeron flagellaris</i> ; <i>Amerorchis rotundifolia</i> ; <i>Lesquerella klausii</i> ; <i>Phlox kelseyii</i> var. <i>Missoulensis</i> ; <i>Draba densifolia</i> ; <i>Botrychium</i> spp.; <i>Tetraplodon mnioides</i> ; <i>Drosera linearis</i> ; <i>Drosera anglica</i> ; <i>Carex livida</i> ; <i>Schoenoplectus subterminalis</i> .  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (within designated Critical Habitat).<br>Potential species of conservation concern and/or state at risk species: western toad, fisher (likely transient), trumpeter swan.<br>Fisheries: Westslope cutthroat trout in Alice Creek, Landers fork and Tom's Gulch.   |
| Rare ecosystems  | Whitebark pine communities are of interest due to the species' status as a proposed species for listing under the ESA. A small proportion of this area has whitebark pine present and potential (roughly 1%). Several notable locations occur which a mix of whitebark pine and limber pine, which have been the focus of some prescribed fire restoration treatments.   |
| Outstanding landscape features                               | Limestone reef caves in upper Alice Creek. Blowout Mountain and Flattop. Falls creek has many waterfalls.  |
| Historic and cultural resource sites                         | Thirteen known historic and cultural resources sites are located within this evaluation area. One of these sites is the Alice Creek Historic District which is listed in the National Register of Historic places and contains numerous sites which can be associated with this historic travel corridor. In addition, the Lewis and Clark National Historic Trail passes through this area. Overall, this location has high potential for the presences of historic and cultural resource sites, as well as scientific and educational value in regard to cultural resources. |
| Research natural areas                                       | Indian Meadows RNA.  |
| High quality water resources or important watershed features | Alice and Landers Fork Creeks are included in the draft WSR eligibility study. Landers Fork is listed for outstanding bull trout habitat and Alice Creek is listed for outstanding cultural resources.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 281. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | A large irregular shaped polygon that wraps around the southeastern corner of the Scapegoat wilderness. The northern half of the polygon is located within the Rocky Mountain GA and the southern half is located within the Upper Blackfoot GA. |
| Legally established rights or uses within the area   | None known.  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | Conservation management area in the Rocky Mountain Ranger District.<br>National Systems Trails Act (CDNST)   |
| The presence and amount of non-Federal land in the area  | All non-Federal lands were excluded from the inventory and evaluation. No private inholdings.  |
| Management of adjacent lands   | Logging and ranching on both private and state ownership in areas south of the polygon. Agriculture and grazing to the east. Residential subdivision to the north. Wilderness to the west.   |



## Stonewall Area (UB2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 282. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | This area is characterized by productive conifer forest. Subalpine fir and subalpine fir/spruce mixes are the most common, found on roughly 23% of the area. Douglas-fir and lodgepole pine forests are also common, each dominating up about 22% of the area. A small amount of whitebark pine dominance types are also found (nearly 3%). Trace amounts of other dominance types can be found at less than 1% (ponderosa pine and limber pine). Notably, nearly 20% of this area is considered “transitional” as a result of recent fires; these areas are currently non-forested but generally expected to regenerate to forests.   |
| Potential vegetation types  | Cool moist forested potential vegetation types dominate this area (47%), with warm dry forest potential types also common (28%). This area also has a relatively high proportion of cold forest potential types (16%), where species such as whitebark pine may thrive. Roughly 6% of the area is only sparsely vegetated, especially on high elevation, rocky sites. Very small amounts of non-forested potential types are present, representing roughly 3% total, with mesic and xeric grasslands the most common types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016 70 acres within UB2 is associated with invasive plant inventories.   |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 21,000 acres potential lynx habitat, with approximately 7100 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 10,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 1800 acres possible old growth habitat in patches of varying size. About 700 acres low-moderate probability fisher habitat. Approximately 18,000 acres secure elk habitat. Moose present. Functioning subalpine/alpine habitat: approximately 24,000 acres potential wolverine habitat with roughly 16,000 acres of potential maternal habitat. Grizzly bears, Canada lynx, wolves present. Westslope cutthroat trout populations in Copper, Snowbank, Liverpool, Stonewall, NF Arrastra and Dry Creeks and Bull Trout also present in Copper Creek. |
| Known non-native wildlife species                                     | No non-native terrestrial or avian species known; non-native trout likely present.   |



Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 283. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | 99.61% of this area has not been impacted by past timber harvest found in the FACTS database. It is possible “historic” logging occurred in some accessible areas prior to detailed record keeping (generally the 1950’s). The database shows roughly 116 acres have been harvested, mostly in the 1990’s.                               |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.8% of UB2 is not associated with invasive plant inventories.   |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 7%, Class 2: 93%<br>Arrastra Creek on 303(d) list for streambank modification, road runoff  |
| Miles of motorized road/trail within 300’ of streams                         | 5.5 miles  |
| Noticeable wildfire suppression impacts                                      | <i>Snow/Talon Fire (2003)</i> : dozer line and staging areas rehabbed but still evident in Falls Creek and Indian Meadows Creek.<br><i>Keep Cool Fire (2006)</i> : dozer lines rehabbed but still evident in headwaters of Liverpool Creek.<br><i>Sucker Creek Fire (2015)</i> : dozer lines rehabbed but still evident in Sucker Creek. |

Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?

**Table 284. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present   |
| Presence of timber harvest or prescribed fire areas   | Substantially noticeable treatments were determined with a detailed methodology and excluded from the evaluation area. Some past treatments which are no longer considered noticeable occur in the evaluation area. The FACTS database shows roughly 258 acres of such treatments total (less than 1% of the total UB2 area), 116 timber harvest and 142 acres prescribed fire. The harvest was intermediate or uneven-aged in nature, leaving ample residual trees, and occurred in the 1990’s; therefore, these areas are likely visually recovered from the treatment. The burning treatments, which included broadcast burning, burning piles, and underburning, primarily also occurred in the 1990’s and in some cases overlap the same acres that were harvested. Treated areas are primarily confined to the eastern boundary of the evaluation area, near existing roads. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters | Electronic site on Stonewall Mountain. This is accessed by an ATV trail. Homeland Security repeater site.  |

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Areas of mining activities including both abandoned and active mines  | Upper cotter Creek has a significant road network around the mine. Is substantially noticeable. Stonewall Creek patented mining claim with access road is also substantially noticeable. This evaluation area lies within the Lincoln Historic Mining District which contains numerous mining related features. Most of the historic mining is centralized around drainage bottoms and stream channels. |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are no range improvements located within UB2.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | ATV trail to Stonewall Mountain creates a cherry stem into the center part of UB2. Copper Bowls very popular snowmobiling area. Snowbank Lake Picnic Area and Copper Creek Campground just north of UB2. Arrastra Creek TH is located to the southwest portion of UB2 along Beaver Creek road. Administrative Lookout on Stonewall Mountain.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | Underground powerline along ATV trail to Stonewall Mountain.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | There is some older diversion ditches for past mining activity along Stonewall Creek. These are currently being reclaimed.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Beaver Creek and Copper Creek roads are open year-round to motorized uses. Stonewall Creek patented mining claim and access road affects surrounding area.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | Stonewall Lookout. It is safe to assume there are several undocumented relics of historic mining related to the Lincoln Historic Mining District landscape. At this time there is only one recorded cultural resource in this evaluation area.  |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates   | 2.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | There are several undocumented road templates associated with historic mining in this location, since it is located with a historic mining district.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 285. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | There are three motorized routes within the polygon. These are located on Stonewall Mountain. The rest of the area is not available for summer motorized uses.   |
| Area available for winter motorized opportunity                     | Except for the Red Mountain RNA and the top of Stonewall Mountain and ridgeline, this majority of the polygon is open to cross country snowmobile use. Additionally, there are several designated snowmobile trails in the area and a snowmobile play area in the upper reaches of Copper Creek. |
| Proximity to private lands and non-Forest Service roads             | Patented Mining claim in Stonewall Creek. Open access road to this land.   |
| Proximity to developed recreation sites outside of the polygon area | Arrastra Creek Trailhead along Beaver Creek, Copper Creek CG, Snowbank Lake Picnic Area, Stonewall Mountain TH, Sucker Creek TH.   |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 286. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized areas available for summer recreation           | Portions of the polygon adjacent to the Scapegoat Wilderness and the eastern portions of the polygon are available for primitive and semi-primitive non-motorized recreation in the summer.   |
| Primitive and semi-primitive non-motorized areas available for winter recreation           | Much of the area is available for cross country snowmobile use. The Red Mountain RNA and areas across the Stonewall Mountain ridge would have some opportunity for primitive and semi-primitive non-motorized recreation in winter. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, fishing, hiking, horseback riding, ATV riding, mountain biking, motorcycle riding, snowmobiling, and dispersed camping.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Stonewall Area (UB2) is 30,046 acres. This area lies adjacent to the Scapegoat wilderness area.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 287. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plant species of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> and <i>Cardamine rupicola</i> . It's possible that <i>Pinus flexilis</i> could also occur.  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (within designated Critical Habitat).<br>Potential species of conservation concern and/or state at risk species: fisher (likely transient).<br>Westslope cutthroat trout in Stonewall Creek, Dry Creek, NF Arrastra Creek, Park Creek, and Liverpool Creek; Bull Trout in Copper Creek and Snowbank Creek. |
| Rare ecosystems  | Whitebark pine communities are of interest due to the species' status as a proposed species for listing under the ESA. A small proportion of this area has whitebark pine present (3%) and potential (roughly 16% in the cold types). Fires in suitable sites may offer potential for whitebark pine regeneration.<br>Snowbank Creek has the highest density of Bull trout spawning on the Forest.                  |
| Outstanding landscape features                               | Copper Lakes in upper Copper Creek.   |
| Historic and cultural resource sites                         | Besides the Lincoln Historic Mining District, only one recorded cultural resource lies within this evaluation area. However, several sites lie just outside of the proposed boundary.   |
| Research natural areas                                       | Red Mountain RNA.   |
| High quality water resources or important watershed features | Westslope cutthroat trout streams, bull trout fisheries, Snowbank and Copper Creek are included on the draft list of eligible WSR streams for fisheries outstanding remarkable value.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 288. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | The large irregular-shaped polygon lies immediately south of the Scapegoat Wilderness and includes Stonewall Mountain and the upper reaches of Copper Creek.                           |
| Legally established rights or uses within the area   | Right of way along Stonewall Mountain Tail for powerline, and Department of Homeland Security repeater site.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.  |
| The presence and amount of non-Federal land in the area  | Stonewall Creek patented mining claim.   |
| Management of adjacent lands   | Wilderness to the north. State land managed for timber production to the south. Mix of timber harvested areas (FS), nature conservancy, state land, and private ownership to the east. |



### Black Mountain Area (UB3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. *What is the composition of plant and animal communities within the area?*

**Table 289. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | This area is dominated by conifer forest. Douglas-fir dominance types are the most common, present on 52% of the area. Lodgepole pine dominance types are also common, growing on roughly 28% of the area. Subalpine-fir and Engelmann spruce mixes grow on about 16%. Trace amounts of other forest types are present, including whitebark pine and cottonwood. Nearly 3% of the area is considered “transitional”, where disturbance events (fire) have caused mortality and the forest has not yet regenerated. Less than 1% of the area is made up of grass or shrublands.   |
| Potential vegetation types  | Cool moist forest potential vegetation types dominate the area and are estimated to cover over 73%. Warm dry forest potential types are mapped on about 25%. Less than 1% of the area is mapped as cold forest potential types, where whitebark is most likely to thrive. Trace amounts are non-forested potential vegetation types, primarily grasslands.   |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016 448 acres within UB3 is associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 7700 acres potential lynx habitat, with approximately 3700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 7200 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 2200 acres possible old growth habitat in patches of varying size. Clark’s nutcracker presence indicates mature whitebark, limber, and/or ponderosa pine communities. Approximately 8900 acres secure elk habitat. Moose present. Functioning subalpine/alpine habitat: Approximately 5200 acres potential wolverine habitat with roughly 1100 acres of potential maternal habitat. Grizzly bears, Canada lynx, wolves present. Fisheries: Westslope cutthroat trout and Bull Trout in Arrastra Creek. |
| Known non-native wildlife species                                     | No non-native terrestrial or avian species known. Non-native fish are likely to be present.  |

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 290. Ecological conditions**

| Measures   | Outcome  |
|--|--|
| Percent of area without past timber harvest                                  | 99.99% of the area has no records of past timber harvest in the FACTS database, although it is possible that “historic” logging (prior to the 1950’s) may have occurred before detailed records were kept. Only 0.77 acres in this area have been affected by harvest (salvage in 1979). |
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016 95.6% of UB3 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 3%, Class 2: 97%<br>Arrastra and Ward Creeks on 303(d) list for streambank modification, road runoff  |
| Miles of motorized road/trail within 300’ of streams                         | 1.3 miles  |
| Noticeable wildfire suppression impacts                                      | No fire suppression impacts evident on landscape.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 291. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present.  |
| Presence of timber harvest or prescribed fire areas   | Substantially noticeable treatments were determined with a detailed methodology and excluded from the evaluation area. Some past treatments which are no longer considered noticeable occur in the evaluation area. The FACTS database shows roughly 96 acres of such treatments total (roughly 1% of the total UB3 area), 0.77 acres timber harvest and 96 acres prescribed fire. The harvest was an intermediate salvage, leaving ample residual trees, and occurred in 1979; therefore, this area is likely visually recovered from the treatment. There was a local account of a clearcut and roads in the SE portion of the area. A review of aerial imagery confirms the presence of an obviously cleared area with a switchback road that appears to either pre-date FACTS records, or be a result of land acquisition, and is roughly 50 acres in size. The burning treatments, which included broadcast burning and underburning, occurred in the 1960’s and in the 1990’s. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | Building on Black Mtn., possibly used for communications site.   |
| Areas of mining activities including both abandoned and active mines  | No mining within UB3. However, there is some mining to the east in Lincoln Gulch.<br>Small portions of the historic Lincoln Ditch Complex run through this evaluation area.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there are no range improvements within UB3.  |

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Arrastra Creek TH to the north along Beaver Creek. Pine Grove CG to the east in Beaver Creek. Area identified for mountain bike trail in TP. Cross country snowmobile use is allowed across all of UB3.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None known.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Beaver Creek and Lone Point road are open to motorized use year-round. Lands adjacent to UB3 have active timber harvest and mining claims.   |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | No recorded structures or dwelling, only a small portion of the historic Lincoln Ditch Complex runs through this area. This area has not received very much cultural resource inventories, therefore there is potential for unrecorded relics of the past. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 0.2 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | None known. No historic road template recorded, however there is the potential for unrecorded features.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 292. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|---|---|
| Area available for summer motorized opportunity                     | There are no motorized trails within the polygon.   |
| Area available for winter motorized opportunity                     | The entire polygon is available for cross country snowmobile use.                                   |
| Proximity to private lands and non-Forest Service roads             | None present.   |
| Proximity to developed recreation sites outside of the polygon area | Arrastra Creek TH to the north along Beaver Creek. Pine Grove CG to the east in Beaver Creek.       |



Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 293. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized areas available for summer recreation           | The entire polygon is available for primitive and semi-primitive non-motorized use.  |
| Primitive and semi-primitive non-motorized areas available for winter recreation           | Even though the area is open for cross country snowmobile use in the winter, there are still many opportunities for primitive and semi-primitive winter recreational use.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | No constructed trails within this polygon. Area primarily used during hunting season and for hiking. Has potential for mountain biking. No designated snowmobile routes but entire area open to cross country snowmobile travel. |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Black Mountain Area (UB3) is 14,303 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

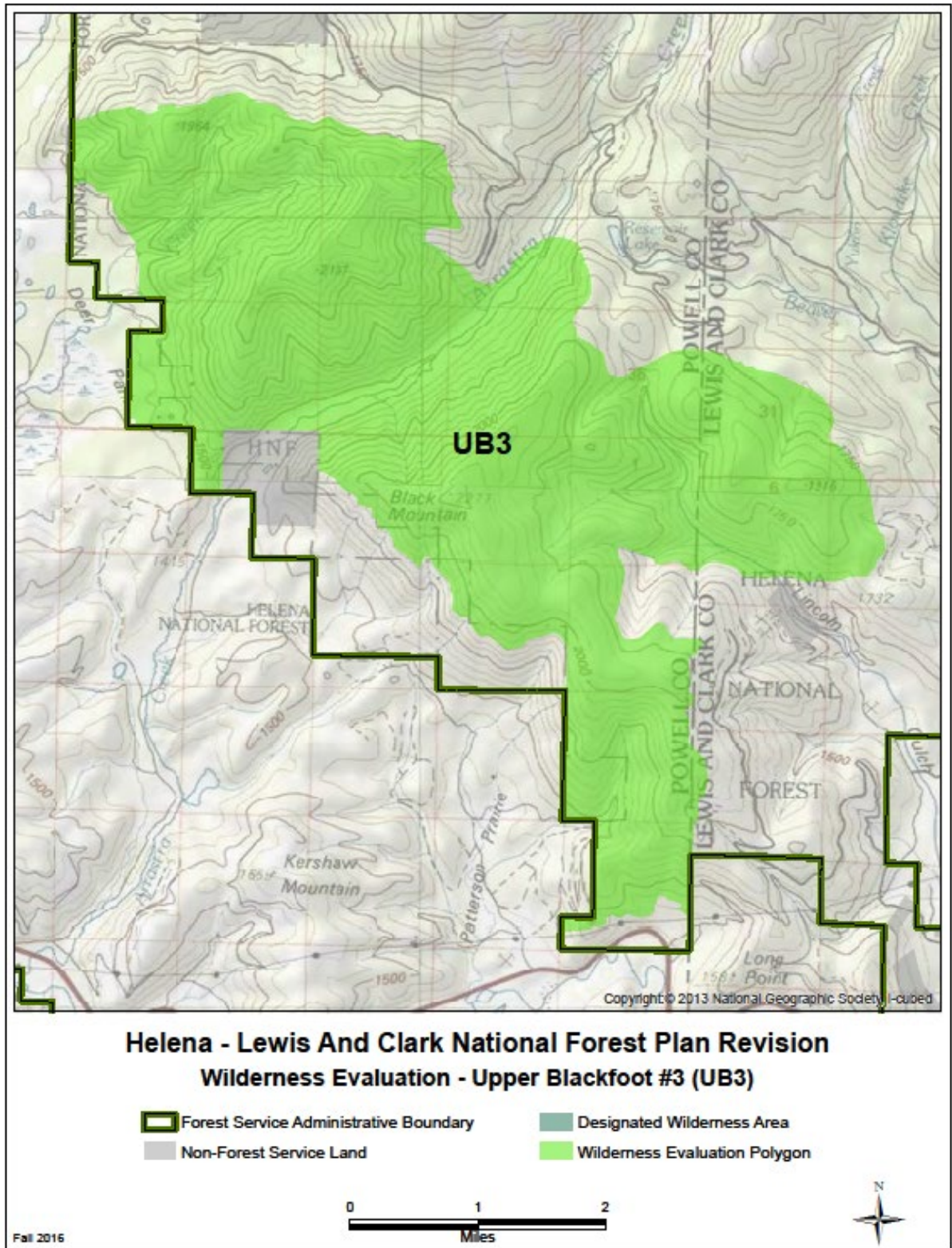
**Table 294. Features present**

| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The only potential plant species of conservation concern that is known to occur in this area is <i>Pinus albicaulis</i> . Further, although not mapped in VMap, the presence of scattered or minor components of western larch are likely present; this is not a potential SCC but is a species of interest on the HLC NF. |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Recovery Zone and Primary Conservation Area), Canada lynx (within designated Critical Habitat).<br>Potential species of conservation concern and/or state at risk species: western toad.<br>Bull and WCT in Arrastra Creek.   |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is found in this area. This area is in also proximity to known stands of western larch, which are rare on the HLC NF and limited to the far western portion of the Upper Blackfoot GA.<br>No known rare aquatic ecosystems.                             |
| Outstanding landscape features                               | None present.  |
| Historic and cultural resource sites                         | A small partition of the historic Lincoln Ditch Complex runs through this evaluation area. Other than the ditch complex, no recorded cultural resources.   |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Bull Trout habitat/Arrastra Creek  |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 295. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | An irregular shaped polygon the upper slopes of Black Mountain, Lincoln Gulch and either side of Arrastra Creek.  |
| Legally established rights or uses within the area   | None known  |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known  |
| The presence and amount of non-Federal land in the area  | No private land inholdings within the polygon.  |
| Management of adjacent lands   | Forest Service system land managed for timber production to the north and east. South of polygon is private residential and mixed ownership with state of MT. Mix of private and BLM to the west. |



### Anaconda Hill Area (UB4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 296. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most common dominance types in this area are Douglas-fir dominated forests, which cover about 64% of the area. Also common are lodgepole pine forests, covering nearly 20%. Subalpine fir and Engelmann spruce mixed forests are found on about 9%, and dry grasslands cover 5%. Other dominance types are found in small amounts, generally covering 1% or less of the area, including shrublands, limber pine, whitebark pine, aspen, and a trace of ponderosa pine. A small area (about 2%) is considered “transitional”, where forest cover has not yet recovered after a recent disturbance.       |
| Potential vegetation types  | The most common potential vegetation types are warm dry forest types, found on about 57% of the area, likely supporting mainly Douglas-fir. Cool moist forest types make up about 37%, and likely Douglas-fir, lodgepole pine, fir and spruce can be found on these sites. Just a trace amount of cold forest types is present. Dry grassland types cover about 2%, and mesic grassland types about 3%, along with a trace of dry shrubland types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 76 acres within UB4 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 9900 acres potential lynx habitat, with approximately 4300 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 13,000 acres of goshawk potential nesting habitat. Less than 150 acres possible old growth habitat.<br>Approximately 13,000 acres secure elk habitat. Moose present. Less than 200 acres potential wolverine habitat. Grizzly bears, Canada lynx, wolves present. Westslope cutthroat trout in Anaconda and Sandbar Creeks, no mapped Bull Trout populations, but habitat is likely present. |
| Known non-native wildlife species                                     | No non-native terrestrial or avian species known<br>Non-native trout are likely present   |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 297. Ecological conditions**

| Measures                                     | Outcome   |
|--|---|
| Percent of area without past timber harvest  | There are no records of past harvest in this area, although it is possible that some historic cutting could have occurred prior to Forest Service record keeping. In particular, in Section 25 on the western side, aerial imagery shows extensive roads and modified vegetation that appears to have been harvested. |
| Percent of area without known invasive weeds | According to data as of 2/10/2016, 99.6% of UB4 is not associated with invasive plant inventories.  |

| Measures   | Outcome   |
|--|---|
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 54%, Class 2: 24%, Class 3: 24% (but this is the watershed with the superfund site, downstream of inventory unit). Sandbar Creek on 303(d) list for mining impacts, SF Dearborn River on list from grazing impacts |
| Miles of motorized road/trail within 300' of streams                         | 0.7 miles   |
| Noticeable wildfire suppression impacts                                      | No large fire occurrence records since 1980.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 298. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | Over 99% of this area has had no vegetation treatments of any kind according to available data. There are no records of past harvest. About 207 acres of prescribed burning has occurred, consisting of broadcast burning in 1979 which affected less than 1% of the area, and is no longer substantially noticeable today. However, in addition to the treatments found in available records, some additional areas appear to have been harvested on the western side of the polygon (Section 25). These areas appear well-regenerated but may still be noticeable to viewers on the ground. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present within UB4 however, electronic site on Sunset Mountain to the north is visible from within the polygon.  |
| Areas of mining activities including both abandoned and active mines  | This area overlaps two historic mining districts with numerous unrecorded features associated with past and current mining.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are no range improvements within UB4.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | There is a trail access point at Rogers Pass and developed trailhead at Flesher Pass. The CDNST Trail bisects the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None known.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.   |

| Improvement type   | Presence and extent of departure from naturalness  |
|--|--|
| Lands adjacent to development or activities that impact opportunities for solitude   | Extensive mining operations in the Mike Horse drainage. Traffic from Highway 200 and Highway 279 create site and sound impacts. Open roads within proposed area to go away in TP. Road to trail conversion proposed south in Sandbar Creek.                                  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | Only three recorded historic properties lie within the boundaries of this study area, however the two historic mining districts overlap this area. There are most likely numerous unrecorded historical and cultural features associated with the historic mining landscape. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness areas in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates.   | 0.7 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.      | No recorded historic roads. However, there is a high likelihood that numerous unrecorded historic routes associated with past mining exists on the landscape.  |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 299. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)  |
|---|--|
| Area available for summer motorized opportunity                     | There are no motorized trails within the polygon.  |
| Area available for winter motorized opportunity                     | There is a mixture of areas open and closed to cross country snowmobile use in this polygon.   |
| Proximity to private lands and non-Forest Service roads             | The entire polygon is surrounded by private lands. The northern, eastern and portions of the southern boundaries are with private agricultural lands. The western boundary is formed by Highway 200 and areas with mining impacts. |
| Proximity to developed recreation sites outside of the polygon area | Fletcher Trailhead is the only developed site near the polygon. There is a dispersed trailhead at the top of Roger's Pass, but it does not have any constructed features and functions as an access point for trails in that area. |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 300. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. However, the sights and sounds of Highway 200 and nearby mining activities may affect solitude. |
| Primitive and semi-primitive non-motorized winter recreation                               | The opportunities for primitive and semi-primitive non-motorized recreation in winter are limited to those areas that do not allow for cross country snowmobiling.                                |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, and horseback riding, and mountain biking primarily along the CDNST. Snowmobiling occurs in places within the polygon.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Anaconda Hill Area (UB4) is 22,318 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 301. Features present**

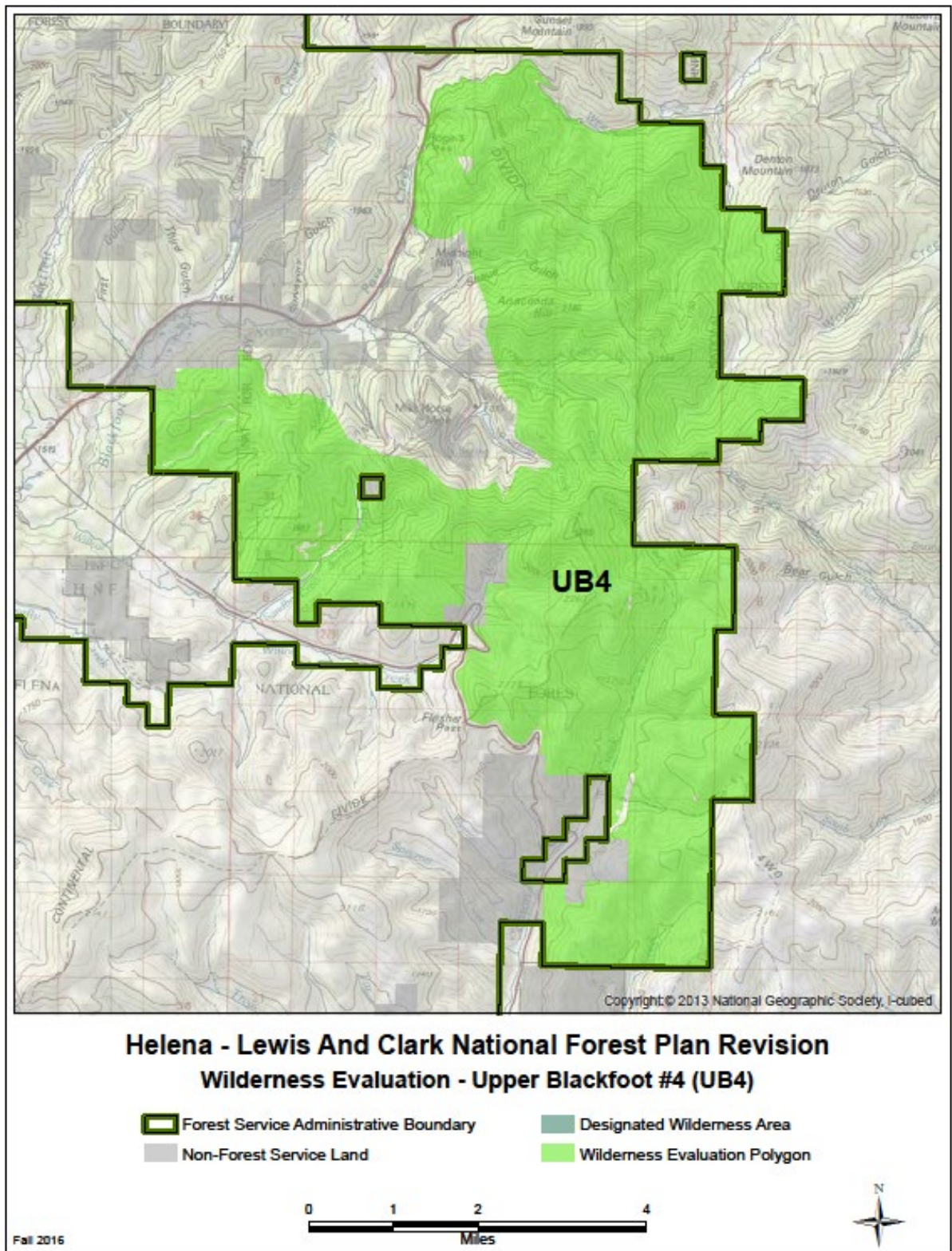
| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Draba densifolia</i> , and <i>Lesquerella klausii</i> .  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Distribution Zone and management Zone 1), Canada lynx (within designated Critical Habitat).<br>Potential state at risk species: wolverine<br>Westslope cutthroat trout in Sandbar and Anaconda Creeks.  |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in very small amounts in this area. Other vegetation communities of interest on the HLC NF also occur here in very small amounts, including limber pine, aspen, and ponderosa pine.<br>No rare aquatic ecosystems known. |
| Outstanding landscape features                               | Open ridges of the Continental Divide. Red cliffs along the southern portion of the CDNST.   |
| Historic and cultural resource sites                         | Only five recorded historic and cultural sites lie in this study area. However, it’s highly likely that numerous unrecorded sites are on the landscape, which could contain scientific or historic value.  |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Anaconda Creek is important westslope cutthroat trout fishery.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 302. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | This a large, irregular shaped polygon that straddles the continental divide east and south of Roger's Pass.        |
| Legally established rights or uses within the area   | Highway ROWs for Highways 200 and 279. Interior patented mining claim and road associated with it in Sandbar Creek. |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | National Systems Trails Act (CDNST)   |
| The presence and amount of non-Federal land in the area  | Patented mining claim and road associated with it in Sandbar Creek.   |
| Management of adjacent lands   | Active mining to the west in Mike Horse Creek. Agriculture and ranching to the east and south.                      |





### Paige Gulch Area (UB5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 303. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | The most common dominance types in this area are either Douglas-fir dominated forests (growing on about 52% of the area) and lodgepole pine dominated forests (growing on about 44% of the area). Subalpine fir and Engelmann spruce mixed forests can be found on about 3%, and dry grasslands cover about 2%. Trace amounts of other dominance types, representing less than 0.5% of the area each, are also found and include shrublands, ponderosa pine, limber pine, and aspen.   |
| Potential vegetation types  | Cool moist forest types are the most common potential vegetation types in this area, covering about 61% where the likely species present include Douglas-fir, lodgepole pine, fir and spruce. Warm dry forest types are found on 36%, and likely support mostly Douglas-fir. Other potential vegetation types present represent about 1% or less each of the area, and include xeric grassland, mesic grassland, and xeric shrubland types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 157 acres within UB5 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 11,000 acres potential lynx habitat, with approximately 4400 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 15,000 acres of goshawk potential nesting habitat.<br>Approximately 10,000 acres secure elk habitat. Moose present.<br>Roughly 1000 acres potential wolverine habitat.<br>Grizzly bears, Canada lynx, wolves present.<br>Fisheries: Westslope cutthroat trout in Black Diamond, Trout Creek, Specimen Creek, and small tributaries. No Bull Trout populations mapped in the polygon, but habitat is likely to be present. |
| Known non-native wildlife species                                     | No non-native terrestrial or avian species known.<br>Non-native trout likely.  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 304. Ecological conditions**

| Measures                                    | Outcome  |
|---|--|
| Percent of area without past timber harvest | A little over 98% of this area has been unaffected by past timber harvest. According to available records, about 296 acres have been harvested in the past, consisting primarily of salvage cutting in 1963 but also including small clearcut, sanitation, and shelterwood cuts from 1963 to 2012. |

| Measures   | Outcome   |
|--|---|
| Percent of area without known invasive weeds                                 | According to data as of 2/10/2016, 99.1% of UB5 is not associated with invasive plant inventories.  |
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 32%, Class 2: 35%, Class 3: 32%. Class 2/3 impacts generally relate to mining impacts downstream from WI unit. No 303(d) listed streams. |
| Miles of motorized road/trail within 300' of streams                         | 3.1 miles   |
| Noticeable wildfire suppression impacts                                      | No large fire occurrence records since 1980.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 305. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Airstrips   | None present   |
| Presence of timber harvest or prescribed fire areas   | About 296 acres, or 1.69% of this area, has had past harvest, primarily in 1963. The most recent treatment was a small sanitation cut in 2012 which left reserve trees. Although all of these areas were determined to be no longer substantially noticeable, most past harvest areas are adjacent to the main road in the middle of the polygon and could be excluded from the boundary if desired. In addition to the harvest, about 1,617 acres in this area have had prescribed burning treatments, consisting primarily of underburning in the 1990's, and broadcast burning for wildlife habitat improvement from 2012 to about 2014. District personnel determined that these treatments were also not substantially noticeable, with effects similar to wildlife. Altogether, vegetation treatments have affected about 9% of the area within this evaluation boundary. Additional past cutting is adjacent to the boundary. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.  |
| Areas of mining activities including both abandoned and active mines  | None present.  |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are no range improvements within UB5.  |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | There is a developed trailhead at Flesher Pass. Cummings cabin rental on the northwest. CDNST bisects. Stemple Pass cross country ski trails. Paige Gulch road is open to snowmobiles in winter and is open to motorized travel in the summer. Cross country snowmobile travel is open in the northwestern part of the polygon.  |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None internally.   |

| Improvement type   | Presence and extent of departure from naturalness   |
|--|---|
| Presence of watershed treatment areas including contouring, diking, and channeling   | None known  |
| Lands adjacent to development or activities that impact opportunities for solitude   | Active mining in 7UP mining complex to the west. Internal timber harvest and road building by the FS. Highway 200 and residential areas to the north. Residential acres to the south and east.                      |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area | There are 6 recorded cultural resources within this polygon. This polygon is within the Stemple-Gould Historic Mining District, therefore it has a high potential for unrecorded sites associated with past mining. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process    | Not recommended as wilderness in the 1986 Forest Plan.  |
| Number of miles of maintenance level 1 road templates  | 0.0 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation       | No recorded historic routes, however, there is a high probability for unrecorded historic routes associated with past mining in the area.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 306. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | There are no motorized trails within the polygon.   |
| Area available for winter motorized opportunity                     | North of the CDNST is open to cross country snowmobiling; south of the CDNST is closed to cross country snowmobiling. Snowmobiling allowed on the Paige Gulch road. |
| Proximity to private lands and non-Forest Service roads             | None present.   |
| Proximity to developed recreation sites outside of the polygon area | Flesher Pass Trailhead. Cummings cabin rental on the northwest.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 307. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations   |
|--|--|
| Primitive and semi-primitive non-motorized summer recreation                               | The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. Motorized uses do currently occur on the CDNST in this area. |
| Primitive and semi-primitive non-motorized winter recreation.                              | The areas south of the CDNST, which are closed to cross country snowmobiling, are available for primitive and semi-primitive non-motorized winter recreation.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, snowmobiling, hiking, mountain biking, and cross-country skiing.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Paige Gulch Area (UB5) is 20,145 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

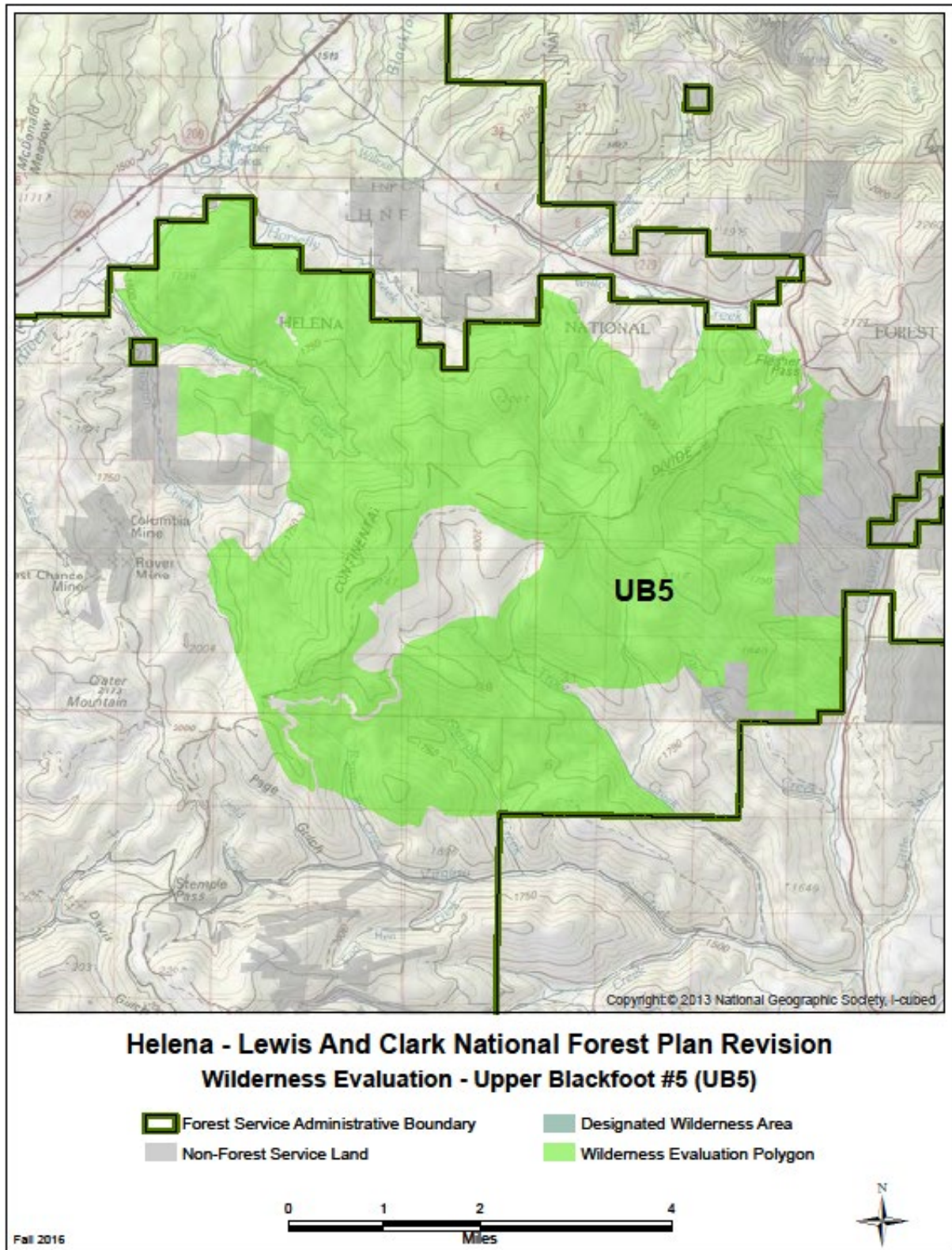
**Table 308. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | The only potential plant species of conservation that is known to occur in this area is <i>Pinus albicaulis</i> , although it is also possible that <i>Pinus flexilis</i> could occur.  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Distribution Zone and management Zone 1), Canada lynx (within designated critical habitat).<br>Potential species of conservation concern and/or state at risk species: western toad.<br>No bull trout, several streams with westslope cutthroat trout (see above). |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in small amounts in this area.<br>No known rare aquatic ecosystems.   |
| Outstanding landscape features                               | Open, scenic ridges along the CDNST.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | None present.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 309. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | The area is a large irregular shaped polygon that stretches south and west of Flesher Pass. There is a large exclusion area in the upper reaches of Paige Gulch.  |
| Legally established rights or uses within the area   | None known.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | None present.   |
| Management of adjacent lands   | The northern boundary is private residential. The western boundary is active mining and timber harvesting and Stemple Pass cross country ski trails. The southern boundary is private residential, ranching, and timber harvest. The eastern boundary is Highway 279 and residential areas. |



## Bear Gulch Area (UB9)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. *What is the composition of plant and animal communities within the area?*

**Table 310. Plant and animal communities**

| Plant and animal communities  | Composition  |
|---|--|
| Existing vegetation dominance types                                   | There is a relatively low diversity of dominance types in this area. The most abundant types are lodgepole pine dominated forests, which cover about 53% of the area. Douglas-fir dominated forests are also common, found on about 40% of the area. Subalpine fir and Engelmann spruce forests grow on just over 6%. Trace amounts of other dominance types are present and represent less than 1% of the area each, and include grasslands, shrublands, and cottonwood.  |
| Potential vegetation types  | The most common potential vegetation types are cool moist forest types, representing over 61% of the area and likely supporting Douglas-fir, lodgepole pine, fir, and Engelmann spruce. Warm dry forest potential types are found on 36%, where Douglas-fir likely dominates. Other potential types are present and cover 1% or less of the area each, and include xeric grassland, mesic grassland, and xeric shrubland types.  |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 102 acres within UB9 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 4600 acres potential lynx habitat, with approximately 1500 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 4800 acres of goshawk potential nesting habitat. Presence of flammulated owl indicates mature, open ponderosa pine habitat.<br>Approximately 2700 acres secure elk habitat. Moose present. Roughly 2000 acres potential wolverine habitat. Grizzly bears, Canada lynx, wolves present.<br>Fisheries: Westslope cutthroat trout in EF Willow Creek, possibly Jefferson Creek Trib., McClellan Gulch, and Fields Gulch. Bull Trout mapped in Poorman Creek, along the northern boundary of the polygon. |
| Known non-native wildlife species                                     | No non-native terrestrial or avian species known. Non-native trout likely.   |

Question 1b. *What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 311. Ecological conditions**

| Measures                                     | Outcome  |
|--|--|
| Percent of area without past timber harvest  | 100% of the area is unaffected by past harvest. There are no records of harvest occurring here, although it is possible that historical logging could have occurred prior to Forest Service record keeping. There is nothing noticeable on aerial photography. |
| Percent of area without known invasive weeds | According to data as of 2/10/2016, 88.2% of UB9 is not associated with invasive plant inventories.   |



| Measures   | Outcome   |
|--|---|
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 2: 36%, Class 3: 64% Class 3 primarily due to impacts downstream of WE polygon. |
| Miles of motorized road/trail within 300' of streams                         | 1.1 miles   |
| Noticeable wildfire suppression impacts                                      | No large fire occurrence records since 1980.  |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 312. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present.   |
| Presence of timber harvest or prescribed fire areas   | There are no records of past harvest in this area, although there are many harvest units immediately adjacent to the boundary. Prescribed fire treatments have occurred within the area, consisting of about 686 acres of broadcast burning and underburning in 1992 and 2002. This affected about 12% of the area; however, these treatments were determined to not be substantially noticeable, with effects similar to low or mixed severity wildfire. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters   | None present.   |
| Areas of mining activities including both abandoned and active mines  | Roads to the abandoned mine sites are still evident. There are active mines along the east boundary of the polygon.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth)   | According to current data there are no range improvements within UB9.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | Motorized trail (Helmville-Gould) along southwestern corner. Minimally developed trailhead to the west (Dalton Mountain).   |
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present.   |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None present.   |
| Lands adjacent to development or activities that impact opportunities for solitude  | There is evidence of mining and timber harvest surrounding the entire polygon. There are agricultural uses to the north.  |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are 10 recorded cultural resources within this polygon. This polygon is also within the McClellan/Sauerkraut Historic Mining District which has the high probability of unrecorded sites associated with past mining. Old mining cabins and evidence of mining activity along the western edge. Crisscrossed with old trails and roads.   |

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 0.8 miles  |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation    | No recorded historic routes within this polygon. However, there is the potential for unrecorded historic routes associated with past mining in the area. |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 313. Impacts influencing solitude**

| Impacts  | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds) |
|--|---|
| Area available for summer motorized opportunity                      | Motorized use on Helmville-Gould trail and dispersed cross country foot traffic.                    |
| Area available for winter motorized opportunity                      | Entire area open to cross country snowmobile travel.  |
| Proximity to private lands and non-Forest Service roads.             | None present.   |
| Proximity to developed recreation sites outside of the polygon area. | Dalton Mountain trailhead (minimally developed).  |

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?*

**Table 314. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Most of the area holds opportunities for primitive and semi-primitive non-motorized recreation. These opportunities may be limited in the portions of the polygon that lie adjacent the Helmville-Gould trail which is open to motorized use in the summer. |
| Primitive and semi-primitive non-motorized winter recreation                               | The area is available for primitive and semi-primitive non-motorized uses in winter, but the presence of cross-country snowmobile uses may affect these experiences.  |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, hiking, horseback riding, and ATV riding in the summer. Snowmobiling in the winter.  |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Bear Gulch Area (UB9) is 7,591 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

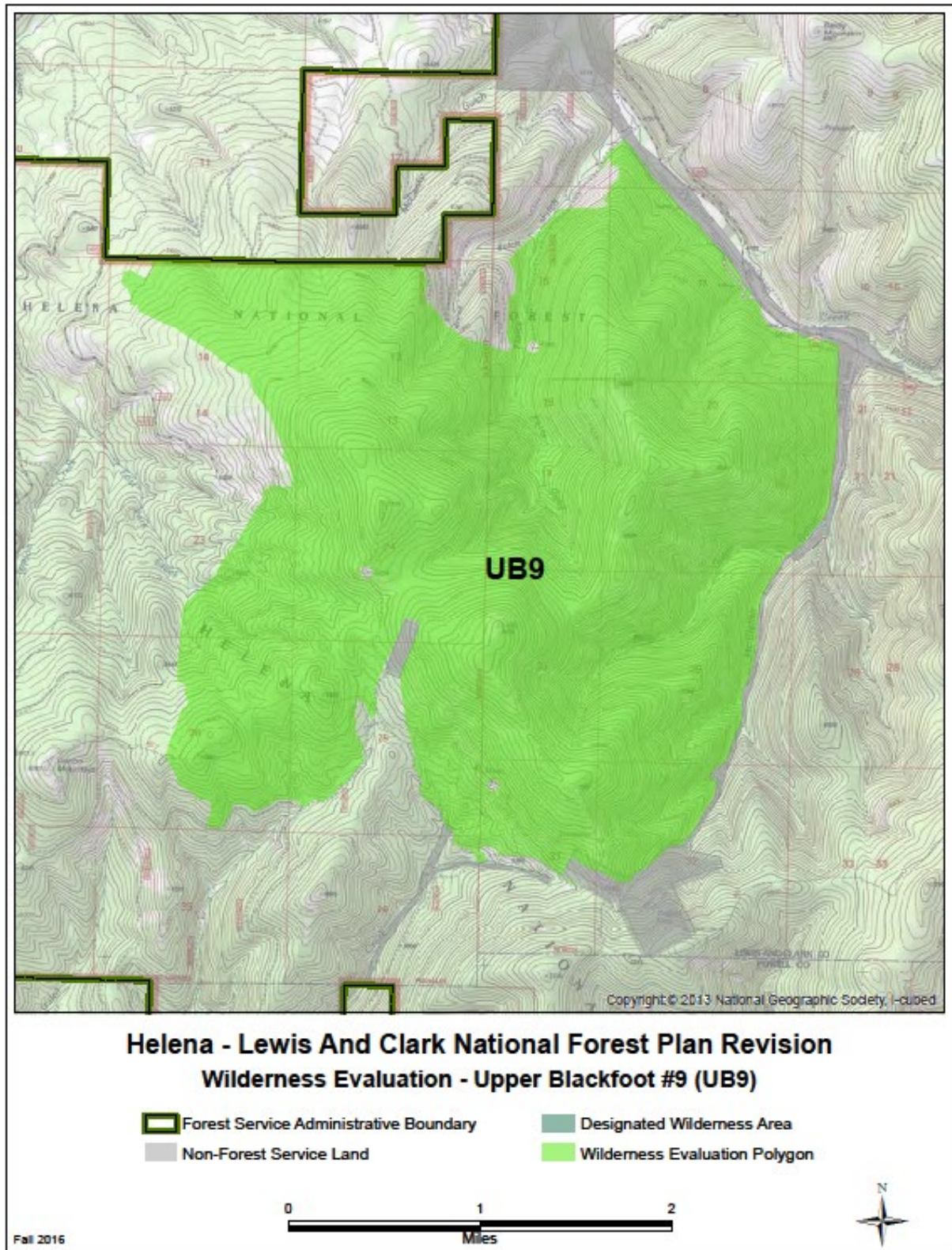
**Table 315. Features present**

| Features   | Description and scale   |
|--|---|
| Rare plant communities                                       | There are no potential plant species of conservation concern that are known to occur in this area.  |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Distribution Zone and Management Zone 1), Canada lynx (within designated critical habitat).<br>Potential species of conservation concern and/or state at risk species: flammulated owl.<br>Fisheries: Westslope cutthroat trout in EF Willow Creek, possibly Jefferson Creek Trib., McClellan Gulch, and Fields Gulch. |
| Rare ecosystems  | There are no known rare terrestrial ecosystems in this area. No known rare aquatic ecosystems.  |
| Outstanding landscape features                               | None.   |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.  |
| Research natural areas                                       | None present.   |
| High quality water resources or important watershed features | Bull Trout and westslope cutthroat trout fisheries.   |

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 316. Wilderness characteristics**

| Factors  | Description and scale   |
|--|---|
| Shape and configuration of the area  | Irregular shaped polygon which lies south and west of Poorman Creek. Shape of the polygon on the west side is influenced by patented mining claims. |
| Legally established rights or uses within the area   | None present.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | None known.   |
| The presence and amount of non-Federal land in the area  | No private land inholdings within the polygon. Patented mining claims lay outside of the polygon around the border.                                 |
| Management of adjacent lands   | Timber production and mining to the south and west. Rangeland to the north. Strip of private lands along McClellan Creek to the east.               |



## Nevada Mountain Area (UB10)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man’s work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 317. Plant and animal communities**

| Plant and animal communities  | Composition   |
|---|---|
| Existing vegetation dominance types                                   | The most abundant dominance types in this area are lodgepole pine dominated forests, which cover about 44% of the area. Douglas-fir dominated forests are also common, found on about 39% of the area. Subalpine fir and Engelmann spruce mixed forests occur on roughly 13% of the area, and dry grasslands are found on nearly 2%. Other dominance types are present in very small amounts, representing less than 1% of the area each, and include shrublands, whitebark pine, limber pine, cottonwood, and aspen. There are some sparsely vegetated areas as well (scree/rock). |
| Potential vegetation types  | The most common potential vegetation types in this area are the cool moist forest types, which represent about 65% of the area and likely support pure or mixed forests of Douglas-fir, lodgepole pine, fir, and spruce. Warm dry forest potential types are found on about 32%, and likely primarily support Douglas-fir. Cold forest types are found on just over 1%, where whitebark pine is most likely to grow. Very small amounts of other potential types are also present, including xeric grassland, mesic grassland, and xeric shrubland types.                           |
| Known non-native terrestrial plant species                            | According to data as of 2/10/2016, 335 acres within UB10 are associated with invasive plant inventories.  |
| Status and extent of existing native wildlife species and communities | Functioning mature forest habitat: 35,000 acres potential lynx habitat, with nearly 12,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Over 36,000 acres of goshawk potential nesting habitat. Approximately 33,000 acres secure elk habitat. Roughly 29,000 acres potential wolverine habitat. Grizzly bears, Canada lynx, wolves present. Westslope cutthroat trout and Bull Trout in Nevada Creek, WCT in Washington and Threemile Creeks.  |
| Known non-native wildlife species                                     | No non-native terrestrial or avian species known. Non-native trout likely.  |

Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

**Table 318. Ecological conditions**

| Measures                                     | Outcome   |
|--|---|
| Percent of area without past timber harvest  | Available records show that there have been about 291 acres of past harvest in this area, consisting of thinning, uneven-aged cuts, liberation cuts, and seed tree cuts from 1964 to 1992. There was also a small clearcut in 1958. These areas cover about 0.57% of the area; over 99% of the area has been unaffected by harvest. |
| Percent of area without known invasive weeds | According to data as of 2/10/2016, 99.3% of UB10 is not associated with invasive plant inventories.   |

| Measures   | Outcome  |
|--|--|
| Percent of area within watersheds in watershed condition classes 1, 2, and 3 | Class 1: 9%, Class 2: 31%, Class 3: 60%. Class 3 primarily due to mining activities occurring downstream from WE polygon; Washington Creek watershed impacted by dewatering, dredge mining, roads, and grazing. Washington Creek is on 303(d) list for mining impacts and Nevada Creek is on 303(d) list for Agriculture, Grazing Sources, Placer Mining, Resource Extraction issues—but could be related to activities downstream of the polygon. |
| Miles of motorized road/trail within 300' of streams                         | 10.4 miles   |
| % of area without noticeable wildfire suppression impacts                    | No large fire occurrence records since 1980.   |

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 319. Improvements and extent of departure from naturalness**

| Improvement type  | Presence and extent of departure from naturalness   |
|---|---|
| Airstrips   | None present  |
| Presence of timber harvest or prescribed fire areas   | All of the past harvests that occurred in this area (291 acres total, from 1958 to 1992) were determined to be no longer substantially noticeable on the landscape. In addition to harvest, about 2,375 acres (or 4.65% of the area) has been treated with prescribed fire. About 80 acres of this were pile burning or jackpot burning following past harvest treatments. The remainder (and bulk) of the burning was underburning from 1991 to 2004, most commonly as part of the Poorman project. These areas were also determined to be not substantially noticeable on the landscape, with effects similar to wildfire. Over 95% of the evaluation area has been unaffected by any vegetation treatment. |
| Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters                         | None present  |
| Areas of mining activities including both abandoned and active mines  | Mining impacts/roads in Washington Creek, primarily downstream of WE polygon, roads around Nevada Creek too, mostly downstream of polygon. Active mining in this polygon, including placer plus lode mining. There are a lot of known unpatented claims with pre-existing rights.   |
| Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) | According to current data there is approximately 1 mile of fencing and 2 stock water tanks within UB10.   |
| Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area   | The Helmville-Gould Trail is designated for motorized use. The CDNST is motorized/nonmotorized and bisects the polygon. There are nonmotorized trails in Nevada Creek, Prickly Pear Gulch and Washington Gulch. The Nevada Creek TH is located west of the polygon. The Nevada Creek Admin Cabin is in Nevada Creek. The Helmville Gould TH is located on eastern edge. Snowmobiles are not authorized in the polygon area.   |

| Improvement type  | Presence and extent of departure from naturalness  |
|---|--|
| Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures | None present. ROW in Washington Creek for patented mining claim inholdings.  |
| Presence of watershed treatment areas including contouring, diking, and channeling  | None known.  |
| Lands adjacent to development or activities that impact opportunities for solitude  | Mines in Washington Creek to the west. Timber harvest and road building to the north. Active timber harvest on FS lands to west. Stemple Pass road to the north.                       |
| Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area  | There are 28 recorded cultural resources within this polygon. This polygon also overlaps three historic mining districts with have numerous unrecorded relics of past mining activity. |
| Areas that have been proposed by the FS for consideration as recommended wilderness as a result of a previous Forest planning process   | Not recommended as wilderness in the 1986 Forest Plan.   |
| Number of miles of maintenance level 1 road templates   | 10.9 miles   |
| Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation  | No recorded historic routes. However, there is the high potential for unrecorded routes associated with past mining.   |

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor’s opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 320. Impacts influencing solitude**

| Impacts   | Mitigating factors<br>(include topography and screening that influence pervasive sights and sounds)   |
|---|---|
| Area available for summer motorized opportunity                     | There are three motorized trails within the polygon: Trail 467 (Helmville-Gould), Trail 487, and Trail 440 (part of the CDNST).                               |
| Area available for winter motorized opportunity                     | Except for an area just south of Jefferson Creek which is open to cross country snowmobiling, the rest of the area is closed to cross country snowmobile use. |
| Proximity to private lands and non-Forest Service roads             | Patented mining claims and access road in Washington Creek.   |
| Proximity to developed recreation sites outside of the polygon area | Nevada Creek TH, Helmville Gould TH, and Seller Gulch TH. Nevada Creek Admin Cabin in Nevada Creek.   |

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitor’s ability to feel a part of nature?

**Table 321. Primitive or unconfined types of recreation**

| Measures   | Descriptions and locations  |
|--|---|
| Primitive and semi-primitive non-motorized summer recreation                               | Except for areas immediately surrounding the 3 motorized trails, there are abundant opportunities available for primitive and semi-primitive recreation in the summer.                      |
| Primitive and semi-primitive non-motorized winter recreation                               | Except for the area just south of Jefferson Creek where cross country snowmobiling is allowed, most of this polygon is available for primitive and semi-primitive recreation in the winter. |
| Known existing primitive/unconfined types of recreation uses, including nonconforming uses | Hunting, CDNST, hiking, horseback riding, and mountain biking. Some ATV use on nonmotorized trails.   |

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

The Nevada Mountain Area (UB10) is 58,531 acres.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 322. Features present**

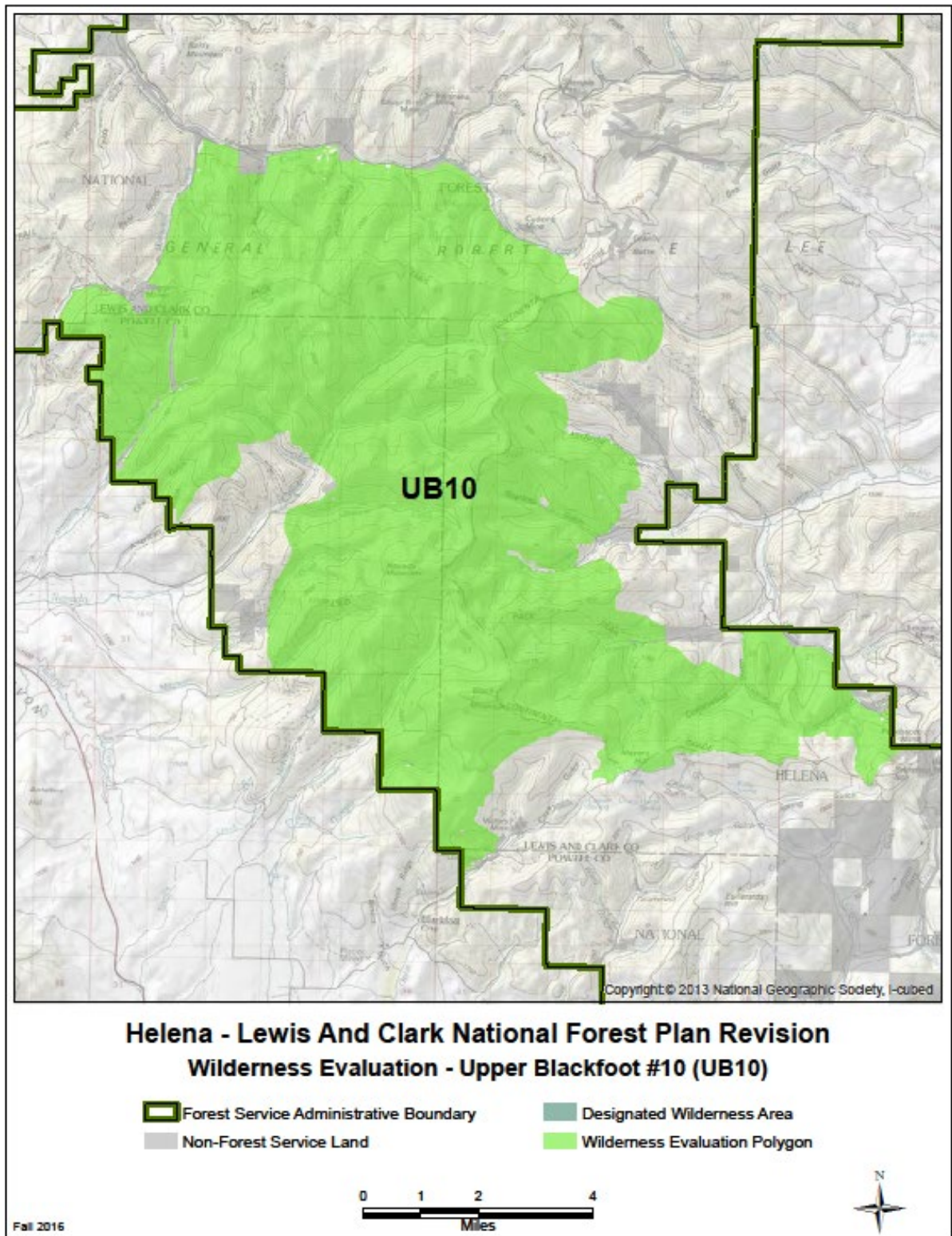
| Features   | Description and scale  |
|--|--|
| Rare plant communities                                       | The only potential plant species of conservation concern known to occur in this area are <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .   |
| Rare animal species or communities                           | Federally listed species: grizzly bear (within Distribution Zone and Management Zone 1), Canada lynx (within designated critical habitat).<br>Potential species of conservation concern and/or state at risk species: none documented.<br>Westslope cutthroat trout and Bull Trout in Nevada Creek, westslope cutthroat trout in Washington and Threemile Creeks |
| Rare ecosystems  | Whitebark pine is a proposed species for listing under the ESA and is present in very small amounts in this area. Limber pine and aspen communities are also of interest on the HLC NF and are present in small amounts as well.<br>No known rare aquatic ecosystems.  |
| Outstanding landscape features                               | Nevada Mountain, Black Mountain and open scenic ridges along the CDNST.  |
| Historic and cultural resource sites                         | All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.   |
| Research natural areas                                       | None present.  |
| High quality water resources or important watershed features | Bull Trout and westslope cutthroat trout populations.  |



Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 323. Wilderness characteristics**

| Factors  | Description and scale  |
|--|--|
| Shape and configuration of the area  | A large polygon that includes much of the undeveloped mountainous landscape surrounding Nevada Mountain on both sides of the continental divide.                                   |
| Legally established rights or uses within the area   | Patented mining claims and access road inholding. There are a lot of known unpatented claims with pre-existing rights.   |
| Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics | National Systems Trails Act (CDNST)  |
| The presence and amount of non-Federal land in the area  | Patented mining claim in Washington creek.   |
| Management of adjacent lands   | Mining and timber harvesting surround the polygon. There is extensive rangeland in the Helmville Valley. The Great Divide Ski Area is visible from the CDNST in several locations. |



## Step 3: Analysis

After the evaluation step, the forest identified nine (9) recommended wilderness areas to be included in the Proposed Action. The Proposed Action was then released for public review and comment.

Based on input received during this public participation period, the responsible official identified potential changes to the recommended wilderness areas (RWAs) identified in the Proposed Action to be studied as various alternatives in the DEIS. Not all of the lands included in the inventory and evaluation steps are required to be carried forward in an alternative and studied in the DEIS.

After additional public review and comment on the DEIS, the responsible official identified an additional alternative in the FEIS – Alternative F. Alternative F is the preferred alternative.

A summary of the alternatives is outlined below:

- Alternative A: No-action alternative. Currently three recommended wilderness areas are identified in the 1986 Forest Plans.
- Alternative B: Proposed Action. Nine (9) recommended wilderness areas. No motorized or mechanized means of transportation are suitable within RWAs.
- Alternative C: Nine (9) recommended wilderness areas. Motorized and mechanized means of transportation would continue to be suitable within RWAs as per current travel plans.
- Alternative D: Sixteen (16) recommended wilderness areas. No motorized or mechanized means of transportation would be suitable within RWAs.
- Alternative E: No recommended wilderness areas proposed.
- Alternative F: Preferred alternative. Six (6) recommended wilderness areas. No motorized or mechanized means of transportation suitable within RWAs.

Maps of the RWAs included in each of the alternatives are in appendix A of the FEIS.

Table 324 provides a snapshot of the RWAs that are included in each alternative, including the GA where it is located, the inventory polygon it originated from, and the approximate acres.

**Table 324. Recommended wilderness areas included in each alternative**

| RWA               | GA           | Wilderness inventory polygon | Alternative A (acres) | Alternatives B and C (acres) | Alternative D (acres) | Alternative F (preferred) (acres) |
|-------------------|--------------|------------------------------|-----------------------|------------------------------|-----------------------|-----------------------------------|
| Big Log           | Big Belts    | BB1                          | 9,139                 | 7,086                        | 7,086                 | 7,035                             |
| Camas Creek       | Big Belts    | BB6                          | --                    | --                           | 22,350                | --                                |
| Mount Baldy       | Big Belts    | BB7                          | 8,420                 | 8,314                        | 8,314                 | 8,141                             |
| Wapiti Peak       | Castles      | CA1                          | --                    | --                           | 30,606                | --                                |
| Loco Mountain     | Crazies      | CR1                          | --                    | --                           | 24,977                | --                                |
| Electric Peak     | Divide       | D3                           | 16,653                | 18,296                       | 26,900                | 18,239                            |
| Colorado Mountain | Divide       | D5                           | --                    | --                           | 14,189                | --                                |
| Deep Creek        | Little Belts | LB1a                         | --                    | 14,490                       | 14,490                | --                                |
| Tenderfoot Creek  | Little Belts | LB1b                         | --                    | --                           | 45,870                | --                                |
| Big Horn Thunder  | Little Belts | LB2                          | --                    | --                           | 47,107                | --                                |

| RWA                | GA                         | Wilderness inventory polygon | Alternative A (acres) | Alternatives B and C (acres) | Alternative D (acres) | Alternative F (preferred) (acres) |
|--------------------|----------------------------|------------------------------|-----------------------|------------------------------|-----------------------|-----------------------------------|
| Middle Fork Judith | Little Belts               | LB16                         | --                    | --                           | 62,452                | --                                |
| Big Snowies        | Snowies                    | S1                           | --                    | 95,299                       | 95,299                | 66,894                            |
| Silver King        | Upper Blackfoot            | UB1                          | --                    | 20,088                       | 20,088                | 18,568                            |
| Red Mountain       | Upper Blackfoot            | UB2a                         | --                    | 1,897                        | 1,897                 | 2,500                             |
| Arrastra Creek     | Upper Blackfoot            | UB2b                         | --                    | 8,257                        | 8,257                 | --                                |
| Nevada Mountain    | Divide and Upper Blackfoot | UB10                         | --                    | 39,443                       | 44,774                | 31,571                            |
| <b>Total acres</b> |                            |                              | <b>34,212</b>         | <b>213,170</b>               | <b>474,658</b>        | <b>152,948</b>                    |

In addition to the analysis in the DEIS and FEIS, the FSH 1909.12, chapter 70, requires that the following items be discussed for each RWA in each alternative where it was identified:

- The name of the area and number of acres to be considered for recommendation;
- The location and a summarized description of a boundary for each recommended area;
- A brief description of the general geography, topography and vegetation of the recommended area;
- A brief description of the current uses and management of the area.
- A description of the area’s wilderness characteristics and the ability to protect and manage the area to preserve its wilderness characteristics;
- A brief summary of the factors considered, and the process used in evaluating the area and developing the alternatives;
- A brief summary of the ecological and social characteristics that would provide the basis for the area’s suitability for inclusion in the National Wilderness Preservation System.

## Alternative A

Alternative A, the no-action alternative is based on the 1986 Forest Plan, which has three RWAs totaling approximately 34,212 acres (Table 325). The three recommended wilderness areas are: Electric Peak in the Divide GA, and Big Log and Mount Baldy RWAs in the Big Belts GA. These three RWAs are under the current guidance provided in the 1986 Helena Forest Plan. Allowance of motorized and mechanized means of transportation are determined by current travel plans for these areas. For see the recommended wilderness analysis, sections 3.21.7 and 3.21.8 in the final EIS.

**Table 325. Recommended wilderness areas in alternative A**

| RWA                               | GA        | Wilderness inventory polygon | Alternative A (Acres) |
|-----------------------------------|-----------|------------------------------|-----------------------|
| Big Log                           | Big Belts | BB1                          | 9,139                 |
| Mount Baldy                       | Big Belts | BB7                          | 8,420                 |
| Electric Peak (Blackfoot Meadows) | Divide    | D3                           | 16,653                |
| <b>Total acres</b>                |           |                              | <b>34,212</b>         |

### Big Log Recommended Wilderness Area

The Big Log RWA was included in the 1986 Helena Forest Plan. The area description is based on the Big Log wilderness inventory polygon, Big Belts 1 (BB1), and is in the Big Belts geographic area.

**Table 326. Big Log Recommended Wilderness Area (alternative A)**

| Analysis criteria  | Description   |
|--|---|
| Acres  | 9,139   |
| Description of the recommended boundary                  | <p>The Big Log RWA in alternative A lies in three parcels, adjacent to the Gates of the Mountains wilderness area in the Missouri River and Beaver Creek drainages. Two of the parcels are located along the western edge of the Wilderness, with the third parcel located to the south of the Wilderness.</p> <p>The northern most parcel on the west side of the Wilderness lies to the north of the Meriwether Picnic Area and the Gates of the Mountains geologic formation along the Missouri River. This parcel extends from the wilderness boundary to the Missouri River and includes the lower reaches of the Mann Gulch drainage.</p> <p>The southwestern parcel on the west side of the Wilderness boundary is located south of the Meriwether Picnic Area and extends south to the American Bar area. It includes all lands between the Wilderness boundary and the Missouri River, except for a small exclusion along the river where the Coulter Campground is location in the lower Coulter Canyon drainage.</p> <p>The parcel along the southern boundary of the Wilderness area extends from the wilderness boundary south to a buffer strip along the Beaver Creek Indian Creek Road (FSR 138). The eastern boundary of this parcel is located along the section line between Sections 7 and 8 8 T12N R2W. The western boundary of this parcel extends along the section line boundary between Section 22 and 23 in Gilman Gulch.</p>   |
| Description of the geography, topography, and vegetation | <p>Much of the area is moderately steep to very steep, with limestone cliff features, especially adjacent to the Missouri River, as well as other unique geological landforms. Existing vegetation includes dry grasslands, shrub lands, open and dry ponderosa pine forests, and Douglas-fir forests, along with small amounts of lodgepole pine, and Rocky Mountain juniper.</p>  |
| Current uses and management                              | <p>The 1986 Helena Forest Plan included much of this area as an RWA. All parcels are available for primitive recreation opportunities. There are currently no motorized trails, open roads, or motorized over snow uses in this area.</p>   |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has outstanding unconfined and primitive recreation opportunities such as horseback riding, hiking, backpacking, dispersed camping, hunting, and cross-country skiing.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude and the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Areas that are closer to the Gates of the Mountains wilderness have greater opportunity for solitude, and this diminishes in areas closer to the Missouri River and the Beaver Creek road.</p> <p><b>Other Features of Value</b> –Features of this area include an introduced population of mountain goats; cliffs and rock formations along the river corridor and Meriwether Canyon; the unique rock formations and slot canyon in Refrigerator Canyon; many cultural resources including cabin ruins, tipi ring, mining and prehistoric rock art sites; and the Beaver Creek eligible Wild &amp; Scenic River; and rare plant and animal species such as grizzly bear, lynx, Flammulated owl, and Lewis’ woodpecker.</p> |

| Analysis criteria  | Description  |
|--|--|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the area is adjacent to existing wilderness and has been managed as recommended wilderness since 1986. It is also within Big Log inventoried roadless area and is adjacent to the Devil’s Tower inventoried roadless area to the south. There are no motorized uses.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>This area is currently being managed as an RWA under the 1986 Helena Forest Plan. Big Log RWA is located adjacent to the existing Gates of the Mountain wilderness and would expand it.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The naturalness of the area is very high and is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>o The undeveloped quality of the area is very high, and there are no motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The area offers outstanding opportunity for solitude.</li> <li>o There is high amount of primitive and/or unconfined recreation, such as, but not limited to, horseback riding, hiking, backpacking, dispersed camping, hunting, and cross-country skiing.</li> </ul> |

### Mount Baldy Recommended Wilderness Area

The Mount Baldy RWA was included in the 1986 Helena Forest Plan. The area description is based on the Mount Baldy wilderness inventory polygon, Big Belts 7 (BB7), and is in the Big Belts geographic area.

**Table 327. Mount Baldy Recommended Wilderness Area (alternative A)**

| Analysis Criteria  | Description   |
|--|---|
| Acres  | 8,420   |
| Description of the recommended boundary                  | <p>The Mount Baldy RWA is in the headwaters of Big Birch and Little Birch Creeks in the Big Belts geographic area. It includes numerous high elevation mountain lakes and the prominent topographic features of Mount Baldy, Mount Edith, and the Needles.</p> <p>The northern boundary of the RWA follows the hydrologic divide south and west between the Gypsy Creek and Big Birch Creek drainages. The boundary connects to the top of the ridge south of the radio tower. (Note: The RWA boundary includes FSR 4023-082.)</p> <p>The boundary then follows the top of the ridge south and then east, including the tops of Mount Baldy and Mount Edith peaks. The boundary line is located on the eastern boundary of Sections 12 and 13 of T8N R4E. Then the northern boundary of Sections 11 and 12 of T8N R4E. The boundary again heads due north on the east side of Section 3 T8N R4E and Section 34 T9N R4E. The boundary ends on the hydrologic divide between Gypsy Creek and Big Birch Creek drainages.</p> |
| Description of the geography, topography, and vegetation | This area includes several high peaks (Mount Baldy and Mount Edith), and includes the Needles rock formations, numerous alpine lakes, and valley vistas. Vegetation is dominated by high elevation lodgepole pine and subalpine fir/Engelmann spruce forests, with some Douglas-fir forests. Sparsely vegetated areas are common, including rocky alpine sites. Whitebark pine forest is also present, along with grasslands, shrub lands, and limber pine.   |
| Current uses and management                              | The 1986 Helena Forest Plan includes this area as an RWA. The entire polygon is available for primitive and semi-primitive recreation. There are no open roads, motorized trails, or motorized over snow uses. There are 13.6 miles of nonmotorized trail.  |

| Analysis Criteria  | Description   |
|--|---|
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities, including, but not limited to, horseback riding, hiking, backpacking, dispersed camping, and hunting.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This is slightly diminished near the communication site road in the summer.</p> <p><b>Other Features of Value</b> –Features of this area include an introduced population of mountain goats; numerous high alpine lakes; the Needles unique rock formations; unique wetland vegetation; and rare plant and animal species such as whitebark pine, grizzly bear, lynx, wolverine, black rosy finch, and west slope cutthroat trout in Ray Creek.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage wilderness characteristics is high because the area has been managed as an RWA since 1986 and contains no private inholdings. The area is in the Mount Baldy Inventoried Roadless Area. The only administrative motorized use is on the road to the communication site in the summer. There are no motorized uses.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | This area is currently being managed as an RWA under the 1986 Helena Forest Plan. The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high, with no motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation such as, but not limited to: horseback riding, hiking, backpacking, dispersed camping, and hunting.</li> </ul>  |

### Electric Peak Recommended Wilderness Area

The Electric Peak RWA is included in the 1986 Helena Forest Plan. The area description is based on the Blackfoot Meadows wilderness inventory description for Divide 3 (D3). It is in the Divide geographic area.

**Table 328. Electric Peak Recommended Wilderness Area (alternative A)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 16,653      |

| Analysis criteria  | Description   |
|--|---|
| Description of the recommended boundary  | The Electric Peak RWA is in the Little Blackfoot River drainage and the northern boundary follows the Little Blackfoot River from the headwaters to the confluence with Ontario Creek. The eastern boundary begins at the confluence of Little Blackfoot River and Ontario creek and traverses a ridgeline up toward the Continental Divide, extending around the base of Bison Mountain and ending on the top of the ridge at the Continental Divide. The remainder of the boundary of this RWA is located on the Forest boundary between the Deerlodge and the Helena-Lewis and Clark National Forests. A long stretch of this boundary line follows the Continental Divide.  |
| Description of the geography, topography, and vegetation   | This RWA is in the Divide GA. Portions of this RWA were identified as the Electric Peak RWA in the current 1986 Helena Forest Plan. The Electric Peak RWA lies along the Continental Divide National Scenic Trail and includes several mountain peaks that are well over 8000 feet in elevation. Vegetation is dominated by lodgepole pine forests, with Douglas-fir also common as well as subalpine fir and Engelmann spruce. Less common vegetation types include grasslands, shrub lands, and whitebark pine forests.   |
| Current uses and management  | Much of the area has been managed as an RWA since 1986. The entire polygon is available for nonmotorized summer and winter recreation. There are no open roads or motorized trails, but approximately 11 acres within the polygon is available for motorized over-snow uses. There are 16.3 miles of nonmotorized trail.  |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or roads, and minimal motorized over-snow use.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: horseback riding, hiking, hunting, fishing, mountain biking, and camping.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. The opportunity for solitude is somewhat diminished in portions closest to Highway 12 and where the Little Blackfoot road is visible.</p> <p><b>Other Features of Value</b> –Features of this area include the Little Blackfoot eligible wild and scenic river; cultural resources; and rare plant and animal species such as whitebark pine, grizzly bear, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics                            | The ability to protect and manage these wilderness characteristics is high because the area has been managed as an RWA since 1986 and is adjacent to an RWA on the adjacent Beaverhead-Deerlodge NF. It is also within the Electric Peak inventoried roadless area. There are two private inholdings: one along the Little Blackfoot Road (FSR 227), and the other along Ontario Road (FSR 123). There are currently no motorized trails or open roads, but a small area is available for over-snow motorized use.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s) | <p>This area is currently being managed as an RWA in the 1986 Helena Forest Plan.</p> <p>Outstanding opportunities for solitude.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>   |



| Analysis criteria  | Description  |
|--|--|
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ There are no motorized trails or open roads.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation activities such as, but not limited to, horseback riding, hiking, hunting, fishing, and camping.</li> </ul> |

## Alternatives B and C

Alternatives B and C identify nine (9) areas to be RWAs. These RWAs were identified after the HLC NF conducted a wilderness inventory and evaluation. Identifying an area as RWA in the 2021 Land Management Plan does not create a wilderness, as only Congress has the right to designate wilderness by passing legislation

The nine RWAs identified in alternatives B and C would be managed to protect their wilderness characteristics (Table 329). Alternative C was developed to address comments received from the public regarding the suitability of motorized and mechanized means of transportation within RWAs. In alternative C, all RWA boundaries and descriptions would be the same as alternative B except that motorized and mechanized means of transportation (including bicycles) within RWAs would be suitable in alternative C. The detailed descriptions for the RWAs are the same under alternative C as those described above under alternative B.

The nine RWAs in alternatives B and C are located within five GAs and total approximately 213,170 acres. These RWAs were derived from the wilderness inventory polygons identified in the first step of the wilderness evaluation process, but do not necessarily include all the original acres. They were selected based on consideration of the information in the wilderness evaluation, which indicated these areas had wilderness characteristics such as naturalness, undeveloped, outstanding opportunities for solitude or a primitive and unconfined recreation or other special features such as ecological, geological, or scientific, educational, scenic or historic value.

Boundaries for the individual RWAs are located on naturally occurring ridgelines, stream bottoms, or other locatable features on the landscape. Please also refer to the recommended wilderness analysis, sections 3.21.7 and 3.21.8 of the final EIS. For specific boundary locations of recommended wilderness areas, see maps provided in appendix A.

**Table 329. Recommended wilderness areas (alternatives B and C)**

| RWA            | GA              | Wilderness inventory polygon | Acres  |
|----------------|-----------------|------------------------------|--------|
| Big Log        | Big Belts       | BB1                          | 7,086  |
| Mount Baldy    | Big Belts       | BB7                          | 8,314  |
| Electric Peak  | Divide          | D3                           | 18,296 |
| Deep Creek     | Little Belts    | LB1a                         | 14,490 |
| Big Snowies    | Snowies         | S1                           | 95,299 |
| Silver King    | Upper Blackfoot | UB1                          | 20,088 |
| Red Mountain   | Upper Blackfoot | UB2a                         | 1,897  |
| Arrastra Creek | Upper Blackfoot | UB2b                         | 8,257  |

| RWA                | GA              | Wilderness inventory polygon | Acres          |
|--------------------|-----------------|------------------------------|----------------|
| Nevada Mountain    | Upper Blackfoot | UB10                         | 39,443         |
| <b>Total acres</b> |                 |                              | <b>213,170</b> |

### Big Log Recommended Wilderness Area

The Big Log RWA was included in the 1986 Helena Forest Plan. The area description is based on the Big Log wilderness inventory polygon, Big Belts 1 (BB1). This area is included as an RWA in alternatives A, B, C, and D. The boundary is the same for alternatives B, C, and D, and varies slightly for alternatives A and F.

**Table 330. Big Log Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 7,086  |
| Description of the recommended boundary                  | This RWA consists of several parcels of land adjacent to the existing Gates of the Mountains Wilderness area on the northern and southern boundary of the wilderness. The northern areas consist of four small parcels in the Willow Creek drainage. All are located adjacent to the northern border of the wilderness. The southern parcel extends along the entire southern border of the existing Gates of the Mountains Wilderness from the American Bar/Big Log Creek area on the west to the Gilman Gulch Area on the east. The southern parcel also lies adjacent to the wilderness boundary and extends south to a 300-foot buffer area along the north side of the Beaver Creek -Indian Creek Rd (FS Road 138).   |
| Description of the geography, topography, and vegetation | Much of the area is moderately steep to very steep, with limestone cliff features, especially adjacent to the Missouri River, as well as other unique geological landforms. Existing vegetation includes dry grasslands, shrub lands, open and dry ponderosa pine forests, and Douglas-fir forests, along with small amounts of lodgepole pine, and Rocky Mountain juniper.  |
| Current uses and management                              | The 1986 Helena Forest Plan included much of this area as an RWA. All parcels are available for primitive recreation opportunities. There are currently no motorized trails, open roads, or motorized over snow uses in these areas. Within this RWA, there are 5.3 miles of nonmotorized trail.   |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has outstanding unconfined and primitive recreation opportunities such as horseback riding, hiking, backpacking, dispersed camping, hunting, and cross-country skiing.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Areas that are closer to the Gates of the Mountains wilderness have greater opportunity for solitude, and this diminishes in areas closer to the Missouri River and the Beaver Creek road.</p> <p><b>Other Features of Value</b> –Features of this area include an introduced population of mountain goats; cliffs and rock formations along the river corridor and Meriwether Canyon; the unique rock formations and slot canyon in Refrigerator Canyon; many cultural resources including cabin ruins, tipi ring, mining and prehistoric rock art sites; and the Beaver Creek eligible Wild &amp; Scenic River; and rare plant and animal species such as grizzly bear, lynx, Flammulated owl, and Lewis’ woodpecker.</p> |

| Analysis criteria  | Description  |
|--|--|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the area is adjacent to existing wilderness and has been managed as recommended wilderness since 1986. It is also within Big Log inventoried roadless area and is adjacent to the Devil’s Tower inventoried roadless area to the south. There are no motorized uses.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternatives   | <p>A large portion of this area was previously included as an RWA in the 1986 Helena Forest Plan.</p> <p>Big Log RWA is located adjacent to the existing Gates of the Mountain wilderness and would expand it.</p> <p>High interest exists for this area to be an RWA; most public comments received were in favor of the designation.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high, and there are no motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation, such as, but not limited to, horseback riding, hiking, backpacking, dispersed camping, hunting, and cross-country skiing.</li> </ul> |

**Mount Baldy Recommended Wilderness Area**

The Mount Baldy RWA was included in the 1986 Helena Forest Plan. The area description is based on the Mount Baldy wilderness inventory polygon, Big Belts 7 (BB7). This area is included as an RWA in alternatives A, B, C, D and F. The boundary is the same for alternatives B, C, and D, and varies slightly for alternatives A and F.

**Table 331. Mount Baldy Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria                       | Description  |
|---|--|
| Acres                                   | 8,314  |
| Description of the recommended boundary | <p>The Mount Baldy RWA is in the headwaters of Big Birch and Little Birch Creeks in the Big Belts geographic area. It includes numerous high elevation mountain lakes and the prominent topographic features of Mount Baldy, Mount Edith, and the Needles.</p> <p>The northern boundary of the RWA follows the hydrologic divide south and west between the Gypsy Creek and Big Birch Creek drainages. At the top of the ridge the boundary remains approximately 300 feet to the east of the radio tower as well as the microwave spur road (FSR 4023-082).</p> <p>The boundary then follows the top of the ridge south and then east, including the tops of Mount Baldy and Mount Edith peaks. The boundary line heads due north at the private property line along Sections 12 and 13 of T8N R4E. It then cuts across the northeast corner of Section 12 and returns to the property boundary along the northern boundary of Sections 11 and 12 of T8N R4E.</p> <p>The boundary again heads due north on the east side of Section 3 T8N R4E and Section 34 T9N R4E. The boundary ends on the hydrologic divide between Gypsy Creek and Big Birch Creek drainages.</p> |

| Analysis criteria  | Description   |
|--|---|
| Description of the geography, topography, and vegetation   | This area includes several high peaks (Mount Baldy and Mount Edith), and includes the Needles rock formations, numerous alpine lakes, and valley vistas. Vegetation is dominated by high elevation lodgepole pine and subalpine fir/Engelmann spruce forests, with some Douglas-fir forests. Sparsely vegetated areas are common, including rocky alpine sites. Whitebark pine forest is also present, along with grasslands, shrub lands, and limber pine.   |
| Current uses and management  | The 1986 Helena Forest Plan includes this area as an RWA. The entire polygon is available for primitive and semi-primitive summer and winter recreation. There are no open roads, motorized trails, or motorized over snow uses. There are 13.6 miles of nonmotorized trail.  |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities, including, but not limited to, horseback riding, hiking, backpacking, dispersed camping, and hunting.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This is slightly diminished near the communication site road in the summer.</p> <p><b>Other Features of Value</b> –Features of this area include an introduced population of mountain goats; numerous high alpine lakes; the Needles unique rock formations; unique wetland vegetation; and rare plant and animal species such as whitebark pine, grizzly bear, lynx, wolverine, black rosy finch, and west slope cutthroat trout in Ray Creek.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage wilderness characteristics is high because the area has been managed as an RWA since 1986 and contains no private inholdings. The area is in the Mount Baldy Inventoried Roadless Area. The only administrative motorized use is on the road to the communication site in the summer. There are no motorized uses.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>A large portion of this area has been previously included as an RWA in the 1986 Helena Forest Plan.</p> <p>High interest exists for this area to be recommended for wilderness.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high as much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high, with no motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation such as, but not limited to: horseback riding, hiking, backpacking, dispersed camping, and hunting.</li> </ul>   |

### Electric Peak Recommended Wilderness Area

The area description for the Electric Peak RWA is based on the Blackfoot Meadows wilderness inventory description, Divide 3 (D3) which is in the Divide geographic area. The Electric Peak RWA is included in

alternatives A, B, C, D, and F. The boundary for the Electric Peak RWA is the same in alternatives B and C. However, the boundary delineation differs in alternatives A, D, and F.

**Table 332. Electric Peak Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria   | Description   |
|---|---|
| Acres   | 18,296  |
| Description of the recommended boundary   | <p>The Electric Peak RWA follows the Little Blackfoot River southwest from its confluence with Ontario Creek. The boundary is located approximately 300 feet south of FSR 227 and excludes private lands in the bottom of the drainage.</p> <p>Once beyond the campground at the end of the road, the boundary follows the centerline of the Little Blackfoot River until the Little Sunshine Camp trails (FS Trail 227-009). It then follows the centerline of this trail to the top of the ridge which is also the HLC NF Boundary with the Deerlodge NF.</p> <p>The RWA boundary then follows the HLC NF boundary to the south and east along the top of the ridgeline over topographic features such as Cliff Mountain, Electric Peak, and Thunderbolt Mountain. The RWA leaves the HLC/Deerlodge NF boundary at a point south of Bison Mountain and heads north across the top of Bison Mountain. It then follows a ridge line north west toward Monarch Creek and follows the centerline of Monarch Creek until FSR 4104.</p> <p>The RWA boundary follows a 300-foot buffer along the west side of FSR 4101, in Monarch Creek, and then FSR 123 in Ontario Creek. The boundary continues to the north, maintaining the 300-foot buffer with FSR 123 until it meets the boundary of the RWA near the confluence of Little Blackfoot River and Ontario Creek.</p>                       |
| Description of the geography, topography, and vegetation                              | <p>This RWA is in the Divide GA. Portions of this RWA were identified as the Electric Peak RWA in the current 1986 Helena Forest Plan. A portion of the Electric Peak RWA lies along the Continental Divide National Scenic Trail and includes several mountain peaks that are well over 8000 feet in elevation. Vegetation is dominated by lodgepole pine forests, with Douglas-fir also common as well as subalpine fir and Engelmann spruce. Less common vegetation types include grasslands, shrub lands, and whitebark pine forests.</p>   |
| Current uses and management   | <p>Much of the area has been managed as an RWA since 1986. The entire polygon is available for nonmotorized summer and winter recreation. There are no open roads or motorized trails, but approximately 11 acres within the polygon is available for motorized over-snow uses. There are 16.3 miles of nonmotorized trail.</p>   |
| Description of the wilderness characteristics   | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or roads, and minimal motorized over-snow use.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: horseback riding, hiking, hunting, fishing, mountain biking, and camping.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. The opportunity for solitude is somewhat diminished in portions closest to Highway 12 and where the Little Blackfoot road is visible.</p> <p><b>Other Features of Value</b> –Features of this area include the Little Blackfoot eligible wild and scenic river; cultural resources; and rare plant and animal species such as whitebark pine, grizzly bear, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics | <p>The ability to protect and manage these wilderness characteristics is high because the area has been managed as an RWA since 1986 and is adjacent to the Electric Peak RWA on the adjacent Beaverhead-Deerlodge NF. It is also within the Electric Peak inventoried roadless area. There are two private inholdings: one along the Little Blackfoot Road (FSR 227), and the other along Ontario Road (FSR 123). There are currently no motorized trails or open roads, but a small area is available for over-snow motorized use.</p>  |

| Analysis criteria  | Description   |
|--|---|
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | Most of the area was previously included as an RWA in the 1986 Helena Forest Plan.<br>Outstanding opportunities for solitude.<br>High interest exists for this area to be recommended for wilderness.<br>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | The <u>ecological characteristics</u> that provide the basis for suitability: <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high as much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ There are no motorized trails or open roads.</li> </ul> The <u>social characteristics</u> that provide the basis for suitability: <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation activities such as, but not limited to, horseback riding, hiking, hunting, fishing, and camping.</li> </ul> |

### Deep Creek Recommended Wilderness Area

The Deep Creek RWA is derived from the Deep Creek Tenderfoot wilderness inventory area, Little Belts 1a (LB1a) in the Little Belts geographic area. The RWA boundary is the same in alternatives B, C, and D.

**Table 333. Deep Creek Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria  | Description   |
|--|---|
| Acres  | 14,490  |
| Description of the recommended boundary                  | The northern boundary of the Deep Creek RWA is located on the HLC NF boundary. It borders private lands along the northern boundary of Sections 32, 33, 34, 35, and 36 in T16N R4E. This is also the Cascade/Meagher County line. The western boundary of the RWA follows the Smith River, remaining approximately ¼ east of the centerline of the river. The south and eastern boundaries of the RWA follow several minor drainages and the tops of ridgelines in the headwaters of Deep Creek, while staying away from the motorized trails in the area.  |
| Description of the geography, topography, and vegetation | Deep Creek RWA is in the northwestern corner of the Little Belts GA. This area is bordered by the Smith River on the west, private lands to the north and south, and by motorized national recreation trails to the south and east. The primary access to this area is from the Smith River, private lands, and from motorized national recreation trails. Existing vegetation is dominated by Douglas-fir and lodgepole pine. Dry grasslands and subalpine fir/Engelmann spruce forests are also common, with some ponderosa pine. Small amounts of other types are present, including shrub lands, whitebark pine, limber pine, cottonwood, aspen, and juniper. |
| Current uses and management                              | The area lies in the Tenderfoot- Deep Creek inventoried roadless area. There are currently no motorized recreation uses or open roads within the Deep Creek RWA. There are 12.9 miles of nonmotorized trail.  |

| Analysis criteria  | Description  |
|--|--|
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are currently no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: Hunting, fishing, backpacking, horseback riding, boating on the Smith River, and mountain biking.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance.</p> <p><b>Other Features of Value</b> – Features include the eligible wild and scenic Smith River; cultural resources; and rare species such as whitebark pine, lynx, wolverine, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is a large polygon adjacent to NFS lands to the east and south. There is only one private inholding, along Deep Creek Park. There are no motorized uses.   |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>High interest exists for this area to be recommended for wilderness.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high as much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high as there are currently no motorized recreation uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation for hunting, fishing, backpacking, horseback riding, and boating on the Smith River.</li> </ul>   |

### Big Snowies Recommended Wilderness Area

This RWA is derived from the Big Snowies wilderness inventory area, Snowies 1 (S1) in the Big Snowies geographic area. It includes all lands designated as the Big Snowies Wilderness Study Area (WSA). The boundary is the same in alternatives B, C, and D but varies in alternative F.

**Table 334. Big Snowies Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 95,299      |

| Analysis criteria   | Description  |
|---|--|
| Summarized description of the recommended boundary                                    | The northern boundary of the Big Snowies RWA generally follows the HLC NF boundary line with adjacent private property owners. Crystal Lake Road and the Crystal Lake Recreational area are not included in the RWA and the boundary follows a buffer of 300 feet on either side of the road, the outer edges of the campground, picnic area and boat launch areas, and around the edge of Crystal Lake. The eastern boundary follows the HLC NF boundary with adjacent private lands. The southern boundary follows the HLC NF boundary from the east end of the RWA until Neil Creek. At Neil Creek the RWA boundary buffers the Neil Creek Connection Trail (Trail 653) and the Southside Trail (Trail 652) to Sleeping Woman Creek. This motorized route is not included in the RWA boundary. The southwest boundary follows the HLC NF property line with BLM. The western boundary follows the HLC NF boundary line north until it connects with the northern boundary line.   |
| Description of the geography, topography, and vegetation                              | This RWA encompasses most of the island mountain range of the Big Snowies and is dominated by limestone geology and karst topography which conceals many caves including an ice cave on West Peak. The RWA is also characterized at its highest elevations by a tree-less plateau of alpine with rock and tundra. The dominant vegetation includes Douglas-fir, lodgepole pine, subalpine fir and Engelmann spruce forests. Sparsely vegetated areas (such as rock/scree) are also found along with grasslands, whitebark pine, and very small occurrences of shrub lands, ponderosa pine, limber pine, cottonwood, and aspen.   |
| Current uses and management   | This area has been managed as a wilderness study area since 1977 and lies within the Big Snowies inventoried roadless area. It contains several research natural areas. Portions of the area are popular with mountain bike users in the summer and snowmobile users in the winter months. The southern portion of the polygon is open to motorized use in the summer, containing 11.8 miles of open road and 0.1 miles of motorized trail. Primitive and semi-primitive non-motorized recreation opportunities are provided in the entire polygon north of Trails 652 and 653 in the summer. There are 98.3 miles of nonmotorized trail in the polygon. Winter motorized recreation is allowed on 13,145 acres.   |
| Description of the wilderness characteristics   | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention; however, there are some motorized uses associated with open roads in the summer and over-snow uses in portions of the area in the winter.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: Hiking, horseback riding, dispersed camping, back country skiing, fishing, mountain biking, caving, and hunting.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. The opportunity for solitude is diminished in portions of the polygon that contain motorized trails (area north of Trails 653 and 653 in the summer; and where snowmobiles are allowed in the winter in the western portion of the polygon).</p> <p><b>Other Features of Value</b> – Features of this area include an introduced population of mountain goats; cirque basins in Careless Creek and Swimming Woman Creek; ice caves; several research natural areas; Swimming Woman eligible Wild and Scenic River; municipal watershed for Lewistown; cultural resources; and rare plant and animal species such as <i>Goodyera repens</i>, whitebark pine, lynx, dwarf shrew, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics | The ability to protect and manage these wilderness characteristics is high because it has been managed as a wilderness study area since 1977 and covers most of the island mountain range of the Big Snowies. There is some private land adjacent to the polygon. There are some motorized summer and over-snow uses as described above.   |



| Analysis criteria  | Description   |
|--|---|
| A brief summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | Currently is Congressionally designated as a wilderness study area.<br>Outstanding opportunities for solitude; very remote area.<br>High interest exists for this area to be recommended for wilderness.  |
| Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | The <u>ecological characteristics</u> that provide the basis for suitability: <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high as much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high as most of this area is unroaded.</li> </ul> The <u>social characteristics</u> that provide the basis for suitability: <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude</li> <li>○ There is high amount of primitive and/or unconfined recreation for hiking, horseback riding, dispersed camping, back country skiing, fishing, caving, and hunting.</li> </ul> |

### Silver King Recommended Wilderness Area

This RWA is derived from the Silver King wilderness inventory area, Upper Blackfoot 1 (UB1) in the Upper Blackfoot geographic area. The boundary is the same in alternatives B, C, and D.

**Table 335. Silver King Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 20,088   |
| Summarized description of the recommended boundary                     | The northwest boundary of the Silver King RWA lies adjacent to the Scapegoat Wilderness area. This northern boundary then follows east along the Continental Divide National Scenic Trail (Trail 440) on the top of the ridge until its intersection with the East Fork Falls Creek Trail (Trail 219). From this intersection the boundary heads north, along the ridgeline, to the top of Red Mountain. Beyond the top of Red Mountain, the boundary continues in a north-easterly direction following the ridgeline to the north east corner of Section 36 of T17N R7W. The boundary then heads due south following section lines until it reaches the ridge just east of Lewis and Clark Pass. From there, the boundary heads west over the pass and down Alice Creek, keeping just to the north side of Lewis and Clark Pass Trail (Trail 493). The boundary then stays to the north and west of the Alice Creek Road (FSR 293) including buffing out a short spur into Wildcat Gulch. It continues along the west side of Alice Creek Road until the HLC NF boundary with private lands. It then follows the private land boundary west until Indian Meadows Creek. At Indian Meadows Creek it buffers all developments in the area, including the FS administrative cabin and facilities, the campground, the trailhead, and the main access roads. Just beyond the campground loops it follows a ridge to the northwest and connects to the boundary of the Scapegoat Wilderness. |
| Brief description of the general geography, topography, and vegetation | The Silver King RWA is in the Upper Blackfoot and Rocky Mountain Range GAs north and east of Lincoln, Montana, and lies adjacent to the Scapegoat Wilderness Area in the upper reaches of the Alice Creek and Landers Fork drainages. The area is dominated by Douglas-fir and lodgepole pine forests, with dry grasslands, subalpine fir forests, and small amounts of Engelmann spruce, whitebark pine, limber pine, and cottonwood, aspen, and Rocky Mountain juniper. Wildfire disturbances have been prominent in this polygon.   |

| Analysis criteria  | Description  |
|--|--|
| Current uses and management  | This area is adjacent to the Scapegoat Wilderness, and within the Silver King-Falls Creek inventoried roadless area. A portion is also within the Rocky Mountain Front Conservation Management Area. It contains one research natural area. There are no motorized trails or open roads; the entire polygon is available for primitive and semi-primitive non-motorized summer recreation. There are 20.8 miles of nonmotorized trail. Most of the area is available for primitive and semi-primitive non-motorized winter recreation, except for 17 acres which are open for motorized over-snow uses.  |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses except for a small area where over-snow motorized use is allowed in the winter.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: Hunting, fishing, hiking, horseback riding, dispersed camping, snowshoeing, and cross-country skiing. Historic interpretation along the upper portions of Alice Creek, Landers Fork and in the Lewis and Clark pass area.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Solitude is slightly diminished near the Alice Creek road.</p> <p><b>Other Features of Value</b> – Features of this area include the Alice Creek National Registered Historic District, the Lewis and Clark National Historic Trail; Limestone Reef caves; Blowout Mountain and Flattop; waterfalls on Falls Creek; many historic and cultural resources; Alice and Landers Fork eligible Wild and Scenic Rivers; and rare plant and animal species such as grizzly bear, western toad, fisher, trumpeter swan, whitebark pine, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is adjacent to the Scapegoat Wilderness, lies within an inventoried roadless area. There are no private inholdings. There are currently no motorized trails or open roads, but a small area is available for over-snow motorized use.  |
| A brief summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude; very remote area.</p> <p>Adjacent to the Scapegoat Wilderness area.</p> <p>High interest exists for this area to be recommended for wilderness.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>  |
| Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high and there are no motorized trails.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude</li> <li>○ There is high amount of primitive and/or unconfined recreation for hunting, fishing, hiking, horseback riding, dispersed camping, snowshoeing, and cross-country skiing as well as historic interpretation along the upper portions of Alice Creek, Landers Fork and in the Lewis and Clark pass area.</li> </ul>  |

### Red Mountain Recommended Wilderness Area

This RWA is derived from the Red Mountain wilderness inventory area, Upper Blackfoot 2a (UB2a) in the Upper Blackfoot geographic area. The boundary for this RWA is the same in alternatives B, C, D and F.

**Table 336. Red Mountain Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 1,897  |
| Description of the recommended boundary  | The western, northern, and eastern boundaries of the Red Mountain RWA follow the boundary of the Scapegoat Wilderness. The southeast boundary primarily follows the ridgelines and the centerline of the Red Creek drainage. This RWA includes the Red Mountain research natural area that is location here.   |
| Description of the general geography, topography, and vegetation   | The Red Mountain RWA is locate south and east of Red Mountain Peak in Red Creek, within the Copper Creek drainage. This area is characterized by subalpine fir, Engelmann spruce, Douglas-fir, and lodgepole pine forests with a small amount of whitebark pine, ponderosa pine and limber pine. Much of this area has been recently impacted by wildfire and some is in a non-forested or newly reforested state.   |
| Current uses and management  | This area is adjacent to the Scapegoat Wilderness and is within the Bear-Marshall - Scapegoat–Swan inventoried roadless area. The Red Mountain research natural area is located within the RWA boundary. There are no open roads or motorized trails, and no motorized over-snow uses, the entire polygon is available for primitive and semi-primitive non-motorized recreation. There is less than 0.1 miles of nonmotorized trail.  |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses or open roads.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hunting, fishing, hiking, horseback riding, and dispersed camping.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance.</p> <p><b>Other Features of Value</b> – Features of this area include the Copper Lakes; the Lincoln Historic Mining District; a research natural area; Snowbank and Copper Creek eligible Wild and Scenic Rivers; and rare plant and animal species such as grizzly bear, whitebark pine, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area so as to preserve its wilderness characteristics                        | The ability to protect and manage these wilderness characteristics is high because it is adjacent to the Scapegoat Wilderness, has been managed as a research natural area since 1986, and there are no motorized uses in the area. There is one patented mining claim in the polygon.   |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s) | <p>Outstanding opportunities for solitude.</p> <p>Adjacent to the Scapegoat Wilderness area.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>  |

| Analysis criteria  | Description  |
|--|--|
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>• The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>• The undeveloped quality of the area is very high because the area is unroaded and there are no motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>• The area offers outstanding opportunity for solitude.</li> <li>• There is high amount of primitive and/or unconfined recreation for hunting, fishing, hiking, horseback riding, and dispersed camping.</li> </ul> |

**Arrastra Creek Recommended Wilderness Area**

This RWA is derived from the Arrastra wilderness inventory area, Upper Blackfoot 2b (UB2b) in the Upper Blackfoot geographic area. The boundary for this RWA is the same in alternatives B, C, and D.

**Table 337. Arrastra Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 8,257  |
| Description of the recommended boundary                  | The northern boundary of the Arrastra Creek RWA follows the Scapegoat Wilderness boundary. The western boundary follows a ridgeline between Rock Creek and Dry Creek, which is also the HLC NF boundary with the Lolo NF. The boundary then follows the northern and eastern sides of Section 16 T15N R10W. On the south, the boundary of the RWA buffers the Beaver Creek-Dry Creek road (FSR 12611). In Section 25 T15N R10W, the boundary leaves the Beaver Creek-Dry Creek road and follows north buffering an area with substantially noticeable roads and vegetative treatments along the north side of the road. The boundary then follows the centerline of Klondike Creek north until the top of the ridge. The boundary then follows the ridgeline northwest until it connects again with the Scapegoat Wilderness boundary. |
| Description of the geography, topography, and vegetation | The Arrastra Creek RWA is in the Upper Blackfoot GA north and west of Lincoln, Montana, and lies adjacent to the Scapegoat Wilderness Area in the upper reaches of the Beaver Creek and Dry Creek drainages. It includes Arrastra Mountain. This area is characterized by subalpine fir, Engelmann spruce, Douglas-fir, and lodgepole pine forests with a small amount of whitebark pine, ponderosa pine and limber pine.  |
| Current uses and management                              | This area is adjacent to the Scapegoat Wilderness and is within the Bear - Marshall - Scapegoat – Swan inventoried roadless area. There are no open roads or motorized trails, and therefore the area is available for primitive or semi-primitive nonmotorized recreation in the summer. There are 7.9 miles of nonmotorized trails. There are 2,239 acres that are open to motorized over-snow use; the remainder of the area is available for primitive or semi-primitive nonmotorized recreation in the winter.  |

| Analysis criteria  | Description  |
|--|--|
| Description of the wilderness characteristics and the ability to protect and manage the area so as to preserve its wilderness characteristics                  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no open roads or motorized trails, but a portion of the area does allow motorized over-snow use.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hunting, fishing, hiking, horseback riding, and dispersed camping.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. These opportunities are diminished in the winter where motorized use is allowed.</p> <p><b>Other Features of Value</b> – Features include; the Lincoln Historic Mining District; a research natural area, rare plant and animal species such as grizzly bear, whitebark pine, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the area is adjacent to the Scapegoat Wilderness. There are currently no motorized trails or open roads, but there is some motorized over-snow use allowed in portions of the area in the winter. There are 7.9 miles of nonmotorized trails within the RWA.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>Adjacent to the Scapegoat Wilderness area.</p> <p>High interest exists for this area to be recommended for wilderness.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high because the area is unroaded.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude</li> <li>○ There is high amount of primitive and/or unconfined recreation for hunting, fishing, hiking, horseback riding, and dispersed camping.</li> </ul>   |

**Nevada Mountain Recommended Wilderness Area**

The Nevada Mountain RWA is derived from the Nevada Mountain wilderness inventory in the Upper Blackfoot 10 (UB10) in the Upper Blackfoot geographic area. It is included in alternatives B, C, and D. The boundary is the same in both alternatives B and C but includes additional acreage in alternative D.

**Table 338. Nevada Mountain Recommended Wilderness Area (alternatives B and C)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 39,443      |

| Analysis criteria  | Description   |
|--|---|
| Description of the recommended boundary                  | <p>The northern boundary of the Nevada Mountain RWA follows a buffer along Stemple Pass Road (FSR 13040) and South Fork Poorman Road (FSR 12882). This buffer strip also excludes private lands and other developments along the Poorman Creek drainage in this area.</p> <p>The eastern boundary follows a ridgeline south east in Sections 28 and 33 of T13N R07W. At the top of the ridge the boundary buffers the Cellar Gulch Trail (Trail 312) and continues a southern trajectory on a ridgeline into the bottom of the North Fork of Little Prickly Pear Creek. Once in the bottom of the drainage the boundary follows private property lines until it reaches McQuinthy Gulch Road (FSR 12011). The boundary then buffers along either side of road and continues south up and over the ridgeline into the South Fork Little Prickly Pear Creek. The boundary then buffers the South Fork Little Prickly Pear Road (FSR 18186). The boundary continues south up an unnamed drainage over the top of the ridge into the Deadman Creek drainage. It follows the bottom of Deadman for a short distance that traverses the ridge between the Left-Hand Fork Deadman Creek and Cottonwood Gulch to Meyers Hill.</p> <p>The southern boundary moves west from Meyers Hill, buffering Ophir Cave Road (FSR 11690). It continues west along the Continental Divide National Scenic Trail at the top of the ridge, until Black Mountain where it leaves the CDNST to continue in a west and southwest direction on the western ridges of Black Mountain.</p> <p>The western boundary follows private property lines west and north in the Threemile, McKay, Mitchell, and Shingle Mill Creek drainages. When the boundary hits Nevada Creek it buffers the Nevada Creek Road (FSR 12527 and 12529). It then traverses Huckleberry Creek to the top of the ridge and follows a minor ridge down into Washington Creek. It buffers the Washington Gulch Road (FSR 11987) to its end then heads north to a point at the top of the ridge in Section 33 T13N R08W. It then passes over into the headwaters of McClellan Gulch where it follows McClellan Gulch north to Poorman Creek, buffering out all privately held lands and developments.</p> |
| Description of the geography, topography, and vegetation | <p>Nevada Mountain RWA is located south and west of Lincoln, Montana in the Upper Blackfoot and Divide GAs. It includes Nevada Mountain, Black Mountain, and the head end of many drainages such as Nevada Creek and Washington Creek, as well as several smaller drainages that flow into Poorman Creek. The area straddles the continental divide, and portions of the Continental Divide National Scenic Trail cross through it. This area is characterized by lodgepole pine forests, along with Douglas-fir, subalpine fir, Engelmann spruce, and dry grasslands. Less common types are present include shrub lands, whitebark pine, limber pine, cottonwood, and aspen. There are some sparsely vegetated areas as well (scree/rock).</p>   |
| Current uses and management                              | <p>This area is in Nevada Mountain inventoried roadless area. There is active mining in the polygon. There are no open roads or motorized trails; the entire polygon is available for primitive and semi-primitive non-motorized summer recreation.</p>   |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or open roads within the area.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hunting, hiking (including the Continental Divide National Scenic trail), horseback riding, and mountain biking.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. These opportunities are diminished in the winter in areas where motorized use is allowed.</p> <p><b>Other Features of Value</b> – Features of this area include Nevada Mountain, Black Mountain, and open scenic ridges along the Continental Divide National Scenic Trail; cultural resources; and rare plant and animal species such as grizzly bear, whitebark pine, lynx, bull trout, and west slope cutthroat trout.</p>  |

| Analysis criteria  | Description   |
|--|---|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the RWA is within Nevada Mountain inventoried roadless area. There are patented mining claims and access road inholdings in the polygon. There are no motorized trails or open roads.  |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>Aligns with the management of the Continental Divide National Scenic Trail.</p> <p>High interest exists for this area to be recommended for wilderness, including collaborative comments from diverse stakeholders.</p> <p>The location and configuration are in an area important for habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>o The undeveloped quality of the area is very high because the area is unroaded.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The area offers outstanding opportunity for solitude</li> <li>o There is high amount of primitive and/or unconfined recreation for hunting, hiking (including the Continental Divide National Scenic trail), and horseback riding.</li> </ul> |

## Alternative D

Alternative D responds to comments received from the public asking the Forest to consider an alternative that increased the number of RWAs and primitive recreation opportunities on the forest. Alternative D identifies sixteen (16) areas as recommended wilderness (Table 339). These recommended wilderness areas include the nine areas identified for alternatives B and C, as well as seven additional areas with wilderness characteristics. Additional acreages were also added to the Nevada Mountain and Electric Peak Recommended Wilderness Areas in this alternative. In total, the recommended wilderness areas in alternative D are located across seven GAs and total approximately 474,658 acres.

All recommended wilderness areas in alternative D were derived from the original wilderness inventory polygons identified in the first step of the wilderness evaluation process, but do not necessarily include all the original acres of those wilderness inventory polygons. Please also refer to the recommended wilderness analysis, sections 3.21.7 and 3.21.8 of the FEIS. For specific boundary locations of recommended wilderness areas, see maps provided in appendix A.

**Table 339. Recommended wilderness areas (alternative D)**

| RWA               | GA           | Wilderness inventory polygon | Acres  |
|-------------------|--------------|------------------------------|--------|
| Big Log           | Big Belts    | BB1                          | 7,086  |
| Camas Creek       | Big Belts    | BB6                          | 22,350 |
| Mount Baldy       | Big Belts    | BB7                          | 8,314  |
| Wapiti Peak       | Castles      | CA1                          | 30,606 |
| Loco Mountain     | Crazies      | CR1                          | 24,977 |
| Electric Peak     | Divide       | D3                           | 26,900 |
| Colorado Mountain | Divide       | D5                           | 14,189 |
| Deep Creek        | Little Belts | LB1a                         | 14,490 |
| Tenderfoot Creek  | Little Belts | LB1b                         | 45,870 |

| RWA                | GA              | Wilderness inventory polygon | Acres          |
|--------------------|-----------------|------------------------------|----------------|
| Big Horn Thunder   | Little Belts    | LB2                          | 47,107         |
| Middle Fork Judith | Little Belts    | LB16                         | 62,452         |
| Big Snowies        | Snowies         | S1                           | 95,299         |
| Silver King        | Upper Blackfoot | UB1                          | 20,088         |
| Red Mountain       | Upper Blackfoot | UB2a                         | 1,897          |
| Arastra Creek      | Upper Blackfoot | UB2b                         | 8,257          |
| Nevada Mountain    | Upper Blackfoot | UB10                         | 44,774         |
| <b>Total acres</b> |                 |                              | <b>474,658</b> |

### Big Log Recommended Wilderness Area

The Big Log RWA was included in the 1986 Helena Forest Plan. The area description is based on the Big Log wilderness inventory polygon, Big Belts 1 (BB1) in the Big Belts GA. The boundary is the same for alternatives B, C, and D. A detailed description of the Big Log RWA is described in alternative B above.

### Camas Creek Recommended Wilderness Area

This RWA is derived from portions of the Camas Creek Wilderness Inventory Area, Big Belts 6 (BB6) in the Big Belts geographic area. This RWA is included only in alternative D.

**Table 340. Camas Creek Recommended Wilderness Area (alternative D)**

| Analysis criteria  | Description   |
|--|---|
| Acres  | 22,350  |
| Description of the recommended boundary                  | The northeast boundary of the Camas Creek RWA's follows private land boundary lines in the Elk Creek and Moose Creek drainages. The eastern boundary then buffers the Atlanta Mule Road (FSR 575) south to Atlanta Creek. The boundary then heads south to the top of Camas Ridge. It buffers the Pickfoot Spur #3F1 Road (FSR 575-F1) to a point on the ridge in the southeast corner of Section 8 T09N R04E. It heads to the south, crosses Big Camas Creek then heads up a southwest ridgeline in Section 17 T09N R04E. At the top of the ridge, the boundary follows the Meagher/Broadwater County line, south to a saddle in the southwest corner of Section 19. It then follows Duck Creek until its intersection with a private land boundary in Section 36 T09N R03E. The boundary then follows private land west and north until it enters Middle Fork Duck Creek. In Section 21 T09N R03E, the boundary heads to the tip of a ridge and back down again until it joins once again with a private land boundary. It then follows the private line boundaries west and then north establishing the western boundary of the RWA. In Section 29 T10N R03E, the boundary follows the ridgeline between the Boulder Creek and Blacktail Creek drainages, eventually crossing over the ridge into the Elk Creek drainage. The boundary follows the Elk Creek drainage north and east until it intersects the private property boundary line between Sections 25 and 26 in T10N R03E. |
| Description of the geography, topography, and vegetation | Camas Creek RWA is in the Big Belts GA and contains the high peaks of Boulder Mountain and Boulder Baldy. It also contains the Boulder Lakes and Camas Lakes. This area contains a mix of vegetation, including Douglas-fir, lodgepole pine, and subalpine fir/Engelmann spruce forests. There are also dry grasslands, whitebark pine forest, and very small amounts of shrub lands, limber pine, aspen, and sparse vegetation (scree slopes).   |
| Current uses and management                              | This area is in Camas Creek inventoried roadless area. There are no motorized trails or motorized over-snow uses, but 0.3 miles of open road occur in the polygon. Most of the area is available for primitive and semi-primitive non-motorized recreation opportunities. There are 16 miles of nonmotorized trails.  |



| Analysis criteria  | Description   |
|--|---|
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or motorized over-snow uses. 0.3 miles of open road are present in the area.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hiking, horseback riding, hunting, fishing, and backpacking into high mountain lakes.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This value is diminished near the open road.</p> <p><b>Other Features of Value</b> – Features of this area include an introduced population of mountain goats; the Confederate Historic Mining District; high mountains (Boulder Mountain and Boulder Baldy), wide vistas, and small alpine lakes; and rare plant and animal species such as grizzly bear, whitebark pine, lynx, and wolverine.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is within Camas Creek inventoried roadless area. There are no private land inholdings. There are no motorized trails or motorized over-snow uses. There are currently 0.3 mile of open road.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>High interest exists for this area based on public comment.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude</li> <li>○ There is high amount of primitive and/or unconfined recreation for hiking, horseback riding, hunting, fishing, and backpacking into high mountain lakes.</li> </ul>   |

### Mount Baldy Recommended Wilderness Area

The Mount Baldy RWA was included in the 1986 Helena Forest Plan. The area description is based on the Mount Baldy wilderness inventory polygon, Big Belts 7 (BB7). This area is included as an RWA in alternatives A, B, C, D, and F. The boundary is the same for alternatives B, C, and D, and varies in alternatives A and F. Detailed information of the Mount Baldy RWA in alternative D is the same as described above under alternative B.

### Wapiti Peak Recommended Wilderness Area

This RWA was derived from the Wapiti Peak wilderness inventory area, Castles 1 (CA1) in the Castles geographic area. This RWA is included only in alternative D.

**Table 341. Wapiti Peak Recommended Wilderness Area (alternative D)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 30,606      |

| Analysis criteria  | Description  |
|--|--|
| Description of the recommended boundary                  | <p>From the Grasshopper Campground, the northern boundary of the Wapiti Peak RWA heads east buffering the Fourmile Road (FSR 211) and Richardson Campground accessed by FSR 211-A. The RWA boundary heads south in the south half of Section 23 T09N R08E. It heads south west following the ridgeline that separates the Fourmile Creek and West Fork Checkerboard Creek drainages. At the top of Yankee Jim Ridge, the boundary buffers the Yankee Jim, Hamilton Ridge, and Hamilton Creek Jeep Trails. Then the boundary buffers the Castle Checkerboard road, which is a private road that provides access into mining claims in this area. The RWA continues south following along the private land boundary in these areas, around several private property boundaries in the Castle, Boulder, and Alabaugh Creek drainages. On the southern portion of the RWA, the boundary continues to follow private boundary lines in the Warm Springs and Cottonwood Creek drainages. The western boundary of the RWA follows private property lines north from the East and West Cottonwood Creek drainages to Willow Creek drainage. It then follows private property boundary lines in Grasshopper Creek and buffers the Grasshopper Road (FSR 9211) until it connects again near Grasshopper Campground. There are 3 private land inholdings with in the RWA in Sections 21 and 28 T08N R08E. These 3 parcels would remain privately held and would be surrounded by the RWA.</p> |
| Description of the geography, topography, and vegetation | <p>Wapiti Peak RWA is in the west side of the Castles GA and contains a series of high peaks including Beartrap Peak, Woodchuck Mountain, Wapiti Peak, Elk Peak, and Castle Mountain. The area is characterized by numerous castle-like outcrops of granite. Most of the higher elevations are covered by forest with large open grasslands dominating the lower elevations. The most common vegetation is lodgepole pine forest, as well as Douglas-fir, subalpine fir, and Engelmann spruce. Dry grasslands are also present, along with small amounts of whitebark pine, limber pine, including shrub lands, and cottonwood.</p>  |
| Current uses and management                              | <p>This area is in the Castle Mountains inventoried roadless area. With 6.1 miles of open road and 31.9 miles of motorized trail, most of the area is available for summer motorized activity and therefore there is little opportunity for primitive or semi-primitive non-motorized recreation in the summer. There are 9.5 miles of nonmotorized trail. Most of the area is also open to snowmobile use in the winter, although the terrain and vegetation make this use impracticable and therefore there are opportunities for primitive or semi-primitive non-motorized recreation in the winter.</p>  |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – Much of this area is undeveloped and not affected by human intervention. However, motorized use is allowed on open roads and trails in the summer, as well as over-snow use over most of the area in the winter.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has unconfined and primitive recreation opportunities: horseback riding, hiking, rock climbing, hunting, fishing, mountain biking, dispersed camping around the periphery, and recreational mining.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude in the winter as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Opportunities for solitude in the summer are diminished by current motorized uses.</p> <p><b>Other Features of Value</b> – Features of this area include Castle geology and outcroppings; cultural resources; municipal watershed for White Sulphur Springs; sinkhole wetlands; and rare species such as whitebark pine and west slope cutthroat trout.</p>                                   |

| Analysis criteria  | Description  |
|--|--|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because this area is within the Castle Mountains inventoried roadless area. There are two small private land inholdings (patented mining claims). Existing motorized uses on open roads and motorized trails, along with over-snow motorized use in the winter, would be unsuitable in RWAs in alternative D. In addition, existing mechanized means of transport on nonmotorized trails would also be unsuitable under alternative D. A portion of the Castles vegetation project is located within this RWA. The planned activities, including harvest, would not be an irretrievable commitment of resources and would not result in any permanent improvements within the polygon.                |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Opportunities for solitude</p> <p>High interest exists for this area based on public comment.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is high.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers opportunities for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation for horseback riding, hiking, rock climbing, hunting, fishing, dispersed camping around the periphery, and recreational mining.</li> </ul> |

### Loco Mountain Recommended Wilderness Area

This RWA was derived from the Loco Mountain wilderness inventory polygon, Crazyies 1 (CR1). It is included only in alternative D.

**Table 342. Loco Mountain Recommended Wilderness Area (alternative D)**

| Analysis criteria                       | Description  |
|---|--|
| Size                                    | 24,977   |
| Description of the recommended boundary | The northern boundary of the Loco Mountain RWA begins at the confluence of Castle Creek with the Middle Fork Cottonwood Creek. The boundary then follows the centerline of Castle Creek until it intersects the private property line formed by the western edge of Section 19 T06N R11E. From there, the RWA boundary follows private property boundary lines south and east. In the north east corner, the boundary continues along private property lines south buffering along the Station Spring Road (FSR 9285) in Station Creek, Big Elk Road (FSR 654) in Big Elk Creek, and American Fork Road (FSR 9297) in the Middle Fork American Fork Creek. The southern boundary of the Loco Mountain RWA follows the HLC NF boundary with the Gallatin NF from the ridge south of American Fork Road to north end of Target Rock. The boundary then heads north, crossing the Middle Fork Cottonwood Creek bypassing an area with visible timber harvest. The boundary follows a ridgeline down into the bottom of Middle Fork Cottonwood Creek and then follows the centerline of the drainage north until it intersects private property. The boundary then follows the private property lines to the north end of Forest Lake. The boundary then continues north and northeast on the centerline of Middle Fork Cottonwood Creek until the confluence with Castle Creek. |

| Analysis criteria  | Description  |
|--|--|
| Description of the geography, topography, and vegetation   | Loco Mountain RWA is located on the east side of the Crazies GA, at the north end of the mountain range and shares a border with the Gallatin NF. The area contains a number of high, craggy peaks covered in talus, scree, and boulders. Vegetation on the upper ridges is mostly alpine and lacks forest cover. Glaciation has imparted many of these landforms with sharp and scoured edges. The vegetation includes lodgepole pine, subalpine fir, Engelmann spruce, and Douglas-fir forests as well as dry grasslands, whitebark pine forest, and limber pine. Small amounts of shrub lands and juniper are also present.   |
| Current uses and management  | This area is in the Crazy Mountains inventoried roadless area. There are no open roads or motorized trails; the entire area is available for primitive and semi-primitive nonmotorized recreation use in the summer. There are 23.5 miles of nonmotorized trails. Motorized over-snow uses are currently allowed in 4,754 acres; the remainder of the area is available for primitive and semi-primitive non-motorized recreation in the winter.   |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no open roads or motorized trails, but motorized over-snow uses are currently allowed in a portion of the area.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hiking, horseback riding, hunting, fishing, dispersed camping, and wildlife viewing.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. The opportunity for solitude is diminished in the winter where over-snow motorized use is allowed.</p> <p><b>Other Features of Value</b> – Features of this area include bare, rocky and high mountain peaks; and rare plant and animal species such as whitebark pine and harlequin duck.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is within the Crazy Mountains inventoried roadless area. The land to the north of the polygon is checkerboard ownership that is busy during hunting season. There are no private land inholdings. There are no open roads or motorized trails. Approximately 4,754 acres are available for motorized over-snow use. There are 23.5 miles of nonmotorized trail.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude</p> <p>High interest exists for this area based on public comment.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high as much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation for hiking, horseback riding, hunting, fishing, dispersed camping, and wildlife viewing.</li> </ul>  |

### Electric Peak Recommended Wilderness Area

The Electric Peak RWA is included in the 1986 Helena Forest Plan. The area description is based on the Blackfoot Meadows wilderness inventory description, Divide 3 (D3). This area is included as an RWA in alternatives A, B, C, D, and F. The boundary is the same in alternatives B, C and F, but includes additional acreage in alternative D. Other than the boundary and acres, all other analysis criteria are the same for Electric Peak and is described above in alternative B.

**Table 343. Electric Peak Recommended Wilderness Area (alternative D)**

| Analysis criteria                       | Description  |
|---|--|
| Acres                                   | 26,900   |
| Description of the recommended boundary | <p>From Thunderbolt Mountain, the RWA boundary extends north and east along the HLC/Deerlodge NF boundary. The boundary is located on the Continental Divide as well as the Jefferson/Powell County line. The RWA continues north and east to a point along the ridge just south of FSR 495 (Telegraph Road). From there it runs north along the centerline of an unnamed creek to its confluence with Ontario Creek.</p> <p>From this location, the RWA boundary is located west along the centerline of Ontario Creek until the confluence with Bison Creek. Then the boundary follows the centerline of Bison Creek from its confluence with Ontario creek south to an unnamed drainage in Section 28. The boundary then follows the unnamed drainage to the east, up onto the ridge southeast to the top of Bison Mountain.</p> <p>It then follows a ridge line northwest toward Monarch Creek and follows the centerline of Monarch Creek until FSR 4104. The RWA boundary follows a 300-foot buffer along the west side of FSR 4101, in Monarch Creek, and then FSR 123 in Ontario Creek. The boundary continues to the north, maintaining the 300-foot buffer with FSR 123 until it meets the boundary of the RWA near the confluence of Little Blackfoot River and Ontario Creek.</p> <p>The boundary follows the Little Blackfoot River southwest from its confluence with Ontario Creek. The boundary is located approximately 300 feet on either side of FSR 227 and excludes private lands and Kading Campground in the bottom of the drainage. With the 300-foot buffer on either side of FSR 227 and around Kading Campground, there is a “cherry-stemmed” effect created in the middle of the RWA.</p> <p>The RWA boundary continues north maintaining a 300 feet buffer west of FSR 227 until the confluence of the buffer are with Hat Creek. The boundary then heads southwest along the centerline of Hat Creek, excluding private property in Hat Creek. The boundary follows an unnamed tributary of Hat Creek almost due west to the top of Baldy Ridge.</p> <p>The boundary then follows the high points of Baldy Ridge, south and west until the top of the Continental Divide, which is also the forest boundary between the HLC NF and the Deerlodge NF.</p> <p>Then the RWA boundary follows the HLC NF boundary to the south and east along the top of the ridgeline over topographic features such as Cliff Mountain and Electric Peak, finally ending at Thunderbolt Mountain.</p> |

### Colorado Mountain Recommended Wilderness Area

This RWA is derived from portions of the Colorado Mountain wilderness inventory polygon, Divide 5 (D5), located in the Divide geographic area. Colorado RWA is only included in alternative D.

**Table 344. Colorado Mountain Recommended Wilderness Area (alternative D)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 14,189      |

| Analysis criteria  | Description   |
|--|---|
| Description of the recommended boundary                  | <p>The northern boundary of the Colorado Mountain RWA follows private property lines in the Tenmile Creek, Colorado Gulch, Nelson Gulch, and Grizzly Gulch drainages. The eastern boundary then follows the irregular-shaped private property boundary until it reaches Grizzly Gulch Road (FSR 723). Continuing south the boundary buffers Grizzly Gulch Road, Travis Creek Road (FSR 4000), and North Fork Travis Road (FSR 137) until it intersects private lands in Section 29 T09N R14W. It follows the private property boundaries south through North Fork Travis, Travis, and Buffalo Creeks. South of Buffalo Creek the boundary follows a minor drainage southwest toward Chessman Reservoir. At the reservoir the boundary buffers the Chessman Road (FSR 299) which passes along the northern edge of the reservoir and drops down into Beaver Creek. In the lower end of Beaver Creek, the boundary skirts around private land and road developments in the Rimini area. North of Rimini, the boundary buffers private lands and the Rimini Road (FSR 695) in the bottom of the Tenmile Creek drainage. At Moose Creek, the boundary buffers out the Moose Creek-Tenmile Road (FSR 1880) and private property in this area. It continues north buffering along the Rimini Road until it intersects private property in the Lazyman Gulch area. The boundary then follows the private property boundaries until it reaches the northern boundary of the RWA. There are two small private inholding parcels within the interior of the RWA. These small parcels are not included as a part of the RWA and would continue to be privately held.</p> |
| Description of the geography, topography, and vegetation | <p>Colorado Mountain RWA is in the upper reaches of the Colorado Gulch drainage in the Divide GA, southwest of Helena, Montana. The busy, dispersed recreation area known as the South Hills is located to the east. This RWA contains Black Mountain and Colorado Mountain. Douglas-fir forests are the most common vegetation type. Lodgepole pine forests are also common, with small amounts of dry grasslands, mesic grasslands, shrub lands, ponderosa pine, subalpine fir, Engelmann spruce, cottonwood, and aspen.</p>  |
| Current uses and management                              | <p>This area is in Lazyman Gulch inventoried roadless area. There are no open roads or motorized trails; the entire polygon is available for primitive and semi-primitive non-motorized recreation in the summer. A portion of the area (1,240 acres) is open for motorized over-snow uses; the remainder of the area is available for primitive and semi-primitive nonmotorized recreation in the winter. There are 1.9 miles of nonmotorized trail.</p>   |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no open roads or motorized trails. A small portion of the area is open for motorized over-snow uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hiking, horseback riding, snowshoeing, cross country skiing, mountain biking, and hunting.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude in most of the polygon as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This opportunity is diminished where Highway 12 can be heard; where the residential area in Colorado Gulch may be seen and heard; and where over-snow motorized uses occur in the winter.</p> <p><b>Other Features of Value</b> – Features of this area include Black Mountain and Colorado Mountain; Helena, Rimini, and Clancy Historic Mining Districts; historic Red Mountain Flume; municipal watershed for the city of Helena; and rare plant and animal species such as grizzly bear, lynx, Flammulated owl, and wolverine.</p>  |

| Analysis criteria  | Description  |
|--|--|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is within Lazyman Gulch inventoried roadless area. However, there are 2 private land inholdings; the northern boundary is adjacent to private land; and the western boundary is adjacent to a superfund site. There are no open roads or motorized trails; however motorized over-snow use is allowed in a portion of the area. This use, along with mechanized means of transport on nonmotorized trails, would be unsuitable in RWAs in alternative D. A portion of the Tenmile vegetation project is located within this RWA. The planned activities, including harvest, would not be an irretrievable commitment of resources and would not result in any permanent improvements within the polygon. |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Opportunities for solitude.</p> <p>High interest exists for this area based on public comment.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation for hiking, horseback riding, snowshoeing, cross country skiing, and hunting.</li> </ul>                                   |

**Deep Creek Recommended Wilderness Area**

This RWA is derived from the Deep Creek Tenderfoot wilderness inventory area, Little Belts 1a (LB1a). It is in the Little Belt Mountains geographic area. The boundary is the same for alternatives B, C, and D. Detailed information of the Deep Creek RWA is described above under alternative B.

**Tenderfoot Creek Recommended Wilderness Area**

This RWA is derived from the Deep Creek Tenderfoot Creek wilderness inventory polygon, Little Belts 1b (LB1b). It is included only in alternative D.

**Table 345. Tenderfoot Creek Recommended Wilderness Area (alternative D)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 45,870      |

| Analysis criteria  | Description  |
|--|--|
| Description of the recommended boundary                  | <p>The northern boundary of the Tenderfoot RWA begins near the confluence of Bear Gulch with the Smith River in Section 30 T15N R04E. It buffers the Bear Gulch (Trail #260) and Simmons Park (Trail #263) trails until the intersection with private property in Section 28. From there the border follows the private property line to the east, and then north, to the top of the ridge. The boundary then heads south and east buffering the Smith River (Trail #311), Strawberry Ridge (Trail #317), Smart Fork (Trail#352), and Old Baldy (Trail #301) trails until Monument Peak. At monument peak the boundary continues east buffering the Monument (FSR 3497) and Monument Ridge (FSR 268) roads until they intersect the Rugby Creek Trail (Trail #330). The boundary heads south and east buffering the Rugby Creek and Balsinger to Taylor (Trail #343) trails until the former intersects with the Divide Road (FSR 839). The boundary then buffers the Divide road until Central Park. From Central Park the boundary heads south and west buffering Lost Stove road (FSR 3483) and Lost Stove Trail (Trail #346) to Tenderfoot Creek. At Tenderfoot Creek the boundary crosses Tenderfoot Creek buffering the Tenderfoot Creek Trail (Trail #342) then continues south buffering the Williams Mountain Trail (Trail #347). The boundary buffers the William Mountain Road (FSR #3465) and Williams Park Road (FSR #586) south and east to private lands at Eagle Park. At Eagle Park the boundary heads north and buffers out the Reynolds Park road (FSR 3472) and the private property at Reynolds Park at the far north end of the road. The boundary follows private property lines around Reynolds Mountain, and continuing west, buffers along the South Fork Tenderfoot Road (FSR 6424). Continuing north and west, the boundary buffers out private lands in the lower reaches of the South Fork Tenderfoot Creek where it intersects with Tenderfoot Creek. West of this confluence, the boundary heads west on the centerline of Tenderfoot Creek until it connects with private property along the Smith River. The western boundary of the RWA follows a ¼ mile buffer from the center of the Smith River north to private property in the Cow Coulee area. The boundary then follows private property lines north to its northern boundary near Bear Gulch.</p> |
| Description of the geography, topography, and vegetation | <p>The Tenderfoot Creek RWA is located within the Tenderfoot Creek drainage in the Little Belt Mountains GA. Existing vegetation is dominated by Douglas-fir and lodgepole pine. Dry grasslands and subalpine fir/Engelmann spruce forests are also common, and some ponderosa pine is present. Very small amounts of other types are also present, including shrub lands, whitebark pine, limber pine, cottonwood, aspen, and juniper.</p>  |
| Current uses and management                              | <p>The area lies within the Tenderfoot- Deep Creek inventoried roadless area. There are no open roads, but there are 5.9 miles of motorized trail and 5,872 acres open to motorized over-snow motorized use; primitive and semi-primitive nonmotorized recreation opportunities are provided in the remainder of the area. There are also 29.7 miles of nonmotorized trail.</p>  |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no open roads, but motorized trails are currently present along with some areas open to motorized over-snow use.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hunting, fishing, backpacking, horseback riding, and mountain biking.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance.</p> <p><b>Other Features of Value</b> – Features of this area include the waterfalls on Tenderfoot Creek; Tenderfoot Creek eligible wild and scenic river; cultural resources; and rare plant and animal species such as whitebark pine, lynx, wolverine, and west slope cutthroat trout.</p>  |



| Analysis criteria  | Description   |
|--|---|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is a large polygon adjacent to NFS lands to the east and south. There are some motorized summer and over-snow uses as described above.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>High interest exists for this area to be recommended for wilderness.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is high.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude</li> <li>○ There is high amount of primitive and/or unconfined recreation for hunting, fishing, backpacking, and horseback riding.</li> </ul> |

### Big Horn Thunder Recommended Wilderness Area

This RWA is derived from the Big Horn Thunder wilderness inventory polygon, Little Belts 2 (LB2). It is included only in alternative D.

**Table 346. Big Horn Thunder Recommended Wilderness Area (alternative D)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 47,107      |

| Analysis criteria  | Description   |
|--|---|
| Description of the recommended boundary                  | <p>The northern boundary of the Big Horn Thunder RWA begins at Logging Creek Campground and follows private property lines north and east to Belt Creek. The boundary follows the centerline of Belt Creek south for approximately ¼ mile until it intersects the section line between Sections 26 and 27 of T16N R06E. The boundary then follows the west and south boundary of Section 26 until it intersects private lands, where it follows the private land boundaries east, buffering out Kaelyn's Road (FSR 3360). The boundary continues east along private property boundaries, until the community of Monarch where it then heads west along private land holdings in this area. The boundary continues south, following private land boundaries and paralleling Highway 89 until the Belt Park area. The boundary follows private property boundaries around the perimeter of Belt Park. At Tillinghast Creek, the boundary follows the centerline of Tillinghast until it reaches Horn Creek, where it follows the center line of Horn Creek southwest to the top of the ridge. On the top of the ridge the boundary heads west and north buffering out Divide Road (FSR 839) and Sheep Herders Road (FSR 6447). The boundary follows the property boundary around private lands in the head end of Deer Creek and Timber Gulch, then continues westward along the Divide Road. At the head end of Long Coulee, the boundary heads north, still buffering the Divide Road. This continues until Section 26 of T15N R05E where it buffers out an area of roads and past timber harvesting. The boundary continues north, again buffering the Divide road which is now located in the bottom of Logging Creek. The western boundary ends just north of the Logging Creek Campground.</p> <p>There are 3 parcels of private property within the interior of the Big Horn Thunder RWA. These would remain in private ownership and would not be considered a part of the RWA.</p> |
| Description of the geography, topography, and vegetation | <p>The Bighorn Thunder RWA is located east of Logging Creek and north of the Divide Road in the Little Belt Mountains GA. It contains the high mountain peaks of Big Horn Mountain and Thunder Mountain. Pilgrim Creek runs north and south and bisects the area. The most common vegetation types are Douglas-fir and lodgepole pine forests, with some subalpine fir and Engelmann-spruce at higher elevations. Minor amounts of other types also occur, including dry grasslands, sparsely vegetated areas (rock and scree), ponderosa pine, shrub lands, whitebark pine, limber pine, cottonwood, and aspen.</p>  |
| Current uses and management                              | <p>This area is within the Pilgrim Creek inventoried roadless area. There are 2.6 miles of open road. There are also 3 motorized trails open seasonally (summer) to motorcycles, totaling 15.7 miles. The areas east and west of the Pilgrim Creek Trail are available for primitive and semi-primitive non-motorized summer recreation. There are 11.2 miles of nonmotorized trail. There is a snowmobile corridor along the boundary with FS road 839 totaling 2,308 acres; the remainder of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.</p>  |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. Motorized uses currently occur on open roads, motorized trails, and in areas open to motorized over-snow use.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: horseback riding, fishing, archery, rifle hunting, and mountain biking.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude in most of the polygon as the sights and sounds of human activities and improvements are screened</p>  |

| Analysis criteria  | Description   |
|--|---|
|  | by topography or do not have impact due to distance. This opportunity is diminished where motorized uses are allowed.<br><b>Other Features of Value</b> – Features of this area include Big Horn Mountain, Thunder Mountain, Pilgrim Creek, Tillinghast Creek, and rock scree under Thunder Mountain; cultural resources; and rare species such as whitebark pine and west slope cutthroat trout.   |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it is within the Pilgrim Creek inventoried roadless area. There are 2 private inholdings, and recreation residences along the periphery. Under alternative D, motorized use on open roads, motorized trails, and in areas open to motorized over-snow use would be discontinued, along with mechanized means of transport.   |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | Outstanding opportunities for solitude.<br>High interest exists for this area based on public comment.  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | The <u>ecological characteristics</u> that provide the basis for suitability include: <ul style="list-style-type: none"> <li>○ The naturalness of the area is high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is high.</li> </ul> The <u>social characteristics</u> that provide the basis for suitability include: <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation for horseback riding, fishing, archery, and hunting.</li> </ul> |

**Middle Fork Judith Recommended Wilderness Area**

This RWA is derived from portions of the Middle Fork Judith wilderness inventory polygon, Little Belts 16 (LB16). It also includes portions of the Middle Fork Judith Wilderness Study Area. It is only included in alternative D.

**Table 347. Middle Fork Judith Recommended Wilderness Area (alternative D)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 62,452   |
| Description of the recommended boundary                  | The eastern boundary of the Middle Fork Judith RWA buffers the Ettien Ridge Trail northwest following the Middle Fork Judith River and a private property parcel. The eastern boundary then buffers Schaeffer Ridge Trail, Woodchopper Ridge Trail, Morris Creek Trail and Yogo Creek Road. The northern boundary follows private property parcels and buffers Dry Wolf Road northwest. The western boundary buffers Dry Wild Road to the west. The southwestern boundary borders patented mining claims south on the existing ridgeline and buffering Sand Point Road. The boundary continues southwest following the North Fork of the Musselshell River Divide Road to the southwest. The southern boundary buffers Burnt Ridge Road and existing ridgeline to complete the area. |
| Description of the geography, topography, and vegetation | The Middle Fork Judith RWA is in the Little Belt Mountains GA. It includes the lower Lost Fork and Middle Fork of the Judith River with the major high points being Yogo Peak, Cabin Mountain, Grendah Mountain, Sandpoint Mountain, and Lost Fork Ridge. The most common vegetation types consist of Douglas-fir, subalpine fir, Engelmann spruce, and lodgepole pine forests. Dry grasslands also occur, along with limber pine, shrub lands, ponderosa pine, rock/scree, and whitebark pine. Several large fires have occurred in this area recently.   |

| Analysis criteria  | Description  |
|--|--|
| Current uses and management  | Most of this area is in the Middle Fork Judith Wilderness Study Area; and is in within Middle Fork Judith inventoried roadless area. There are 0.7 miles of open road, but no motorized trails. In addition, about 4,996 acres are open to motorized over-snow use (the outer perimeter of the polygon). There are 56 miles of nonmotorized trails. Most of the area is available for primitive and semi-primitive nonmotorized recreation in both summer and winter. The Russian Flats airstrip is located near the polygon.  |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are 0.7 mile of open road and approximately 4,996 acres open to motorized over-snow recreation uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: horseback riding, fishing, hunting, mountain biking, dispersed camping, cross country skiing, and snowshoeing outfitting.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude in most of the polygon as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This opportunity is diminished in proximity to the Russian Flats airstrip, and where motorized uses are allowed.</p> <p><b>Other Features of Value</b> – Features of this area include the Middle Fork Judith River; Yogo Peak; cultural resources; Judith River eligible Wild and Scenic River; and rare plant and animal species such as wolverine, black rosy finch, western toad, dwarf shrew, whitebark pine and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it has been managed as a wilderness study area since 1977.  |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Most of the area has been a wilderness study area since 1977.</p> <p>Outstanding opportunities for solitude.</p> <p>High interest exists for this area based on public comment.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ There is high amount of primitive and/or unconfined recreation for horseback riding, fishing, hunting, dispersed camping, cross country skiing, and snowshoeing outfitting in the fall.</li> </ul>  |

### Big Snowies Recommended Wilderness Area

This RWA is derived from the Big Snowies wilderness inventory area, Snowies 1 (S1) in the Snowies geographic area. The boundary is the same in alternatives B, C, and D and includes all lands designated as the Big Snowies Wilderness Study Area (WSA). The boundary differs in alternative F and excludes the western half of the WSA. Detailed information about the Big Snowies RWA for alternative D is the same as described above in alternative B.

### Silver King Recommended Wilderness Area

This RWA is derived from the Dearborn Silver King wilderness inventory area, Upper Blackfoot 1 (UB1) in the Upper Blackfoot geographic area. The boundary is the same in alternatives B, C, D and varies slightly in alternative F. The detailed analysis criteria about the Silver King RWA is the same as described above in alternative B.

### Red Mountain Recommended Wilderness Area

This RWA is derived from the Red Mountain wilderness inventory area, Upper Blackfoot 2a (UB2a) in the Upper Blackfoot geographic area. The boundary includes the Red Mountain research natural area and is the same in alternatives B, C, D, and varies slightly in alternative F. Detailed information about the Red Mountain RWA in alternative D is the same as described above in alternative B.

### Arrastra Creek Recommended Wilderness Area

This RWA is derived from the Arrastra wilderness inventory area, Upper Blackfoot 2b (UB2b) in the Upper Blackfoot geographic area. The boundary is the same in alternatives B, C, and D. Detailed information of the Arrastra RWA is the same as described above under alternative B.

### Nevada Mountain Recommended Wilderness Area

This RWA is derived from the Nevada Mountain wilderness inventory area, Upper Blackfoot 10 (UB10). It is included in alternatives B, C, D and F. The boundary delineation for the Nevada Mountain area is slightly different for both alternative D as compared to alternatives B and C. The boundary for this area in alternative F is different from alternatives B, C, and D and is described below.

**Table 348. Nevada Mountain Recommended Wilderness Area (alternative D)**

| Analysis criteria                       | Description  |
|---|--|
| Acres                                   | 44,774 acres   |
| Description of the recommended boundary | The northern boundary of the Nevada Mountain RWA follows a buffer along Stemple Pass Road (FSR 13040) and South Fork Poorman Road (FSR 12882). This buffer strip also excludes private lands and other developments along the Poorman Creek drainage in this area. The boundary follows a ridgeline south east in Sections 28 and 33 of T13N R07W. At the top of the ridge the boundary buffers the Cellar Gulch Trail (Trail 312) and continues on a southern trajectory on a ridgeline into the bottom of the North Fork of Little Prickly Pear Creek. Once in the bottom of the drainage the boundary follows private property lines until it reaches McQuinthy Gulch Road (FSR 12011). The boundary then buffers along either side of the road and continues south up and over the ridgeline into the South Fork Little Prickly Pear Creek. The boundary then buffers the South Fork Little Prickly Pear Road (FSR 18186). The boundary continues south up an unnamed drainage to the top of the ridge between South Fork Little Prickly Pear Creek and the Deadman Creek drainage. It then continues along ridgelines into the bottom of Deadman Creek where it follows private property boundaries toward the east until Lost Horse Creek. The boundary then follows Lost Horse Creek to the headwaters, following private property boundaries. At the top of the drainage, it follows a ridge to points near the top of Roundtop Mountain. From Roundtop Mountain, the boundary heads west, buffering Ophir Cave Road (FSR 11690) which is also the Continental Divide National Scenic Trail (CDNST) in this area. It leaves the Ophir Cave Road near Meyers Hill to continue west along the Continental Divide National Scenic Trail at the top of the ridge, until Black Mountain where it leaves the CDNST to continue in a west and southwest direction on the western ridges of Black Mountain. The boundary follows private property boundaries west and north in the Threemile, McKay, Mitchell, and Shingle Mill Creek drainages. When the boundary hits Nevada Creek it buffers the Nevada Creek Road (FSR 12527 and 12529). It then traverses |

| Analysis criteria   | Description  |
|---|--|
|   | <p>Huckleberry Creek to the top of the ridge and follows a minor ridge down into Washington Creek. It buffers the Washington Gulch Road (FSR 11987) to its end then heads north to a point at the top of the ridge in Section 33 T13N R08W. It then passes over into the headwaters of McClellan Gulch where it follows McClellan Gulch north to Poorman Creek, buffering out all privately held lands and developments. The RWA consists of two parcels. The large parcels northeastern boundary traverses the Helmville-Gould pack trail and a segment of the Continental Divide National Scenic Trail north following Poorman Creek to the northwest bordering patented mining claims. The western boundary follows the McClellan Gulch to the Helmville-Gould pack trail and existing ridgeline to Huckleberry Creek west. The southwestern western boundary then buffers Nevada Creek Road and a private property land parcel to the southwest following the Geographic area boundary. The southern boundary follows the Black Mountain ridgeline and follows the Continental Divide over the ridge of Myers Hill. The southeast boundary follows the ridgeline to the South Fork of Little Prickly Pear Road, the ridgeline and buffering McQuinthy Gulch Road bordering a private property parcel. The boundary continues Northeast on the ridgeline crossing the Helmville-Gould pack trail, bordering a segment of the Continental Divide National Scenic Trail bordering a private inholding and following the Geographic area boundary to complete the area. The small parcel section borders a patented mining claim section to complete the area.</p> |
| <p>Description of the geography, topography, and vegetation</p> | <p>Nevada Mountain RWA is located south and west of Lincoln, Montana in the Upper Blackfoot and Divide GAs. It includes Nevada Mountain, Black Mountain, and the head end of many drainages such as Nevada Creek and Washington Creek, as well as several smaller drainages that flow into Poorman Creek. The area straddles the continental divide, and portions of the Continental Divide National Scenic Trail cross through it. This area is characterized by lodgepole pine forests, along with Douglas-fir, subalpine fir, Engelmann spruce, and dry grasslands. Less common types are present include shrub lands, whitebark pine, limber pine, cottonwood, and aspen. There are some sparsely vegetated areas as well (scree/rock).</p>  |
| <p>Current uses and management</p>                              | <p>This area is in Nevada Mountain inventoried roadless area. There is active mining in the polygon. There are no open roads or motorized trails; the entire polygon is available for primitive and semi-primitive non-motorized summer recreation. 8,878 acres south of Jefferson Creek are open to motorized over-snow use; the remainder of the area is available for primitive and semi-primitive non-motorized recreation in the winter. There are 30.5 miles of nonmotorized trails.</p>   |
| <p>Description of the wilderness characteristics</p>            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or open roads within the area.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: hunting, hiking (including the Continental Divide National Scenic trail), horseback riding, and mountain biking.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. These opportunities are diminished in the winter in areas where motorized use is allowed.</p> <p><b>Other Features of Value</b> – Features of this area include Nevada Mountain, Black Mountain, and open scenic ridges along the Continental Divide National</p>   |

| Analysis criteria  | Description  |
|--|--|
|  | Scenic Trail; cultural resources; and rare plant and animal species such as grizzly bear, whitebark pine, lynx, bull trout, and west slope cutthroat trout.  |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the RWA is within Nevada Mountain inventoried roadless area. There are patented mining claims and access road inholdings in the polygon. In alternatives B/C, there are no motorized trails or open roads; however, over-snow motorized use is allowed on a portion of the area.  |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s).  | <p>Outstanding opportunities for solitude.</p> <p>Aligns with the management of the Continental Divide National Scenic Trail.</p> <p>High interest exists for this area to be recommended for wilderness, including collaborative comments from diverse stakeholders.</p> <p>The location and configuration are in an area important for habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>o The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>o The undeveloped quality of the area is very high because the area is unroaded.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>o The area offers outstanding opportunity for solitude</li> <li>o There is high amount of primitive and/or unconfined recreation for hunting, hiking (including the Continental Divide National Scenic trail), and horseback riding.</li> </ul> |

## Alternative E

Alternative E responds to comments received from public comments asking the Forest to consider an alternative that does not identify RWAs and increases the amount of forest lands available for timber production. While the wilderness inventory displays many areas and acres that possess wilderness characteristics, alternative E is designed specifically to respond to the public comment and does not include any RWAs.

In alternative E, there would no longer be RWA on the forest and the three existing RWAs (Big Log, Mount Baldy, and Electric Peak) would no longer be designated as such. These areas would no longer be managed for their wilderness characteristics. Since all three of these areas are also IRA's they would be managed for their unroaded character but would be subject to management practices allowable in IRAs and WSAs. Please also refer to the inventoried roadless area, recommended wilderness area, and wilderness study area analysis, sections 3.21.5, 3.21.6, 3.21.7, 3.21.8, 3.22.7, and 3.22.8 of the FEIS.

## Alternative F (Preferred Alternative)

Alternative F is the preferred alternative and was developed after the consideration of public comments on the DEIS. This alternative is only analyzed in the FEIS.

Alternative F identifies seven (7) recommended wilderness areas. The seven recommended wilderness areas in alternative F are located within four geographic areas and total approximately 153,325 acres. These recommended wilderness areas were derived from the original wilderness inventory polygons identified in the first step of the wilderness evaluation process, but do not necessarily include all of those

original acres. They were selected based on consideration of the information in the wilderness evaluation, which indicated these areas had wilderness characteristics such as naturalness, undeveloped, outstanding opportunities for solitude or a primitive and unconfined recreation or other special features such as ecological, geological, or scientific, educational, scenic or historic value.

The selection of the 152,948 acres for RWA under alternative F was carefully considered in the context of the balancing other multiple use considerations in the overall Plan. Where the identified RWA shares a boundary with private lands, the RWA boundary was moved approximately 300 feet away from the private property lines. This distance would provide flexibility in addressing natural resource concerns adjacent to private land ownership.

Table 349 provides the name of each recommended wilderness area in alternative F, the inventory polygon it originated from, the geographic area in which it is located, and the approximate acres of the recommended wilderness area. The maps for each recommended wilderness area are in appendix A.

**Table 349. Recommended wilderness areas in alternative F**

| RWA                | GA                         | Wilderness inventory polygon | Alternative F (Acres) |
|--------------------|----------------------------|------------------------------|-----------------------|
| Big Log            | Big Belts                  | BB1                          | 7,035                 |
| Mount Baldy        | Big Belts                  | BB7                          | 8,141                 |
| Electric Peak      | Divide                     | D3                           | 18,239                |
| Big Snowies        | Snowies                    | S1                           | 66,894                |
| Silver King        | Upper Blackfoot            | UB1                          | 18,568                |
| Red Mountain       | Upper Blackfoot            | UB2a                         | 2,500                 |
| Nevada Mountain    | Upper Blackfoot and Divide | UB10                         | 31,571                |
| <b>Total acres</b> |                            |                              | <b>152,948</b>        |

**Big Log Recommended Wilderness Area**

The Big Log RWA was included in the 1986 Helena Forest Plan. The area description is based on the Big Log wilderness inventory polygon, Big Belts 1 (BB1) in the Big Belts GA. The boundary for the Big Log RWA remains the same in alternatives B, C, and D, but varies slightly in alternative F. This is a result of moving the boundary line 300 feet away from private property lines along Beaver Creek to allow flexibility for natural resource management next to private lands.

**Table 350. Big Log Recommended Wilderness Area (alternative F)**

| Analysis criteria                       | Description  |
|---|--|
| Acres                                   | 7,035  |
| Description of the recommended boundary | <p>The Big Log RWA consists of several parcels of land adjacent to the existing Gates of the Mountains Wilderness area. These parcels lie along the northern and southern boundaries of the wilderness.</p> <p>The northern areas consist of four small parcels in the Willow Creek drainage. All are located adjacent to the northern border of the wilderness. The locations and configuration of these four parcels are the same as in alternatives B, C, and D.</p> <p>The southern parcel is large and extends along the entire southern border of the wilderness from the American Bar/Big Log Creek area on the west to the Gilman Gulch Area on the east. The southern parcel also lies immediately adjacent to the wilderness boundary and extends south to a 300-foot from the north side of the Beaver Creek - Indian Creek Rd (FS Road 138).</p> <p>Several private properties exist along the Beaver Creek-Indian Creek Road. The Big Log RWA boundary along these private properties will remain 300 feet off-set from the private property lines. This distance will provide flexibility in addressing natural resource concerns adjacent to private lands.</p> |



| Analysis criteria  | Description  |
|--|--|
| Description of the geography, topography, and vegetation   | Much of the area is moderately steep to very steep, with limestone cliff features, especially adjacent to the Missouri River, as well as other unique geological landforms. Existing vegetation includes dry grasslands, shrub lands, open and dry ponderosa pine forests, and Douglas-fir forests, along with small amounts of lodgepole pine, and Rocky Mountain juniper.  |
| Current uses and management  | The 1986 Helena Forest Plan included much of this Big Log area as an RWA. The lands identified for recommended wilderness are available for primitive recreation opportunities in both summer and winter. There are currently no motorized trails, open roads, or motorized over snow uses in these areas. Within this RWA, there are 5.3 miles of nonmotorized trail.   |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, hunting, and Nordic skiing.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Areas that are closer to the Gates of the Mountains wilderness have greater opportunity for solitude, and this diminishes in areas closer to the Missouri River and the Beaver Creek road.</p> <p><b>Other Features of Value</b> – Features of this area include an introduced population of mountain goats; cliffs and rock formations along the river corridor and Meriwether Canyon; the unique rock formations and slot canyon in Refrigerator Canyon; many cultural resources including cabin ruins, tipi ring, mining and prehistoric rock art sites; and the Beaver Creek eligible Wild &amp; Scenic River; and rare plant and animal species such as grizzly bear, lynx, Flammulated owl, and Lewis' woodpecker.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the area is adjacent to existing wilderness and has been managed as recommended wilderness since 1986. It is also within Big Log inventoried roadless area and is adjacent to the Devil's Tower inventoried roadless area to the south. Motorized uses and mechanized means of transportation would not be suitable within RWAs in alternative F.   |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternatives   | <p>A large portion of this area was previously included as an RWA in the 1986 Helena Forest Plan (alternative A).</p> <p>Big Log RWA is located adjacent to the existing Gates of the Mountain wilderness and would build upon the wilderness values in the area.</p> <p>High interest exists for this area to be an RWA; most public comments received were in favor of the designation.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high, is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high, and there are no existing motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ Most of the area allows for primitive and/or unconfined recreation, such as, but not limited to, horseback riding, hiking, backpacking, dispersed camping, hunting, and cross-country skiing.</li> </ul>   |

### Mount Baldy Recommended Wilderness Area

The Mount Baldy RWA was included in the 1986 Helena Forest Plan. The area description is based on the Mount Baldy wilderness inventory polygon, Big Belts 7 (BB7). This area is included as an RWA in alternatives A, B, C, D, and F. The boundary is the same for alternatives B, C, and D. It varies slightly in alternative F. This is a result of moving the boundary line 300 feet away from private property lines to allow flexibility for natural resource management next to private lands.

**Table 351. Mount Baldy Recommended Wilderness Area (alternative F)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 8,141  |
| Description of the recommended boundary                  | <p>The Mount Baldy RWA is in the headwaters of Big Birch and Little Birch Creeks in the Big Belts geographic area. It includes numerous high elevation mountain lakes and the prominent topographic features of Mount Baldy, Mount Edith, and the Needles.</p> <p>The northern boundary of the RWA follows the hydrologic divide south and west between the Gypsy Creek and Big Birch Creek drainages. At the top of the ridge the boundary remains approximately 300 feet buffer around the radio tower as well as along the microwave spur road (FSR 4023-082).</p> <p>The boundary then follows the top of the ridge south and then east, including the tops of Mount Baldy and Mount Edith peaks.</p> <p>The boundary line heads due north 300 feet off-set from the private property line along Sections 12 and 13 of T8N R4E. It then cuts across the northeast corner of Section 12 and returns to within 300 feet of the property boundary along the northern boundary of Sections 11 and 12 of T8N R4E.</p> <p>The boundary again heads due north 300 feet off-set from Section 3 T8N R4E and Section 34 T9N R4E. The boundary ends on the hydrologic divide between Gypsy Creek and Big Birch Creek drainages.</p>   |
| Description of the geography, topography, and vegetation | <p>This area includes several high peaks (Mount Baldy and Mount Edith), and includes the Needles rock formations, numerous alpine lakes, and valley vistas. Vegetation is dominated by high elevation lodgepole pine and subalpine fir/Engelmann spruce forests, with some Douglas-fir forests. Sparsely vegetated areas are common, including rocky alpine sites. Whitebark pine forest is also present, along with grasslands, shrub lands, and limber pine.</p>   |
| Current uses and management                              | <p>The 1986 Helena Forest Plan includes this area as an RWA. The entire polygon is available for primitive and semi-primitive summer and winter recreation. There are no open roads, motorized trails, or motorized over snow uses. There are 13.6 miles of nonmotorized trail.</p>  |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with an area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities, including, but not limited to horseback riding, hiking, backpacking, dispersed camping, mountain biking, and hunting.</p> <p><b>Solitude</b> – There are outstanding opportunities for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This is slightly diminished within proximity to the communication site road in the summer.</p> <p><b>Other Features of Value</b> –Features of this area include an introduced population of mountain goats; numerous high alpine lakes; the Needles unique rock formations; unique wetland vegetation; and rare plant and animal species such as whitebark pine, grizzly bear, lynx, wolverine, black rosy finch, and west slope cutthroat trout in Ray Creek.</p> |

| Analysis criteria  | Description   |
|--|---|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage wilderness characteristics is high because the area has been managed as an RWA since 1986 and contains no private inholdings. The area is in the Mount Baldy Inventoried Roadless Area. The only administrative motorized use is on the road to the communication site in the summer. There are no motorized uses. Motorized uses and mechanized means of transportation are not suitable within RWAs in alternative F.   |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternatives   | A large portion of this area has been previously included as an RWA in the 1986 Helena Forest Plan (alternative A).<br>High interest exists for this area to be recommended for wilderness.<br>The location and configuration of the Mount Baldy RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.   |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | The <u>ecological characteristics</u> that provide the basis for suitability:<br><ul style="list-style-type: none"> <li>○ The naturalness of the area is very high, is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high, with no existing motorized uses.</li> </ul> The <u>social characteristics</u> that provide the basis for suitability:<br><ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude.</li> <li>○ Most of the area offers primitive and/or unconfined recreation such as, but not limited to horseback riding, hiking, backpacking, dispersed camping, and hunting.</li> </ul> |

**Electric Peak Recommended Wilderness Area**

The area description for this RWA is based on the Electric Peak wilderness inventory description, Divide 3 (D3) which is in the Divide geographic area. The Electric Peak RWA is included in alternatives A, B, C, D, and F. The boundary for the Electric Peak RWA is the same in alternatives B and C. However, the boundary delineation differs in alternatives A, D, and F. In alternative F, the boundary changes are the result of moving the boundary line 300 feet away from private property lines to allow flexibility for natural resource management next to private lands.

**Table 352. Electric Peak recommended wilderness area (alternative F)**

| Analysis criteria                       | Description   |
|---|---|
| Acres                                   | 18,239  |
| Description of the recommended boundary | <p>The Blackfoot RWA follows the Little Blackfoot River southwest from its confluence with Ontario Creek. The boundary is located approximately 300 feet south of FSR 227 and excludes private lands in the bottom of the drainage. The boundary off-sets private lands by 300 feet.</p> <p>Once beyond the campground at the end of the road, the boundary follows the centerline of the Little Blackfoot River until the Little Sunshine Camp trail (FS Trail 227-009). It then follows the ridgeline to the south of this trail to the top of the ridge which is also the HLC NF Boundary with the Deerlodge NF.</p> <p>The RWA boundary then follows the HLC NF boundary to the south and east along the top of the ridgeline over topographic features such as Cliff Mountain, Electric Peak, and Thunderbolt Mountain. The RWA leaves the HLC/Deerlodge NF boundary at a point south of Bison Mountain and heads north across the top of Bison Mountain. It then follows a ridge line north west toward Monarch Creek and follows the centerline of Monarch Creek until FSR 4104.</p> <p>The RWA boundary follows a 300-foot buffer along the west side of FSR 4101, in Monarch Creek, and then FSR 123 in Ontario Creek. The boundary continues to the north, maintaining the 300-foot buffer with FSR 123 until it meets the boundary of the RWA near the confluence of Little Blackfoot River and Ontario Creek.</p> |
| Description of the geography,           | This RWA is in the Divide GA. Portions of this RWA were identified as the Electric Peak RWA in the current 1986 Helena Forest Plan. The Electric Peak (Blackfoot Meadows) RWA lies along the Continental Divide National Scenic Trail and includes several  |

| Analysis criteria  | Description  |
|--|--|
| topography, and vegetation   | mountain peaks that are well over 8000 feet in elevation. Vegetation is dominated by lodgepole pine forests, with Douglas-fir also common as well as subalpine fir and Engelmann spruce. Less common vegetation types include grasslands, shrub lands, and whitebark pine forests.   |
| Current uses and management  | Much of the area has been managed as an RWA since 1986. The entire polygon is available for nonmotorized summer and winter recreation. Motorized recreational uses and mechanized means of transportation would be unsuitable within RWAs in alternative F.  |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or roads, and minimal motorized over-snow use.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: horseback riding, hiking, hunting, fishing, mountain biking, and camping.</p> <p><b>Solitude</b> – Most of the area provides outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. The opportunity for solitude is somewhat diminished in portions of the RWA closest to Highway 12 and near the Little Blackfoot road.</p> <p><b>Other Features of Value</b> – Features of this area include the Little Blackfoot river which is eligible for consideration as a wild and scenic river; cultural resources; and rare plant and animal species such as whitebark pine, grizzly bear, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area so as to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the area has been managed as an RWA since 1986 and is adjacent to an RWA on the adjacent Beaverhead-Deerlodge NF. It is also within the Electric Peak inventoried roadless area. There are two private inholdings: one along the Little Blackfoot Road (FSR 227), and the other along Ontario Road (FSR 123). Motorized uses and mechanized means of transportation would be unsuitable within RWAs in alternative F.   |
| Summary of the factors considered, and the process used in evaluating the area and developing the alternatives   | <p>Most of the area was previously included as an RWA in the 1986 Helena Forest Plan alternative A).</p> <p>There are outstanding opportunities for solitude.</p> <p>Public interest is high for designating this area as recommended wilderness.</p> <p>The location and configuration of the Electric Peak RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The naturalness of the area is very high, is affected primarily by natural forces, has mostly intact ecological integrity, and contains many indigenous species.</li> <li>o There are no motorized trails or open roads.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The area offers outstanding opportunity for solitude.</li> <li>o Most of the area allows for primitive and/or unconfined recreation activities such as, but not limited to, horseback riding, hiking, hunting, fishing, and camping.</li> </ul>  |

### Big Snowies Recommended Wilderness Area

This RWA is derived from the Big Snowies wilderness inventory area, Snowies 1 (S1) in the Big Snowies geographic area. Portions of this RWA also fall within the Big Snowies Wilderness Study Area (WSA). The boundary in alternative F is different from the boundary for alternatives B, C, and D. This change reduces the size of the RWA by approximately 28,405 acres and concentrates the RWA in the eastern

portion of the Big Snowy Mountain Range. Additionally, in alternative F, the boundary line is off set 300 feet away from private property lines to allow flexibility for natural resource management next to private lands.

**Table 353. Big Snowies Recommended Wilderness Area (alternative F)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 66,894   |
| Summarized description of the recommended boundary       | <p>The northern boundary of the Big Snowies RWA follows the HLC NF boundary line but is off set from private property lines by 300 feet.</p> <p>The eastern boundary also follows the HLC NF boundary with adjacent private lands, again, off-setting all private property lines by 300 feet.</p> <p>The southern boundary follows the HLC NF boundary from the east end of the RWA until Swimming Woman Creek. At Swimming Woman Creek buffers the Southside Trail (Trail 652) and the Neil Creek Connection Trail (Trail 653) by 300 feet until the hydrologic divide between West Fork Timber Creek and East Fork Blake Creek.</p> <p>The western boundary follows the hydrologic boundary north between West Fork Timber Creek and East Fork Blake Creek until the top of the primary ridge. At the top it follows the ridge south east until the hydrologic boundary between East Fork Rock Creek and a tributary to West Fork Cottonwood Creek. The western boundary continues north on this hydrologic divide until Jump Off Peak. At Jump Off Peak it follows north along the top of the ridge between the upper reaches of East Fork Green Pole Canyon and the West Fork Cottonwood Creek Drainage. The boundary leaves the hydrologic divide between these two watersheds just north of Lime Cave Peak. It then follows the centerline of the Hay Canyon drainage north until it intersects the 300 foot off-set with private lands at the northern boundary of the RWA.</p>   |
| Description of the geography, topography, and vegetation | <p>This RWA encompasses approximately 70% of the entire island mountain range of the Big Snowies and is dominated by limestone geology and karst topography which conceals many caves including an ice cave on West Peak. The RWA is also characterized at its highest elevations by a tree-less plateau of alpine with rock and tundra. The dominant vegetation includes Douglas-fir, lodgepole pine, subalpine fir and Engelmann spruce forests. Sparsely vegetated areas (such as rock/scree) are also found along with grasslands, whitebark pine, and very small occurrences of shrublands, ponderosa pine, limber pine, cottonwood, and aspen.</p>   |
| Current uses and management                              | <p>This area has been managed as a wilderness study area since 1977. It also lies within the Big Snowies inventoried roadless area and contains several research natural areas. Primitive and semi-primitive non-motorized recreation opportunities are provided in the entire polygon north of Trails 652 and 653 in the summer. There are 59.4 miles of nonmotorized trail within the RWA.</p>   |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention; however, there are some motorized uses on some of the primitive open roads in the summer in southern part of the RWA. There are no over-snow uses in the RWA in this alternative.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: Hiking, horseback riding, dispersed camping, back country skiing, fishing, mountain biking, caving, and hunting. There are some motorized uses along open roads in the southern portion of the RWA.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. The opportunity for solitude is diminished in portions of the RWA closer to the motorized trails (Trails 653 and 653) near the southern boundary of the RWA and open roads within the southern portion of the RWA.</p> <p><b>Other Features of Value</b> – Features of this area include an introduced population of mountain goats; cirque basins in Careless Creek and Swimming Woman Creek; ice caves;</p> |

| Analysis criteria  | Description   |
|--|---|
|  | several research natural areas; Swimming Woman eligible Wild and Scenic River; municipal watershed for Lewistown; cultural resources; and rare plant and animal species such as <i>Goodyera repens</i> , whitebark pine, lynx, dwarf shrew, and westslope cutthroat trout.  |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because it has been managed as a wilderness study area since 1977 and covers most of the island mountain range of the Big Snowies. There are private lands adjacent to the polygon. There are existing motorized uses as described above. These uses, along with mechanized uses on nonmotorized trails, would be unsuitable in alternative F. These changes in suitability may be reflected in a future site-specific decision and would reduce the amount of motorized and mechanized recreation access in each RWA.   |
| A brief summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | Designation as a wilderness study area<br>Outstanding opportunities for solitude; very remote area.<br>High interest exists for this area to be recommended for wilderness.   |
| Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The naturalness of the area is very high as much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>o The undeveloped quality of the area is very high as most of this area is unroaded.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The area offers outstanding opportunity for solitude</li> <li>o There is high amount of primitive and/or unconfined recreation for hiking, horseback riding, dispersed camping, back country skiing, fishing, caving, and hunting.</li> </ul> |

**Nevada Mountain Recommended Wilderness Area**

The Nevada Mountain RWA is derived from the Nevada Mountain wilderness inventory area, Upper Blackfoot 10 (UB10) in the Upper Blackfoot geographic area. A portion of this area also lies within the Divide GA. It is included in alternatives B, C, D, and F. The boundary in alternative F is different from the boundary for alternatives B, C, and D.

The size and shape of the Nevada Mountain RWA in alternative F is different from the other alternatives. There is a reduction in the size of the RWA from 39,345 acres in alternatives B and C and 44,702 acres in D to approximately 31,948 acres in alternative F. Additionally, in alternative F, the boundary line of the RWA is off set 300 feet from private property lines to allow flexibility for natural resource management next to private lands. The primary change in alternative F lies along the northern boundary of the RWA and is described in more detail below.

**Table 354. Nevada Mountain Recommended Wilderness Area (alternative F)**

| Analysis criteria | Description |
|-------------------|-------------|
| Acres             | 31,571      |

| Analysis criteria  | Description   |
|--|---|
| Description of the recommended boundary                  | <p>The northern boundary of the Nevada Mountain RWA is located approximately 300 feet south of the Helmville-Gould trail (Tr. #467) from the west side of the hydrologic divide of Washington Creek east to the intersection of Trail #467 with the Continental Divide Trail (Trail #440). The boundary continues east along Trail #440 until it intersects Cellar Gulch Trail (Trail #434) remaining 300 feet to the south of these trails.</p> <p>At the intersection of Trail #440 with Trail #435, the eastern boundary of the RWA heads south remaining 300 feet to the west of the Cellar Gulch Trail (Trail #435). The boundary then heads east and then south following the inventoried roadless area boundary and including the head end of the North Fork Little Prickly Pear, South Fork Little Prickly Pear, and Deadman Creek drainages.</p> <p>The southern boundary begins east of Meyers Hill in the headwaters of the Left-Hand Fork of Cottonwood Gulch. The boundary heads west over the top of Meyers Hill, following the inventoried roadless area boundary which is also the boundary between the IRA and the winter recreation area to the south. The boundary generally follows the hydrologic divide between Ophir Creek and Deadman until the head end of Georgia Creek. It follows the center line of Georgia Creek until it intersects the Forest boundary. At the Forest boundary line, which is also the boundary line with private property, the western boundary of the RWA heads north remaining 300 feet off set from the private boundary lines, allowing for flexibility of management in these areas. The boundary follows 300 feet off set from these private property boundaries west and north in the Threemile, Sixmile, Mitchell, and Shingle Mill Creek drainages. When the boundary hits Nevada Creek it buffers the Nevada Creek Road (FSR 12527 and 12529). It then traverses Huckleberry Creek to the top of the ridge and follows a minor ridge down into Washington Creek. It buffers the Washington Gulch Road (FSR 11987) to its end then heads north to a point at the top of the ridge in Section 33 T13N R08W and meets up with northern boundary 300 feet south of the Helmville-Gould Trail (Trail #467).</p> |
| Description of the geography, topography, and vegetation | <p>Nevada Mountain RWA is located south and west of Lincoln, Montana in the Upper Blackfoot and Divide GAs. It includes Nevada Mountain, Black Mountain, and the head end of many drainages such as Nevada Creek, Washington Creek, North Fork Little Prickly Pear Creek, and Deadman. The area straddles the continental divide, and portions of the Continental Divide National Scenic Trail cross through it. This area is characterized by lodgepole pine forests, along with Douglas-fir, subalpine fir, Engelmann spruce, and dry grasslands. Less common types are present include shrub lands, whitebark pine, limber pine, cottonwood, and aspen. There are some sparsely vegetated areas as well (scree/rock).</p>  |
| Current uses and management                              | <p>This area is in Nevada Mountain inventoried roadless area. There is active mining in the polygon. There are no open roads or motorized trails within the RWA, and most of the area is available for primitive and semi-primitive non-motorized recreation. Motorized and mechanized means of transportation would be unsuitable within RWAs in alternative F.</p>  |
| Description of the wilderness characteristics            | <p><b>Natural Quality</b> – The majority of this area is natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized trails or open roads within the area.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities such as hunting, hiking (including the Continental Divide National Scenic trail), and horseback riding.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance.</p> <p><b>Other Features of Value</b> – Features of this area include Nevada Mountain, Black Mountain, and open scenic ridges along the Continental Divide National Scenic Trail; cultural resources; and rare plant and animal species such as grizzly bear, whitebark pine, lynx, bull trout, and west slope cutthroat trout.</p>   |

| Analysis criteria  | Description  |
|--|--|
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage these wilderness characteristics is high because the RWA is within Nevada Mountain inventoried roadless area. There are patented mining claims and access road inholdings in the polygon. Motorized recreation uses and mechanized means of transportation would not be suitable within RWAs in alternative F.   |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>Aligns with the management of the Continental Divide National Scenic Trail.</p> <p>High interest exists for this area to be recommended for wilderness, including collaborative comments from diverse stakeholders.</p> <p>The location and configuration are in an area important for habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>o The undeveloped quality of the area is very high because the area is unroaded.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>o The area offers outstanding opportunity for solitude</li> <li>o There is high amount of primitive and/or unconfined recreation for hunting, hiking (including the Continental Divide National Scenic trail), and horseback riding.</li> </ul> |

### Silver King Recommended Wilderness Area

The Silver King RWA is derived from the Dearborn Silver King wilderness inventory area, Upper Blackfoot 1 (UB1) in the Upper Blackfoot geographic area. The boundary for this RWA is the same in alternatives B, C, and D but varies along the Continental Divide and along private lands in alternative F. The RWA boundary along the Continental Divide lies approximately 150 feet south of the Continental Divide Trail (TR #440) allowing mechanized means of transportation along this route. The southern boundary line of the RWA is off set 300 feet from all private property lines to allow flexibility for natural resource management next to private lands.

**Table 355. Silver King Recommended Wilderness Area (alternative F)**

| Analysis criteria                                  | Description  |
|--|--|
| Acres  | 18,568   |
| Summarized description of the recommended boundary | <p>The northwest boundary of the Silver King RWA lies adjacent to the Scapegoat Wilderness area. This northern boundary then follows east along the Continental Divide National Scenic Trail (Trail 440) on the top of the ridge until its intersection with the East Fork Falls Creek Trail (Trail 219) near the top of Red Mountain. The boundary continues east and south paralleling the Continental Divide trail until it reaches the ridge just east of Lewis and Clark Pass. (Note: The RWA boundary remains 150 feet off the Continental Divide Trail to allow mechanized travel from East Fork Falls Creek Trail along the Continental Divide to Rodgers Pass.)</p> <p>From Lewis and Clark Pass, the boundary heads west over the pass and down Alice Creek, keeping just to the north side of Lewis and Clark Pass Trail (Trail 493). The boundary then stays to the north and west of the Alice Creek Road (FSR 293), buffing out a short spur into Wildcat Gulch. It continues along the west side of Alice Creek Road until the HLC FS boundary with private lands. It then follows the private land boundary west until Indian Meadows Creek. The boundary remains 300 feet from the private land ownership lines in order to provide some flexibility in addressing natural resource concerns adjacent to private land ownership.</p> <p>At Indian Meadows Creek, the boundary buffers all developments in the area, including the FS administrative cabin and facilities, the campground, the trailhead, and the main</p> |



| Analysis criteria  | Description  |
|--|--|
|  | access roads. Just beyond the campground loops it follows a ridge to the northwest and connects to the boundary of the Scapegoat Wilderness.   |
| Brief description of the general geography, topography, and vegetation   | The Silver King RWA is in the Upper Blackfoot GA north and east of Lincoln, Montana, and lies adjacent to the Scapegoat Wilderness Area in the upper reaches of the Alice Creek and Landers Fork drainages. The area is dominated by Douglas-fir and lodgepole pine forests, with dry grasslands, subalpine fir forests, and small amounts of Engelmann spruce, whitebark pine, limber pine, and cottonwood, aspen, and Rocky Mountain juniper. Wildfire disturbances have been prominent in this polygon.   |
| Current uses and management  | This area is adjacent to the Scapegoat Wilderness, and within the Silver King-Falls Creek inventoried roadless area. It contains one research natural area. There are no motorized trails or open roads; the entire polygon is available for primitive and semi-primitive non-motorized summer recreation. Most of the area is available for primitive and semi-primitive non-motorized winter recreation.   |
| Description of the wilderness characteristics  | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses except for a small area where over-snow motorized use is allowed in the winter.</p> <p><b>Unconfined and/or primitive recreation</b> – This area has an outstanding amount of unconfined and primitive recreation opportunities: Hunting, fishing, hiking, horseback riding, dispersed camping, snowshoeing, and cross-country skiing. Historic interpretation along the upper portions of Alice Creek, Landers Fork and in the Lewis and Clark pass area.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Solitude is slightly diminished near the Alice Creek road.</p> <p><b>Other Features of Value</b> – Features of this area include the Alice Creek National Registered Historic District, the Lewis and Clark National Historic Trail; Limestone Reef caves; Blowout Mountain and Flattop; waterfalls on Falls Creek; many historic and cultural resources; Alice and Landers Fork eligible Wild and Scenic Rivers; and rare plant and animal species such as grizzly bear, western toad, fisher, trumpeter swan, whitebark pine, lynx, bull trout, and west slope cutthroat trout.</p> |
| The ability to protect and manage the area to preserve its wilderness characteristics                                    | The ability to protect and manage these wilderness characteristics is high because it is adjacent to the Scapegoat Wilderness and lies within an inventoried roadless area. There are no private inholdings. There are currently no motorized trails or open roads, but a small area is available for over-snow motorized use. Motorized recreation use and mechanized means of transportation would not be suitable within RWAs in alternative F.   |
| A brief summary of the factors considered, and the process used in evaluating the area and developing the alternative(s) | <p>Outstanding opportunities for solitude; very remote area.</p> <p>Adjacent to the Scapegoat Wilderness area.</p> <p>High interest exists for this area to be recommended for wilderness</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>   |

| Analysis criteria  | Description   |
|--|---|
| Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>○ The undeveloped quality of the area is very high and there are no motorized trails.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability:</p> <ul style="list-style-type: none"> <li>○ The area offers outstanding opportunity for solitude</li> <li>○ There is high amount of primitive and/or unconfined recreation for hunting, fishing, hiking, horseback riding, dispersed camping, snowshoeing, and cross-country skiing as well as historic interpretation along the upper portions of Alice Creek, Landers Fork and in the Lewis and Clark pass area.</li> </ul> |

### Red Mountain Recommended Wilderness Area

The Red Mountain RWA is derived from the Red Mountain wilderness inventory area, Upper Blackfoot 2a (UB2a) in the Upper Blackfoot geographic area. The boundary for this RWA is the same in alternatives B, C, and D. However, the southern boundary of the RWA varies slightly in alternative F. In response to public comment, the southern boundary was moved farther south to the top of the ridgeline thereby incorporating more of the Red Creek drainage into the recommended wilderness area.

**Table 356. Red Mountain Recommended Wilderness Area (alternative F)**

| Analysis criteria  | Description  |
|--|--|
| Acres  | 2,500  |
| Description of the recommended boundary                          | The western, northern, and eastern boundaries of the Red Mountain RWA follow the boundary of the Scapegoat Wilderness. The southeast boundary primarily follows the ridgeline between Red Creek and the tributary to Copper Creek to the south. This RWA includes the Red Mountain research natural area.  |
| Description of the general geography, topography, and vegetation | The Red Mountain RWA is located south and east of Red Mountain Peak in Red Creek, within the Copper Creek drainage. This area is characterized by subalpine fir, Engelmann spruce, Douglas-fir, and lodgepole pine forests with a small amount of whitebark pine, ponderosa pine and limber pine. Much of this area has been recently impacted by wildfire and some is in a non-forested or newly reforested state. It includes the majority of the Red Creek drainage.  |
| Current uses and management                                      | Red Mountain RWA lies adjacent to the Scapegoat Wilderness and is within the Bear-Marshall - Scapegoat-Swan inventoried roadless area. The Red Mountain research natural area is also located within the recommended wilderness area. There are no open roads or motorized trails, and no motorized over-snow uses, the entire polygon is available for primitive and semi-primitive non-motorized recreation. There is less than 0.1 miles of nonmotorized trail.   |
| Description of the wilderness characteristics                    | <p><b>Natural Quality</b> – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention.</p> <p><b>Undeveloped</b> – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses or open roads.</p> <p><b>Unconfined and/or primitive recreation</b> – The Red Mountain recommended wilderness area is primarily used for unconfined and primitive recreation opportunities such as hunting, fishing, hiking, horseback riding, and dispersed camping.</p> <p><b>Solitude</b> – There is outstanding opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance.</p> <p><b>Other Features of Value</b> – Features of within close proximity to this recommended wilderness area include the Copper Lakes; the Lincoln Historic Mining District; a research natural area; Snowbank and Copper Creek, eligible Wild and Scenic Rivers; and rare plant</p> |

| Analysis criteria  | Description  |
|--|--|
|  | and animal species such as grizzly bear, whitebark pine, lynx, bull trout, and west slope cutthroat trout.   |
| The ability to protect and manage the area to preserve its wilderness characteristics  | The ability to protect and manage the wilderness characteristics within this area is high because it lies adjacent to the Scapegoat Wilderness, has been managed as a research natural area since 1986, and there are no motorized uses within the area. There is one patented mining claim in the polygon. There is one very short segment (<0.1 miles) of nonmotorized trail. Mechanized means of transportation would not be suitable on this nonmotorized trail segment in alternative F.  |
| A summary of the factors considered, and the process used in evaluating the area and developing the alternative(s)   | <p>Outstanding opportunities for solitude.</p> <p>Adjacent to the Scapegoat Wilderness area.</p> <p>The location and configuration of this RWA helps maintain or enhance habitat connectivity for large, wide-ranging wildlife species, including Canada lynx and grizzly bear.</p>  |
| Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System | <p>The <u>ecological characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>• The naturalness of the area is very high and much of the area is affected primarily by natural forces, has mostly intact ecological integrity and contains many indigenous species.</li> <li>• The undeveloped quality of the area is very high because the area is unroaded and there are no motorized uses.</li> </ul> <p>The <u>social characteristics</u> that provide the basis for suitability include:</p> <ul style="list-style-type: none"> <li>• The area offers outstanding opportunity for solitude.</li> <li>• There is high amount of primitive and/or unconfined recreation for hunting, fishing, hiking, horseback riding, and dispersed camping.</li> </ul> |

## Rationale for Excluding Wilderness Inventory Polygons

The reasons for excluding wilderness inventory polygons, or portions thereof, from further analysis in one or more alternative in the FEIS are documented in Table 357. Maps of all wilderness inventory polygons are provided in appendix A of the Plan.

**Table 357. Summary of rationale for exclusion of wilderness inventory polygons by alternative**

| GA        | Wilderness inventory polygon name | Wilderness inventory polygon number | Wilderness inventory polygon acres | Recommended wilderness acres alts. B and C | Recommended wilderness acres alt. D | Recommended wilderness acres in alt. F | Recommendation/rationale for exclusion   |
|-----------|-----------------------------------|-------------------------------------|------------------------------------|--|-------------------------------------|--|--|
| Big Belts | Big Log                           | BB1                                 | 10,254                             | 7,086                                      | 7,086                               | 7,035                                  | Recommended with modifications in alternatives A, B, C, D, and F.  |
|           | Hogback                           | BB2                                 | 5,784                              | 0  | 0                                   | 0                                      | Not recommended due to motorized system roads and trails that affect opportunities for solitude.   |
|           | Trout Creek                       | BB3                                 | 39,383                             | 0  | 0                                   | 0                                      | Not recommended due to motorized system roads and trails that affect opportunities for solitude.   |
|           | North Belts                       | BB4                                 | 14,140                             | 0  | 0                                   | 0                                      | Not recommended due to motorized system roads and trails that affect opportunities for solitude.   |
|           | Bilk Mountain                     | BB5                                 | 25,787                             | 0  | 0                                   | 0                                      | Not recommended due to motorized system roads and trails that affect opportunities for solitude.   |
|           | Camas Creek                       | BB6                                 | 23,878                             | 0  | 22,350                              | 0                                      | Recommended in alternative D only in response to public comment.<br>Not recommended in alternatives B/C and F due to existing resource management activities in this area that would be inconsistent with wilderness characteristics.      |
|           | Mount Baldy                       | BB7                                 | 18,335                             | 8,314                                      | 8,314                               | 8,141                                  | Recommended with modifications in alternatives B, C, D and F.  |
|           | Grassy Mountain                   | BB8                                 | 6,194                              | 0  | 0                                   | 0                                      | Not recommended due to impacts to solitude created by activities around Highway 12 and the adjacent subdivision.   |
| Castles   | Wapiti Peak                       | CA1                                 | 33,002                             | 0  | 30,606                              | 0                                      | Recommended in alternative D only in response to public comment.<br>Not recommended in alternatives B/C and F because of motorized trails that affect solitude and opportunities for primitive and semi-primitive nonmotorized recreation. |

| GA      | Wilderness inventory polygon name | Wilderness inventory polygon number | Wilderness inventory polygon acres | Recommended wilderness acres alts. B and C | Recommended wilderness acres alt. D | Recommended wilderness acres in alt. F | Recommendation/rationale for exclusion  |
|---------|-----------------------------------|-------------------------------------|------------------------------------|--|-------------------------------------|--|---|
|         | Whetstone Ridge                   | CA3                                 | 8,676                              | 0  | 0                                   | 0                                      | Not recommended due to existing motorized trails and motorized activity that affect solitude and opportunities for primitive and semi-primitive nonmotorized recreation.  |
| Crazies | Loco Mountain                     | CR1                                 | 25,605                             | 0  | 24,977                              | 0                                      | Recommended in alternative D only in response to public comment.<br><br>Not recommended in alternatives B/C because checkerboard ownership and adjacent private lands affect FS ability to manage as wilderness and limit public access.  |
|         | Bald Ridge                        | CR3                                 | 13,210                             | 0  | 0                                   | 0                                      | Not recommended due to motorized trails and activity that affect solitude and opportunities for primitive and semi-primitive nonmotorized recreation.   |
| Divide  | Sweeney Creek                     | D2                                  | 7,978                              | 0  | 0                                   | 0                                      | Not recommended because motorized activity outside of the polygon affects solitude within it.   |
|         | Blackfoot Meadows                 | D3                                  | 29,066                             | 18,296                                     | 26,900                              | 18,239                                 | RWA named Electric Peak. Recommended with modifications in alternatives B, C, D, and F because of outstanding opportunities for solitude.   |
|         | Colorado Mountain                 | D5                                  | 8,168                              | 0  | 14,189                              | 0                                      | Recommended in alternative D only in response to public comment.<br><br>Not recommended in alternatives B, C, and F due to proximity to private lands and population center that affect opportunities for solitude, and FS management that would be inconsistent with wilderness characteristics. |
|         | Continental Divide North          | D13                                 | 4,173                              | 0  | 0                                   | 0                                      | Not recommended due the effects to wilderness solitude from communication sites, shooting range, Highway 12, Priest   |

| GA           | Wilderness inventory polygon name | Wilderness inventory polygon number | Wilderness inventory polygon acres | Recommended wilderness acres alts. B and C | Recommended wilderness acres alt. D | Recommended wilderness acres in alt. F | Recommendation/rationale for exclusion  |
|--------------|-----------------------------------|-------------------------------------|------------------------------------|--|-------------------------------------|--|---|
|              |                                   |                                     |                                    |  |                                     |  | Pass road, and groomed snowmobile trails within the polygon.  |
| Elkhorns     | Eagle Basin                       | E1                                  | 57,279                             | 0  | 0                                   | 0                                      | Not recommended because the Elkhorns GA is managed as a wildlife management unit.   |
|              | Elkhorn Peak                      | E3                                  | 15,180                             | 0  | 0                                   | 0                                      | Not recommended because the Elkhorns GA is managed as a wildlife management unit.   |
| Highwood     | Highwood Baldy                    | H1                                  | 15,824                             | 0  | 0                                   | 0                                      | Not recommended because wilderness characteristics are affected by electronics site and adjacent private lands; and there is a lack of public access.   |
|              | Arrow Prospect                    | H2                                  | 26,210                             | 0  | 0                                   | 0                                      | Not recommended because existing motorized trails in summer and winter affect solitude experience.  |
| Little Belts | Deep Creek (Tenderfoot)           | LB1a<br>LB1b                        | 89,321                             | 14,490                                     | 14,490                              | 0                                      | Most of the inventory polygon was not recommended due to motorized uses. The remainder was partitioned into LB1a and LB1b.  |
|              |                                   |                                     |                                    | 0  | 45,870                              | 0                                      | In alternatives B, C, and D, LB1a (Deep Creek) is recommended based on outstanding opportunities for solitude and ecological characteristics.<br><br>In alternative D, LB1b (Tenderfoot Creek) is recommended in response to public comment and ecological characteristics. |
|              | Big Horn Thunder                  | LB2                                 | 45,334                             | 0  | 47,107                              | 0                                      | In alternative F, both Deep Creek and parts of Tenderfoot Creek were identified as primitive ROS areas rather than as RWA's.<br><br>Recommended in alternative D only in response to public comment.  |

| GA | Wilderness inventory polygon name | Wilderness inventory polygon number | Wilderness inventory polygon acres | Recommended wilderness acres alts. B and C | Recommended wilderness acres alt. D | Recommended wilderness acres in alt. F | Recommendation/rationale for exclusion   |
|----|-----------------------------------|-------------------------------------|------------------------------------|--|-------------------------------------|--|--|
|    |                                   |                                     |                                    |  |                                     |  | Not recommended in alternatives B/C and F because motorized use affects solitude.  |
|    | Sun Mountain                      | LB3                                 | 7,965                              | 0  | 0                                   | 0                                      | Not recommended because open motorized roads, residential areas, and recreation areas impact solitude.   |
|    | McGee Sawmill                     | LB4                                 | 8,355                              | 0  | 0                                   | 0                                      | Not recommended because the Dry Fork Belt Creek road affects solitude.   |
|    | Peterson Mountain                 | LB5                                 | 6,839                              | 0  | 0                                   | 0                                      | Not recommended because activities on surrounding private land affect opportunities for solitude.  |
|    | Taylor Mountain                   | LB6                                 | 11,374                             | 0  | 0                                   | 0                                      | Not recommended because activities on surrounding private land affect opportunities for solitude.  |
|    | Big Baldy                         | LB8                                 | 49,068                             | 0  | 0                                   | 0                                      | Not recommended because motorized use throughout limits opportunities for solitude, plus impacts from historic mining.   |
|    | Eagle Creek                       | LB10                                | 6,337                              | 0  | 0                                   | 0                                      | Not recommended because adjacent private land, checkerboard ownership, and motorized routes affect opportunities for solitude and manageability.   |
|    | Calf Creek                        | LB11                                | 12,598                             | 0  | 0                                   | 0                                      | Not recommended because motorized trails and snowmobiling limit opportunities for solitude.  |
|    | North Fork Smith                  | LB15                                | 9,817                              | 0  | 0                                   | 0                                      | Not recommended because surrounding motorized use and winter motorized access limit opportunities for solitude.  |
|    | Middle Fork Judith                | LB16                                | 98,312                             | 0  | 62,452                              | 0                                      | Recommended in alternative D in response to public comment.<br><br>Not recommended in alternatives B/C and F because motorized trails and private inholdings accessed by open roads impact solitude. |
|    | East Little Belts                 | LB18                                | 106,178                            | 0  | 0                                   | 0                                      | Not recommended because motorized trails affect opportunities for solitude.  |

| GA                   | Wilderness inventory polygon name | Wilderness inventory polygon number | Wilderness inventory polygon acres | Recommended wilderness acres alts. B and C | Recommended wilderness acres alt. D | Recommended wilderness acres in alt. F | Recommendation/rationale for exclusion   |
|----------------------|-----------------------------------|-------------------------------------|------------------------------------|--|-------------------------------------|--|--|
| Rocky Mountain Range | Badger Two Medicine               | RM1                                 | 125,795                            | 0  | 0                                   | 0                                      | Not recommended because existing Blackfeet Nation reserved rights may conflict with wilderness characteristics.  |
|                      | Teton Blackleaf                   | RM2                                 | 56,002                             | 0  | 0                                   | 0                                      | Not recommended because solitude is affected by open roads and snow play area; and the area is a Conservation Management Area.   |
|                      | Sun Canyon Willow                 | RM3                                 | 71,106                             | 0  | 0                                   | 0                                      | Not recommended because activities along Sun Canyon Road, Beaver Willow Road, Benchmark Road Area, and Mortimer Gulch area affect solitude; and the area is a Conservation Management Area.  |
|                      | Sawtooth Ridge                    | RM4                                 | 15,312                             | 0  | 0                                   | 0                                      | Not recommended because of the effects to solitude from Sun Canyon and Beaver Willow roads; and the area is a Conservation Management Area.  |
|                      | Elk Smith                         | RM5                                 | 30,030                             | 0  | 0                                   | 0                                      | Not recommended because motorized activities affect solitude, and the area is a Conservation Management Area.  |
| Snowies              | Big Snowies                       | S1                                  | 103,480                            | 95,299                                     | 95,299                              | 66,894                                 | Recommended with modifications in alternatives B, C, and D because the area is remote and has excellent opportunities for solitude. In alternative F, in response to public comment, an RWA is identified for the more remote, eastern part of the range. The western part of the range is identified as a primitive (summer) and semi-primitive motorized (winter) recreation area. |
| Upper Blackfoot      | Dearborn Silver King <sup>1</sup> | UB1                                 | 44,141                             | 20,088                                     | 20,088                              | 18,568                                 | Recommended with modifications in alternatives B, C, D, and F because the area is adjacent to the Scapegoat Wilderness and has excellent opportunities for solitude. Renamed Silver King as the RWA does not include lands within the Dearborn drainage.   |



| GA | Wilderness inventory polygon name  | Wilderness inventory polygon number | Wilderness inventory polygon acres | Recommended wilderness acres alts. B and C | Recommended wilderness acres alt. D | Recommended wilderness acres in alt. F | Recommendation/rationale for exclusion  |
|----|------------------------------------|-------------------------------------|------------------------------------|--|-------------------------------------|--|---|
|    | Stonewall (Red Mountain, Arrastra) | UB2                                 | 30,046                             | 1,901                                      | 1,901                               | 1,897                                  | Most of the inventory polygon was not recommended due to existing motorized uses. The remainder was partitioned into UB2a and UB2b. In alternatives B, C, and D, UB2a (Red Mountain) and UB2b (Arrastra) are recommended because they are adjacent to the Scapegoat Wilderness and offer outstanding opportunities for solitude. In alternative F, only Red Mountain is identified as an RWA. Arrastra was not identified as an RWA but would be managed as a primitive ROS area instead. |
|    |                                    |                                     |                                    | 8,257                                      | 8,257                               | 0                                      |   |
|    | Black Mountain                     | UB3                                 | 10,220                             | 0  | 0                                   | 0                                      | Not recommended because snowmobile use limits opportunities for solitude.   |
|    | Anaconda Hill                      | UB4                                 | 21,539                             | 0  | 0                                   | 0                                      | Not recommended because motorized uses near the polygon impact opportunities for solitude.  |
|    | Paige Gulch                        | UB5                                 | 17,569                             | 0  | 0                                   | 0                                      | Not recommended because motorized uses impact opportunities for solitude.   |
|    | Bear Gulch                         | UB9                                 | 5,636                              | 0  | 0                                   | 0                                      | Not recommended because motorized uses and patented mining claims affect solitude.  |
|    | Nevada Mountain <sup>2</sup>       | UB10                                | 51,027                             | 39,345                                     | 44,702                              | 0                                      | Recommended with modifications in alternatives B, C, D, and F based on opportunities for solitude and ecological characteristics.   |

1 Inventory polygon is located on both the Upper Blackfoot and Rocky Mountain Range GAs.

2 Inventory polygon and recommended wilderness area is located on both the Upper Blackfoot and Divide GAs.

## Step 4: Recommendations

The draft record of decision identifies the following seven (7) areas as the preliminary administrative recommendation (recommended wilderness) in alternative F (Table 358). See attachment 2 for individual maps of the recommended wilderness areas.

The decision maker carefully considered a range of recommended wilderness areas, as well as other allocations, to determine the mix of land and resource uses that would best meet public needs. The areas recommended in this decision are an appropriate distribution for the Forest in consideration of the wilderness evaluation for each area, alternative analyses, and public comments.

**Table 358. Recommended wilderness areas in alternative F (preferred alternative)**

| <b>RWA</b>                        | <b>GA</b>                  | <b>Wilderness Inventory Polygon</b> | <b>Alternative F (Acres)</b> |
|-----------------------------------|----------------------------|-------------------------------------|------------------------------|
| Big Log                           | Big Belts                  | BB1                                 | 7,035                        |
| Mount Baldy                       | Big Belts                  | BB7                                 | 8,141                        |
| Electric Peak (Blackfoot Meadows) | Divide                     | D3                                  | 18,239                       |
| Big Snowies                       | Snowies                    | S1                                  | 66,894                       |
| Silver King                       | Upper Blackfoot            | UB1                                 | 18,568                       |
| Red Mountain                      | Upper Blackfoot            | UB2a                                | 2,500                        |
| Nevada Mountain                   | Upper Blackfoot and Divide | UB10                                | 31,571                       |
| <b>Total acres</b>                |                            |                                     | <b>152,948</b>               |

# Attachment 1. Determination of Substantially Noticeable Vegetation Treatments

## Introduction

This paper outlines the process used to determine if vegetation treatments on the landscape are substantially noticeable relative to the wilderness inventory for forest plan revision. Our definition of substantially noticeable is: “what a viewer will likely see when viewing harvest areas and associated roads from the background, mid-ground and foreground of an area to assist in determining whether or not vegetation treatments, timber harvest, and prior road construction were substantially noticeable and, consequently, whether or not they are included or excluded from the wilderness evaluation inventory.” The following characteristics may be visible after vegetation treatments. The timeframe in which these characteristics exist varies.

- Foreground (0-0.5 miles away): Roads; stumps; logging slash; vegetation may be noticeably more open, evenly distributed, and/or absent.
- Midground (0.5-4 miles away) and Background (4 or more miles away): Roads; geometric edges; vegetation may appear more open, evenly distributed, and/or absent.

The steps of the analysis included:

- Step 1. Define substantially noticeable characteristics associated with vegetation treatments.
- Step 2. Determine the timeframes needed to achieve visual recovery after treatments.
- Step 3. Map areas with vegetation treatment that are substantially noticeable. Identify areas that have burned since treatment and determine if they are still substantially noticeable.
- Step 4. Conduct internal and external review of rationale and mapping.

## Treatments Evaluated and What a Viewer is Likely to See

For this analysis, vegetation treatments can be categorized into 3 main types. The descriptions below provide an overview of each type and what a viewer may see in the foreground, midground, and background.

### Prescribed Fire and Fuels Treatments

Prescribed fire and fuels treatments include activities often accomplished by hand or prescribed fire. Activities such as slashing and hand piling reduce the number of small trees and create small diameter stumps. Prescribed burning may consume surface fuels, small trees, and cause some overstory tree mortality. Dead and scorched trees remain on the landscape. In the foreground, factors such as stumps, slash, and slash piles are visible until piles are burned or the slash decomposes into the grass, shrub, and litter layer (generally within 5 years). Some treatments may be accomplished with mechanical equipment, such as piling and burning large jackpot piles. Prescribed burning is visible through charred vegetation for a short time, but often appears similar to the effects of wildfire. Treatment unit shapes and residual tree densities are often irregular and indistinguishable from the natural landscape when viewed from the middle or background. These treatments are generally not considered substantially noticeable, except for fuel breaks which may be delineated with geometric patterns.

## Intermediate Treatments and Uneven-Aged Regeneration Harvests

Intermediate treatments remove some trees in a stand, leaving behind residual trees (i.e., thinning). Treatments in young stands, such as precommercial thinning, are often accomplished by hand, and may leave residual trees on a relatively even spacing. Small stumps and slash are visible in the foreground for 5 to 15 years depending on site conditions; as material starts to decompose it becomes covered with grasses, shrubs, and the litter layer. In the middle and background the regular spacing of trees could be visible. Intermediate treatments in mature stands, such as commercial thinning, are often accomplished with ground-based mechanical equipment. Stumps and logging slash would be visible in the foreground in the short term. Because of their larger size, stumps may be visible for decades. Because residual trees are left, often roads are not highly visible. In some cases, treatments were accomplished with skyline logging methods, creating linear corridors; delineated in units with geometric edges; and/or created low tree densities that are visible from the midground and background for decades until tree crowns and understory development softens the pattern. Conversely, some treatments are irregular in shape and residual density, and blend in almost immediately in the middle and background. Uneven-aged treatments, such as single tree selection, are designed to regenerate trees but the appearance is similar to an intermediate treatment. Intermediate and uneven-aged treatments are substantially noticeable for 5 to 20 years depending on the specific treatment.

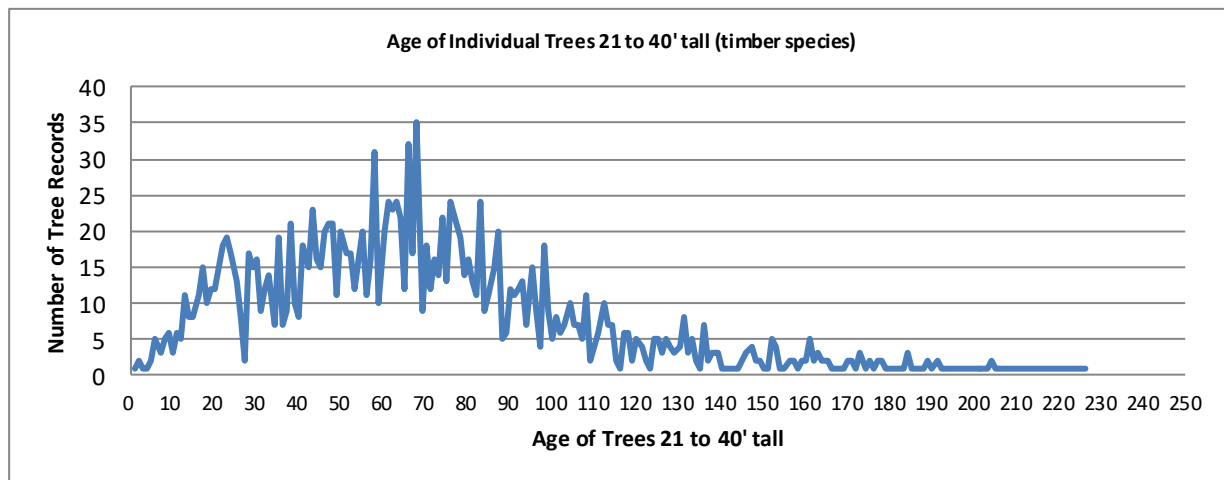
## Even-aged Regeneration Harvest

Even-aged regeneration harvests generally remove most of the existing trees, and include treatments such as clearcuts, seed tree, and shelterwood cuts. These activities are often associated road building and may be followed by prescribed burning. In the past, clearcuts were often delineated with geometric edges that contrast with unharvested areas. Recent harvests tend to be more irregularly delineated and with more patches of reserve trees. Seedtree and shelterwood cuts leave behind scattered residuals and in some cases appear like a thinning. Nevertheless, it is assumed that most regeneration harvests left behind few trees. In the foreground, logging slash is visible in the short term and stumps may be visible for decades, although grass and shrub cover may cover them on some sites. Road cuts are evident in the foreground for a long time. The delineation between harvested and unharvested areas diminishes as young trees grow and reduce views. In the middle ground, roads and geometric patch shapes are visible until newly established trees grow to a height that blocks visibility of the road and blends in with the landscape. These characteristics are similar for the background except that the viewer may not have a continuous line of sight, as the features may be interrupted by terrain and vegetation. When seen from the background, harvested areas are typically distinct and noticeable as compared to unharvested areas until trees re-grow. Roads within and surrounding the harvested area are particularly visible during the first few decades. Steep terrain or poor re-stocking/slow growth can increase the visibility of roads and require longer time periods before trees are tall enough to block a continuous view of the road and reduce the delineation between harvested and unharvested areas.

## Tree Heights and Timeframes Needed for Visual Recovery after Regeneration Harvest

Factors such as tree height, stand density, and topography influence when a regeneration harvest area is no longer substantially noticeable. There is a range of variability across the HLC NF, but generally it is assumed that tree heights of 21 to 40 feet are needed to achieve visual recovery (Ministry of Forests, British Columbia 1994), depending on topography and treatment unit delineation. The timeframe needed for trees to grow to this height range varies because height growth, especially in young, immature tree stands, depends upon site productivity and species. An analysis of existing vegetation data (FIA plots) on the HLC NF was done to determine an average timeframe needed to achieve this height range. The analysis provided a summary of the age of trees and stands that are 21 to 40 feet tall. Metadata can be found in the project record (VegSubstNoticeable\_Heights\_Analysis.xlsx).

Individual tree data on forested plots was examined for species commonly harvested (Douglas-fir, lodgepole pine, western larch, subalpine fir, and Engelmann spruce). Figure 1 shows the age/height relationships recorded. Outliers ranged from 10 years to over 300 years old; however, most trees were between 33 and 99. The mode (most common) age was 80. Trees that met the lower end of the range (21') averaged 62 with a mode of 55.



**Figure 1. Age/height relationship of individual trees 21-40' tall, of timber species**

Plot level information was also reviewed. Plots in cover types most commonly harvested were included (dry Douglas-fir, mixed mesic conifer, lodgepole pine, and spruce/fir). These data showed that plots between 21 and 40' tall had an average age of 44. Plots in the lower end of the desired height range (21 to 25 feet) averaged 31 years old.

Timber harvest was usually conducted on the more productive sites. Generally, tree regeneration following harvest is established within 5 years per National Forest Management Act (NFMA) requirements. Accounting for the 5-year establishment period, and the range of ages seen in data, an average timeframe of 55 years is used to represent a point in time that, in general, areas harvested with even-aged regeneration methods have ceased to be substantially noticeable.

## Activity Code Rationale (FACTS) and Example Photographs





The Forest Activity Tracking System (FACTS) is a corporate database that provides the best available data for activities that occur on NFS land. The same acre often has a sequence of activities. Table 359 lists activity codes found in FACTS on the HLC NF, along with the determination as to whether it is considered substantially noticeable, and for what period of time. "Date completed" is utilized to reflect when treatment actually occurred on the ground. Figure 2 shows example photographs of different vegetation treatments.

**Table 359. FACTS codes and rationale for substantially noticeable**

| Activity  | Code(s)                      | Substantially noticeable? | Rationale   |
|---|------------------------------|---------------------------|---|
| Broadcast/jackpot/underburn/ecosystems/wildlife burn                            | 1111, 1113, 6101             | No                        | Appearance similar to wildfire.   |
| Wildfire (fuels ben/fire use)   | 1115-1118                    | No                        | Wildfire, natural effects.  |
| Yarding   | 1120                         | No                        | Disturbance not visible more than 1 season.   |
| Burn of piles   | 1130                         | No                        | Appearance similar to wildfire.   |
| Rehab burn piles  | 5633                         | No                        | Restoration of natural vegetation.  |
| Range grazing systems   | 2000                         | No                        | Grazing not obvious; affects grass/shrub.   |
| Fireline construction   | 1140                         | Yes – 5 yrs               | Visible foreground. Could include construction with equipment. Usually rehabbed after burn.   |
| Rearrangement or slashing; lop and scatter; site prep slashing                  | 1150, 1160, 4455             | Yes – 10 yrs              | Tree cutting usually by hand, <6" diameter. Stumps/slash visible foreground. Material "melts" into grass/forb/shrub/litter.                                   |
| Compacting/crushing   | 1152                         | Yes – 10 yrs              | Woody material scattered but grass/forb recover quickly and chunks "melt" into grass/forb/shrub/litter.   |
| Piling of natural or activity fuels   | 1153                         | No                        | Piles only visible in foreground until burned in <5 years.  |
| Chipping of natural or activity fuels   | 1154                         | No                        | Chips usually removed, spread, or burned.   |
| Natural abatement-natural or activity fuels; misc                               | 1156, 1256, 1169             | No                        | No action; natural process. Try to group with something?  |
| Fuel break and maintenance; Permanent land clearing; harvest without restocking | 1180, 4270, 4242             | Yes – permanent           | Stumps foreground, geometric edge mid/background, maintained indefinitely, usually on roads, ridges, near communities. May be road buffers, powerlines, etc.. |
| Clearcut - patch, strip, stand, salvage, w/or w/o reserves                      | 4111, 4113, 4115, 4117       | Yes – 55 yrs              | Regen harvest, often geometric in the past w/ roads.  |
| Prep cut shelterwood, seedtree  | 4121, 4122                   | Yes – 20 yrs              | Visually appears similar to thinning.   |
| Shelterwood or seed tree seed cut (w/reserves) w/ or w/o leave trees            | 4131, 4132                   | Yes – 55 yrs              | Shelter/seed trees left for a period of time while regen establishes, then are removed.   |
| Shelterwood or seedtree final cut, or removal w/ LT's or reserves               | 4141, 4142, 4146, 4148, 4196 | Yes – 55 yrs              | Overstory removal from regeneration; some reserves could be left. regeneration harvest.   |
| Single-tree selection   | 4151                         | Yes – 20 yrs              | Visually appears like a thinning, only small gaps created.  |
| Group selection cut   | 4152                         | Yes – 20 yrs              | Usually 1/3 of stand removed in small patches.  |
| 2-aged shelterwd or seedtree est or removal w/ res.                             | 4183, 4193, 4194             | Yes – 20 yrs              | Seed/shelter trees left indefinitely for 2-storied appearance. Timeframes more similar to intermediate harvest.   |
| Improvement cut; commercial thin  | 4210, 4220                   | Yes – 20 yrs              | Intermediate harvest, ample residuals, usually irregular.   |
| Liberation cut; overstory removal from regen w/ or w/o reserves                 | 4211, 4143                   | Yes – 50 yrs              | Overstory is removed from well-established regeneration, generally at least 5' tall.  |
| Sanitation or salvage (Intermediate)  | 4231, 4232                   | Yes – 20 yrs              | Thinning of dead or special product trees (post/poles), intermediate.   |
| Natural changes (excludes fire)   | 4250                         | No                        | Natural changes (bugs or wind).   |

| Activity   | Code(s)  | Substantially noticeable? | Rationale   |
|--|--|---------------------------|---|
| Tree planting, seeding, natural regen, animal dmg, seeding, planting propagules          | 4411, 4431, 4432, 4448, 4450, 4451, 4452, 4453, 4460, 4461, 7030, 7031 | No                        | Planting/reforestation looks similar to natural process.  |
| Leave tree protection, disease control, insect prevention/control                        | 4466, 8100, 8200, 8220   | No                        | Pulling slash away, or application of pheromones etc – not visually impactful.  |
| Burning site prep for planting, seeding, or naturals                                     | 4471, 4481, 4491   | No                        | Looks similar to wildfire.  |
| Chemical or manual site prep for planting, naturals, seed; fertilizing                   | 4472, 4475, 4495, 4550   | No                        | Minimal ground or veg disturbance; short term impact to localized areas of grass/shrub; not visible for more than 1 growing season. |
| Mechanical site prep for planting, seeding, or nats                                      | 4474, 4484, 4494   | No                        | Scarification of soil – grass/forb/shrub recovery with conifers fairly rapid (1 season).  |
| Individual tree or area release/weed or precom thin; other stand tending; wildlife slash | 4511, 4521, 4570, 6133   | Yes – 5 yrs               | Small stumps/slash visible foreground only.   |
| Prescribed burn or other control of understory veg                                       | 4540, 4541   | No                        | Looks similar to natural disturbance.   |
| Seed production areas, seed orchards or genetic plantation establishment, maintenance    | 4931, 4932, 4933, 4934, 4940, 4941, 4950, 4951, 4981                   | Yes– permanent            | Maintained for specific seed/genetic tests. Regular tree spacing, stakes, tags, etc..   |
| Wildlife habitat improv  | 6050, 6080   | No                        | Effects similar to natural conditions.  |

From FACTS data dictionary. Only codes currently recorded on the HLC NF are included. Codes that indicate no effects to vegetation are NOT included: 1100, 1182, 2035, 2101, 2111, 2121, 2242, 2321, 2341, 2360, 2510, 2530, 2550, 3170, 3190, 3191, 4038, 4290, 4301, 4310, 4314, 4315, 4318, 4320, 4331, 4341, 4342, 4343, 4344, 4346, 4381, 4382, 4383, 4384, 4391, 4392, 4393, 4401, 4402, 4403, 4404, 4406, 4409, 4501, 4502, 4504, 4506, 4509, 4631, 4632, 4633, 4910, 4920, 4953, 5215, 5217, 5300, 5510, 5530, 5550, 5633, 6000, 6010, 6030, 6100, 6120, 6410, 6421, 6430, 6450, 6620, 7075, 8110, 8210, 9300.

|  |   |
|--|---|
| <p><b>Intermediate Harvest, Foreground, &gt;20 years after harvest:</b></p>        | <p><b>Intermediate Harvest, Middle Ground, &gt;20 years after harvest:</b></p>      |
|   |   |
| <p><b>Seedtree Regeneration Harvest, Foreground, &lt;30 after harvest</b></p>      | <p><b>Clearcut Harvest, Mid to Background, &lt;5 years after harvest</b></p>        |
|  |  |

**Figure 2. Example photographs of vegetation treatments**

## Review of Vegetation Treatment Mapping and Assessing Effects of Wildfire

Wildfire may soften edges of vegetation treatments as well as consume stumps, standing trees, and logging residual to reduce the visual effect of treatments. However, it may also expose roads and skid trails. To ensure the accuracy of areas mapped as substantially noticeable vegetation treatments, stands that later burned in a wildfire were reviewed to determine if the fire ameliorated the visual effects. The latest fire history layer (2014) and additional 2015 fire areas were intersected with the substantially noticeable vegetation treatment layer to create a layer depicting treatment areas that experienced a burn after the treatment. This resulted in roughly 500 treated stands being flagged for review across 38 wildfire areas. Specialists reviewed each stand with 2014 imagery and made the determination of whether or not the treatments are still substantially noticeable. If treated areas still appeared substantially noticeable, they were flagged as “Y” and no change was made. If treated areas were determined to no longer be substantially noticeable, they were flagged as “N” and included back into the wilderness inventory. In some cases, the fires were so recent as to not be reflected in aerial imagery; in these cases, the stands were flagged as “M”, and are considered to be substantially noticeable until such time that more information is available.

### Big Belts

Several large fires in the Big Belts GA affected some vegetation treatment areas (Table 360); primarily the Maudlow-Toston and Cave Gulch fires of 2000. Past vegetation treatments occurred across this GA outside of the wilderness and inventoried roadless areas.



**Table 360. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year  | FACTS unit ID       | Treatment type and year | Rationale  | Substantially noticeable? |
|---------------------|---------------------|-------------------------|--|---------------------------|
| Maudlow-Toston 2000 | 011201A300100003000 | Stand Clearcut 1968     | Fire burned surrounding landscape, so all stands regenerating; no vegetation delineation or roads visible.   | No                        |
|                     | 011201A300100001000 | Stand Clearcut 1968     |  |                           |
|                     | 011201A270300090000 | Stand Clearcut 1973     |  |                           |
|                     | 011201A270300001000 | Stand Clearcut 1973     |  |                           |
|                     | 011201A260100072000 | Seed Tree 1989          |  |                           |
|                     | 011201A260100030000 | Stand Clearcut 1968     |  |                           |
|                     | 011201A260100075000 | Seed Tree 1964          |  |                           |
|                     | 011201A260100002000 | Seed Tree 1964          |  |                           |
|                     | 011201A260100009000 | Stand Clearcut 1968     |  |                           |
|                     | 011201A260100006000 | Stand Clearcut 1973     |  |                           |
|                     | 011201A260100060001 | Shelterwood 1973        |  |                           |
|                     | 011201A260100012000 | Stand Clearcut 1968     |  |                           |
|                     | 011201A260100005000 | Shelterwood 1970        |  |                           |
|                     | 011201A260200054000 | Liberation 1989         |  |                           |
|                     | 011201A260200053000 | Liberation 1989         |  |                           |
|                     | 011201A270300116000 | Stand Clearcut 1976     | Fire generally avoided these areas; regeneration vegetation delineation and roads still noticeable. Harvest is common across the landscape surrounding these stands. | Yes                       |
|                     | 011201A270300005000 | Stand Clearcut 1973     |  |                           |
|                     | 011201A270300004000 | Stand Clearcut 1973     |  |                           |
|                     | 011201A270300003000 | Stand Clearcut 1973     |  |                           |
|                     | 011201A270300006000 | Stand Clearcut 1974     |  |                           |
|                     | 011201A270300013000 | Stand Clearcut 1986     |  |                           |
|                     | 011201A270300010000 | Stand Clearcut 1987     |  |                           |
|                     | 011201A270300008000 | Stand Clearcut 1987     |  |                           |
|                     | 011201A270200013000 | Stand Clearcut 1987     |  |                           |
|                     | 011201A270100156001 | Liberation 1987         |  |                           |
| 011201A270100004000 | Liberation 1987     |                         |  |                           |
| 011201A270100001000 | Stand Clearcut 1963 |                         |  |                           |
|                     | 011201A270100002000 | Stand Clearcut 1963     | Fire did not burn much in stands; vegetation delineation noticeable.   | Yes                       |
|                     | 011201A270200131000 | Stand Clearcut 1964     |  |                           |
|                     | 011201A270200001000 | Stand Clearcut 1964     |  |                           |
|                     | 011201A270200018000 | Clearcut and Lib 1986   |  |                           |
|                     | 011201A270200002000 | Stand Clearcut 1963     |  |                           |
|                     | 011201A270200010001 | Liberation 1987         | Stand indistinguishable from adjacent meadows.   | No                        |
|                     | 011201A270200010000 | Stand Clearcut 1963     |  |                           |
|                     | 011201A270200006000 | Stand Clearcut 1963     | Regenerating vegetation delineation still obvious. In some stands, only small portions in fire perimeter. Roads visible.   | Yes                       |
|                     | 011201A270100003000 | Stand Clearcut 1964     |  |                           |
|                     | 011201A270200007000 | Stand Clearcut 1963     |  |                           |
|                     | 011201A270200004000 | Stand Clearcut 1964     |  |                           |
|                     | 011201A270200005000 | Stand Clearcut 1964     |  |                           |
|                     |                     |                         |  |                           |

| Fire name and year  | FACTS unit ID       | Treatment type and year  | Rationale   | Substantially noticeable? |
|---------------------|---------------------|--|---|---------------------------|
| Cave Gulch 2000     | 011201A500200020000 | Stand Clearcut 1972  | Fire did not burn, vegetation change and roads obvious.   | Yes                       |
|                     | 011201A510100004000 | Stand Clearcut 1968  | Fire burned across landscape blurring lines between harvested and unharvested.  | No                        |
|                     | 011201A510100002000 | Stand Clearcut 1964  |   |                           |
|                     | 011201A510100015000 | Stand Clearcut 1982  | Tiny sliver burned – most of units unaffected by fire.  | Yes                       |
|                     | 011201A510100012000 | Liberation 1983  |   |                           |
|                     | 011201A510100016001 | Seed Tree 1982   | Fire burned lower intensity, treatments still obvious compared to adjacent stands and roads visible.                    | Yes                       |
|                     | 011201A510100018000 | Seed Tree 1982   |   |                           |
|                     | 011201A510100014000 | Seed Tree 1982   |   |                           |
|                     | 011201A510100017000 | Stand Clearcut 1982  |   |                           |
|                     | 011201A510100011000 | Stand Clearcut 1971  | Fire stand-replaced adjacent stands, vegetation delineation not obvious.  | No                        |
|                     | 011201A510100003000 | Stand Clearcut 1964  |   |                           |
|                     | 011201A530200002000 | Stand Clearcut 1973  | Fire did not affect units, vegetation delineation and roads remain obvious.   | Yes                       |
|                     | 011201A530200004000 | Stand Clearcut 1973  |   |                           |
|                     | 011201A530200012000 | Stand Clearcut 1981  |   |                           |
|                     | 011201A500200001000 | Stand Clearcut 1965  | Fire burned adjacent stands and blurred edges of vegetation; no roads.  | No                        |
|                     | 011201A500200005000 | Stand Clearcut 1985  |   |                           |
|                     | 011201A500200009000 | Stand Clearcut 1965  |   |                           |
|                     | 011201A500200010000 | Stand Clearcut 1966  | Fire impacted the stands little and delineation obvious from adjacent stands and logging associated roads very visible. | Yes                       |
|                     | 011201A500200003000 | Stand Clearcut 1966  |   |                           |
|                     | 011201A500200011000 | Stand Clearcut 1966  |   |                           |
|                     | 011201A500200004000 | Stand Clearcut 1972  |   |                           |
|                     | 011201A500200119000 | Stand Clearcut 1972  |   |                           |
|                     | 011201A460200007000 | Seed Tree 1981   |   |                           |
|                     | 011201A460100016000 | Seed Tree 1984   |   |                           |
|                     | 011201A460100007000 | Seed Tree 1981   |   |                           |
|                     | 011201A500200002000 | Stand Clearcut 1964  | Partially obvious vegetation lines with adjacent stand; roads highly visible.   | Yes                       |
|                     | 011201A460100001000 | Stand Clearcut 1974  | Fire burned in mosaic nearby but vegetation lines and roads still clearly noticeable.                                   | Yes                       |
|                     | 011201A460100013000 | Stand Clearcut 1973  |   |                           |
|                     | 011201A460100020000 | Stand Clearcut 1984  |   |                           |
|                     | 011201A460100014000 | Seed Tree 1981   |   |                           |
| 011201A530200013000 | Stand Clearcut 1984 |  |   |                           |
| 011201A460100015000 | Seed Tree 1981      |  |   |                           |
| 011201A460100018000 | Stand Clearcut 1984 | Fire stand-replaced adjacent stands, blurring vegetation delineation and no harvest-associated roads visible |   |                           |
| 011201A460100019000 | Stand Clearcut 1984 |  |   |                           |
| 011201A460100002000 | Stand Clearcut 1974 |  |   |                           |
| 011201A460100017000 | Seed Tree 1984      |  |   |                           |

| Fire name and year       | FACTS unit ID       | Treatment type and year | Rationale   | Substantially noticeable? |
|--------------------------|---------------------|-------------------------|---|---------------------------|
| Cabin Gulch 2015         | 011201A240300236001 | Improvement Cut 2014    | Harvest & burned after aerial photo – effects unknown.                      | Possible                  |
|                          | 011201A240300236002 | Improvement Cut 2014    |   |                           |
|                          | 011201A250100142000 | Slashing 2010           | Small trees cut & burned – no visible vegetation lines.                     | No                        |
| Lakeside 2010            | 011202A220100057001 | Slashing 2008           | Fire burned across slashed area, indistinguishable from untreated fire area | No                        |
| Sheep Camp 2003          | 011201A560100086000 | SingleTreeSelect 1998   | Fire did not affect.  | Yes                       |
| Kelly Gulch Complex 2013 | 011202A170100015000 | Harv w/o Restock 1999   | Tiny portion burned   | Yes                       |
|                          | 011202A170100013000 | Harv w/o Restock 1999   | Tiny portion burned   | Yes                       |
|                          | 011202A160200010000 | Harv w/o Restock 1999   | Tiny portion burned   | Yes                       |
| Meriwether 2007          | 011202N003132143003 | Slashing 2006           | Tiny sliver burned  | Yes                       |
|                          | 011202N003132141002 | Rearrangement of Fuels  | Tiny sliver burned  | Yes                       |

### Castles

Past substantially noticeable vegetation treatments were fairly limited in the Castles GA, with a large part of the GA being inventoried roadless. No wildfires have occurred in any substantially noticeable vegetation treatments mapped in this GA.

### Crazies

Substantially noticeable treatments in the Crazies GA are somewhat limited in extent. Only a few of these areas were by wildfires (Table 361).

**Table 361. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year           | FACTS unit ID       | Treatment type and year | Rationale  | Substantially noticeable? |
|------------------------------|---------------------|-------------------------|--|---------------------------|
| Forest Lake/Smith Creek 1994 | 011506A220100005000 | Stand Clearcut 1988     | Fire didn't burn in the unit.                    | Yes                       |
| Cottonwood 1966              | 011506A230400056000 | Stand Clearcut 1961     | Fire does not appear to have burned in the unit. | Yes                       |
|                              | 011506A230400057000 | Stand Clearcut 1961     |  | Yes                       |

### Divide

There are many substantially noticeable treatments across the landscape in the Divide GA; however, very few were burned by wildfire after being treated (Table 362).

**Table 362. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year | FACTS unit ID       | Treatment type and year | Rationale                  | Still substantially noticeable? |
|--------------------|---------------------|-------------------------|----------------------------|---------------------------------|
| Snowshoe 1974      | 011203A340100003000 | Stand Clearcut 1971     | Only a small sliver burned | Yes                             |
|                    | 011203A340100007000 | Stand Clearcut 1971     | Regen and roads visible    | Yes                             |
|                    | 011203A340100012000 | Stand Clearcut 1971     | Sparse regen, roads        | Yes                             |
|                    | 011203A340100009000 | Stand Clearcut 1971     | Only a small sliver burned | Yes                             |
|                    | 011203A340100011000 | Stand Clearcut 1971     | Sparse regen, roads        | Yes                             |

### Elkhorns

Most of the substantially noticeable vegetation treatments in the Elkhorns GA are located in the southern portion and are comprised of hand slashing and prescribed burning treatments (Table 363). Relatively small and scattered harvest treatments occurred as well in other areas. The only fire area that impacted substantially noticeable vegetation treatments in the Elkhorns GA was the Warmsprings fire of 1988.

**Table 363. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year  | FACTS unit ID       | Treatment type and year  | Rationale   | Substantially noticeable? |
|---------------------|---------------------|--|---|---------------------------|
| Warmsprings 1988    | 011203A290200001000 | Stand Clearcut 1973  | Fire removed delineation of vegetation. Roads noticeable.                       | Yes                       |
|                     | 011203A290200005000 | Liberation 1966  | Fire removed delineation of vegetation and no harvest associated road network.  | No                        |
|                     | 011203A280100001000 | Shelterwood 1964   |   |                           |
|                     | 011203A280100002000 | Stand Clearcut 1965  |   |                           |
|                     | 011203A280100003000 | Stand Clearcut 1964  |   |                           |
|                     | 011203A280100011000 | Shelterwood 1964   |   |                           |
|                     | 011203A280100008000 | Stand Clearcut 1964  |   |                           |
|                     | 011203A280100007000 | Stand Clearcut 1964  |   |                           |
|                     | 011203A280100004000 | Stand Clearcut 1965  | Vegetation delineation and roads still visible; fire burned around these areas. | Yes                       |
|                     | 011201A010100005000 | Stand Clearcut 1971  |   |                           |
|                     | 011201A010100006000 | Stand Clearcut 1971  |   |                           |
|                     | 011201A010100003000 | Shelterwood 1971   |   |                           |
|                     | 011201A010100004000 | Stand Clearcut 1968  |   |                           |
|                     | 011201A010100002000 | Shelterwood 1969   |   |                           |
|                     | 011201A010100001000 | Shelterwood 1969   |   |                           |
| 011201A020100001000 | Seed Tree 1971      | Fire removed delineation of vegetation and associated road appears re-vegetated. | No  |                           |

### Highwoods

The small Highwoods GA burned extensively around the turn of the last century and the primary multiple use occurring on the landscape is grazing. No substantially noticeable vegetation treatments have been mapped in the Highwoods GA.

### Little Belts

Substantially noticeable vegetation treatments are fairly extensive across the roaded portions of this GA (Table 364). Some of these stands burned in a handful of relatively small wildfires.

**Table 364. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year | FACTS unit ID       | Treatment type and year | Rationale  | Substantially noticeable? |
|--------------------|---------------------|-------------------------|--|---------------------------|
| Anderson Peak 1970 | 011504A650100001000 | Stand Clearcut 1969     | Fire did not affect, vegetation and roads starkly obvious. | Yes                       |
|                    | 011503A700200003000 | Stand Clearcut 1967     |  |                           |
| Iron Claim 1988    | 011504A620900008000 | Shelterwood 1987        | Vegetation lines are indistinguishable.                    | No                        |
|                    | 011504A620900005000 | Shelterwood 1987        |  |                           |
| Turkey 1990        | 011504A610900016000 | Seed Tree 1987          |  | No                        |

| Fire name and year  | FACTS unit ID       | Treatment type and year                     | Rationale  | Substantially noticeable? |
|---------------------|---------------------|---|--|---------------------------|
|                     | 011504A610900025000 | Stand Clearcut 1987                         | Vegetation lines are indistinguishable from surrounding landscape.   |                           |
|                     | 011504A610900026000 | Seed Tree 1987                              |  |                           |
|                     | 011504A610900018000 | Stand Clearcut 1987                         |  |                           |
| Tollgate 1998       | 011504A600400006000 | Commercial Thin 1996                        | Fire did not substantially impact these stands.                      | Yes                       |
|                     | 011504A600400003000 | Commercial Thin 1996                        |  |                           |
| High Springs 2000   | 011504A510400013000 | Shelterwood 1992                            | Vegetation lines are indistinguishable from surrounding landscape.   | No                        |
|                     | 011504A510400014000 | Shelterwood 1985                            |  |                           |
|                     | 011504A510400028000 | Stand Clearcut 1962                         |  |                           |
| Coyote 1996         | 011507A110400208000 | Stand Clearcut 1995                         | Roads are still obvious.   | Yes                       |
|                     | 011507A110800103000 | Stand Clearcut 1994                         |  |                           |
|                     | 011507A110800102000 | Stand Clearcut 1993                         |  |                           |
|                     | 011507A110400032000 | Stand Clearcut 1995                         | Vegetation lines no longer obvious.                                  | No                        |
|                     | 011507A110400098000 | Stand Clearcut 1995                         |  |                           |
|                     | 011507A110400030000 | Stand Clearcut 1978                         |  |                           |
|                     | 011507A110500098000 | Stand Clearcut 1994                         |  |                           |
|                     | 011507A110500002000 | Stand Clearcut 1994                         |  |                           |
|                     | 011507A110500031000 | Stand Clearcut 1988                         |  |                           |
|                     | 011507A110800025000 | Stand Clearcut 1989                         |  |                           |
|                     | 011507A110800008000 | Stand Clearcut 1962                         |  |                           |
|                     | 011507A110800107000 | Stand Clearcut 1979                         |  |                           |
|                     | 011507A110800011000 | Stand Clearcut 1962                         |  |                           |
|                     | 011507A110800029000 | Stand Clearcut 1979                         |  |                           |
|                     | 011507A110700054000 | Stand Clearcut 1993                         |  |                           |
|                     | 011507A110700038000 | Stand Clearcut 1988                         |  |                           |
|                     | 011507A110700112000 | Stand Clearcut 1992                         |  |                           |
|                     | 011507A110700017000 | Stand Clearcut 1969                         |  |                           |
|                     | 011507A110500012000 | Stand Clearcut 1962                         | Vegetation lines are still evident.                                  | Yes                       |
|                     | 011507A110800101000 | Stand Clearcut 1993                         |  |                           |
|                     | 011507A110800099000 | Stand Clearcut 1993                         |  |                           |
|                     | 011507A110800018000 | Clearcut/TL area 1974                       | Vegetation lines, vegetative patterns and roads are still evident.   | Yes                       |
|                     | 011507A110800122000 | Genetic Evaluation Plantation Establishment |  |                           |
|                     | 011507A110800055000 | Stand Clearcut 1979                         |  |                           |
|                     | 011507A110500025000 | Stand Clearcut 1975                         | Vegetation lines are no longer obvious, but roads are still visible. | Yes                       |
|                     | 011507A110800098000 | Stand Clearcut 1995                         |  |                           |
|                     | 011507A110500009000 | Stand Clearcut 1962                         | Vegetation lines and roads are still evident.                        | Yes                       |
| 011507A110800007000 | Stand Clearcut 1960 |   |  |                           |
| 011507A110800072000 | Stand Clearcut 1962 |   |  |                           |
| 011507A110800100000 | Stand Clearcut 1993 |   |  |                           |
| 011507A110800047000 | Stand Clearcut 1984 |   |  |                           |
| 011507A110800035000 | Stand Clearcut 1989 |   |  |                           |

| Fire name and year   | FACTS unit ID       | Treatment type and year | Rationale   | Substantially noticeable? |
|----------------------|---------------------|-------------------------|---|---------------------------|
|                      | 011507A110700011000 | Stand Clearcut 1962     |   |                           |
|                      | 011507A110700013000 | Stand Clearcut 1961     |   |                           |
|                      | 011507A110600072000 | Stand Clearcut 1995     |   |                           |
|                      | 011507A110600001000 | Stand Clearcut 1971     |   |                           |
|                      | 011507A110600073000 | Stand Clearcut 1995     |   |                           |
|                      | 011507A110600074000 | Stand Clearcut 1995     |   |                           |
|                      | 011507A110600003000 | Stand Clearcut 1973     |   |                           |
| Whitetail Ck 1970    | 011506A330300004000 | Stand Clearcut 1964     | Fire did not affect unit.   | Yes                       |
| Mill Ck Sale 1966    | 011506A320500003000 | Stand Clearcut 1964     | Fire did not affect unit.   | Yes                       |
| Hoover 2011          | 011504A500300025000 | Stand Clearcut 1997     | Fire did not affect majority of units, still obvious.   | Yes                       |
|                      | 011504A500300008000 | SPA Establish 1989      |   |                           |
| Lyon Creek 1972      | 011506A310500004000 | Stand Clearcut 1965     | Fire did not impact unit.   | Yes                       |
| Smokey Mountain 1969 | 011507A060100008000 | Stand Clearcut 1971     | Fire did not substantially impact these treated areas; vegetation lines still obvious on landscape. | Yes                       |
|                      | 011507A060100002000 | Stand Clearcut 1961     |   |                           |
|                      | 011507A060200002000 | Stand Clearcut 1963     |   |                           |
|                      | 011507A060200003000 | Stand Clearcut 1963     |   |                           |
|                      | 011507A060200005000 | Stand Clearcut 1971     |   |                           |
| Newlan Ck 1985       | 011507A070200009000 | Shelterwood 1981        | Fire did not affect unit.   | Yes                       |
| Thornquist 1973      | 011507A080300012000 | Stand Clearcut 1971     | Fire did not affect unit.   | Yes                       |
| Miller Gulch 1967    | 011507A080200003000 | Stand Clearcut 1964     | Fire did not affect majority of units; still obvious.   | Yes                       |
|                      | 011507A080200001000 | Stand Clearcut 1964     |   |                           |
|                      | 011507A100800036000 | Stand Clearcut 1964     |   |                           |
| Cross Creek 1970     | 011504A500100023000 | Stand Clearcut 1962     | Vegetation lines are still evident.   | Yes                       |
|                      | 011504A500100027000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500900025000 | Stand Clearcut 1963     |   |                           |
|                      | 011504A500900024000 | Stand Clearcut 1960     |   |                           |
|                      | 011506A350400012000 | Stand Clearcut 1961     | Roads and vegetation lines still obvious.   | Yes                       |
|                      | 011504A500900031000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500900051000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500900033000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500900004000 | Stand Clearcut 1960     | Vegetation lines not obvious.   | No                        |
|                      | 011504A500100026000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500400014000 | Stand Clearcut 1960     | Roads and vegetation lines still obvious.   | Yes                       |
|                      | 011504A500900023000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500400011000 | Stand Clearcut 1960     |   |                           |
|                      | 011504A500400008000 | Stand Clearcut 1960     |   |                           |
| Harley Creek 2008    | 011503A750300005000 | Stand Clearcut 1972     | Vegetation lines are still evident.   | Yes                       |
|                      | 011503A750300002000 | Stand Clearcut 1963     |   |                           |
| Wilson Park 1970     | 011503A760400002000 | Stand Clearcut 1966     | Vegetation lines no longer obvious.   | No                        |
|                      | 011503A760500001000 | Stand Clearcut 1968     |   |                           |

| Fire name and year | FACTS unit ID       | Treatment type and year | Rationale   | Substantially noticeable? |
|--------------------|---------------------|-------------------------|---|---------------------------|
| Willow Park 1991   | 011503A500900091000 | Patch Clearcut 1960     | Softened by fire but some vegetative lines are still evident. | Yes                       |
|                    | 011503A350400042000 | Stand Clearcut 1990     | Vegetation lines are still evident.                           | Yes                       |
|                    | 011503A350400016000 | Stand Clearcut 1965     | Vegetation lines not obvious.                                 | No                        |

## Rocky Mountain Range

Vegetation treatments are not common in the Rocky Mountain Range GA, due to the rugged terrain and extent of wilderness areas. Some substantially noticeable vegetation treatments are recorded in the far northern part of the GA, and along the eastern edge. Several of these treated stands have burned in wildfires (Table 365).

**Table 365. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year   | FACTS Unit ID       | Treatment type and year   | Rationale  | Substantially noticeable? |
|----------------------|---------------------|---|--|---------------------------|
| Fool Creek 2007      | 011501A060500001000 | Seedtree (SPA) 1982   | Fire softened edges, no vegetation delineation or road visible.                                  | No                        |
|                      | 011501A080200001000 | Stand Clearcut 1969   | Fire stand-replaced, unit edges still very visible.  | Yes                       |
|                      | 011501A080700001000 | Stand Clearcut 1970   | Fire eliminated vegetation delineation but road visible.   | Yes                       |
| Skyland Fire 2007    | 011501A330600047000 | Commercial Thin 2002  | Fire stand replaced unit.  | No                        |
|                      | 011501A330600044000 | Commercial Thin 2002  | Fire only burned tiny sliver   | Yes                       |
|                      | 011501A330600016000 | Patch Clearcut 2002   | Fire burned portions but majority of unit not burned and vegetation delineation still noticeable | Yes                       |
|                      | 011501A330600005000 | Commercial Thin 2002  |  |                           |
|                      | 011501A330600007000 | Patch Clearcut 2002   |  |                           |
|                      | 011501A330500001000 | Commercial Thin 2002  |  |                           |
|                      | 011501A330100041000 | Patch Clearcut 2002   | Fire burned into edges, no visible vegetation delineation or roads.                              | No                        |
|                      | 011501A330100040000 | Patch Clearcut 2002   | Fire stand-replaced, no visible vegetation delineation or roads.                                 | No                        |
|                      | 011501A330300016000 | Patch Clearcut 2002   |  |                           |
|                      | 011501A330100004000 | Stand Clearcut 1960   | Also burned in Challenge Creek 1998. Fire avoided treated area.                                  | Yes                       |
| 011501A330100003000  | Stand Clearcut 1960 | Also burned in Challenge Creek 1998. Stand-replaced, no vegetation delineation visible. | No   |                           |
| Challenge Creek 1998 | 011501A330100001000 | Stand Clearcut 1966   | Stand-replaced, no vegetation delineation visible or roads.                                      | No                        |
|                      | 011501A330100002000 | Stand Clearcut 1966   |  |                           |
| Ford Creek 2006      | 011501A500300005000 | Fuel Break 1999   | Tiny sliver burned   | Yes                       |

## Snowies

The Little Snowies portion of this GA had a scattering of substantially noticeable vegetation treatments. The Big Snowies portion of this GA has had very few substantially noticeable vegetation treatments, which are fairly small and scattered. No wildfires occurred after the completion of any treatments in this GA.

## Upper Blackfoot

Substantially noticeable vegetation treatments occurred across the roaded portions of this GA (Table 366). Some of these have been affected by wildfire, most extensively the Snow Talon fire of 2003. Some stands burned in Snow Talon re-burned in the Sucker Creek fire.

**Table 366. Wildfire areas and vegetation treatment areas reviewed for substantially noticeable conditions**

| Fire name and year     | FACTS Unit ID       | Treatment type and year       | Rationale                                     | Substantially noticeable? |
|------------------------|---------------------|-------------------------------|---|---------------------------|
| Davis 2010             | 011204A320300186002 | Slashing 2008                 | Vegetation lines are still evident.           | Yes                       |
| Moose/Wasson 2003      | 011204A370200321000 | Stand Clearcut 1991           | Roads and vegetation lines are still evident. | Yes                       |
|                        | 011204A370200232000 | Shelterwood 1976              | Vegetation lines are still evident.           | Yes                       |
|                        | 011204A370200216000 | Shelterwood 1976              |   |                           |
|                        | 011204A370200322000 | Stand Clearcut 1990           |   |                           |
|                        | 011204A370200219000 | Shelterwood 1976              | Roads still visible.                          | Yes                       |
| 011204A370200319000    | Stand Clearcut 1991 | Vegetation lines not evident. | No  |                           |
| Copper Creek Fire 1998 | 011204A170100102000 | Stand Clearcut 1963           | Roads are evident.                            | Yes                       |
|                        | 011204A170100107000 | Stand Clearcut 1963           |   |                           |
|                        | 011204A170100120000 | Stand Clearcut 1963           |   |                           |
| Snow Talon 2003        | 011204A190100119000 | Stand Clearcut 1990           | Roads are evident.                            | Yes                       |
|                        | 011204A190100020002 | Stand Clearcut 1997           |   |                           |
|                        | 011204A200100112000 | Stand Clearcut 1971           |   |                           |
|                        | 011204A200100124000 | Stand Clearcut 1991           |   |                           |
|                        | 011204A170100119001 | Patch Clearcut 1989           |   |                           |
|                        | 011204A170200187000 | Stand Clearcut 1990           |   |                           |
|                        | 011204A170200184000 | Stand Clearcut 1969           |   |                           |
|                        | 011204A170200107000 | Stand Clearcut 1968           |   |                           |
|                        | 011204A170200104000 | Stand Clearcut 1969           |   |                           |
|                        | 011204A170200105000 | Stand Clearcut 1969           |   |                           |
|                        | 011204A170200129000 | Stand Clearcut 1967           |   |                           |
|                        | 011204A170100137000 | Stand Clearcut 1964           |   |                           |
|                        | 011204A170100120000 | Stand Clearcut 1963           |   |                           |
|                        | 011204A170100102000 | Stand Clearcut 1963           |   |                           |
|                        | 011204A170100100000 | Stand Clearcut 1963           |   |                           |
|                        | 011204A170100107000 | Stand Clearcut 1963           |   |                           |
|                        | 011204A190200095000 | Stand Clearcut 1989           |   |                           |
|                        | 011204A170100131000 | Patch Clearcut 1963           |   |                           |
| 011204A200100110000    | Stand Clearcut 1966 |                               |   |                           |



| Fire name and year | FACTS Unit ID       | Treatment type and year                         | Rationale  | Substantially noticeable? |
|--------------------|---------------------|---|--|---------------------------|
|                    | 011204A200100064000 | Stand Clearcut 1987                             |  |                           |
|                    | 011204A200100113000 | Patch Clearcut 1971                             |  |                           |
|                    | 011204A200100114000 | Stand Clearcut 1972                             |  |                           |
|                    | 011204A190100036000 | Stand Clearcut 1971                             |  |                           |
|                    | 011204A200200136000 | Stand Clearcut 1989                             |  |                           |
|                    | 011204A200200148000 | Stand Clearcut 1989                             |  |                           |
|                    | 011204A200200150000 | Stand Clearcut 1989                             |  |                           |
|                    | 011204A210200018000 | Stand Clearcut 1963, Re-burned 2015 (Sucker Ck) | Roads and vegetation lines are still evident after Snow Talon Fire in 2003. The effects of Sucker Creek are unknown. | Possible                  |
|                    | 011204A210200128000 | Shelterwood 1963, Re-burned 2015 (Sucker Ck)    |  |                           |
|                    | 011204A210200022000 | Stand Clearcut 1963, Re-burned 2015 (Sucker Ck) |  |                           |
|                    | 011204A210100056000 | Stand Clearcut 1967, Re-burned 2015 (Sucker Ck) |  |                           |
|                    | 011204A210100189000 | Shelterwood 1989, Re-burned 2015 (Sucker Ck)    |  |                           |
|                    | 011204A210200179000 | Stand Clearcut 1989                             | Roads and vegetation lines are still evident.  | Yes                       |
|                    | 011204A200200151000 | Stand Clearcut 1989                             |  |                           |
|                    | 011204A200200152000 | Stand Clearcut 1989                             |  |                           |
|                    | 011204A190100068000 | Seed Tree 1977                                  |  |                           |
|                    | 011204A200200153000 | Stand Clearcut 1989                             |  |                           |
|                    | 011204A200200156000 | Stand Clearcut 1987                             |  |                           |
|                    | 011204A190100120001 | Stand Clearcut 1990                             |  |                           |
|                    | 011204A190100125000 | Stand Clearcut 1997                             |  |                           |
|                    | 011204A190100055000 | Stand Clearcut 1971                             |  |                           |
|                    | 011204A190100050000 | Patch Clearcut 1971                             |  |                           |
|                    | 011204A190100020001 | Stand Clearcut 1997                             |  |                           |
|                    | 011204A190100021000 | Stand Clearcut 1971                             |  |                           |
|                    | 011204A190100124000 | Stand Clearcut 1991                             |  |                           |
|                    | 011204A190100017000 | Stand Clearcut 1971                             |  |                           |
|                    | 011204A170200058000 | Stand Clearcut 1969                             |  |                           |
|                    | 011204A170200186000 | Stand Clearcut 1969                             |  |                           |
|                    | 011204A170200185000 | Stand Clearcut 1969                             |  |                           |
|                    | 011204A170200126000 | Stand Clearcut 1968                             |  |                           |
|                    | 011204A170100078000 | Stand Clearcut 1964                             |  |                           |
|                    | 011204A170100090000 | Stand Clearcut 1964                             |  |                           |
|                    | 011204A200100028000 | Stand Clearcut 1967                             |  |                           |
|                    | 011204A170200169000 | Stand Clearcut 1963                             |  |                           |

| Fire name and year | FACTS Unit ID       | Treatment type and year | Rationale  | Substantially noticeable? |
|--------------------|---------------------|-------------------------|--|---------------------------|
|                    | 011204A170200133000 | Stand Clearcut 1967     |  |                           |
|                    | 011204A200100118000 | Stand Clearcut 1989     |  |                           |
|                    | 011204A200100123000 | Stand Clearcut 1991     |  |                           |
|                    | 011204A200100007000 | Patch Clearcut 1968     |  |                           |
|                    | 011204A200100011000 | Stand Clearcut 1966     |  |                           |
|                    | 011204A190200125000 | Patch Clearcut 1968     |  |                           |
|                    | 011204A190200133000 | Patch Clearcut 1968     |  |                           |
|                    | 011204A200100024000 | Stand Clearcut 1966     |  |                           |
|                    | 011204A200100046000 | Stand Clearcut 1972     |  |                           |
|                    | 011204A200100111000 | Stand Clearcut 1971     |  |                           |
|                    | 011204A200100098000 | Stand Clearcut 1973     |  |                           |
|                    | 011204A200100048000 | Patch Clearcut 1972     |  |                           |
|                    | 011204A190100123000 | Stand Clearcut 1990     |  |                           |
|                    | 011204A190100121000 | Stand Clearcut 1990     |  |                           |
|                    | 011204A190100022000 | Stand Clearcut 1971     |  |                           |
|                    | 011204A210200043000 | Shelterwood 1963        | Fires softened edges of the old units. Roads and vegetation lines no longer evident. | No                        |
|                    | 011204A210200044000 | Stand Clearcut 1963     |  |                           |
|                    | 011204A210200122000 | Shelterwood 1963        |  |                           |
|                    | 011204A190100072000 | Shelterwood 1966        |  |                           |
|                    | 011204A190100069000 | Shelterwood 1966        |  |                           |
|                    | 011204A200200154000 | Stand Clearcut 1988     |  |                           |
|                    | 011204A200200155000 | Stand Clearcut 1988     |  |                           |
|                    | 011204A190100054001 | Stand Clearcut 1997     |  |                           |
|                    | 011204A190100052001 | Stand Clearcut 1990     |  |                           |
|                    | 011204A190100037000 | Stand Clearcut 1990     |  |                           |
|                    | 011204A190100033000 | Stand Clearcut 1971     |  |                           |
|                    | 011204A190100028000 | Stand Clearcut 1962     |  |                           |
|                    | 011204A190100027000 | Stand Clearcut 1963     |  |                           |
|                    | 011204A190100019000 | Stand Clearcut 1971     |  |                           |
|                    | 011204A200100120000 | Stand Clearcut 1987     |  |                           |
|                    | 011204A200200157000 | Stand Clearcut 1986     |  |                           |
|                    | 011204A200100119000 | Stand Clearcut 1987     |  |                           |
|                    | 011204A200100014000 | Stand Clearcut 1989     |  |                           |
|                    | 011204A170200192000 | Patch Clearcut 1993     |  |                           |
|                    | 011204A170100044000 | Stand Clearcut 1964     |  |                           |
|                    | 011204A170200137000 | Stand Clearcut 1968     |  |                           |
|                    | 011204A170100139000 | Stand Clearcut 1989     |  |                           |
|                    | 011204A170100129000 | Patch Clearcut 1971     |  |                           |
|                    | 011204A170100127000 | Stand Clearcut 1989     |  |                           |
|                    | 011204A200100115000 | Patch Clearcut 1983     |  |                           |
|                    | 011204A190200132000 | Liberation 1989         |  |                           |

| Fire name and year  | FACTS Unit ID   | Treatment type and year                       | Rationale  | Substantially noticeable? |
|---------------------|---|---|--|---------------------------|
|                     | 011204A200100067000   | Stand Clearcut 1971                           |  |                           |
|                     | 011204A210200128000   | Shelterwood 1963                              |  |                           |
| Sucker Creek 2015   | 011204A210200018000   | Stand Clearcut 1963                           | The effects of the Sucker Creek fire could not be seen with imagery because it occurred so recently. These sites cannot be ruled out without field visits or newer photography. In some cases, the Snow Talon fire also burned these areas previously and they remained evident after that burn. | Possible                  |
|                     | 011204A210200022000   | Stand Clearcut 1963                           |  |                           |
|                     | 011204A210100056000   | Stand Clearcut 1967                           |  |                           |
|                     | 011204A210200184001   | Sanitation 2012                               |  |                           |
|                     | 011204A210200122000   | Shelterwood 1963                              |  |                           |
|                     | 011204A210200043000   | Shelterwood 1963                              |  |                           |
|                     | 011204A210200044000   | Stand Clearcut 1963                           |  |                           |
|                     | 011204A210200123000   | Stand Clearcut 1963                           |  |                           |
|                     | 011204A210200045000   | Stand Clearcut 1963                           |  |                           |
|                     | 011204A210200124000   | Patch Clearcut 1978                           |  |                           |
|                     | 011204A210200073000   | Stand Clearcut 1962                           |  |                           |
|                     | 011204A210200071000   | Patch Clearcut 1970                           |  |                           |
|                     | 011204A210200070000   | Patch Clearcut 1970                           |  |                           |
|                     | 011204A210200126000   | Stand Clearcut 1965                           |  |                           |
|                     | 011204A210200089000   | Stand Clearcut 1965                           |  |                           |
|                     | 011204A210200084000   | Patch Clearcut 1967                           |  |                           |
|                     | 011204A210100141000   | Stand Clearcut 1962                           |  |                           |
|                     | 011204A210100127000   | Seed Tree 1961                                |  |                           |
|                     | 011204A210100186000   | Shelterwood 1989                              |  |                           |
|                     | 011204A210100184000   | Shelterwood 1989                              |  |                           |
|                     | 011204A210100185000   | Shelterwood 1989                              |  |                           |
|                     | 011204A210100109000   | Patch Clearcut 1965                           |  |                           |
|                     | 011204A210100179000   | Shelterwood 1990                              |  |                           |
|                     | 011204A210100182000   | Shelterwood 1989                              |  |                           |
|                     | 011204A210200035000   | Patch Clearcut 1967                           |  |                           |
|                     | 011204A210100180000   | Shelterwood 1990                              |  |                           |
|                     | 011204A210100183000   | Shelterwood 1990                              |  |                           |
|                     | 011204A210100076000   | Stand Clearcut 1968                           |  |                           |
|                     | 011204A210100189000   | Shelterwood 1989                              |  |                           |
|                     | 011204A210100181000   | Patch Clearcut 1989                           |  |                           |
|                     | 011204A210100055000   | Stand Clearcut 1967                           |  |                           |
|                     | 011204A21010056000  | Stand Clearcut 1967                           |  |                           |
| 011204A210200019000 | Seed Tree 1997, Burned 2003 (Snow Talon), Reburn 2015       |   |  |                           |
| 011204A210200183000 | Stand Clearcut 2006   |   |  |                           |
| 011204A210200182000 | Stand Clearcut 2006, Burned 2003 (Snow Talon), Re-burn 2015 | Vegetation lines and roads no longer evident. | No   |                           |

| Fire name and year | FACTS Unit ID       | Treatment type and year                                  | Rationale                         | Substantially noticeable? |
|--------------------|---------------------|--|-----------------------------------|---------------------------|
|                    | 011204A200200162000 | Seed Tree 2006, Burned in 2003 (Snow Talon), Reburn 2015 |                                   |                           |
| Alice #2 2007      | 011204A120100116001 | Slashing 2007 – RX Wildlife Burn                         | Breaks in vegetation are evident. | Yes                       |

### Local Site-Specific Review

After completing the wilderness inventory mapping, local personnel reviewed the draft product. In several specific cases, the local staff stated that the vegetation treatment mapped as substantially noticeable was in fact no longer noticeable, due to the sparseness of the treatment and/or subsequent prescribed burning treatments. These specific areas that initially met the criteria for substantially noticeable (Table 359) are included back in the wilderness inventory and considered to be no longer substantially noticeable.

- Alice Creek prescribed burning units, Upper Blackfoot GA
- Hogum prescribed burning unit, Upper Blackfoot GA
- Fuel break treatment areas, Rocky Mountain Range GA
- Wildlife habitat slash treatment areas, Snowies GA

The FACTS SUIDs associated with these included treatments are listed in Table 367.

**Table 367. Stands with vegetation treatments included back in inventory based on site specific determination**

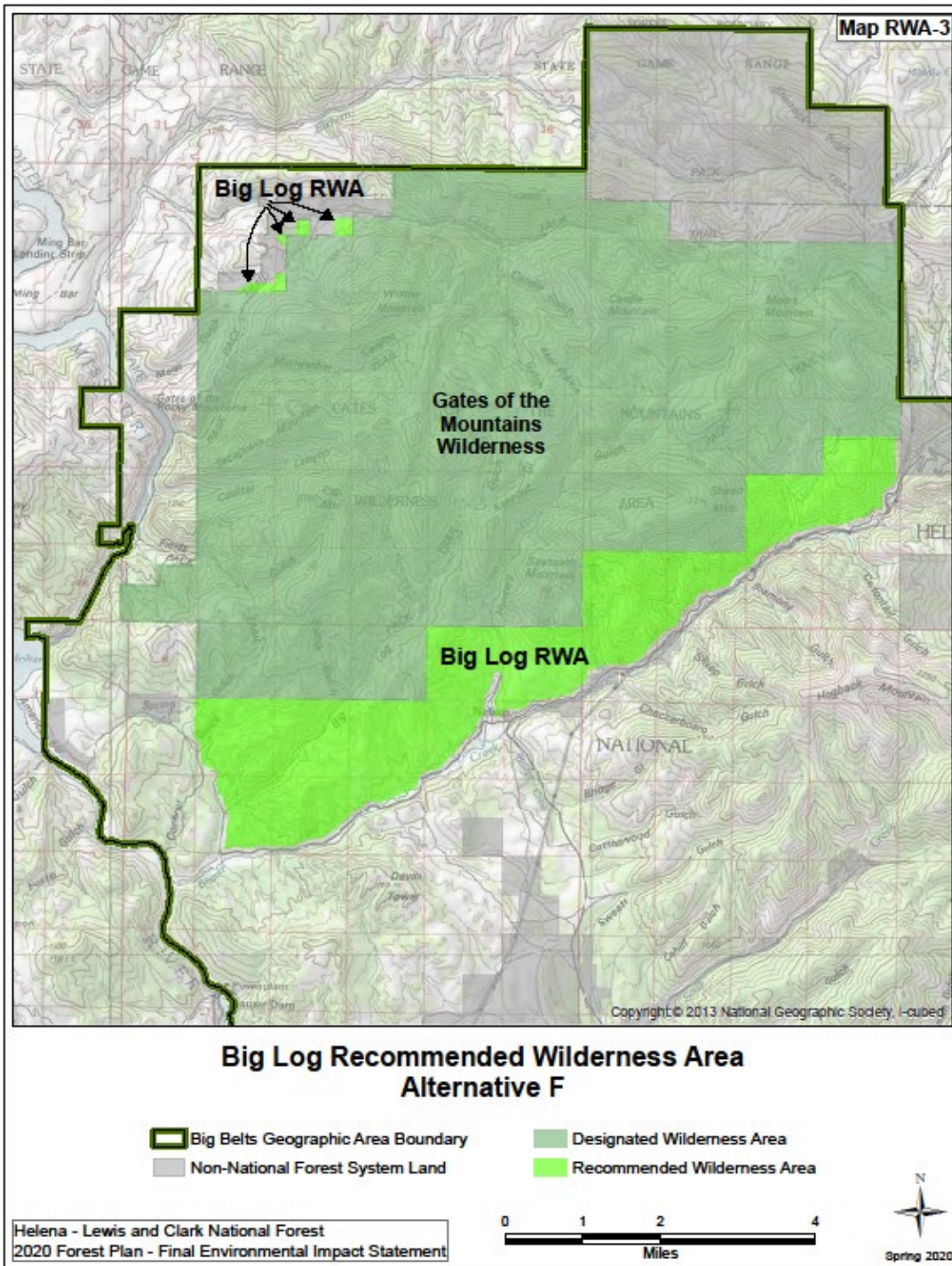
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| 011501A100200019000 | 011501A090100004000 | 011501A090100019000 | 011501A500300010000 |
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| 011501A100200025000 | 011501A580400008000 | 011501A590200011000 | 011204A120100070000 |
| 011501A100200030000 | 011501A580400009000 | 011501A590200012000 | 011204A120100114000 |
| 011501A100200031000 | 011501A580400010000 | 011501A590200023000 | 011204A120100116001 |
| 011501A100200034000 | 011501A580400011000 | 011501A590200024000 | 011204A120100116002 |
| 011501A500500016000 | 011501A580400012000 | 011501A590200025000 | 011204A120100117000 |
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| 011501A580400026000 | 011501A580400014000 | 011501A590200027000 | 011204A120100119000 |
| 011501A580100004000 | 011501A580400015000 | 011501A590200028000 | 011204N003066528001 |
| 011501A580100005000 | 011501A580400016000 | 011501A590300013000 | 011204N003066528002 |

|                     |                     |                     |                     |
|---------------------|---------------------|---------------------|---------------------|
| 011501A580100008000 | 011501A580400017000 | 011501A590300014000 | 011204N003066529000 |
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| 011501A580100012000 | 011501A580400021000 | 011501A590300022000 | 011501A500100053000 |
| 011501A580100013000 | 011501A090100008000 | 011501A590300032000 | 011204A280300026000 |
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| 011504A160100032000 | 011501A590200003000 | 011204A110200146000 | 011501A500500015000 |
| 011504A160100033000 | 011504A160400034000 | 011504A160400035000 |                     |

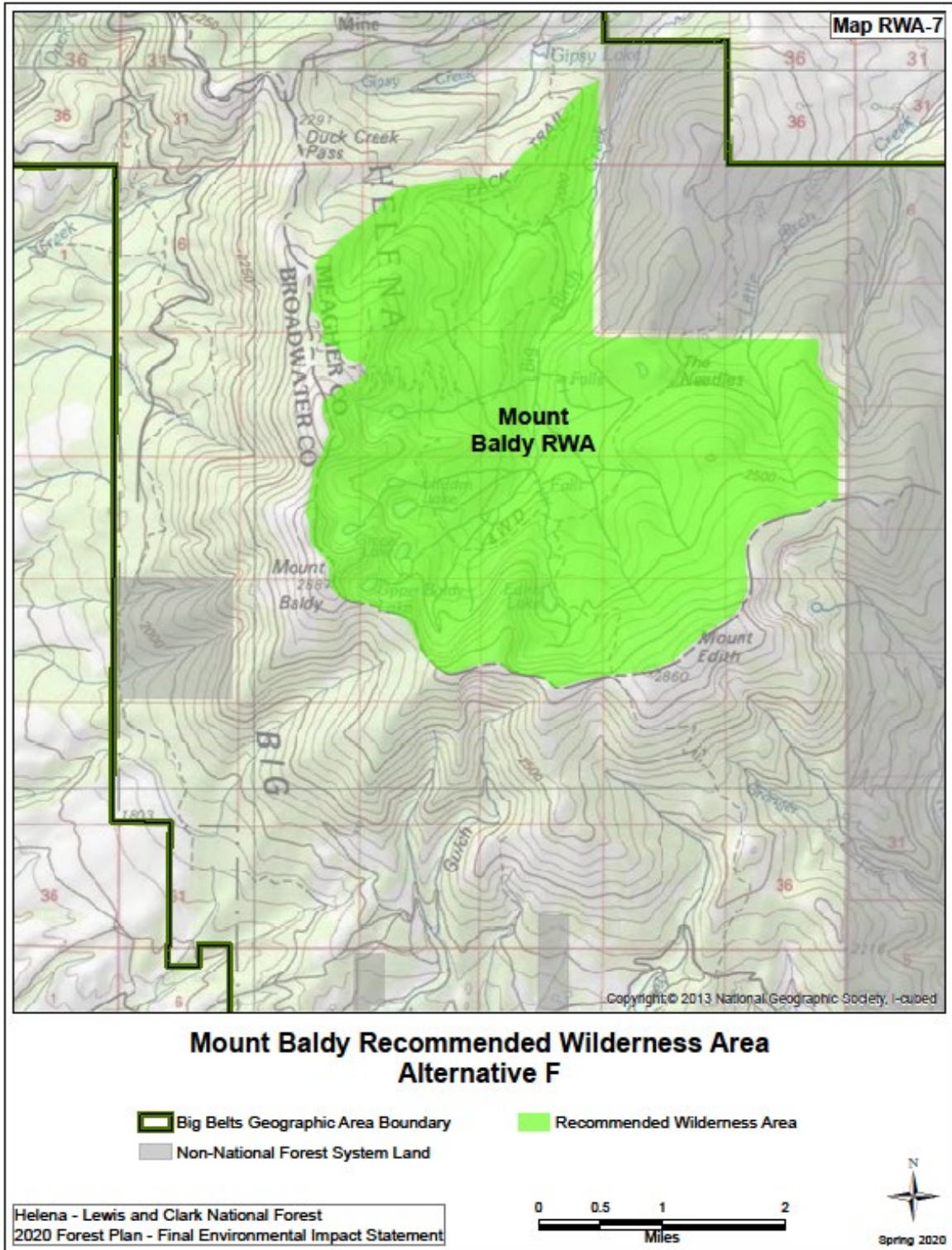


# Attachment 2. Final Recommended Wilderness Area Maps

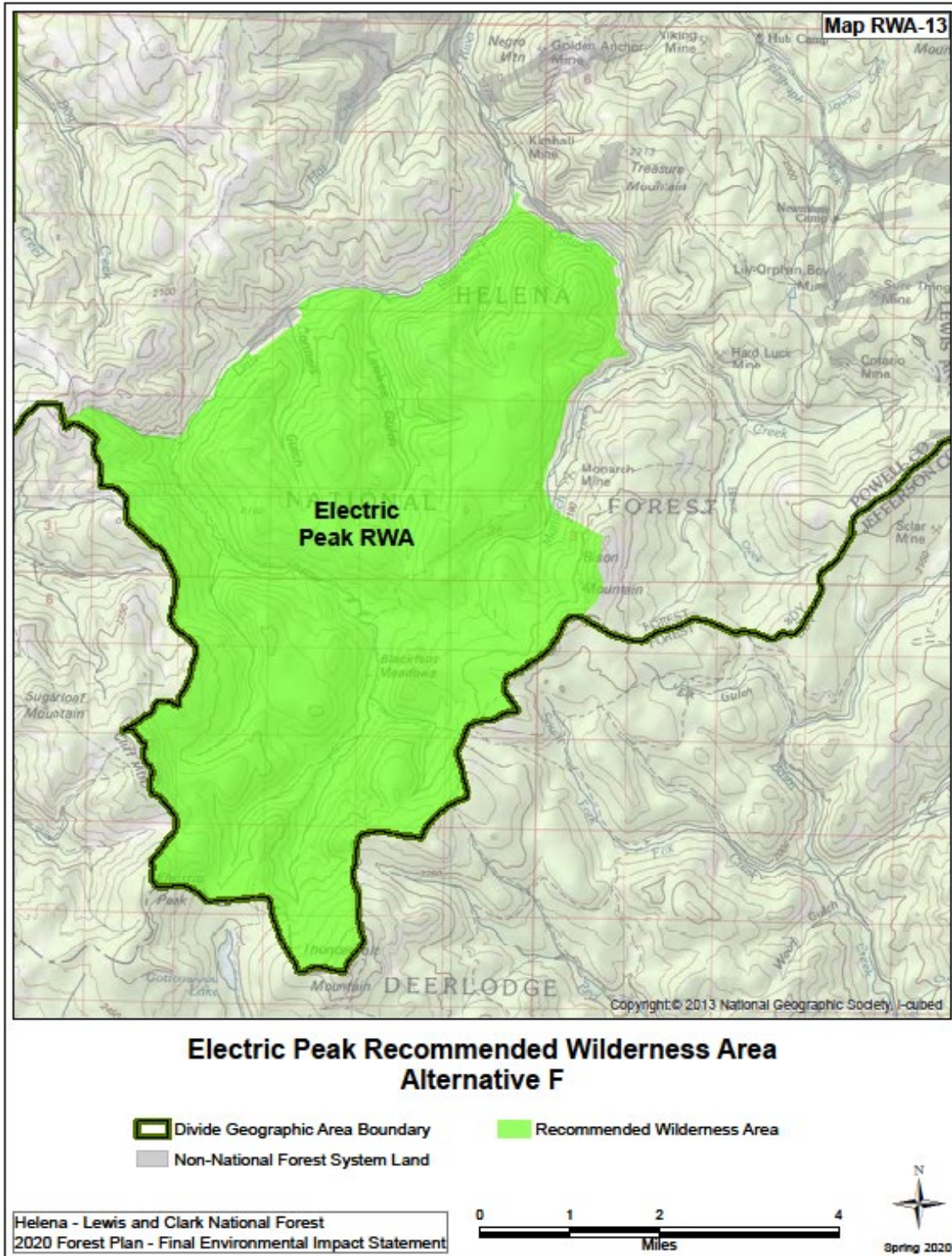
## Big Log Recommended Wilderness Area



# Mount Baldy Recommended Wilderness Area

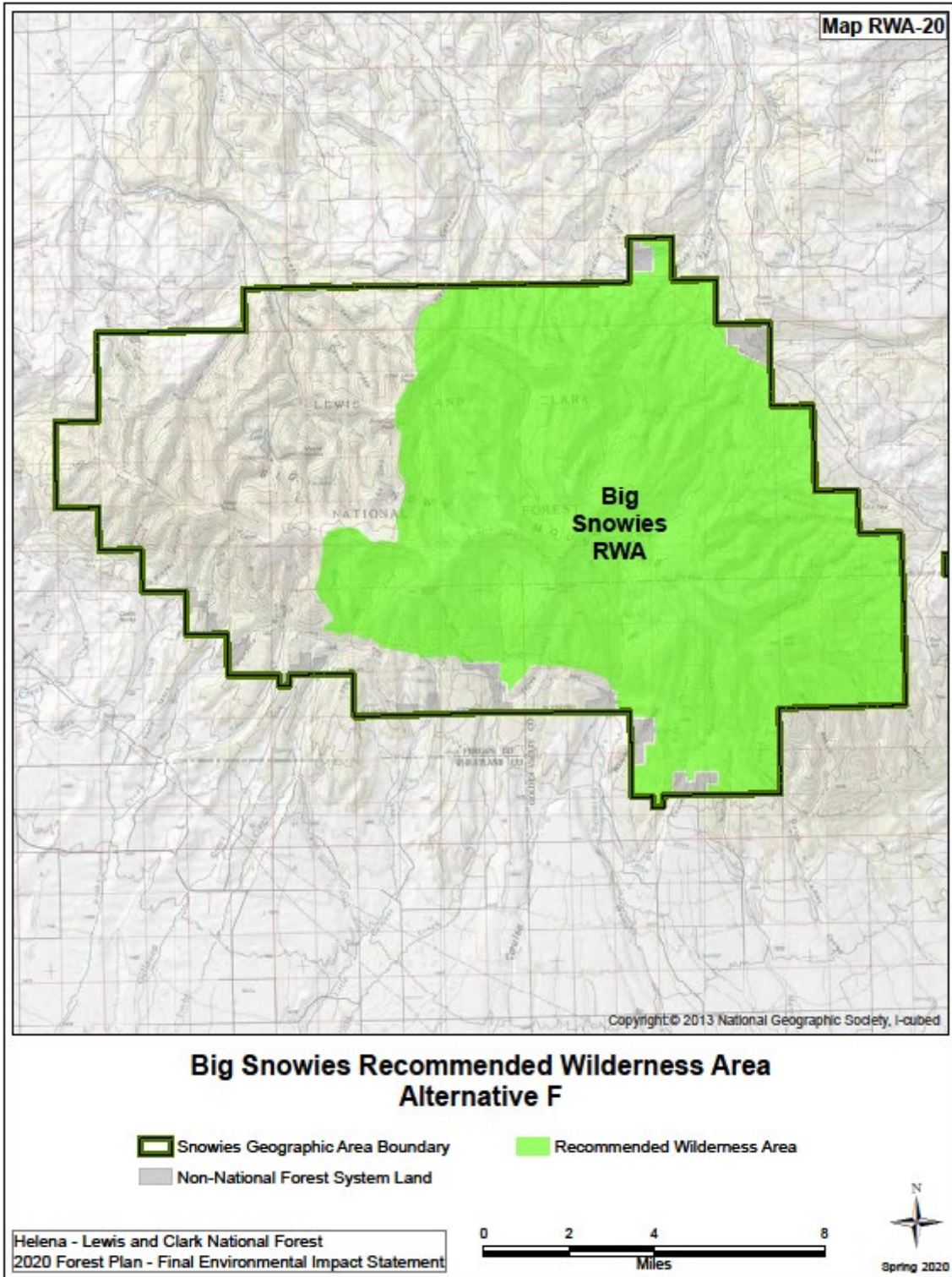


# Electric Peak Recommended Wilderness Area



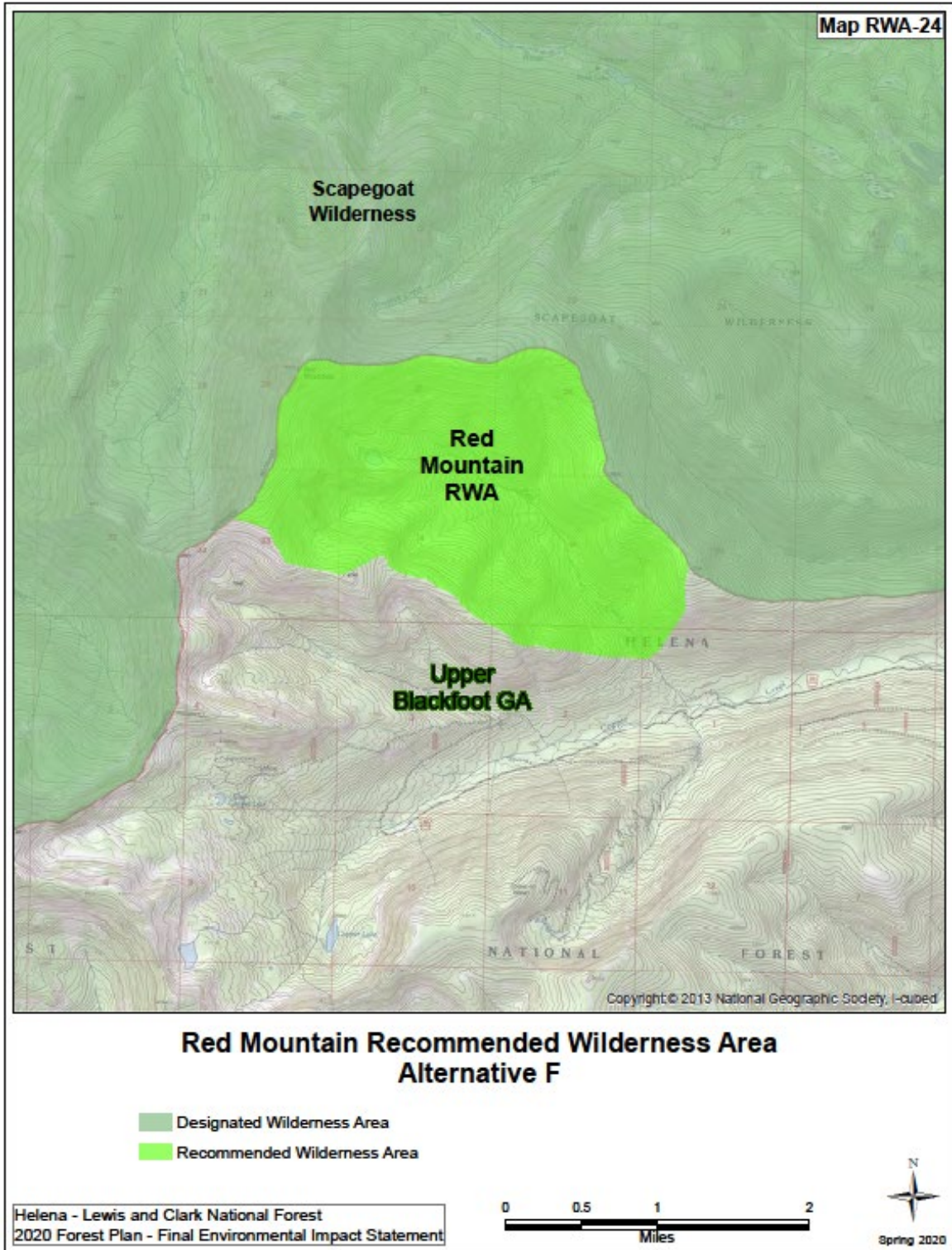


# Big Snowies Recommended Wilderness Area

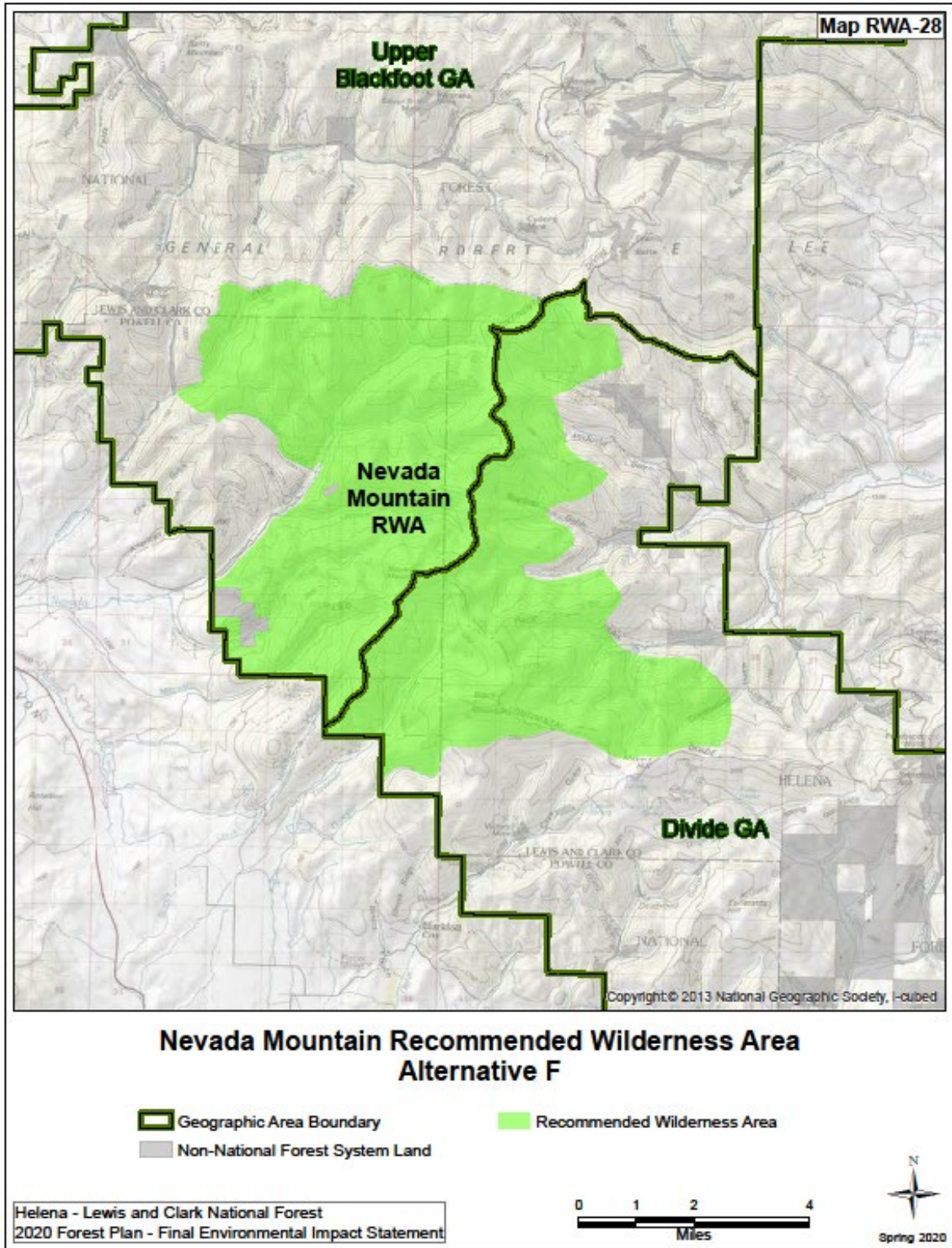




# Red Mountain Recommended Wilderness Area



# Nevada Mountain Recommended Wilderness Area



# Appendix F. Wild and Scenic Rivers Eligibility Study Process

## Table of Contents

Introduction ..... 1

Relevant Laws, Regulations, and Policy ..... 1

    National Wild and Scenic Rivers System Act of 1968 (WSRA) ..... 1

    Regulations ..... 2

Eligibility Process Overview ..... 2

Eligibility Process Details..... 4

    Step 1: Identify all free-flowing named streams..... 4

    Step 2: Identify the region of comparison for each resource..... 4

    Step 3: Develop evaluation criteria to identify ORVs ..... 5

    Step 4: Evaluate named streams and determine if they are free-flowing and possess ORVs..... 7

    Step 5: Classification of eligible streams..... 8

    Step 6: Develop management direction to be included in the proposed action..... 10

Summary of Wild and Scenic Rivers Eligibility Study ..... 13

Eligible Wild and Scenic Rivers Description Tables and Maps ..... 20

    Big Belts Geographic Area..... 21

    Divide Geographic Area ..... 29

    Elkhorns Geographic Area..... 39

    Highwoods Geographic Area ..... 41

    Little Belt Mountains Geographic Area..... 49

    Rocky Mountain Range Geographic Area ..... 65

    Snowies Geographic Area ..... 105

    Upper Blackfoot Geographic Area ..... 109

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## Introduction

Following the adoption of the 1986 Forest Plans, both the Helena and the Lewis and Clark National Forests conducted wild and scenic rivers eligibility studies. During these late 1980's studies the Helena National Forest identified four rivers and the Lewis and Clark National Forest identified nine rivers as eligible for wild and scenic rivers designation. Determinations for eligibility were made using the process outlined in the National Wild and Scenic Rivers System Act of 1968. The results of these studies were adopted in 1989 as forest plan amendments to both national forest plans.

In 2015, under the direction of the 2012 Planning Rule (36 CFR Part 219), a new wild and scenic rivers eligibility study was conducted for the Helena - Lewis and Clark National Forest's (HLC NFs) planning area. The 2015 eligibility study reviewed the earlier work from the 1989 effort and determined that an additional, more comprehensive study was required to fulfill the mandates set forth in the 2012 Planning Rule. In the 2015 study, all named and free-flowing streams/rivers within the HLC NF planning area were considered. The results of that comprehensive look are included in this document.

The designation of eligible wild and scenic rivers pertains only to federally owned lands. Rivers and segments of rivers that pass through private lands were not considered in this study. Acronyms from the main FEIS are included in this section, with the addition of:

- GNIS Geographic Names Information System
- IDT Interdisciplinary Team
- NHD National Hydrography Dataset
- NWSRS National Wild and Scenic River System
- ORV Outstanding Remarkable Value
- ROC Region of Comparison
- WSRA Wild and Scenic Rivers Act

## Relevant Laws, Regulations, and Policy

### National Wild and Scenic Rivers System Act of 1968 (WSRA)

Congress passed the National Wild and Scenic Rivers System Act of 1968 (Public Law 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 throughout the process.

During the forest planning process, whether for revision or initial development, the Forest Service must review all streams for their potential eligibility for designation in the National Wild and Scenic Rivers System (NWSRS) as directed under section 5(d)(1) the National Wild and Scenic Rivers Act of 1968 (PL 90-542:16 USC 1271-1287, as amended).

*Section 1(b) of the Act expresses Congressional policy for America's rivers: It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments*

*shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital conservation purposes.*

## Regulations

The National Forest Management Act (NFMA) requires the Forest Service to develop a planning rule under the principles of the Multiple-Use Sustained-Yield Act of 1960 (MUSYA) which sets the process for the development and revision of land management plans. In 2012, 36 CFR Part 219 was passed to codify the direction in the NFMA and the MUSYA. This regulation is known as the 2012 Planning Rule. The 2012 Planning Rule's Final Directives (FSH 1909.12 Chapter 80) provide additional guidance for conducting a wild and scenic rivers eligibility study during forest plan revision. The HLC NF used this guidance to conduct the wild and scenic rivers eligibility study for the HLC NF planning area.

## Eligibility Process Overview

In May 2015, a wild and scenic rivers eligibility process paper was developed which outlined the step by step process planned to be used to conduct a wild and scenic rivers eligibility study within the HLC NF planning area. This process paper was made available to the public by posting on the HLC NF Plan Revision website and was updated after public review and comment. The following steps to an eligibility study were identified in the process paper.

- Step 1: Identify free-flowing named streams/rivers.
- Step 2: Identify regions of comparison (ROC) for each resource.
- Step 3: Develop evaluation criteria for identifying outstandingly remarkable values (ORVs).
- Step 4: Evaluate named streams/rivers and determine if they possess ORVs.
- Step 5: Review level of development/determine classification (wild, scenic, or recreational).
- Step 6: Develop forest plan management direction (to be included in the proposed action).

The eligibility study was conducted through a series of meetings and workshops aimed at each of the steps identified in the process paper. Much of the base information was developed from geographic information systems (GIS), such as the base maps, determining the number and location of all "named streams on a USGS 7.5-inch quad map", and identifying the location of developments along or nearby these rivers and streams. Specific resource information about each river/stream was gathered from maps and professional knowledge provided by forest resource specialists.

The results of the eligibility process are contained in this wild and scenic rivers eligibility study document. It includes river data, description tables, and maps which are located below in the Eligible Wild and Scenic River Description Tables and Maps section starting on page 19.

The results of the study were provided for public comment and review in late 2015. This comment and review period ended on January 15, 2016. Changes to the study were made as a result of this public input.

The following table provides a summary of each step of the process, the timeframe in which it was accomplished, and the tasks completed for that step in the process. The process paper as well as the



detailed spreadsheet documenting the individual river segments that were analyzed can be found in the project record.

**Table 1. Summary of the wild and scenic rivers process**

| <b>WSR Step</b>  | <b>Dates Completed</b> | <b>Accomplishments</b>   |
|--|------------------------|--|
| <b>Preprocess:<br/>Process white paper.</b>  | May 2015               | The Wild and Scenic Rivers Eligibility Study process paper was posted on the website for public information.   |
| <b>Step 1:<br/>Identified free-flowing named streams/riders</b>                          | March 2015             | All free-flowing rivers, identified on a USGS 7.5-minute quad map, were identified and organized by Geographic Area. Previously identified rivers/streams were reviewed to determine if changes to their free-flowing characteristics had changed since the earlier 1989 eligibility study.  |
| <b>Step 2:<br/>Region of Comparison</b>  | April 2015 (Workshop)  | A Wild and Scenic Rivers eligibility study workshop was conducted with forest specialists present to represent the resources of scenery, geology, recreation, wildlife, fisheries, cultural resources, and plants. The Region of Comparison (ROC) was decided upon by each resource. All specialists felt that the State of Montana would be the most appropriate ROC.   |
| <b>Step 3:<br/>Develop Evaluation Criteria for Outstanding Remarkable Values (ORVs)</b>  | April 2015 (Workshop)  | Evaluation criteria were developed for each resource to determine whether an ORV might be present on each stream/river.  |
| <b>Step 4 (Part I):<br/>Evaluate each named stream/river.</b>                            | April 2015 (Workshop)  | Each named stream/river within the HLC NF that had been identified as free-flowing was evaluated against the ORV criteria for each resource. This evaluation determined the presence or absence of a potential ORV.<br><br>There are 1,016 named streams which are free-flowing on the HLC NF. At the end of the workshop, 73 of these streams/riders were identified as having potential ORVs. Some of these needed additional study (or analysis). |
| <b>Step 4 (Part II):<br/>Continue the evaluation of named streams/riders.</b>            | May 2015               | Continued evaluation of the potential streams/riders and the refinement of the location of ORVs.   |
| <b>Step 4 (Part III):<br/>Refine the evaluation of named streams/riders.</b>             | June/July 2015         | Met with Fisheries, Geology, Wildlife, and Cultural resource staff to refine the evaluation of potential streams/riders and ORVs.<br><br>At the end of the refinement of Step 4, 40 potentially eligible WSR streams/riders remained on the list of eligible streams.  |
| <b>Step 5:<br/>Review level of development and determine potential classification</b>    | July 2015              | Using GIS to determine amount of development along each river, including road and trail density or other shoreline development, a classification was assigned each eligible stream/river. These classifications are Wild, Scenic, or Recreational. Different stream/river segments may have different classifications.   |
| <b>Step 6 (Part I):<br/>Document and describe the ORVs on each eligible stream/river</b> | August 2015            | Separate description tables and maps were developed for each eligible stream/river. Each description table provides a narrative for the ORVs of that stream/river.<br><br>40 rivers were identified as eligible in this initial study.   |

| <b>WSR Step</b>  | <b>Dates Completed</b>          | <b>Accomplishments</b>   |
|--|---------------------------------|--|
| <b>Step 6 (Part II):<br/>Develop management<br/>direction for these rivers<br/>to be included in the<br/>Proposed Action</b> | August/September 2015           | Management direction for the eligible rivers was developed and is included in the proposed action.   |
| <b>Public Comment and<br/>Review period</b>  | November 2015 – January<br>2016 | Public provided comment and review on the process and the eligibility list.  |
| <b>Development of Final<br/>Eligibility List</b>   | April 2016                      | Internal IDT meeting reviewed public comments and updating the eligibility list with additional resource information. This resulted in the addition of 6 new rivers, the removal of one, and changes to the assigned classification of several rivers. |
| <b>Mapping adjustments<br/>between draft and final<br/>EIS</b>   | November 2019                   | A number of minor mapping adjustments were made between draft and final. These adjustments correct mapping errors found in the original study. Adjustments were made primarily to exclude private lands along the eligible rivers/streams.             |

## Eligibility Process Details

### Step 1: Identify all free-flowing named streams

The Wild and Scenic Rivers Systems Act (WSRA) defines “free-flowing” as existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the national system does not automatically disqualify it for designation, but future construction of such structures is not allowed. The Act states, “the fact that a river segment may flow between large impoundments will not necessarily preclude its designation. Such segments may qualify if conditions within the segment meet the eligibility criteria.”

“Free-flowing” includes rivers with intermittent flows that are enough to maintain the ORV. The river doesn't have to be boatable or floatable, as long as the flow is enough to maintain the ORV.

All free-flowing and named rivers/streams, identified on a U.S. Geological Survey 7.5 minute quadrangle map within the HLC NF planning area, were identified and organized by geographic area (GA). The named streams were identified using the National Hydrography Dataset (NHD) flowline feature class from the NHD and the associated stream names from the geographic names information system (GNIS). Previously identified rivers/streams were reviewed to determine if changes to their free-flowing characteristics had changed since the earlier 1989 eligibility study.

Through this review, it was determined that there are 1,016 named rivers/streams within the HLC NF planning area. A few un-named tributaries were also analyzed that were important for fisheries ORVs.

### Step 2: Identify the region of comparison for each resource

The region of comparison is a geographic area that provides the basis for meaningful comparative analysis of potentially eligible rivers. The forest plan revision team identified the area of consideration for each resource (and ORV within each resource) which then served as the basis for meaningful comparative analysis. The following further describes aspects and importance of the region of comparison:

- The region of comparison may vary for different rivers and for different resource ORVs.
- The region of comparison should be scaled at an appropriate level for the type of river value being evaluated. For example, the appropriate region of comparison for scenic values may be an entire national forest or grassland, while for cultural values it may be the portion of the state in which the river is located.
- Alternatively, the responsible official may conclude that a single region of comparison can encompass the evaluation of outstanding remarkable values.
- Once the region of comparison is identified, a river's values can then be analyzed in comparison with other rivers in that area. Each value may have its own region of comparison and, thus, multiple regions of comparison may be utilized to evaluate one river.

During the April 2015 wild and scenic river workshop, the team determined the regions of comparison for each resource area. Because the HLC NF planning area is large with a wide variety of unique resource and river values, it was recognized that a large region of comparison would be necessary to adequately study the eligible rivers/streams.

Each specialist considered many potential areas to use for the region of comparison for their resource area. Some of those areas included ecological sections, domain, provinces, regions used in the 1988 Pacific Northwest Rivers Analysis, state of Montana recreation regions from the State Comprehensive Outdoor Recreation Report, state of Montana Fish, Wildlife and Parks regions, Forest Service Region 1 boundaries, and potential inclusions of the Greater Yellowstone Ecosystem, etc. After considerable discussion, the team chose the boundary for the State of Montana as the region of comparison for this wild and scenic eligibility study. This region of comparison was acceptable for all resource areas and served as the basis for meaningful comparative analysis in the eligibility process.

### Step 3: Develop evaluation criteria to identify ORVs

During the evaluation, outstandingly remarkable values needed to be evaluated with methodology consistent within the agency and with other federal river-administering agencies in evaluating eligibility under Forest Service Handbook (FSH) 82.14a. To accomplish this, baseline evaluation criteria was established for each ORV. These criteria set minimum thresholds in the establishment of each ORV. The criteria within the resource category may be modified and additional criteria may be included to make them more meaningful in the area of comparison.

During the April 2015 wild and scenic river workshop, the team established baseline evaluation criteria for scenery, recreation, geology, fish populations and habitat, wildlife populations and habitat, historic and cultural resources, and other natural river related values. The final evaluation criteria for each resource area are documented in the following table. These criteria were applied in the 2015 eligibility study process.

**Table 2. Final eligibility evaluation criteria**

| Resource | Final eligibility criteria   |
|----------|--|
| Scenic   | The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions, that provide river users with scenery that is spectacular and/or not common to other rivers in the region. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment. |

| Resource   | Final eligibility criteria  |
|------------|---|
| Recreation | <p>Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. River-related opportunities include, but are not limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. The river may provide settings for national or regional usage or competitive events.</p> <p><u>Recreational Fishing</u>: Recreational fishing opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region.</p>  |
| Geologic   | <p>The river, or the area within the river corridor, contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a “textbook” example, and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).</p>  |
| Fishery    | <p>Fish values may be judged on the relative merits of either fish populations or habitat, or a combination of these river-related conditions.</p> <p><u>Populations</u>: The river is nationally or regionally an important producer of resident and/or anadromous fish species. Diversity of fish species or the presence of wild stocks and/or Federal or State listed, or candidate threatened, endangered, or species of conservation concern are of particular significance.</p> <p><u>Habitat</u>: The river provides uniquely diverse or high-quality habitat for fish species indigenous to the region of comparison. Exemplary habitat for wild stocks and/or Federal or State listed, or candidate threatened, endangered, or species of conservation concern is of particular significance.</p>   |
| Wildlife   | <p>Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of these river-related conditions.</p> <p><u>Populations</u>: The river or river corridor contains nationally or regionally important or uniquely diverse assemblage populations of indigenous wildlife species, particularly federal or state listed, or candidate threatened or endangered species or species of conservation concern.</p> <p><u>Habitat</u>: The river or river corridor provides uniquely diverse or uniquely high quality habitat for wildlife of national or regional significance (e.g. federal or state listed or candidate threatened or endangered species or species of conservation concern), particularly where such habitats meet the year-round or important seasonal biological needs of the species.</p> |
| Cultural   | <p>The river, or area within the river corridor, contains important evidence of occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory.</p> <p><u>History</u>: Site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region. A historic site or feature, in most cases, is 50 years old or older.</p> <p><u>Prehistory</u>: Sites may have unique or rare characteristics or exemplary human-interest value; represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups, or may have been used for rare sacred purposes.</p>  |
| Plants     | <p>Populations of plant species are growing in and associated with the area in the river corridor that are judged to be of national or regional significance by virtue of their scarcity; outstanding scientific or educational value; and/or designation as threatened, endangered or proposed for threatened or endangered status. This may include known stands of federally listed threatened or endangered plant species, those listed as category 1 or 2 by the United States Fish and Wildlife Service, or those proposed for threatened or endangered status by the Montana Rare Plant Project or Montana Natural Heritage Program, and those identified as species of conservation concern.</p>  |

During a May 2015 meeting, the team looked at each potentially eligible stream river and made the determination of whether the ORV was of regional or national significance. Regional or national significance was documented in the wild and scenic river stream table excel spreadsheet and within the description tables for each potentially eligible river/stream. Specific river data, description tables, and

maps are located below in the Eligible Wild and Scenic River Description Tables and Maps section starting on page 19.

## Step 4: Evaluate named streams and determine if they are free-flowing and possess ORVs

During the April 2015 wild and scenic river workshop, the team systematically reviewed all 1,016 named and free-flowing streams and compared them to the final evaluation criteria to identify the presence of ORVs. In some instances, additional unnamed streams were examined for potential ORVs. The interdisciplinary team (IDT) applied the evaluation criteria to each stream along with the following requirements from the WSRA.

- Outstandingly remarkable values must be river related,
- Be located in the river or on its immediate shore lands (generally within ¼ mile on either side of the river), but may include adjacent areas needed to protect identified values,
- Contribute substantially to the functioning of the river ecosystem, and/or
- Owe the location or existence to the presence of the river.

The IDT considered the area within one-quarter mile of the high water marks on both sides of a river, as well as other features outside this corridor, such as tributaries supporting rearing and spawning habitat, if their inclusion is essential for the protection of the river's ORVs. Additional factors considered by the IDT for each stream were:

- Determine if resource values/attributes are unique, rare, or exemplary within the region of comparison which is the state of Montana.
- Determine if a river may qualify for a given resource value based upon an aggregate of important values, no one of which would confer eligibility standing alone. For example, a series of unusual and distinctive river-related geologic features may together qualify a segment as exhibiting an “outstandingly remarkable geologic value” even though no one element meets the criteria alone.

The determination that a river area does or does not contain one or more ORVs is a professional judgment on the part the responsible official as informed by an interdisciplinary team, best available scientific information (BASI), and public participation. (FSH 1909.12 Ch 82.17).

The systematic approach used by the ID Team included reviewing the streams within hydrologic unit code (HUC) 10 watersheds that were further grouped by geographic area. ArcMap was used to display the names streams in context with spatial data representing attributes of the resource themes associated with identification of ORVs. The ID Team identified the streams with potential ORVs based on application of the evaluation criteria and comparison to other similar resources in the state of Montana. For each resource value the IDT determined if the values/attributes were unique, rare, or exemplary within the state of Montana.

The status of each stream was documented in the potential eligibility spreadsheet. This included streams with no known ORVs, streams that might have an ORV, and those streams that do possess outstandingly remarkable values.

The process also included review of rivers recommended as eligible in the Montanan's for Healthy Rivers Eligibility Report. Potential ORVs for each of these streams has been documented based on the eligibility criteria established by the IDT. Based on application of the eligibility criteria, the team found some of the recommended streams in the Montanan's for Healthy Rivers Eligibility Report not to be eligible.

The results of the course filter first look during the April 2015 wild and scenic river workshop resulted in approximately 73 streams remaining on the list of streams to closely examine to confirm or determine they have outstandingly remarkable values. Out of these streams, 14 of the streams were previously identified as eligible and 59 additional rivers were identified as having potential ORVs.

Further review of the 73 streams mentioned above was conducted during meetings in May 2015. ID team members coordinated with forest and regional office staff prior to the meeting regarding any questions or clarification on resource information directly related to potential ORVs. That information was used to change a stream that may have had an ORV to yes or no for the presence of an ORV and in specific resource areas. This information was updated in the wild and scenic river stream table and the revised list had 44 streams with potential ORVs and 5 streams that need further review.

Several smaller meetings with individual resource specialists occurred in the months of June and July 2015. Using maps and additional data on hand, these specialists further refined the list of potentially eligible streams. The resulting list consisted of 40 streams within the HLC NF planning area that were found to have ORVs and were considered potentially eligible for future wild and scenic river designation.

The public comment and review period from November 2015 through January 15, 2016, highlighted a number of additional streams and ORVs that the public felt should be considered. These were reviewed by the IDT in an April 2016 meeting, resulting in the addition of 6 streams/rivers, the removal of one stream, and changes to the classification of several streams. This gave the study a sum total of 45 eligible streams/rivers.

## Step 5: Classification of eligible streams

Once a watercourse has been determined eligible, the level of development needs to be reviewed to determine which preliminary classification category (ies) apply to the entire stream/river or segments of the stream/river. The categories for consideration under the WSRA are: wild, scenic, or recreational.

Potential classification should be based on the situation existing at the time of the study. It should not anticipate expected development or other changes along the river corridor; this is an aspect of evaluating suitability. A variety of things to consider regarding classification include livestock grazing, past management activities (such as timber harvesting, mining developments, or exploration and development of oil and gas), special lands uses (such as utility corridors and other special use permits), and any types of development along the shore of the river.

The 1964 Wild and Scenic Rivers Act states that “It is important to understand each criterion, but it is more important to understand their collective intent. Each river segment and its immediate environment should be considered as a unit. The basis for classification is the degree of naturalness, or stated negatively, the degree of evidence of man’s activity in the river area. The most natural rivers will be classified wild; those somewhat less natural, scenic, and those least natural, recreational... Although each classification permits certain existing development, the criteria do not imply that additional inconsistent development is permitted in the future.”

Core team members evaluated the potentially eligible streams/rivers for preliminary classification. The preliminary classification is described in the river description form for all potentially eligible rivers. The other team members and the leadership team reviewed the preliminary classification information and provided feedback. Additionally, the public provided feedback to some of the preliminary classifications. The following factors were used to determine classification of river segments.

**Table 3. Classification criteria for wild, scenic, and recreational rivers**

| Attribute                  | Wild   | Scenic   | Recreational  |
|----------------------------|--|--|---|
| Water Resource Development | Free of impoundment.   | Free of impoundment.   | Some existing impoundment or diversion.<br><br>The existence of low dams, diversions, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.   |
| Shoreline Development      | Essentially primitive. Little or no evidence of human activity.<br><br>The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable.<br><br>A limited amount of domestic livestock grazing or hay production is acceptable.<br><br>Little or no evidence of past timber harvest. No ongoing timber harvest. | Largely primitive and undeveloped. No substantial evidence of human activity.<br><br>The presence of small communities or dispersed dwellings or farm structures is acceptable.<br><br>The presence of grazing, hay production, or row crops is acceptable.<br><br>Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.   | Some development. Substantial evidence of human activity.<br><br>The presence of extensive residential development and a few commercial structures is acceptable.<br><br>Lands may have been developed for the full range of agricultural and forestry uses.<br><br>May show evidence of past and ongoing timber harvest. |
| Accessibility              | Generally inaccessible except by trail.<br><br>No roads, railroads, or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the area are acceptable.  | Accessible in places by road.<br><br>Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.  | Readily accessible by road or railroad.<br><br>The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.   |
| Water Quality              | Meets, or exceeds criteria, or federally approved State standards for aesthetics, for propagation of fish, and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming) except where exceeded by natural conditions.   | No criteria are prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States are made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists, or is being developed in compliance with applicable Federal and State laws. |   |

Eligible rivers may be divided into segments having differing classifications when the levels of human use and activity create different degrees of development within the study area. In cases where a river has one or more classifications, each river segment identified should be of sufficient length to warrant its own

unique management. Regarding segment length; FSH 1909.12 Chapter 80.62 states that, “there is no minimum length of a segment, but segment length should be sufficient to enable protection of the outstandingly remarkable values if the area were managed, apart from other segments, as a wild, scenic, or recreational river”.

A number of initial river classifications were changed as a result of additional field verification and public comment and review. Classification of the individual river segments for the 2015 eligibility study are described in the summary section. River data, description tables, and maps are located below in the Eligible Wild and Scenic River Description Tables and Maps section.

## Step 6: Develop management direction to be included in the proposed action

Rivers determined to be eligible within the national system must have certain interim protection measures. These protection measures apply until a decision is made of the future use of the river and the adjacent lands through an act of Congress or a determination that the river is not suitable. Along with the interim protective measures additional statutory, regulatory, or policy requirements may apply if the study river is located within a wilderness area or other designated area. In case of conflict between the provisions of the Wilderness Act and FSH 1909.12 Chapter 80 the more restrictive provisions shall apply.

The 2012 Planning Rule provides direction for the interim management of Forest Service identified eligible rivers/streams. This can be found in 36 CFR 219.10 (b, v).

(b) The plan must provide plan components, including standards and guidelines, to provide for:

(v) Protection of designed wild and scenic rivers as well as management of rivers found to be eligible or determined to be 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.

Site-specific projects and activities on National Forest System lands within eligible corridors may be authorized only where the project and activities are consistent with the following:

- The free-flowing character of the identified river is not adversely modified by the construction or development of stream impoundments, diversions, or other water resources projects.
- Outstandingly remarkable values of the identified river are protected.
- Classification of an eligible river/stream on National Forest System lands must be maintained as inventoried (eligible) unless a suitability study is completed that recommends management other than the preliminary classification.

The following protection measures apply to interim management of rivers the Forest Service has identified as eligible. As mentioned above, these protective measures apply to the future use of the river and adjacent lands until they are changed through an act of Congress or a change in eligibility through a suitability study conducted in the future. The following table describes management activities and protection measures that apply to eligible wild, scenic, or recreational rivers.

Agency identified study river protection continues unless a river is determined not suitable for designation.



**Table 4. Protection measures for eligible wild, scenic, or recreational rivers**

| Project/activity  | Interim protective measures  |  |  |
|---|--|--|--|
|   | Wild   | Scenic   | Recreational   |
| <b>Water resource projects</b><br>Dams<br>Diversions<br>Flood control<br>Activities that affect free-flow | <b>Wild, Scenic, and Recreational:</b> Water resource projects on eligible rivers shall be analyzed as to their effect on a rivers free-flow, water quality, and identified ORV, with adverse effects to be prevented to the extent of the existing agency authority (such as special use authority).  |  |  |
| <b>Hydroelectric power facilities</b>   | <b>Wild, Scenic, and Recreational:</b> Forest Service-identified eligible rivers are to be protected pending a suitability determination.  |  |  |
| <b>Minerals</b><br>Locatable<br><br>Leasable  | <b>Wild, Scenic, and Recreational:</b><br>Subject to valid existing rights, existing or new mining activity on an identified eligible river are subject to regulations in 36 CFR Part 228 and must be conducted in a manner that minimizes surface disturbance, sedimentation, pollution, and visual impairment.<br>Leases, licenses, and permits under mineral leasing laws must include conditions necessary to protect the values of the river corridor that make it eligible for inclusion in the National System. |  |  |
| <b>Minerals</b><br>Saleable   | Wild Rivers<br><br>Disposal of saleable mineral material is prohibited.  | Scenic and Recreational<br><br>Disposal of saleable mineral material is allowed if the values of the river corridor that make it eligible for inclusion in the National System are protected.  |  |
| <b>Transportation system</b>  | Roads and railroads are generally not compatible.<br><br>Prevent actions related to the road system that would preclude protection of the river as wild. Do not plan roads outside of the corridor that would adversely affect the wild classification.<br><br>New trail construction should generally be designed for nonmotorized users.<br><br>New airfields may not be developed.  | Roads and railroads may parallel the river for short segments or bridge the river if such construction protects the river values, including the free-flowing character.<br><br>Bridge crossings and access points are allowed.<br><br>New trail construction and airfield development must be compatible and fully protect river ORVs. | Roads and railroads are permitted to parallel the river if such construction fully protects river ORVs, including the free-flowing character.<br><br>Bridge crossings and access points are allowed.<br><br>New trail construction and airfield development must be compatible and fully protect river ORVs. |
| <b>Utility proposals</b>  | <b>Wild, Scenic, and Recreational:</b><br>New transmission lines such as gas lines, water lines, and similar linear features are not compatible with eligible wild and scenic rivers and are discouraged. Any portion of a utility proposal that has the potential to affect the river's free-flowing character must be evaluated as a water resources project.  |  |  |
| <b>Recreation developments</b>  | Major public use areas such as large campgrounds, interpretive centers, or administrative headquarters must be located outside of the  | Public facilities, such as moderate sized campgrounds, simple sanitation and convenience facilities, public information centers, administration sites, and river access developments are allowed.  | Recreation, administration, and river access facilities may be located in close proximity to the river. However, recreational classification does not require recreation development.  |

| Project/activity                  | Interim protective measures   |  |  |
|-----------------------------------|---|--|--|
|                                   | Wild  | Scenic   | Recreational   |
|                                   | <p>river corridor (typically 1/4 mile either side of river).</p> <p>Minimum facilities such as toilets and refuse containers may be provided to protect and enhance water quality and other river values.</p> <p>Facilities must be located and designed to harmonize with the primitive character, must protect river values, and must be screened from view to the extent possible.</p> | <p>Facilities must be located and designed to harmonize with the natural and cultural settings, must protect river values, including water quality, and must be screened from view to the extent possible.</p>   | <p>Facilities must be located and designed to harmonize with the natural and cultural settings, must protect river values, including water quality, and must be screened from view to the extent possible.</p>   |
| <b>Motorized travel</b>           | <p><b>Wild</b></p> <p>Motorized travel on land or water may be permitted but is generally not compatible. Where motorized travel is deemed necessary, uses should be carefully defined and impacts mitigated.</p>   | <p><b>Scenic and Recreational:</b></p> <p>Motorized travel on land or water may be permitted, prohibited, or restricted to protect river ORVs.</p>   |  |
| <b>Wildlife and fish projects</b> | <p>Construction of minor structures and vegetation management to protect and enhance wildlife and fish habitat should harmonize with the area's primitive character and protect river ORVs.</p> <p>Proposed wildlife or fisheries restoration or enhancement projects that have potential to affect the rivers free-flowing character must be evaluated as a water resources project.</p> | <p>Construction of structures and vegetation management designed to protect and enhance wildlife and fish habitat should harmonize with the area's largely undeveloped character and protect river ORVs.</p> <p>Any portion of a wildlife or fisheries restoration or enhancement projects that have potential to affect the rivers free-flowing character must be evaluated as a water resources project.</p> | <p>Construction of structures and vegetation management designed to protect and enhance wildlife and fish habitat should fully protect river ORVs.</p> <p>Any portion of a wildlife or fisheries restoration or enhancement projects that have potential to affect the rivers free-flowing character must be evaluated as a water resources project.</p> |
| <b>Vegetation management</b>      | <p><b>Wild:</b></p> <p>Cutting of trees and other vegetation is not permitted except when needed in association with a primitive recreation experience, to protect users, or to protect identified ORVs.</p>  | <p><b>Scenic and Recreational:</b></p> <p>A range of vegetation management and timber harvest practices are allowed, if these practices are designed to protect users, or protect, restore, or enhance the river environment, including the long-term scenic character.</p>  |  |

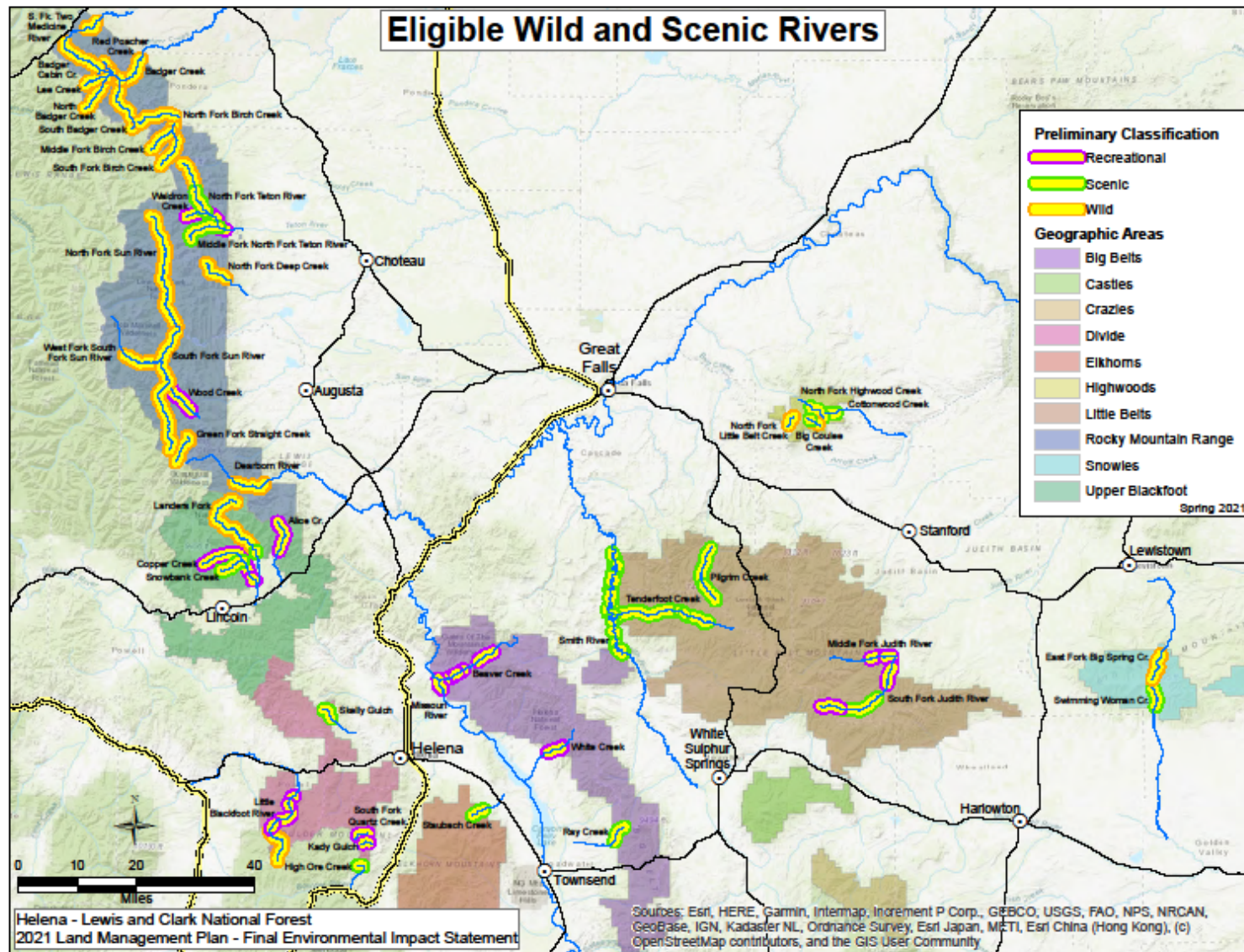
| Project/activity                  | Interim protective measures   |   |   |
|-----------------------------------|---|---|---|
|                                   | Wild  | Scenic  | Recreational  |
| <b>Domestic livestock grazing</b> | <p>Domestic livestock grazing should be managed to protect ORVs.</p> <p>Existing structures may be maintained.</p> <p>New facilities may be developed so long as they maintain the ORVs and the area's primitive character.</p> | <p>Domestic livestock grazing should be managed to protect ORVs.</p> <p>Existing structures may be maintained.</p> <p>New facilities may be developed so long as they maintain the ORVs and the area's largely undeveloped character.</p> | <p>Domestic livestock grazing should be managed to protect ORVs.</p> <p>Existing structures may be maintained.</p> <p>New facilities may be developed so long as they maintain the ORVs for which the river was found eligible.</p> |

## Summary of Wild and Scenic Rivers Eligibility Study

As directed by the 2012 Planning Rule (36 CFR 219.12 Chapter 80), the HLC NF planning team developed and conducted a comprehensive inventory and evaluation to determine which rivers are eligible for inclusion in the wild and scenic rivers system on NFS lands. The team initiated the study process with 1,016 rivers/streams free-flowing and named streams. During the process, outstandingly remarkable values for each of the rivers were determined based on established evaluation criteria within a region of comparison. At the end of the study and public comment and review period, 45 rivers/streams were identified as eligible for inclusion. These rivers were then given a potential classification based on the amount of development present within the river corridor.

The following map (Figure 1) displays the locations of the 45 river/streams within the GAs defined in the HLC NF planning area. Table 5 further describes each river, its length, its outstandingly remarkable value(s), and the potential classification for which it is being proposed as eligible. Following Table 5, the 45 eligible wild and scenic rivers are displayed by geographic area and include a descriptive table and map for each one. The list of streams in the table is organized geographically by watershed from north to south, east to west, in most cases.

Figure 1. Wild and Scenic Rivers Eligibility Study



**Table 5. Potential Eligible wild and scenic rivers by geographic area**

| River name             | Segment description  | Miles | Classification | Outstanding remarkable values               | Past eligibility notes  |
|------------------------|--|-------|----------------|---|---|
| <b>Big Belts GA</b>    |  |       |                |   |   |
| Beaver Creek           | <u>Segment 1:</u> From mouth to private land boundary.   | 3.4   | Recreational   | Recreation<br>Geology<br>Cultural           | Eligible in 1989 for Fish.                                      |
|                        | <u>Segment 2:</u> From private boundary to private boundary.   | 0.7   | Recreational   |   |   |
|                        | <u>Segment 3:</u> From private boundary to confluence with Bridge Creek, west of Nelson.   | 1.4   | Recreational   |   |   |
|                        | <u>Segment 4:</u> From confluence with Sheep Gulch to confluence with Pike Creek.  | 3.7   | Recreational   |   |   |
| White Creek            | From where stream crosses section line between T20NR2E Sections 19 and 20, west to private boundary.   | 3.0   | Recreational   | Fish  |   |
| Missouri River         | From Hauser Dam to confluence with Cochran Gulch.  | 2.2   | Recreational   | Recreation (Fishing)<br>Geology<br>Wildlife | Eligible in 1989 for Rec, Geology, Fish, Wildlife, and Natural. |
| Ray Creek              | From FS boundary to headwaters.  | 3.4   | Scenic         | Fish  |   |
| <b>Divide GA</b>       |  |       |                |   |   |
| Little Blackfoot River | <u>Segment 1:</u> From private boundary to private boundary near Charter Oaks.   | 0.8   | Recreational   | Fish<br>Cultural                            | Eligible in 1989 for Fish.                                      |
|                        | <u>Segment 2:</u> From private land boundary south to the private land boundary.   | 0.5   | Recreational   |   |   |
|                        | <u>Segment 3:</u> From private land boundary south and west to the private land boundary northeast of Kading campground.                     | 4.4   | Recreational   |   |   |
|                        | <u>Segment 4:</u> From private land boundary south to the confluence with a no name stream near the intersection of Trail 329 and Trail 326. | 1.3   | Recreational   |   |   |

| River name                   | Segment description  | Miles | Classification | Outstanding remarkable values | Past eligibility notes         |
|------------------------------|--|-------|----------------|-------------------------------|--------------------------------|
|                              | <u>Segment 5</u> : From the confluence with a no name stream near the intersection of Trail 329 and Trail 326 to the headwaters. | 7.7   | Wild           |                               |                                |
| High Ore Creek               | From FS boundary to headwaters.  | 1.0   | Scenic         | Fish                          |                                |
| Kady Gulch                   | From FS boundary to the private land boundary.   | 1.1   | Recreational   | Fish                          |                                |
| South Fork Quartz Creek      | From mouth to private land boundary.   | 2.2   | Recreational   | Fish                          |                                |
| Skelly Gulch                 | From FS boundary to headwaters.  | 2.5   | Scenic         | Fish                          |                                |
| <b>Elkhorns GA</b>           |  |       |                |                               |                                |
| Staubach Creek               | From private land boundary to headwaters.  | 2.4   | Scenic         | Fish                          |                                |
| <b>Highwoods GA</b>          |  |       |                |                               |                                |
| North Fork Highwood Creek    | From fish barrier to headwaters.   | 3.3   | Scenic         | Fish                          |                                |
| Big Coulee Creek             | <u>Segment 1</u> : From fish barrier to the confluence with a no name stream from the east.                                      | 0.3   | Scenic         | Fish                          |                                |
|                              | <u>Segment 2</u> : From the confluence with the no name stream to the upper tributary fork.                                      | 1.6   | Wild           | Fish                          |                                |
| Cottonwood Creek             | From FS boundary to headwaters.  | 2.5   | Scenic         | Fish                          |                                |
| North Fork Little Belt Creek | From FS boundary to headwaters.  | 2.1   | Wild           | Fish                          |                                |
| <b>Little Belts GA</b>       |  |       |                |                               |                                |
| Pilgrim Creek                | <u>Segment 1</u> : From fish barrier south to private land boundary.   | 7.2   | Scenic         | Fish                          |                                |
|                              | <u>Segment 2</u> : From private land boundary to the headwaters.   | 3.7   | Scenic         | Fish                          |                                |
| Middle Fork Judith River     | <u>Segment 1</u> : From FS boundary to private land boundary.  | 1.6   | Recreational   | Cultural                      | Eligible in 1989 for Cultural. |
|                              | <u>Segment 2</u> : From private land boundary to confluence with Big Arch Coulee.  | 3.0   | Recreational   |                               |                                |
| South Fork Judith River      | <u>Segment 1</u> : From confluence with Bower Creek to   | 3.6   | Recreational   | Fish<br>Cultural              |                                |

| River name                     | Segment description   | Miles                                 | Classification                                   | Outstanding remarkable values                           | Past eligibility notes   |
|--------------------------------|---|---------------------------------------|--|---|--|
|                                | confluence with Dry Pole Creek.<br><br><u>Segment 2:</u> From confluence with Bluff Mountain Creek to confluence with a no name creek.<br><br><u>Segment 3:</u> From confluence with a no name creek to the headwaters.   | 7.4<br><br>3.9                        | Scenic<br><br>Recreational                       |   |  |
| Smith River<br>(FS lands only) | The Smith River is comprised of 17 small segments of Forest Service lands interspersed with private lands. Only Forest Service lands are considered for eligibility. To view individual segments, see detail maps located in the summary.   | 17.8                                  | Scenic   | Scenic<br>Recreation<br>Geology<br>Wildlife<br>Cultural | Eligible in 1989 for Rec, Scenery, Geology, Fish, Wildlife and Cultural. |
| Tenderfoot Creek               | Segment 1: From private land boundary to private land boundary.<br><br>Segment 2: From private land boundary to private land boundary.<br><br>Segment 3: From private land boundary to private land boundary.<br><br>Segment 4: From private land boundary to confluence with Iron Mines Creek. | 14.6<br><br>0.7<br><br>0.1<br><br>4.9 | Scenic<br><br>Scenic<br><br>Scenic<br><br>Scenic | Recreation<br>Fish                                      | Eligible in 1989 for Fish.   |
| <b>Rocky Mountain Range GA</b> |   |                                       |  |   |  |
| South Fork Two Medicine River  | <u>Segment 1:</u> From FS boundary to confluence with Box Creek.<br><br><u>Segment 2:</u> From private land boundary to headwaters.   | 3.4<br><br>9.5                        | Wild<br><br>Wild                                 | Scenery<br>Cultural                                     |  |
| Badger Creek                   | From FS boundary to the confluence with North and South Badger Creeks.  | 7.3                                   | Wild   | Cultural<br>Scenery                                     |  |
| North Badger Creek             | From the mouth to the headwaters.   | 10.4                                  | Wild   | Fish<br>Cultural  | Eligible in 1989 for Fish.   |
| South Badger Creek             | From the mouth to the headwaters.   | 10.9                                  | Wild   | Cultural  |  |

| River name                         | Segment description   | Miles | Classification | Outstanding remarkable values                         | Past eligibility notes                    |
|------------------------------------|---|-------|----------------|---|---|
| Lee Creek                          | From the mouth to the headwaters.   | 4.6   | Wild           | Fish  |   |
| Badger Cabin Creek                 | From the mouth to the headwaters.   | 3.2   | Wild           | Fish  |   |
| Red Poacher Creek                  | From the mouth to the headwaters.   | 3.1   | Wild           | Fish  |   |
| North Fork Birch Creek             | From FS boundary to the headwaters.   | 7.8   | Wild           | Cultural<br>Scenery                                   | Eligible in 1989 for Scenery and Geology. |
| Middle Fork Birch Creek            | From the mouth to the headwaters.   | 5.2   | Wild           | Scenery<br>Cultural                                   |   |
| South Fork Birch Creek             | From entrance into Swift Reservoir to the headwaters.   | 9.8   | Wild           | Scenery<br>Recreation<br>Fish<br>Wildlife<br>Cultural |   |
| North Fork Deep Creek              | From FS boundary to headwaters.   | 5.5   | Wild           | Scenery   |   |
| North Fork Teton River             | <u>Segment 1:</u> From FS boundary to FSR #114 road crossing north of Elko Campground (bottom of the box canyon). | 5.5   | Recreation     |   |   |
|                                    | <u>Segment 2:</u> From FSR #114 road crossing north of Elko Campground to the Bob Marshall Wilderness boundary    | 5.3   | Scenic         | Recreation<br>Scenery<br>Wildlife<br>Fish             |   |
|                                    | <u>Segment 3:</u> From the Bob Marshall Wilderness boundary to the headwaters.                                    | 6.4   | Wild           |   |   |
| Middle Fork North Fork Teton River | From the mouth to the headwaters.   | 6.8   | Scenic         | Fish  |   |
| Waldron Creek                      | From the mouth to the headwaters.   | 4.3   | Recreational   | Fish  |   |
| North Fork Sun River               | From Bob Marshall Wilderness boundary to the headwaters.  | 26.1  | Wild           | Scenery<br>Recreation                                 |   |
| South Fork Sun River               | From Bob Marshall Wilderness boundary to the headwaters.  | 26.2  | Wild           | Recreation<br>Wildlife                                |   |
| West Fork South Fork Sun River     | From the mouth to the confluence with Ahorn Creek.  | 8.4   | Wild           | Recreation<br>Wildlife                                |   |
| Green Fork Straight Creek          | From the mouth to the headwaters.   | 5.9   | Wild           | Scenery<br>Geology                                    | Eligible in 1989 for Scenery and Geology. |



| River name  | Segment description  | Miles | Classification | Outstanding remarkable values | Past eligibility notes        |
|---|--|-------|----------------|-------------------------------|-------------------------------|
| Wood Creek  | From dam on Wood Lake northwest to the confluence with Straight Creek.               | 7.1   | Recreational   | Wildlife                      |                               |
| Dearborn River  | From FS boundary to the confluence with Whitetail Creek.                             | 6.5   | Wild           | Scenery                       | Eligible in 1989 for Scenery. |
| <b>Snowies GA</b>   |  |       |                |                               |                               |
| Swimming Woman Creek  | From private land boundary to headwaters.  | 3.9   | Scenic         | Scenery<br>Geology            |                               |
| East Fork Big Spring Creek  | From the confluence with a no name stream in T13N R19E Section 33 to the headwaters. | 5.3   | Wild           | Fish                          |                               |
| <b>Upper Blackfoot GA</b>   |  |       |                |                               |                               |
| Alice Creek   | From private land boundary to the headwaters.  | 6.5   | Recreational   | Cultural                      |                               |
| Copper Creek  | <u>Segment 1</u> : From FS boundary to FS boundary.                                  | 1.1   | Recreational   | Fish                          | Eligible in 1989 for Fish.    |
|   | <u>Segment 2</u> : From FS boundary to the headwaters.                               | 12.0  | Recreational   |                               |                               |
| Landers Fork  | Segment 1: From FS boundary to the confluence with Byrnes Creek.                     | 0.3   | Scenic         | Fish                          |                               |
|   | Segment 2: From the confluence with Byrne Creek to the headwaters.                   | 18.5  | Wild           |                               |                               |
| Snowbank Creek  | From the mouth to headwaters.  | 4.4   | Scenic         | Fish                          |                               |
| <b>Total Miles of eligible sections of wild and scenic rivers</b> |  |       |                |                               | <b>361.2 miles</b>            |

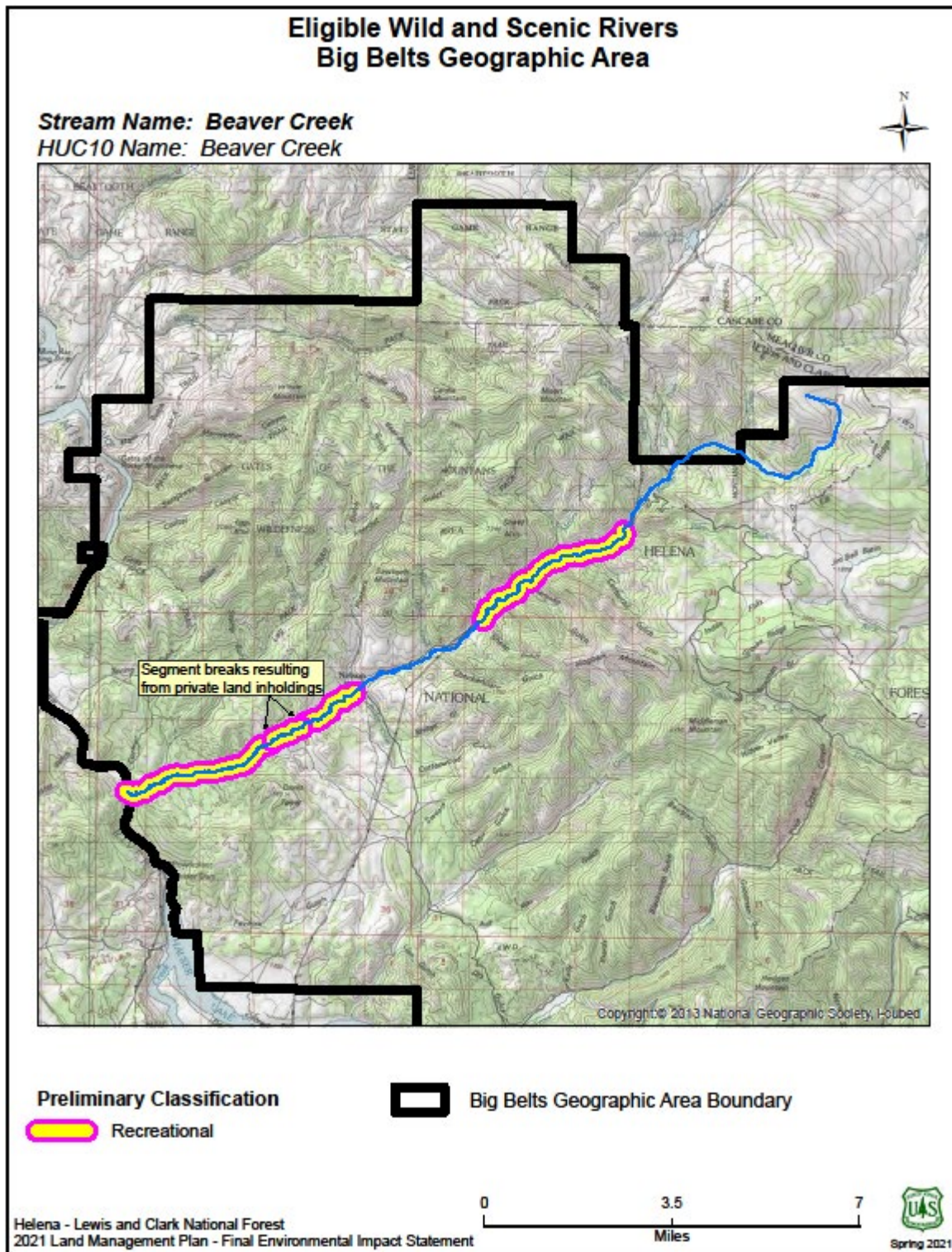
## Eligible Wild and Scenic Rivers Description Tables and Maps

Description tables and maps were developed for each of the 45 rivers identified as free-flowing and possessing at least one outstandingly remarkable value. The eligible rivers and streams are organized by geographic area. Within in each geographic area, the tables and figures are organized geographically by watershed from north to south, east to west, in most cases

# Big Belts Geographic Area

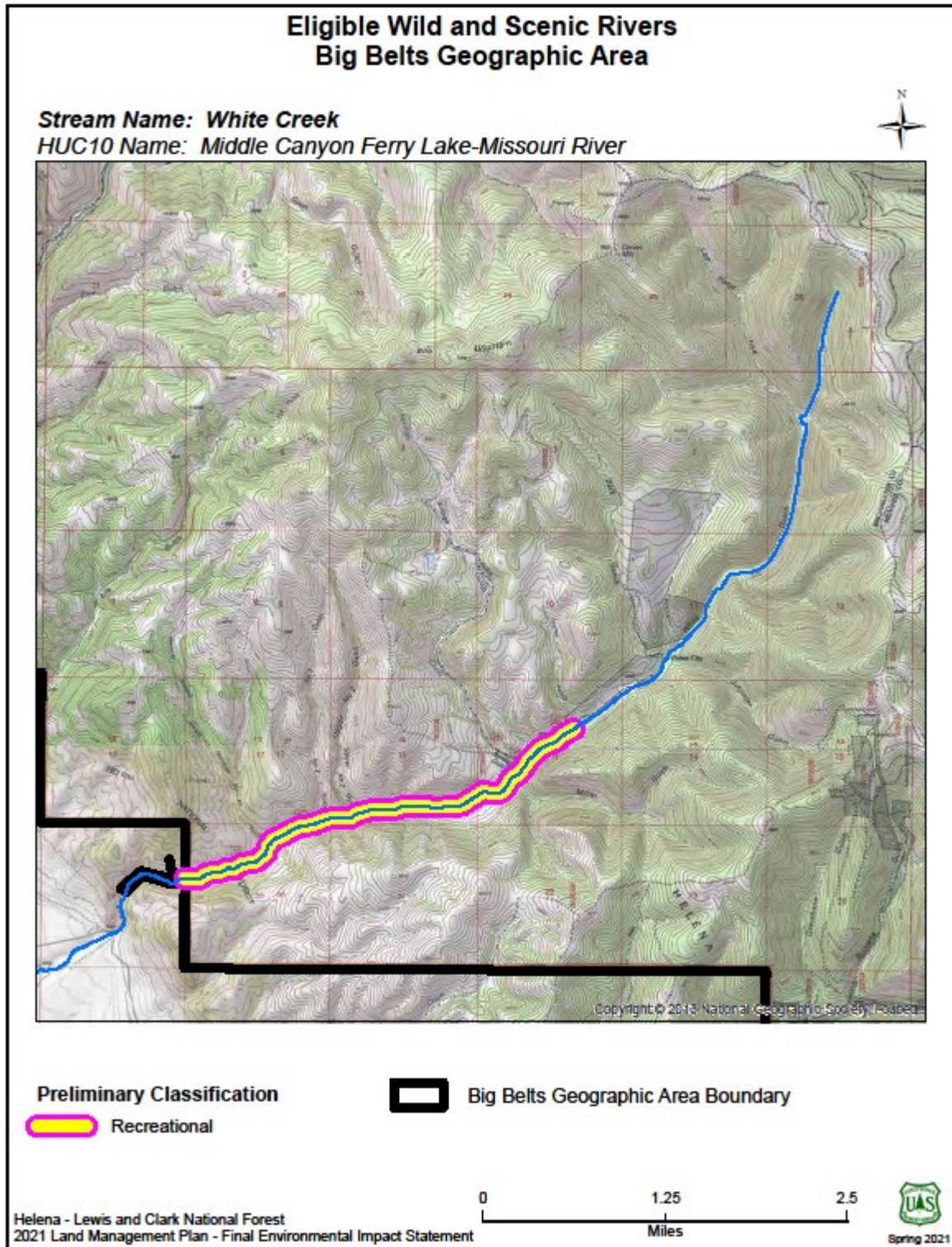
## Beaver Creek

| <b>Beaver Creek</b>                                |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Recreation, Geology, Fish, Cultural  |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | Segment 1: From mouth to private land boundary<br>Segment 2: From private land boundary to private land boundary<br>Segment 3: From private land boundary to confluence with Bridge Creek, west of Nelson<br>Segment 4: From confluence with Sheep Gulch to confluence with Pike Creek   |
| Miles of each segment                              | Segment 1: 3.4 miles<br>Segment 2: 0.7 miles<br>Segment 3: 1.4 miles<br>Segment 4: 3.7 miles   |
| Potential classification                           | Segment 1: Recreational<br>Segment 2: Recreational<br>Segment 3: Recreational<br>Segment 4: Recreational   |
| Location   | Geographic area: Big Belts<br>HUC 10: Beaver Creek<br>Beginning Point: T12N, R2W, Section 19   |
| County(ies)  | Lewis and Clark  |
| Identified in previous eligibility studies. Yes/No | Yes  |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV.  |
| Recreation   | Beaver Creek is a popular national fishing destination for Rainbow Trout. Recreation sport fishing occurs on the entire stream, including both segments, with over 10,000 out of state fishermen per year.   |
| Geologic   | The geology of Beaver Creek, in segment 2, is outstanding for geology because it shows intricately and complexly folded and faulted lodgepole limestone. This formation shows many classic over-thrust faulting deformation features. The geology of segment 1 is also spectacular. Geology in segment 1 is of the Madison formation and offers a cross sectional view highlighted by the deeply dissected valley. |
| Fisheries  | No ORV   |
| Wildlife   | No ORV   |
| Cultural   | There are high prehistoric site concentrations on segment 1 and there are potential sites in segment 2. These sites offer excellent examples of culture use of limestone geologic formations close to waterways.   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |



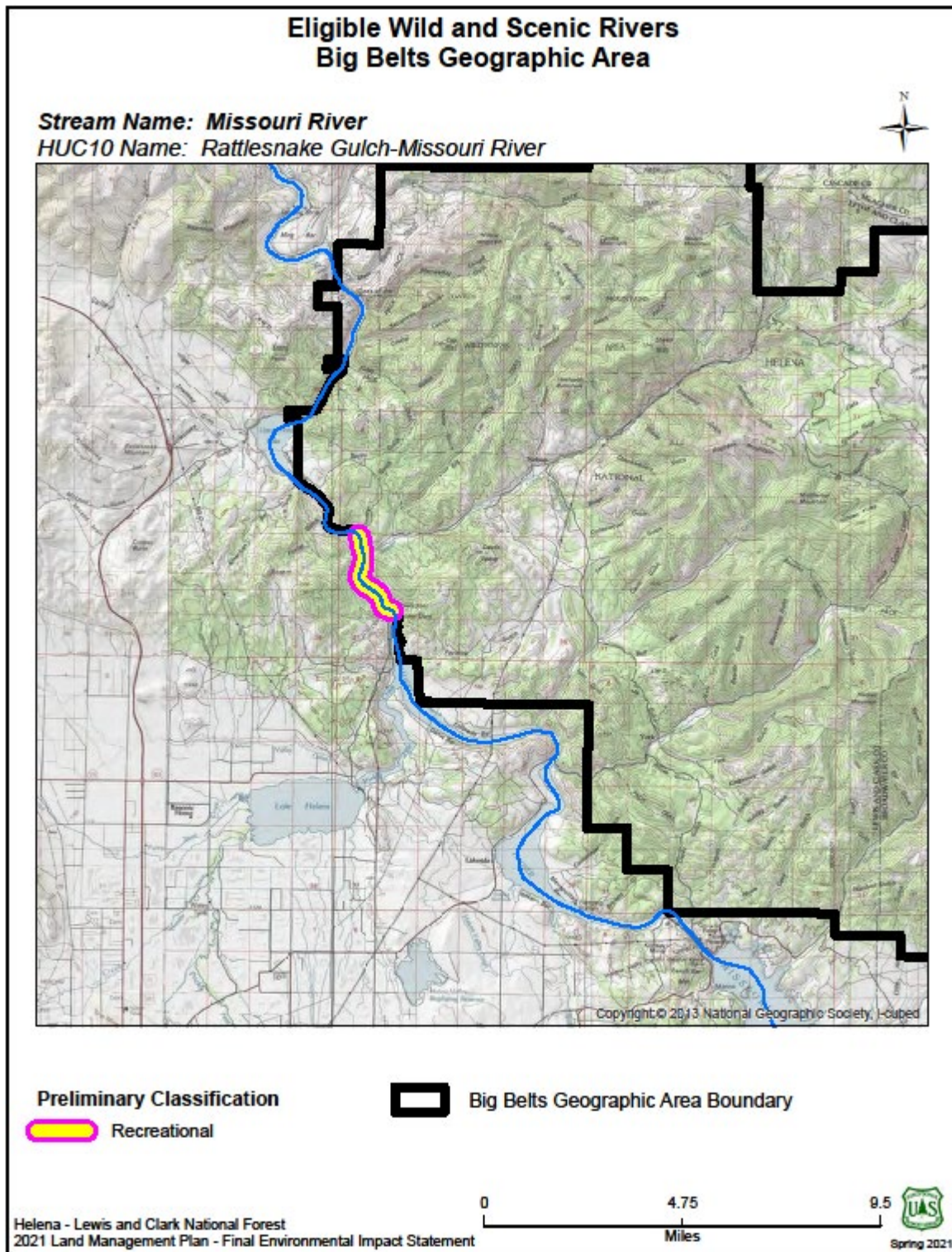
### White Creek

| <b>White Creek (White Gulch)</b>                   |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Fish   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From where stream crosses section line between T20N R2E Sections 19 and 20 west to the private land boundary             |
| Miles of each segment                              | 3.0 miles  |
| Potential classification                           | Recreational   |
| Location   | Geographic area: Big Belts<br>HUC 10: Middle Canyon Ferry Lake- Missouri River<br>Beginning Point: T10N, R2E, Section 16 |
| County(ies)  | Broadwater   |
| Identified in previous eligibility studies. Yes/No | No   |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | No ORV   |
| Geologic   | No ORV   |
| Fisheries  | This stream has a pure westslope cutthroat trout population that is protected by two cascade fish barriers.              |
| Wildlife   | No ORV   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |



### Missouri River

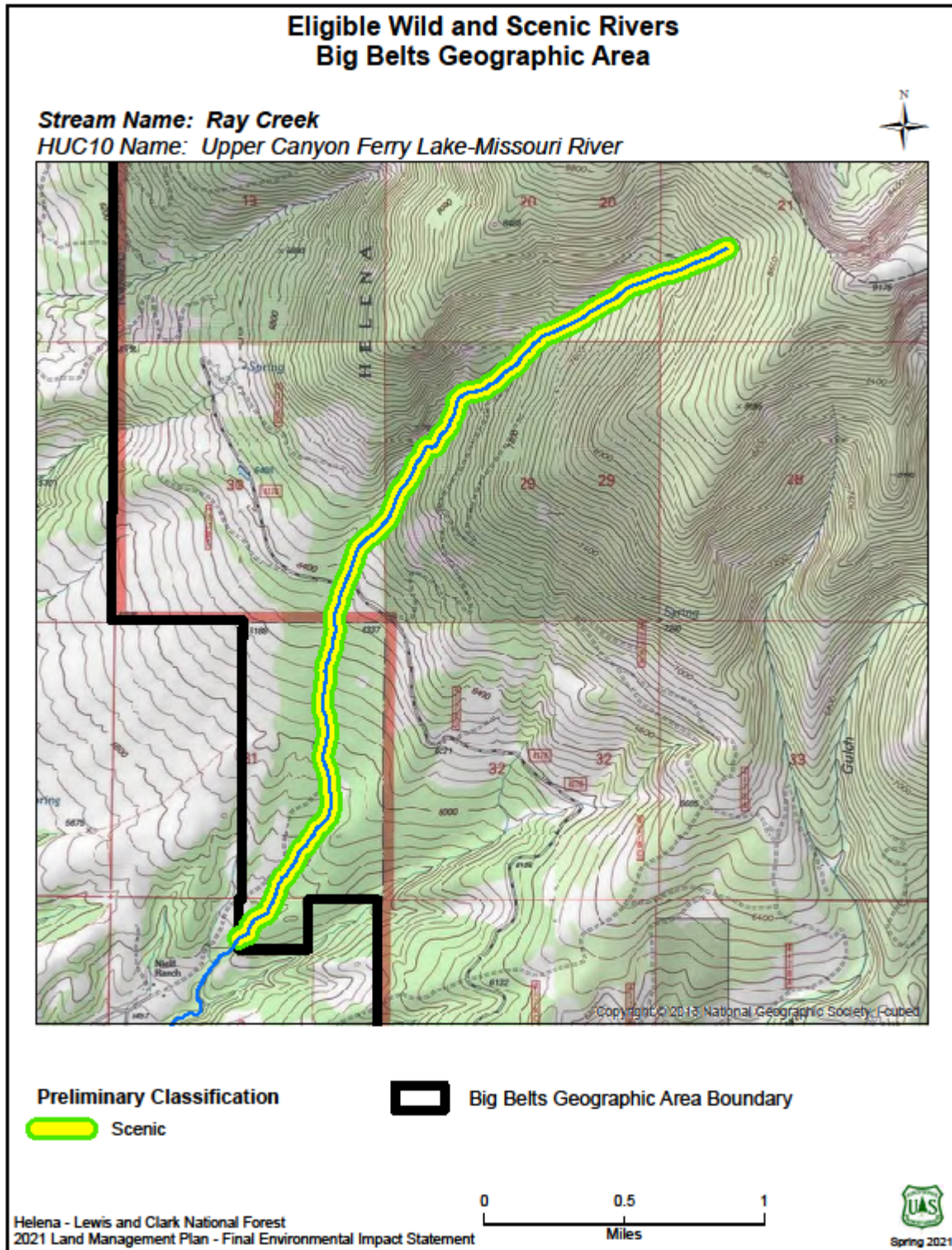
| <b>Missouri River</b>                              |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Recreation, Geology, Wildlife   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From Houser Dam to confluence with Cochran Gulch  |
| Miles of each segment                              | 2.2 miles   |
| Potential classification                           | Recreational  |
| Location   | Geographic area: Big Belts<br>HUC 10: Rattlesnake Gulch- Missouri River<br>Beginning Point: T12N, R2W, Section 19   |
| County(ies)  | Lewis and Clark   |
| Identified in previous eligibility studies. Yes/No | Yes   |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | Recreation sport fishing of rainbow trout is the ORV. The area receives over 10,000 out of state fishermen per year. Due to the proximity to the dams it is also an important tail-water fishery. |
| Geologic   | The geology is of spectacular exposures of Madison limestone cliffs. Part of the Eldorado thrust fault.   |
| Fisheries  | No ORV  |
| Wildlife   | Yes, bald eagle, golden eagle, peregrine falcon nesting, multiple wildlife values, remarkable to all be there together, diversity of raptor nesting, important as a group.                        |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |
| Notes  | Existing Eligible   |





## Ray Creek

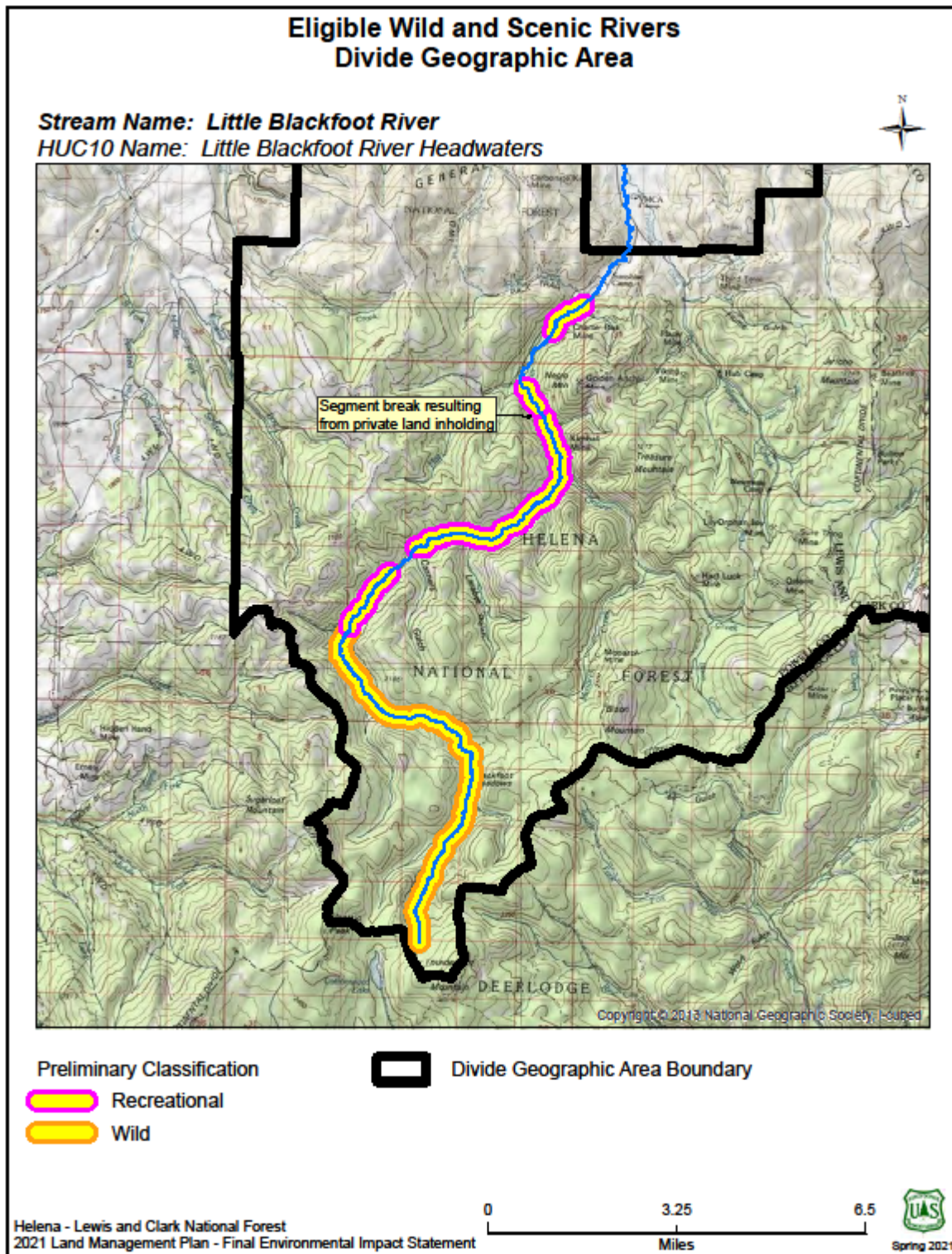
| <b>Ray Creek</b>                                      |   |
|---|---|
| Is the river free-flowing?<br>Yes or No               | Yes   |
| Potential Outstanding<br>Remarkable Value(s)          | Fish  |
| Area of Comparison                                    | State of Montana  |
| Eligible segments                                     | From FS boundary to the headwaters  |
| Miles of each segment                                 | 3.4 miles   |
| Potential classification                              | Scenic  |
| Location  | Geographic area: Big Belts<br>HUC 10: Upper Canyon- Ferry Lake- Missouri River<br>Beginning Point: T8N, R4E, Section 30 |
| County(ies)   | Broadwater  |
| Identified in previous<br>eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                           |   |
| Scenery   | No ORV  |
| Recreation  | No ORV  |
| Geologic  | No ORV  |
| Fisheries   | Pure westslope cutthroat trout in an Upper Missouri River HUC.  |
| Wildlife  | No ORV  |
| Cultural  | No ORV  |
| Botanical/natural                                     | No ORV  |
| Natural other   | No ORV  |



## Divide Geographic Area

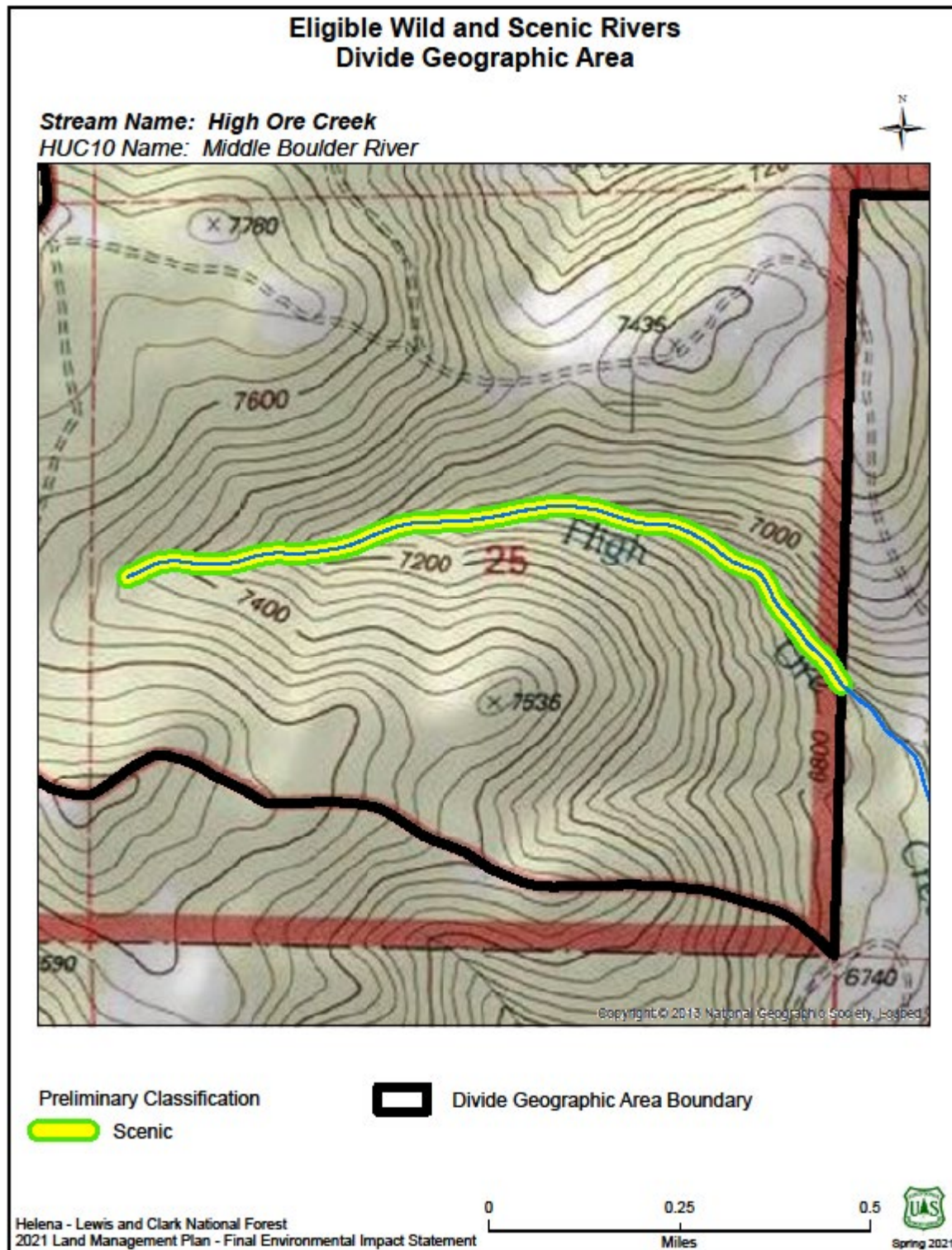
### Little Blackfoot River

| <b>Little Blackfoot River</b>                         |   |
|---|---|
| Is the river free-flowing?<br>Yes or No               | Yes   |
| Potential Outstanding<br>Remarkable Value(s)          | Fish<br>Cultural  |
| Area of comparison                                    | State of Montana  |
| Eligible segments                                     | Segment 1: From private land boundary to private land boundary near Charter Oaks<br>Segment 2: From private land boundary south to the private land boundary<br>Segment 3: From private land boundary south and west to the private land boundary northeast of Kading Campground<br>Segment 4: From private land boundary south to the confluence with a no name stream near the intersection of Trail 329 and Trail 326<br>Segment 5: From the confluence with a no name stream near the intersection of Trail 329 and Trail 326 to the headwaters |
| Miles of each segment                                 | Segment 1: 0.8 miles<br>Segment 2: 0.5 miles<br>Segment 3: 4.4 miles<br>Segment 4: 1.3 miles<br>Segment 5: 7.7 miles  |
| Potential classification                              | Segment 1: Recreational<br>Segment 2: Recreational<br>Segment 3: Recreational<br>Segment 4: Recreational<br>Segment 5: Wild   |
| Location  | Geographic area: Divide<br>HUC 10: Little Blackfoot River<br>Beginning Point: T8N, R7W, Section 12  |
| County(ies)   | Powell  |
| Identified in previous<br>eligibility studies. Yes/No | Yes   |
| <b>Resource Description</b>                           |   |
| Scenery   | No ORV  |
| Recreation  | No ORV  |
| Geologic  | No ORV  |
| Fisheries   | Eligible for fisheries. Large reach with westslope cutthroat, but non-natives present. DNA sampling this field season. Headwaters still contains westslope cutthroat trout population.  |
| Wildlife  | No ORV  |
| Cultural  | Charter Oak is an historic mine and mill located within segment 1. It is currently interpreted and on the National Register of Historic Places.   |
| Botanical/natural                                     | No ORV  |
| Natural other   | No ORV  |



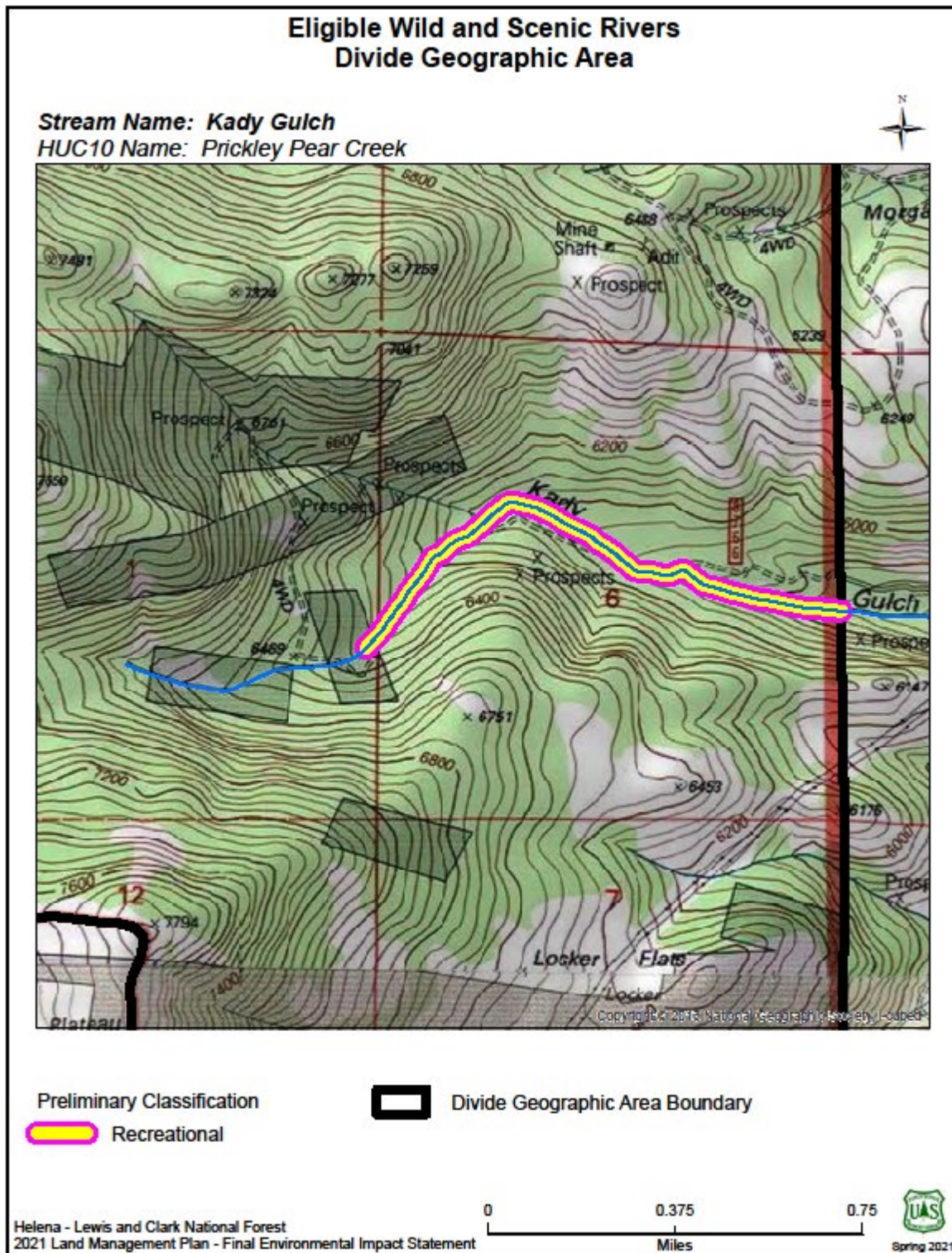
### High Ore Creek

| <b>High Ore Creek</b>                              |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Fish   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From FS boundary to headwaters   |
| Miles of each segment                              | 1.0 miles  |
| Potential classification                           | Scenic   |
| Location   | Geographic area: Divide<br>HUC 10: Middle Boulder River<br>Beginning Point: T7N, R5W, Section 25 |
| County(ies)  | Jefferson  |
| Identified in previous eligibility studies. Yes/No | No   |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | No ORV   |
| Geologic   | No ORV   |
| Fisheries  | Isolated genetically pure westslope cutthroat trout population.                                  |
| Wildlife   | No ORV   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |



### Kady Gulch

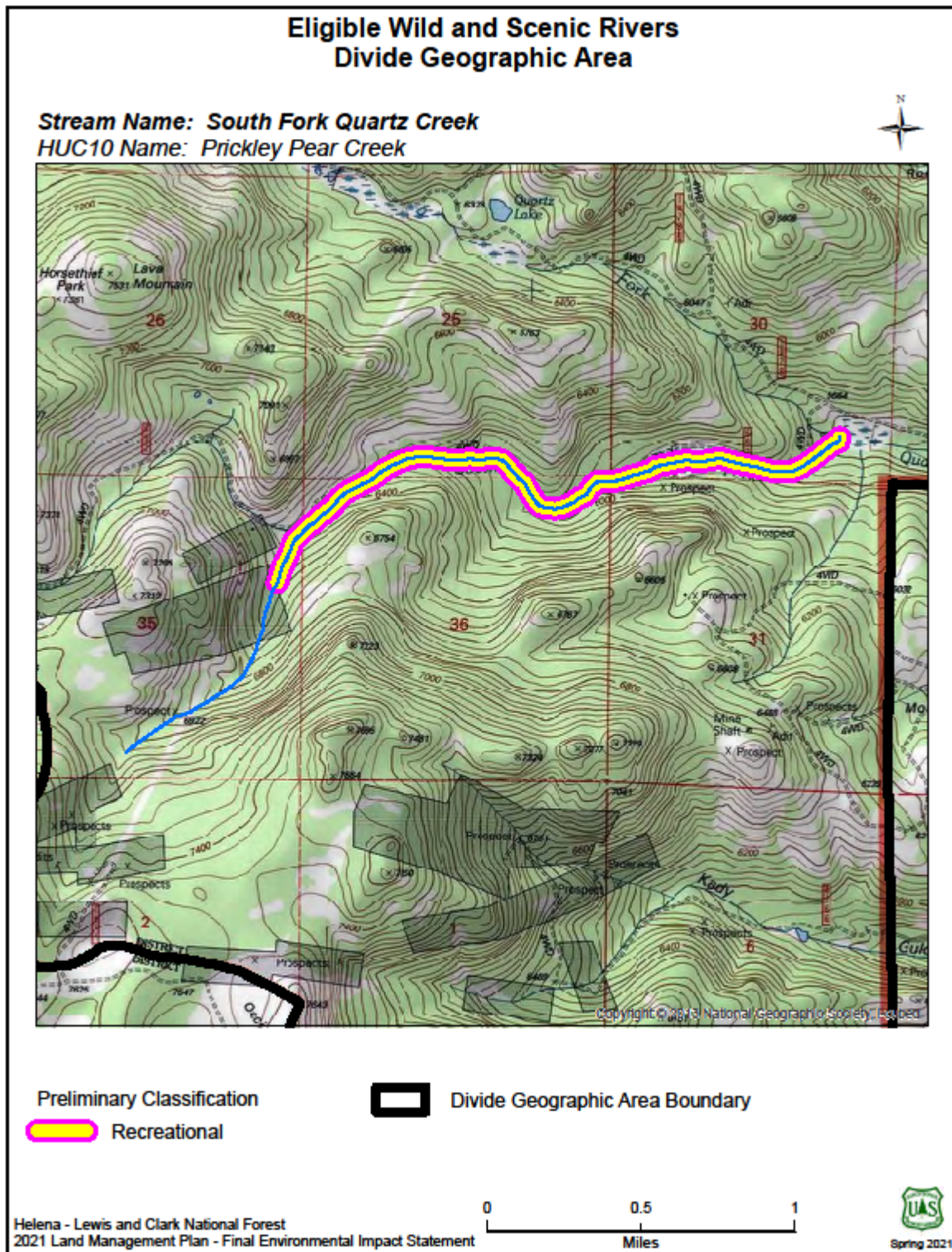
| <b>Kady Gulch</b>                                  |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From FS boundary to the private land boundary   |
| Miles of each segment                              | 1.1 miles   |
| Potential classification                           | Recreational  |
| Location   | Geographic area: Divide<br>HUC 10: Prickly Pear Creek<br>Beginning Point: T7N, R4W, Section 6                 |
| County(ies)  | Jefferson   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





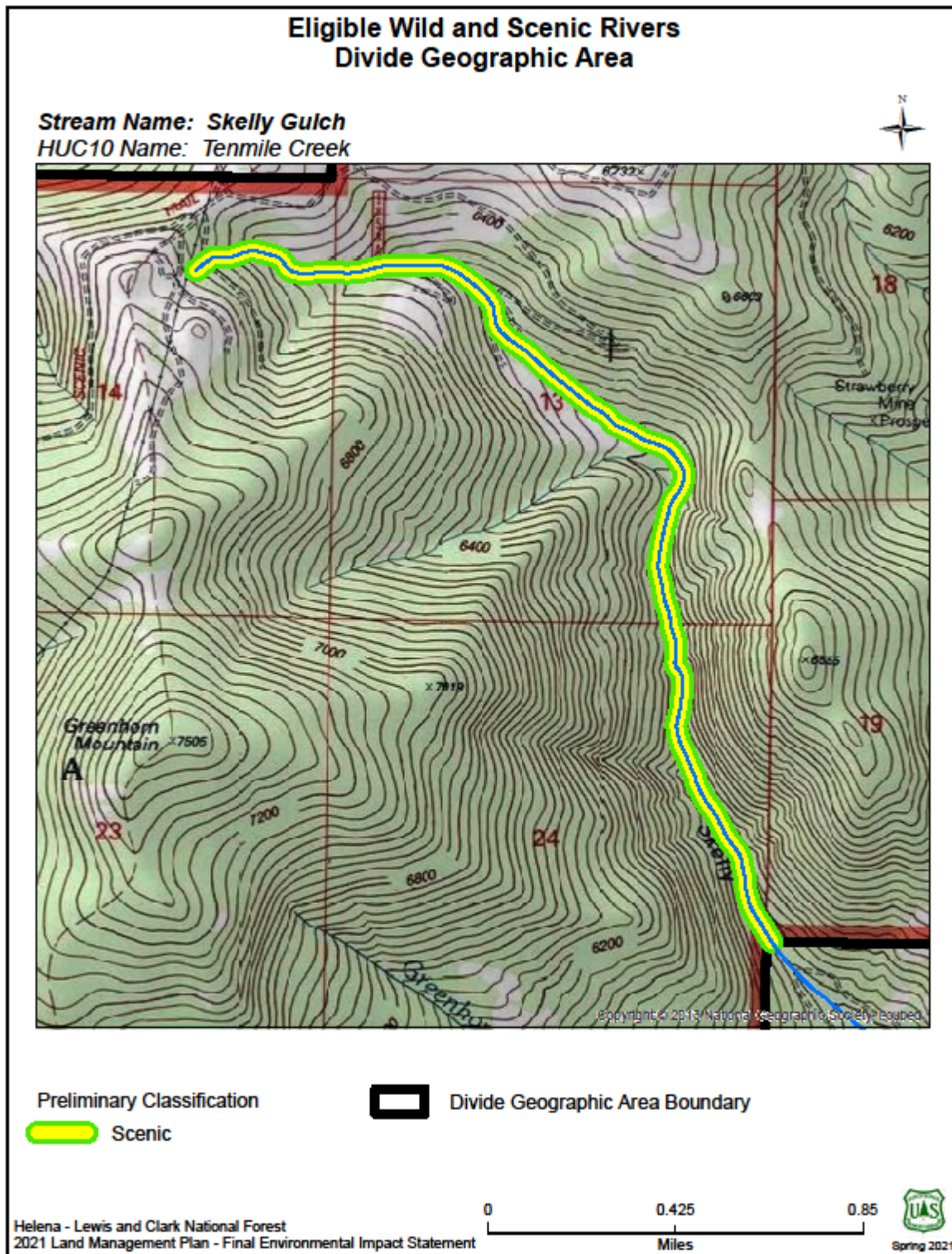
### South Fork Quartz Creek

| <b>South Fork Quartz Creek</b>                     |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From mouth to the private land boundary   |
| Miles of each segment                              | 2.2 miles   |
| Potential classification                           | Recreational  |
| Location   | Geographic area: Divide<br>HUC 10: Prickly Pear Creek<br>Beginning Point: T8N, R4W, Section 30                |
| County(ies)  | Jefferson   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



## Skelly Gulch

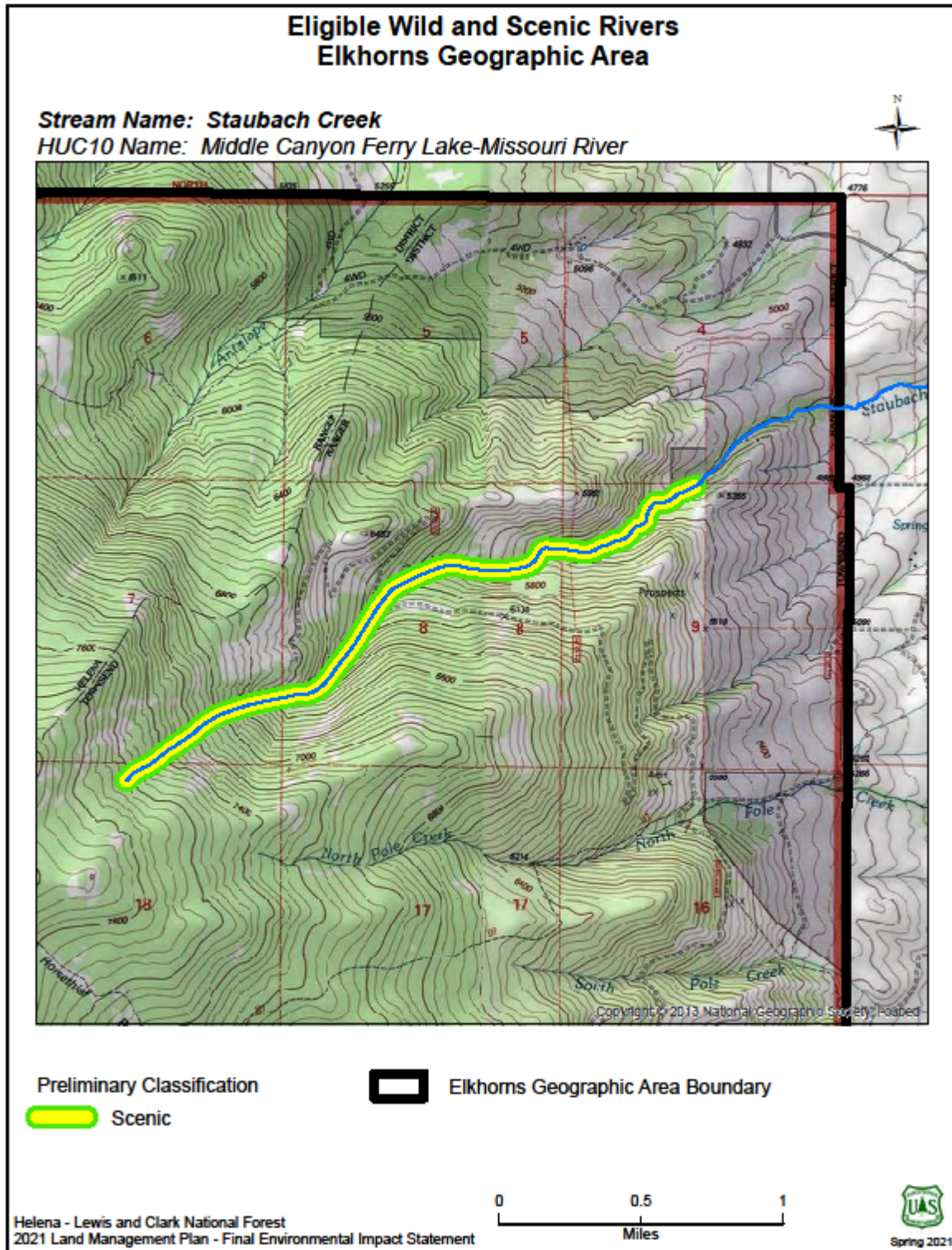
| <b>Skelly Gulch</b>                                   |   |
|---|---|
| Is the river free-flowing?<br>Yes or No               | Yes   |
| Potential Outstanding<br>Remarkable Value(s)          | Fish  |
| Area of comparison                                    | State of Montana  |
| Eligible segments                                     | From FS boundary to the headwaters  |
| Miles of each segment                                 | 2.5 miles   |
| Potential classification                              | Scenic  |
| Location  | Geographic area: Divide<br>HUC 10: Tenmile Creek<br>Beginning Point: T11N, R6W, Section 24                    |
| County(ies)   | Lewis and Clark   |
| Identified in previous<br>eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                           |   |
| Scenery   | No ORV  |
| Recreation  | No ORV  |
| Geologic  | No ORV  |
| Fisheries   | Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin. |
| Wildlife  | No ORV  |
| Cultural  | No ORV  |
| Botanical/natural                                     | No ORV  |
| Natural other   | No ORV  |



# Elkhorns Geographic Area

## Staubach Creek

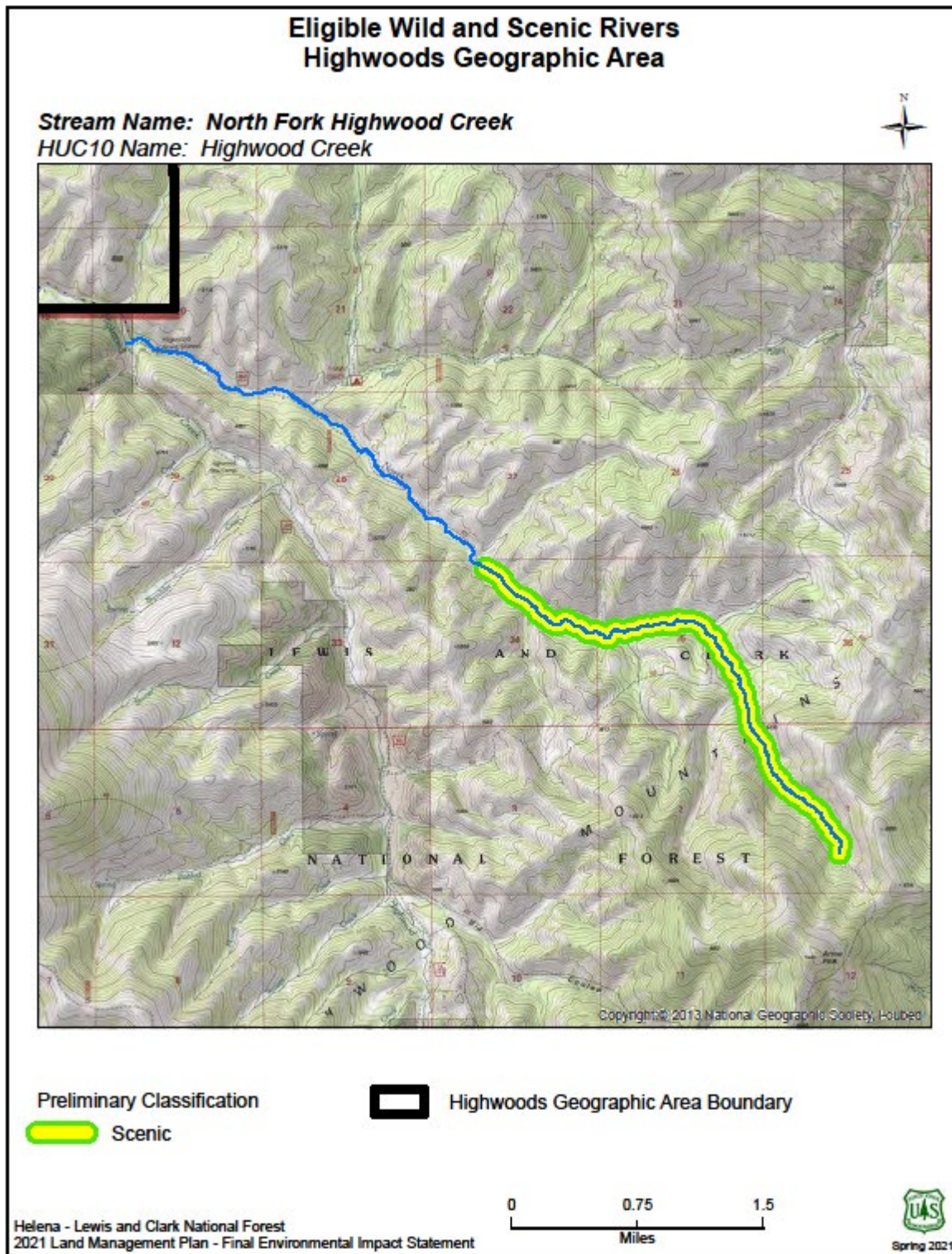
| <b>Staubach Creek</b>                              |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From private land boundary to headwaters  |
| Miles of each segment                              | 2.4 miles   |
| Potential classification                           | Scenic  |
| Location   | Geographic area: Elkhorns<br>HUC 10: Middle Canyon<br>Beginning Point: T8N, R1W, Section 9                    |
| County(ies)  | Broadwater  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



# Highwoods Geographic Area

## North Fork Highwood Creek

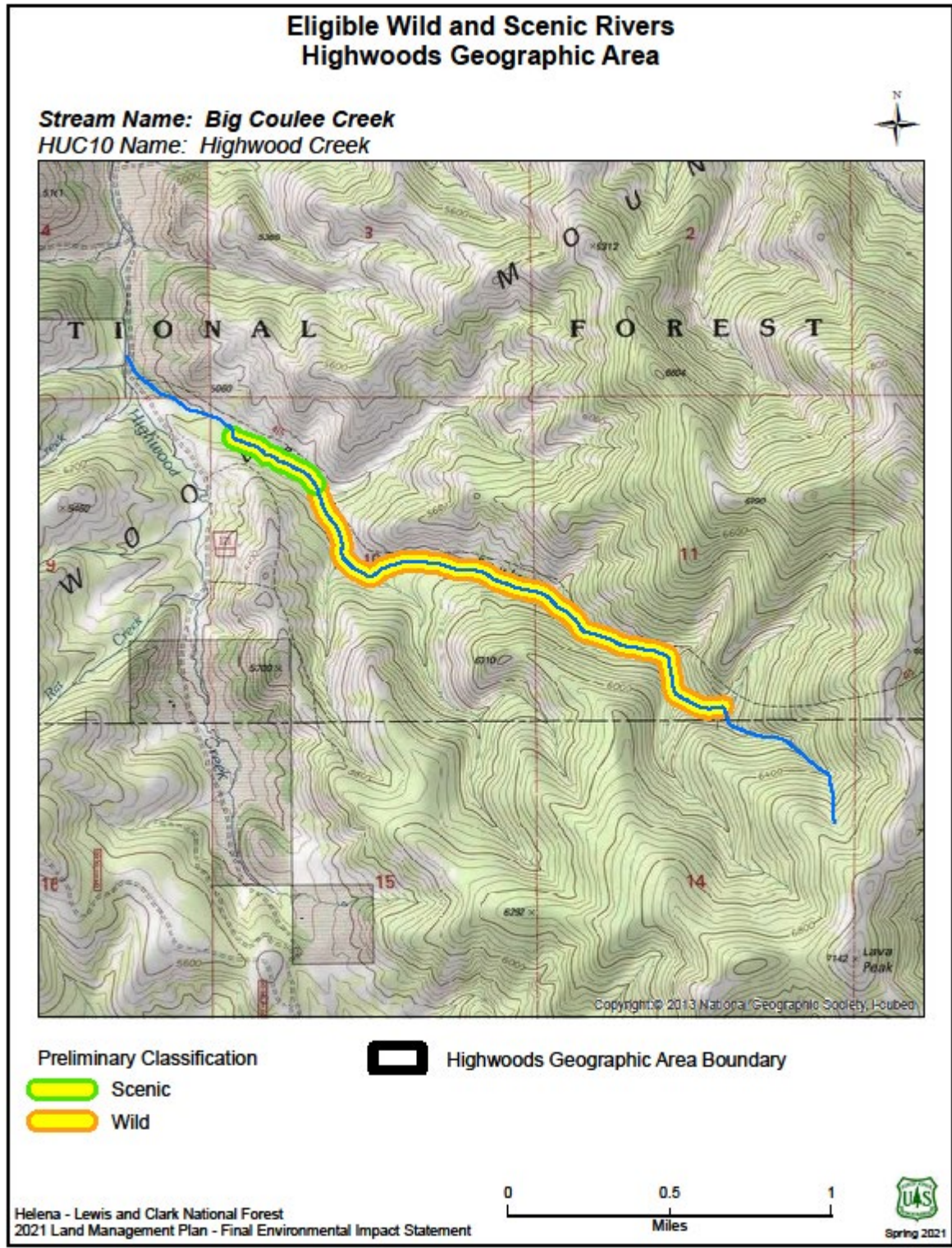
| <b>North Fork Highwood Creek</b>                   |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From fish barrier to the headwaters.  |
| Miles of each segment                              | 3.3 miles   |
| Potential classification                           | Scenic  |
| Location   | Geographic area: Highwoods<br>HUC 10: Highwood Creek<br>Beginning Point: T20N, R9E, Section 20  |
| County(ies)  | Chouteau  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | One of two remaining pure westslope cutthroat trout populations in the Highwood Creek drainage system which represents the only known pure populations in this segment of the Upper Missouri River basin. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





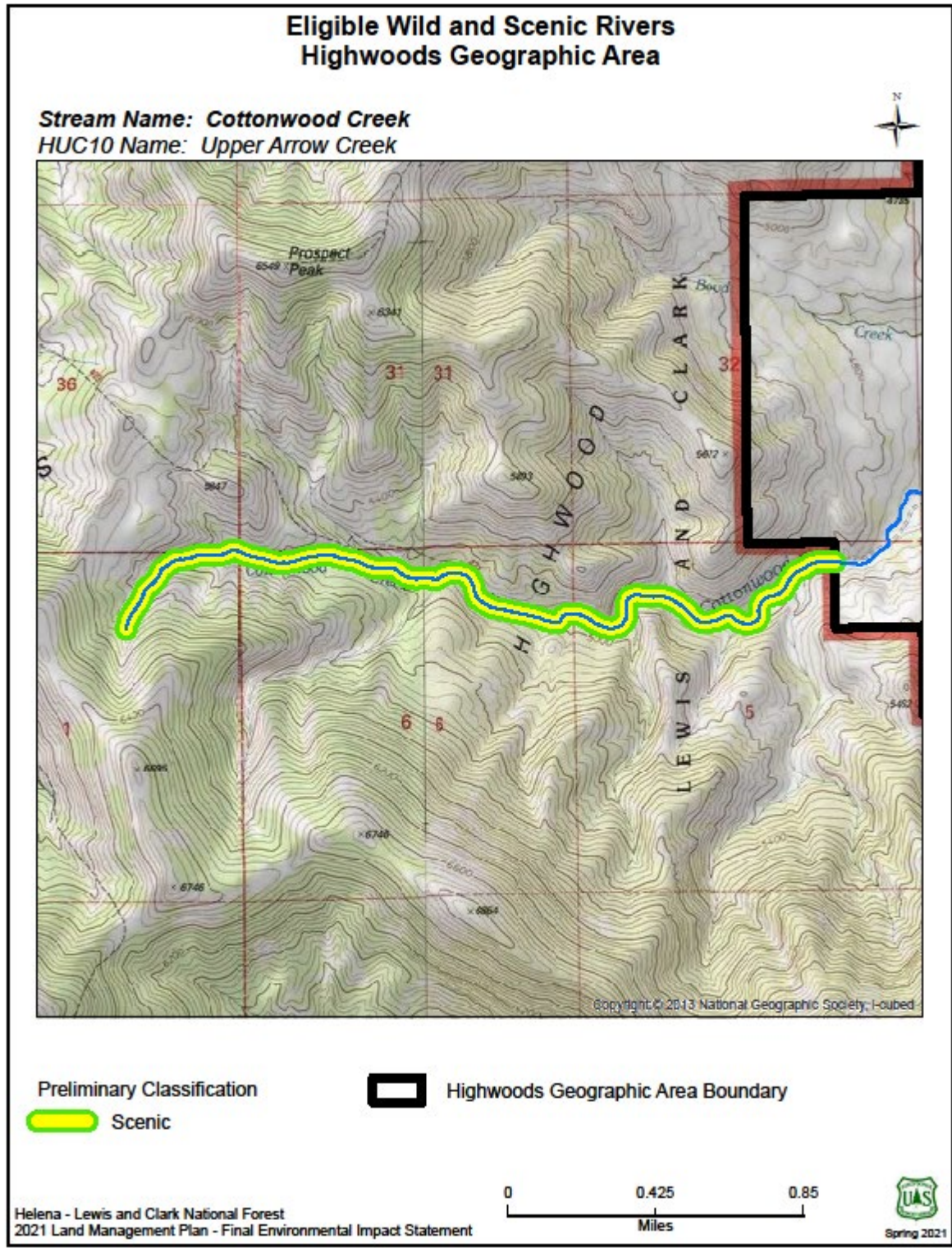
### Big Coulee Creek

| <b>Big Coulee Creek</b>                            |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1: From fish barrier to the confluence with a no name stream from the east<br>Segment 2: From the confluence with the no name stream to the upper tributary fork                                  |
| Miles of each segment                              | Segment 1: 0.3 miles<br>Segment 2: 1.6 miles  |
| Potential classification                           | Segment 1: Scenic<br>Segment 2: Wild  |
| Location   | Geographic area: Highwoods<br>HUC 10: Highwood Creek<br>Beginning Point: T19N, R9E, Section 4   |
| County(ies)  | Chouteau  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | One of two remaining pure westslope cutthroat trout populations in the Highwood Creek drainage system which represents the only known pure populations in this segment of the Upper Missouri River basin. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



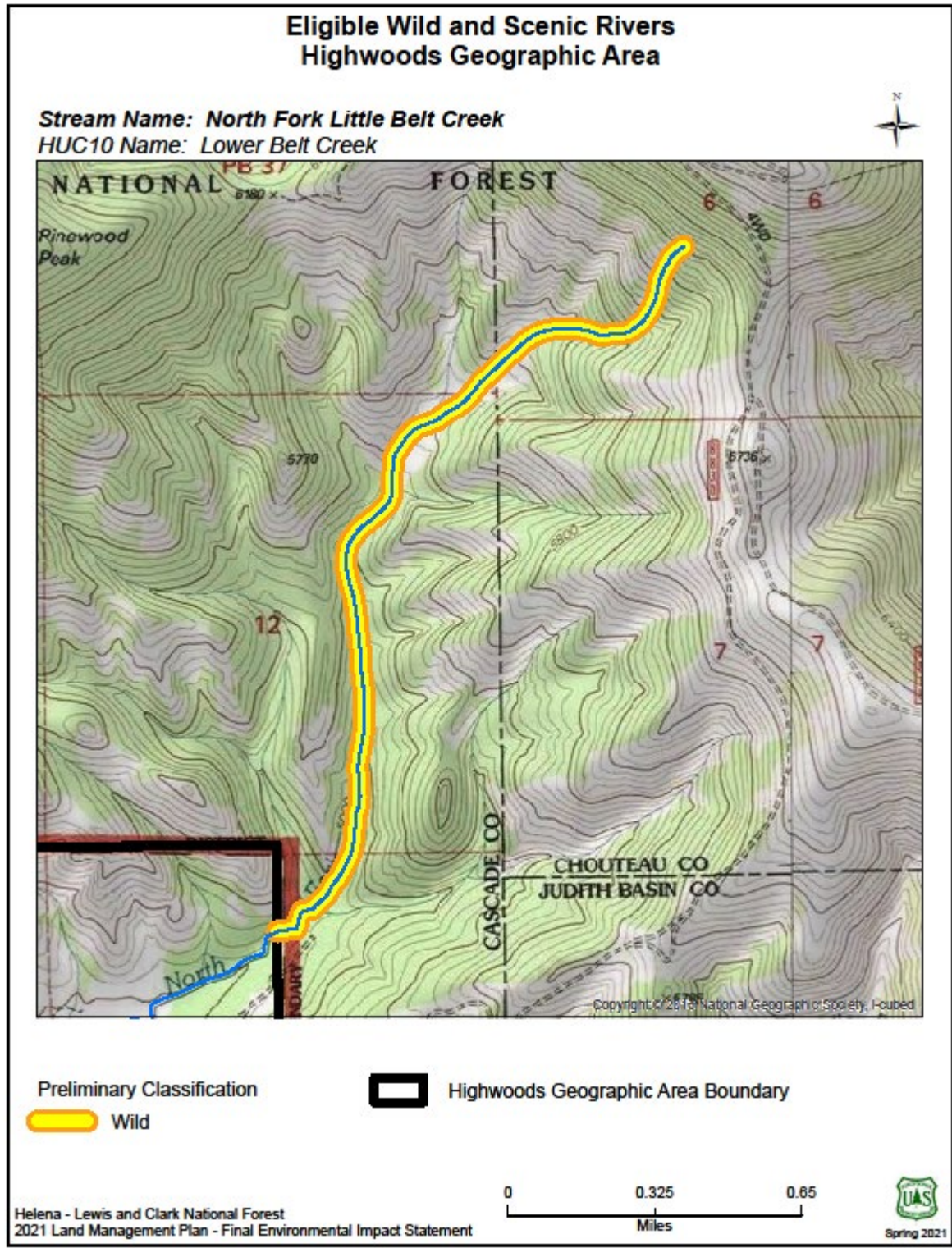
### Cottonwood Creek

| <b>Cottonwood Creek</b>                            |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From FS boundary to headwaters  |
| Miles of each segment                              | 2.5 miles   |
| Potential classification                           | Scenic  |
| Location   | Geographic area: Highwoods<br>HUC 10: Upper Arrow Creek (1004010206)<br>Beginning Point: Private land boundary at T19N, R10E, Section 5 |
| County(ies)  | Chouteau County   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | The largest, most intact westslope cutthroat trout population within the entire Arrow Creek river system.                               |
| Wildlife   | No ORV  |
| Cultural   | No ORV.   |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



### North Fork Little Belt Creek

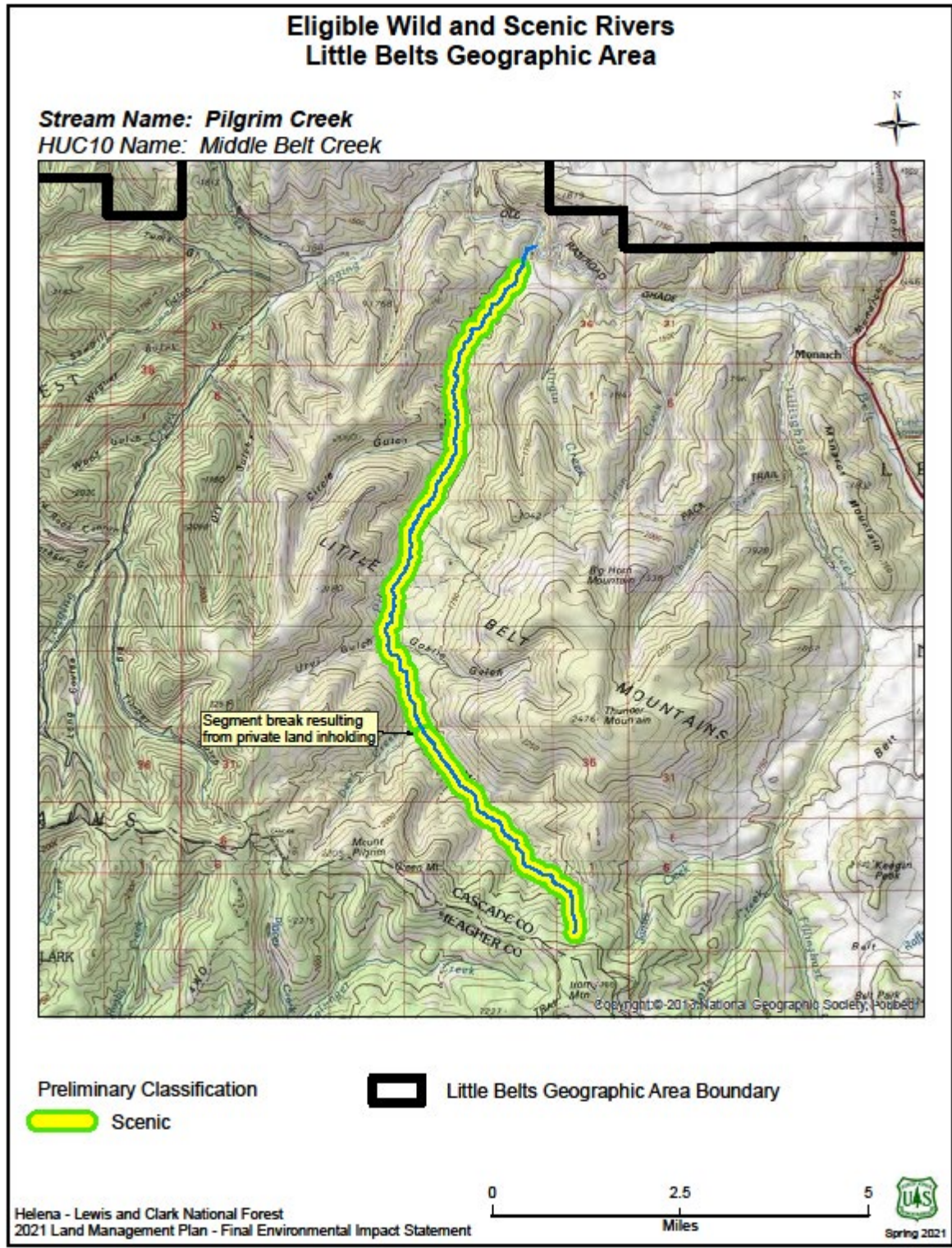
| <b>North Fork Little Belt Creek</b>                |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Fish   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From FS boundary to headwaters   |
| Miles of each segment                              | 2.1 miles  |
| Potential Classification                           | Wild   |
| Location   | Geographic area: Highwoods<br>HUC 10: Lower Belt Creek (100301030)<br>Beginning Point: Private land boundary at T19N, R8E, Section 13          |
| County(ies)  | Cascade County   |
| Identified in previous eligibility studies. Yes/No | No   |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | No ORV   |
| Geologic   | No ORV   |
| Fisheries  | The most intact and secure westslope cutthroat trout population within the Little Belt Creek and the lower portion of the Belt Creek drainage. |
| Wildlife   | No ORV   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |



## Little Belt Mountains Geographic Area

### Pilgrim Creek

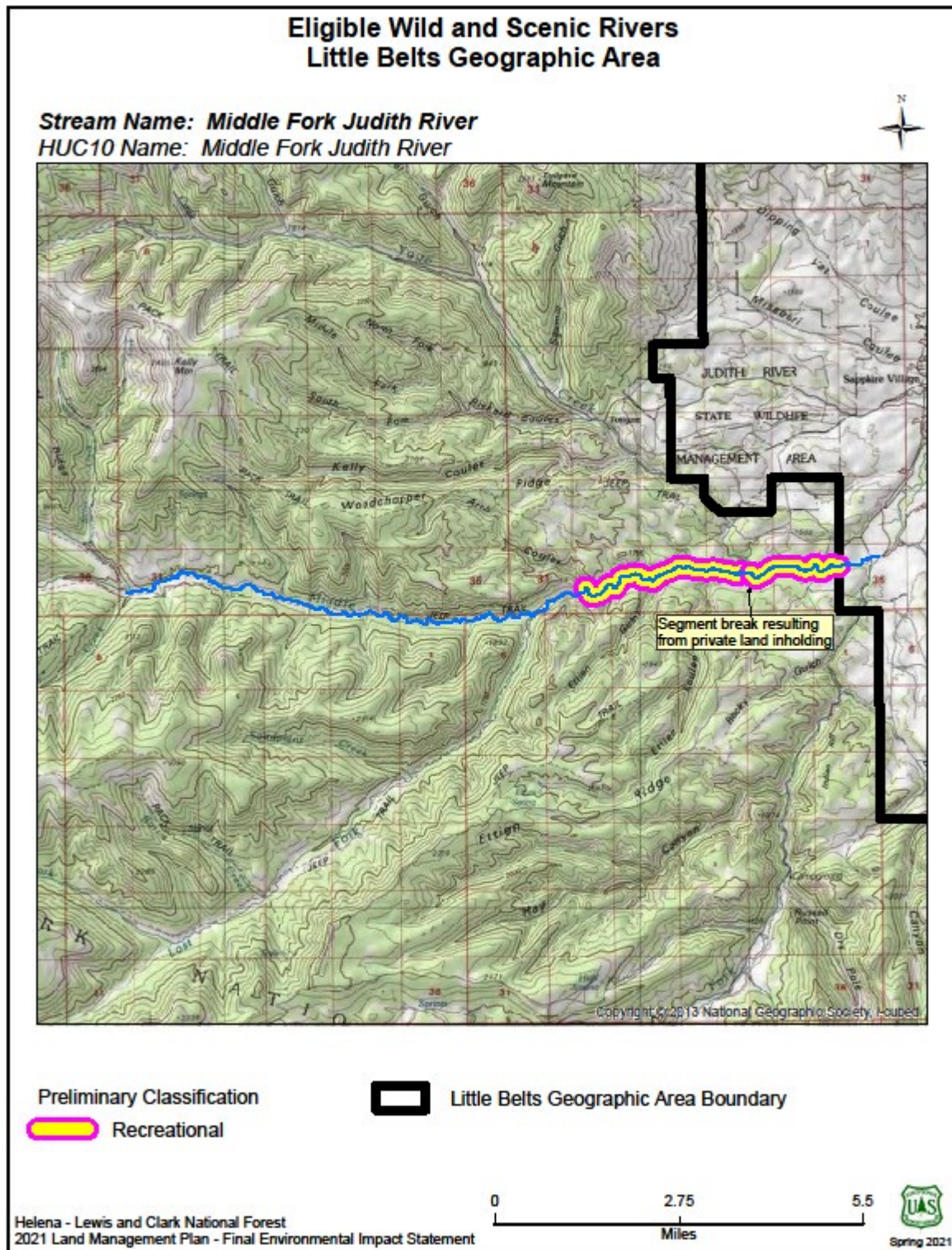
| <b>Pilgrim Creek</b>                               |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Fish   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | Segment 1: From fish barrier south to the private land boundary<br>Segment 2: From private land boundary to the headwaters |
| Miles of each segment                              | Segment 1: 7.2 miles<br>Segment 2: 3.7 miles   |
| Potential classification                           | Segment 1: Scenic<br>Segment 2: Scenic   |
| Location   | Geographic area: Little Belt Mountains<br>HUC 10: Middle Belt Creek<br>Beginning Point: T 16N, R6E, Section 26             |
| County(ies)  | Cascade  |
| Identified in previous eligibility studies. Yes/No | No   |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | No ORV   |
| Geologic   | No ORV.  |
| Fisheries  | Most productive and largest population of pure westslope cutthroat trout in this section of Belt Creek.                    |
| Wildlife   | No ORV   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |





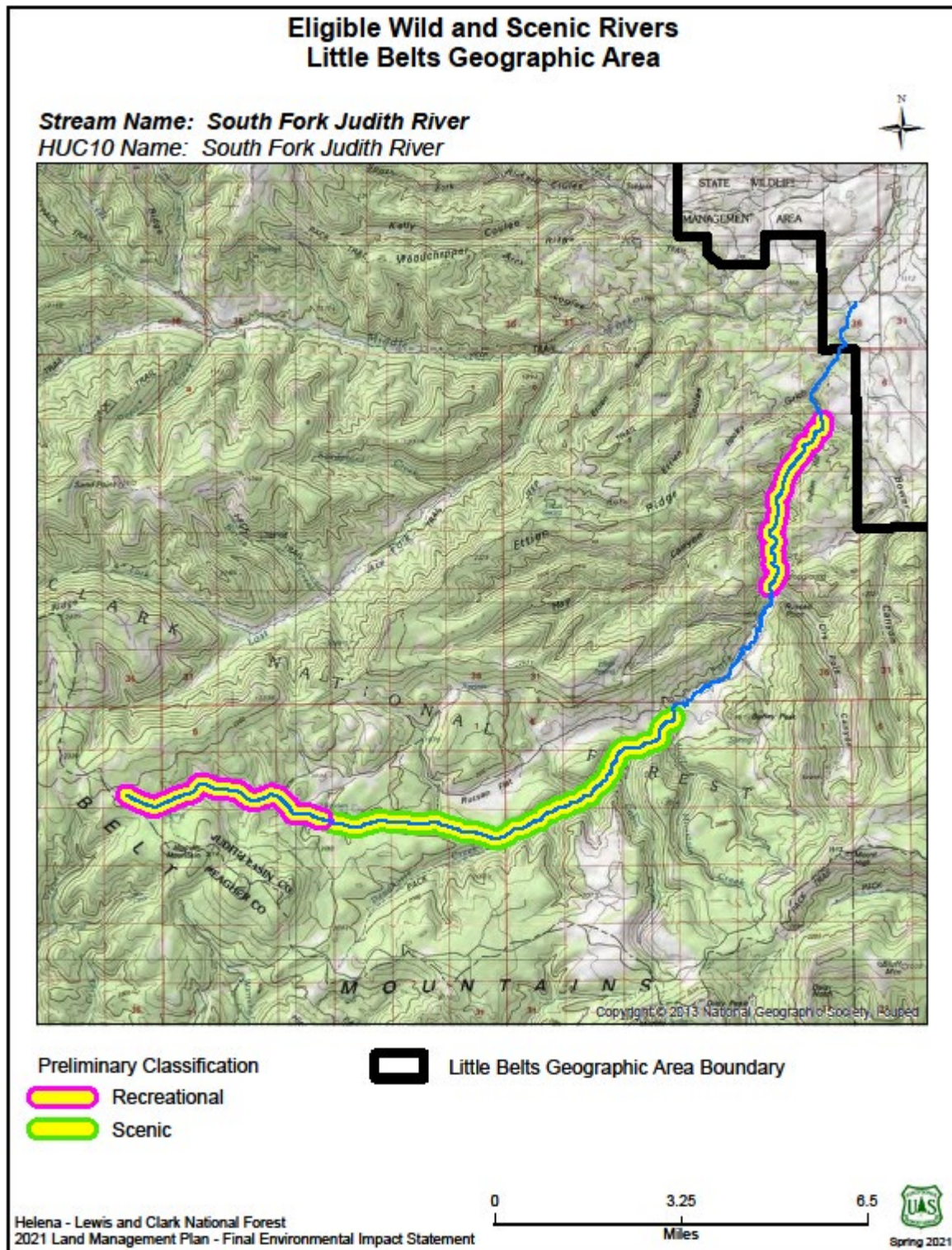
## Middle Fork Judith River

| <b>Middle Fork Judith River</b>                    |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Cultural  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1: From FS boundary to private land boundary<br>Segment 2: From private land boundary to confluence with Big Arch Coulee  |
| Miles of each segment                              | Segment 1: 1.6 miles<br>Segment 2: 3.0 miles  |
| Potential classification                           | Segment 1: Recreational<br>Segment 2: Recreational  |
| Location   | Geographic area: Little Belt Mountains<br>HUC 10: Middle Fork Judith River<br>Beginning Point: T13N, R11E, between Section 35 and 36  |
| County(ies)  | Judith Basin  |
| Identified in previous eligibility studies. Yes/No | Yes   |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | Nine recorded historic properties within this stretch of river have been recommended eligible for listing in the National Register of Historic Places. The sites represent a site type which is no longer common and form a complex of similar site-types. The sites possess the potential to yield significant information; therefore, presenting the opportunity to ask a variety of research questions. The Judith Guard Station is listed in the National Register of Historic Places and has the strong potential for public interpretation. All known historic properties possess an integral relationship to the Middle Fork Judith River. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



### South Fork Judith River

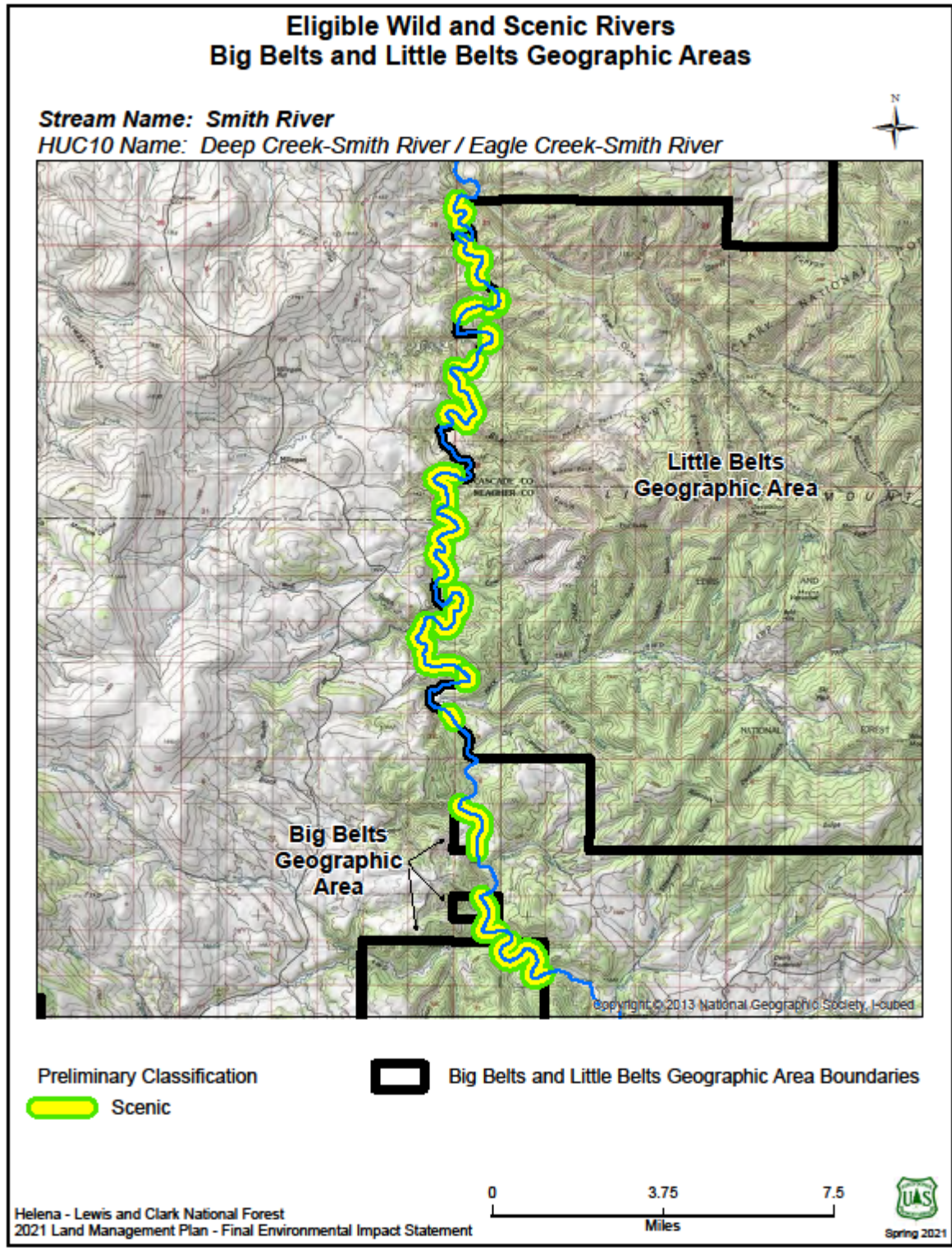
| <b>South Fork Judith River</b>                     |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish, Cultural  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1 – From confluence with Bower Creek to confluence with Dry Pole Creek<br>Segment 2 – From confluence with Bluff Mountain Creek to confluence with a no name creek<br>Segment 3 – From confluence with a no name creek to the headwaters                          |
| Miles of each segment                              | Segment 1: 3.6 miles<br>Segment 2: 7.4 miles<br>Segment 3: 3.9 miles  |
| Potential classification                           | Segment 1: Recreational<br>Segment 2: Scenic<br>Segment 3: Recreational   |
| Location   | Geographic area: Little Belt Mountains<br>HUC 10: South Fork Judith River<br>Beginning Point: T13N, R11E, Section 36  |
| County(ies)  | Judith Basin  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Second longest, contiguous westslope cutthroat trout populations east of the Continental Divide for both segments.  |
| Wildlife   | No ORV.   |
| Cultural   | There is a high concentration of cultural sites along both Segments. These sites offer excellent examples of culture use of travel routes, river terraces, and occupation sites close to waterways. The cowboy artist CM Russell lived, worked, and painted in this area. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |

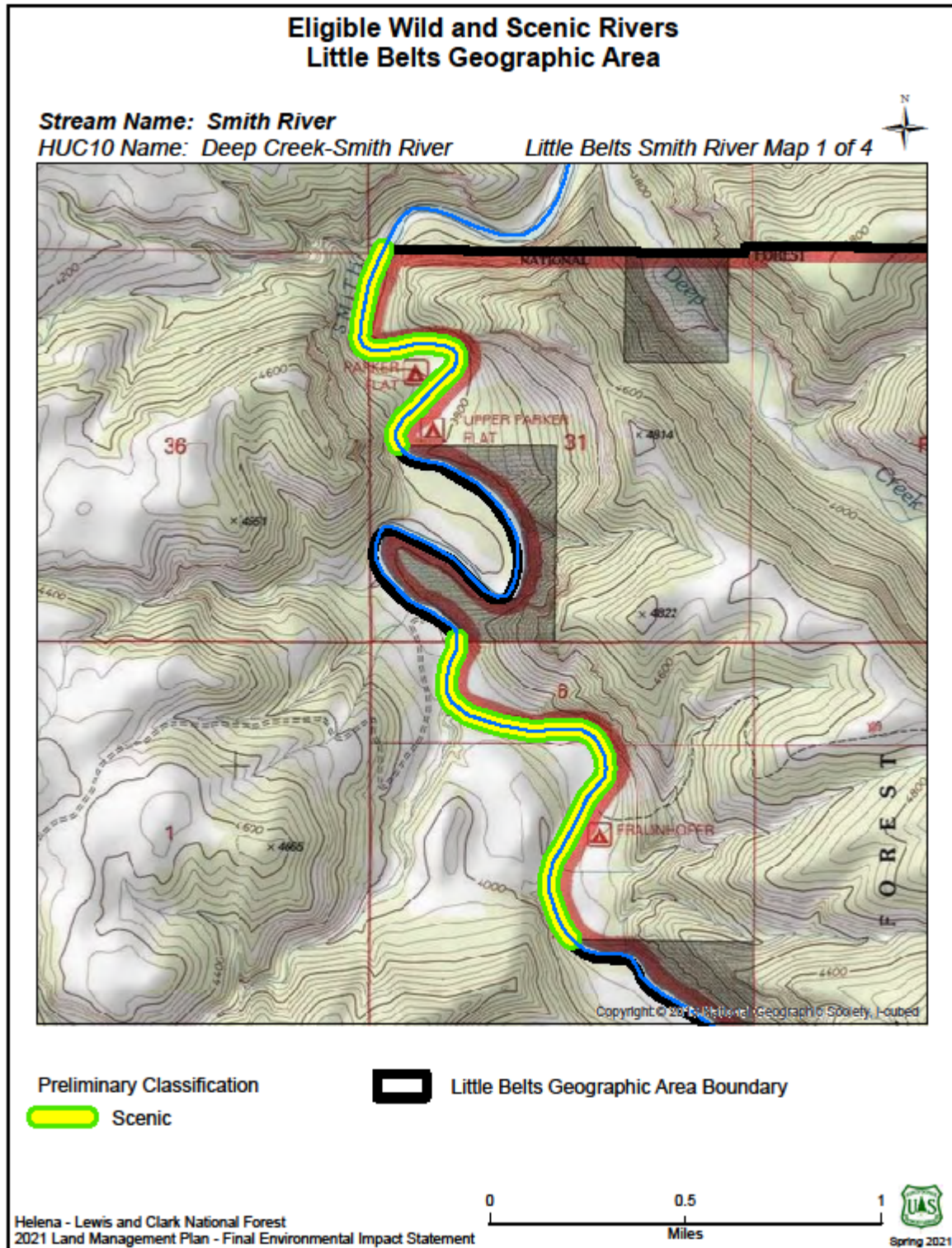


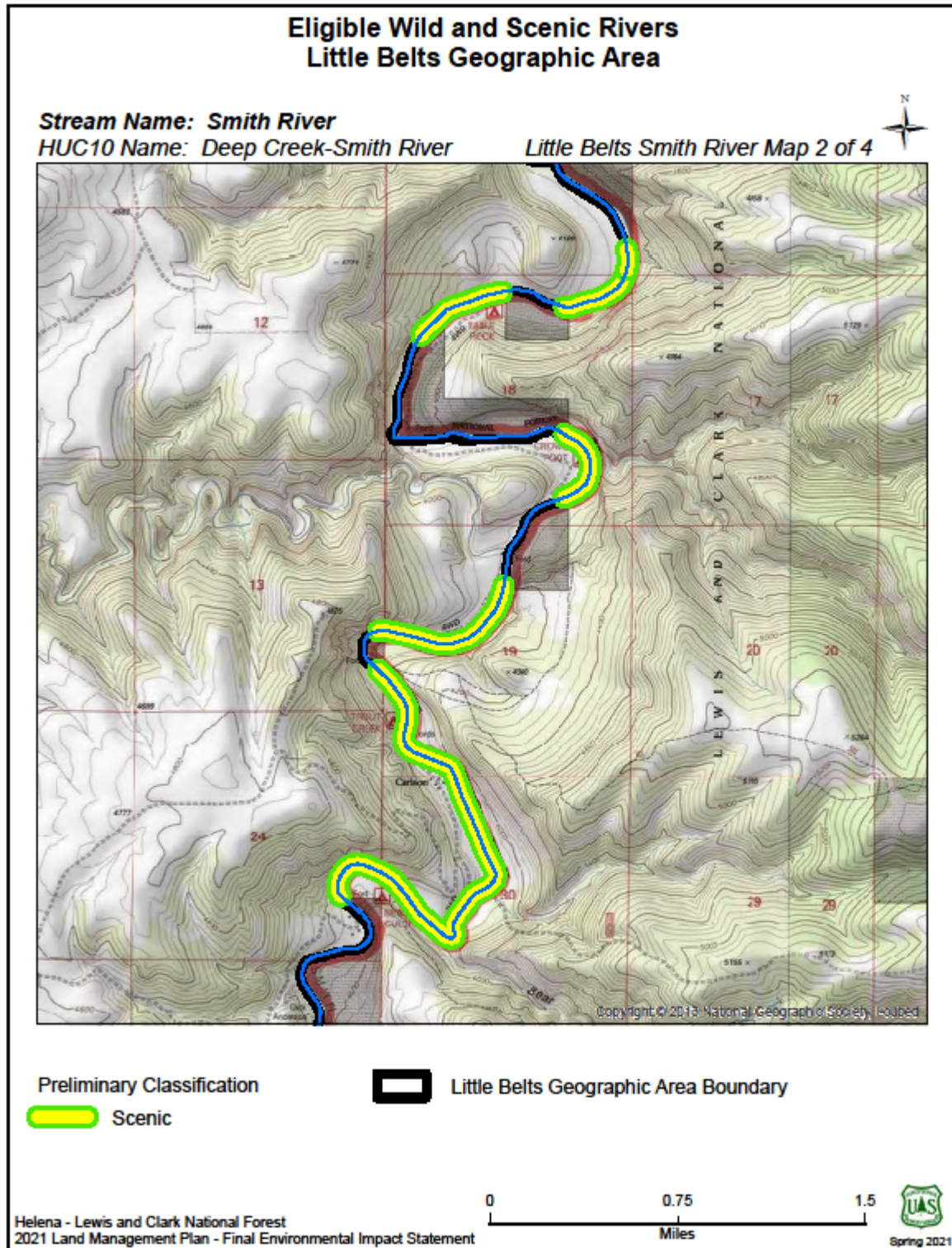
## Smith River

The following section includes a description table and several maps. The first map is a general vicinity map of the Smith River followed by a series of maps displaying all eligible segments of the river.

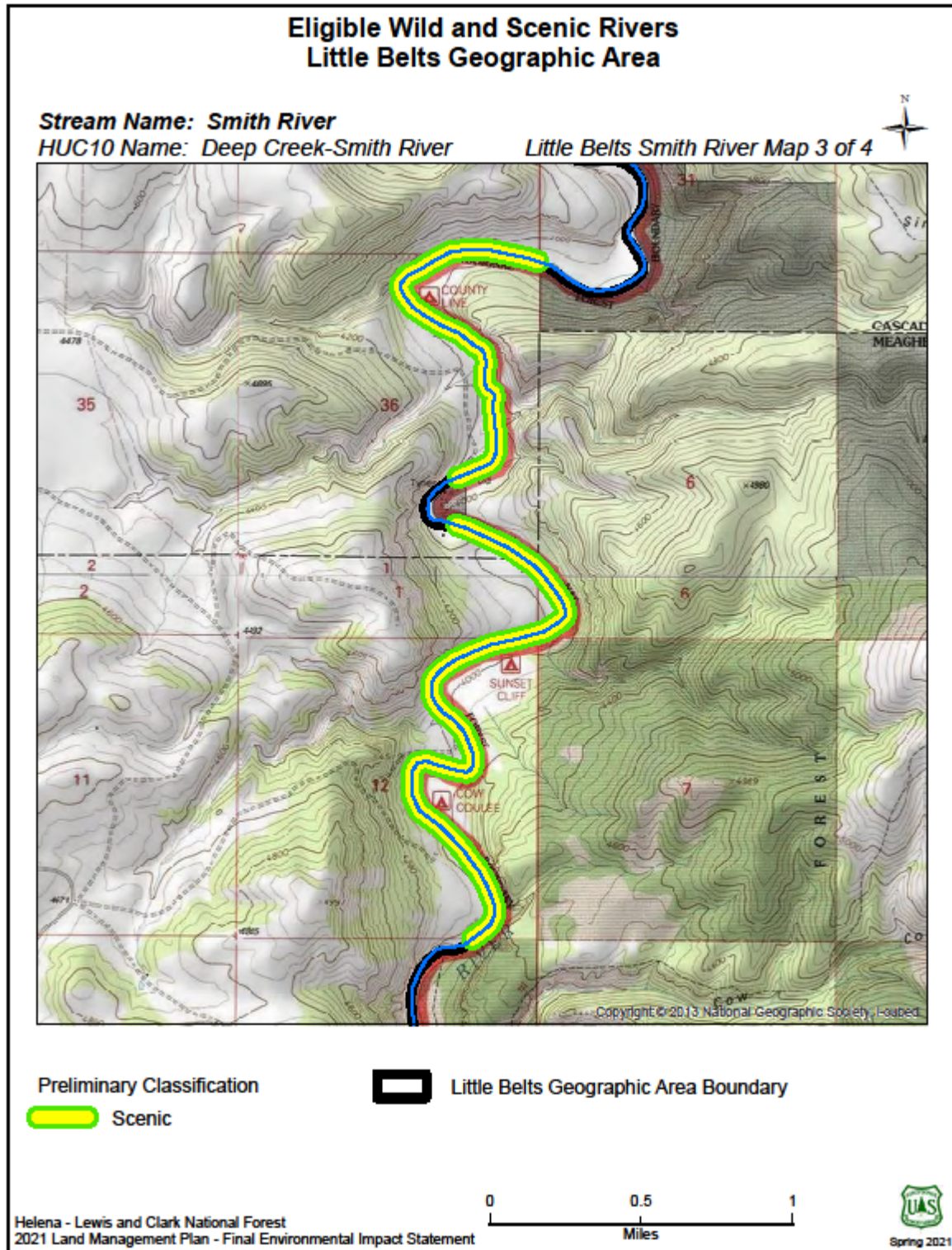
| <b>Smith River</b>                                 |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Scenery, Recreation, Geology, Wildlife, Cultural   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | The Smith River is comprised of 17 small segments of Forest Service System lands interspersed with private lands. Only Forest Service System lands are considered for eligibility. See the following maps for details.   |
| Miles of eligible segments                         | Total segment mileage: 17.8 miles  |
| Potential classification                           | For all segments - Scenic  |
| Location   | Geographic area: Big Belts/Little Belts<br>HUC 10: Eagle Creek- Smith River/ Deep Creek-Smith River<br>Beginning Point: T16N, R4E, Section 31  |
| County(ies)  | Cascade/Meagher  |
| Identified in previous eligibility studies. Yes/No | Yes  |
| <b>Resource Description</b>                        |  |
| Scenery  | Scenery is tied strongly to the outstanding geology and river setting in the river corridor.   |
| Recreation   | Important sport fisheries as people come from across the country to fish here. This is also an important river corridor for floating/camping. Montana FWP has a permit system to regulate numbers of floaters along the river corridor.  |
| Geologic   | Spectacular exposures of Madison limestone cliffs. The geology of the Smith River is remarkable because the river cuts "up section" across about 1 billion years of geologic deposition of sedimentary rocks, from the Precambrian Belt Series into the Paleozoic limestones and dolomites, into the Cretaceous shales. These rock sequences occur throughout much of western Montana and into Canada, however, few places are available to see the stratigraphic (layers) section intact. Not to mention the outstanding exposures of the Madison group provide the scenic grey cliffs that are pocked with alcoves and other karst features that are culturally significant. |
| Fisheries  | No ORV   |
| Wildlife   | Important diversity of raptor nesting. Important as a group.   |
| Cultural   | There is a high concentration of cultural sites along both segments. These sites offer excellent examples of culture use of limestone geologic formations highlighting the use of travel routes, river terraces, and occupation sites close to waterways.  |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |

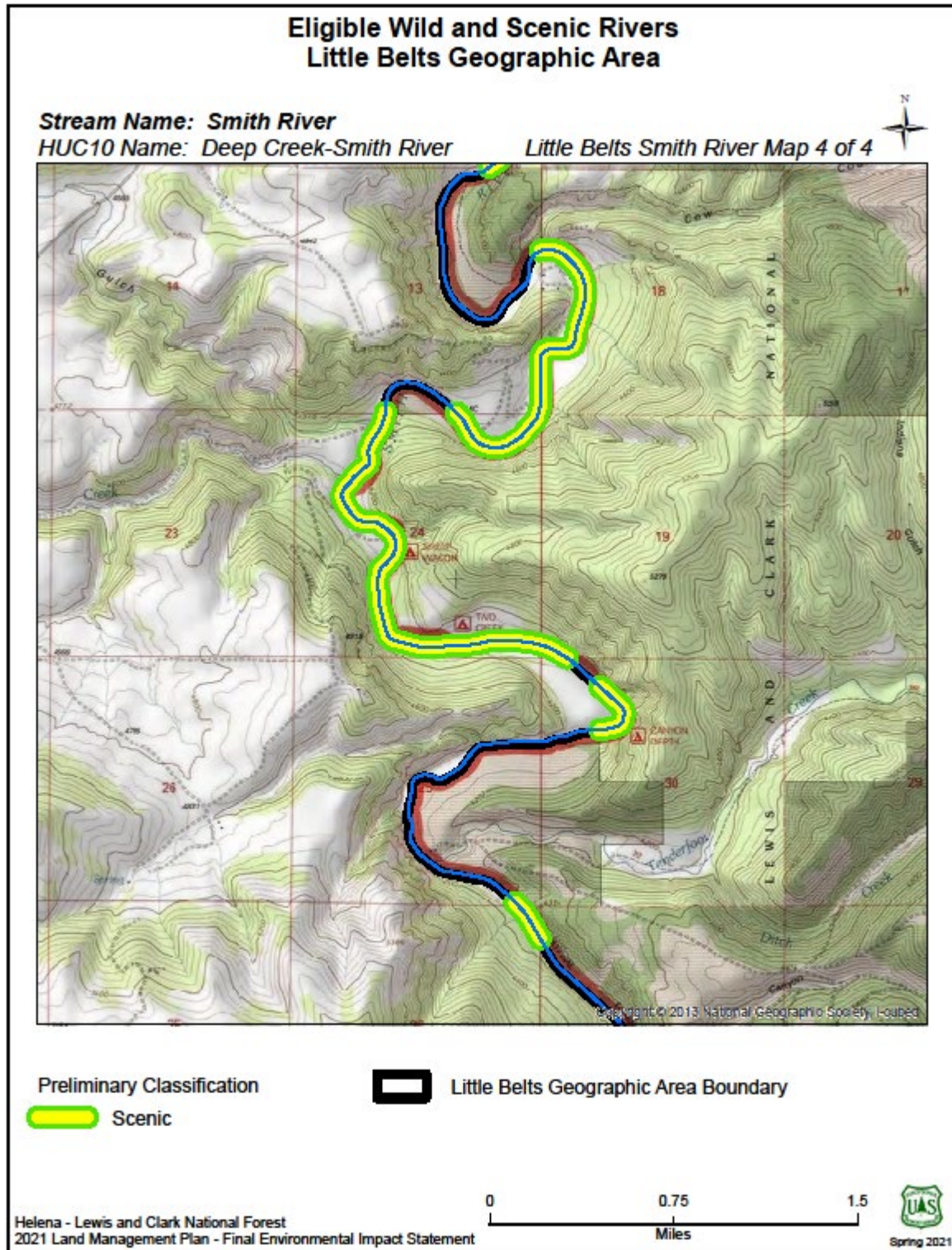


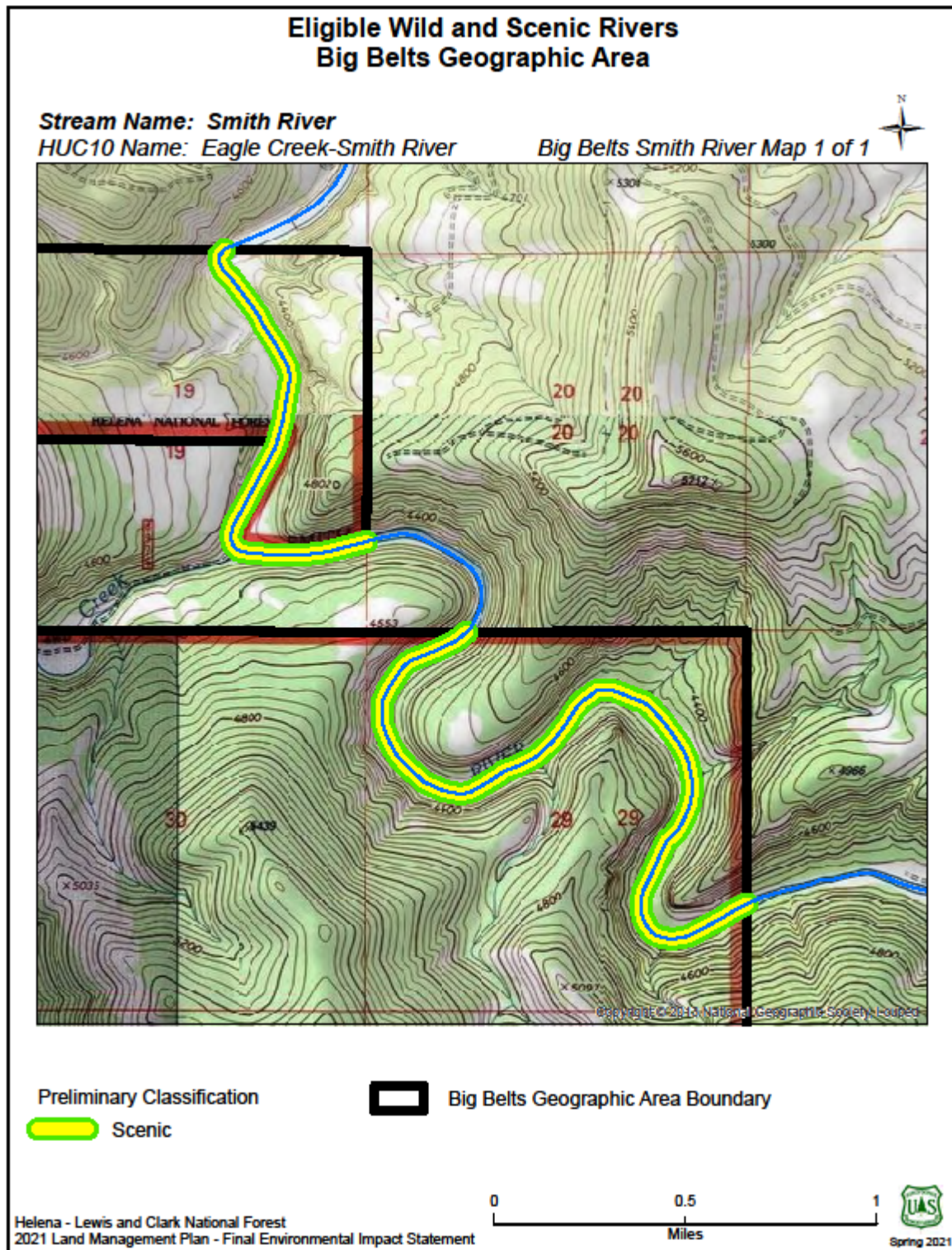






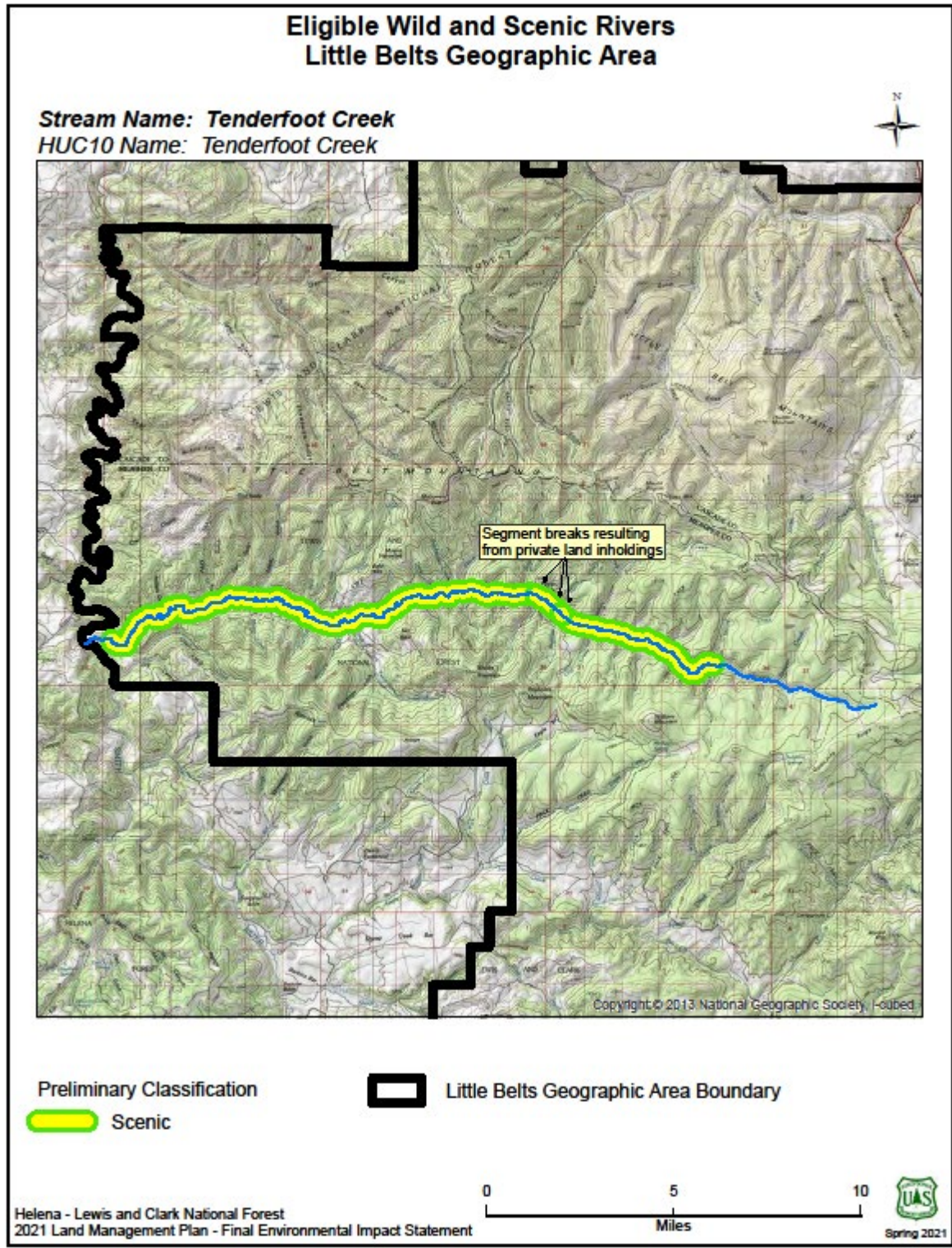






### Tenderfoot Creek

| <b>Tenderfoot Creek</b>                            |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Recreation, Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1: From private land boundary to private land boundary<br>Segment 2: From private land boundary to private land boundary<br>Segment 3: From private land boundary to private land boundary<br>Segment 4: From private land boundary to confluence with Iron Mines Creek   |
| Miles of each segment                              | Segment 1: 14.6 miles<br>Segment 2: 0.7 miles<br>Segment 3: 0.1 miles<br>Segment 4: 4.9 miles   |
| Potential classification                           | Segment 1: Scenic<br>Segment 2: Scenic<br>Segment 3: Scenic<br>Segment 4: Scenic  |
| Location   | Geographic area: Little Belt Mountains<br>HUC 10: Tenderfoot Creek<br>Beginning Point: T14N, R4E, Section 30  |
| County(ies)  | Meagher   |
| Identified in previous eligibility studies. Yes/No | Yes   |
| <b>Resource Description</b>                        |   |
| Scenery  | Spectacular 20-foot-tall waterfall that is very aesthetic.  |
| Recreation   | The Tenderfoot Creek area offers exceptional and unique recreational opportunities for hiking, horseback riding, fishing, and camping in a nonmotorized, quiet area. The main trail generally follows the stream for most of its length. Tenderfoot Creek also has spectacular waterfalls that are often a focal point for hikers along the trail. Recreational fishing focuses on rainbow trout and whitefish below the waterfall. |
| Geologic   | No ORV.   |
| Fisheries  | Tenderfoot Creek provides a considerable portion of the spawning habitat for the fish in the Smith River. Important spawning habitat for rainbow trout and whitefish below the waterfall. Important habitat for west throat cutthroat trout throughout the drainage.  |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |

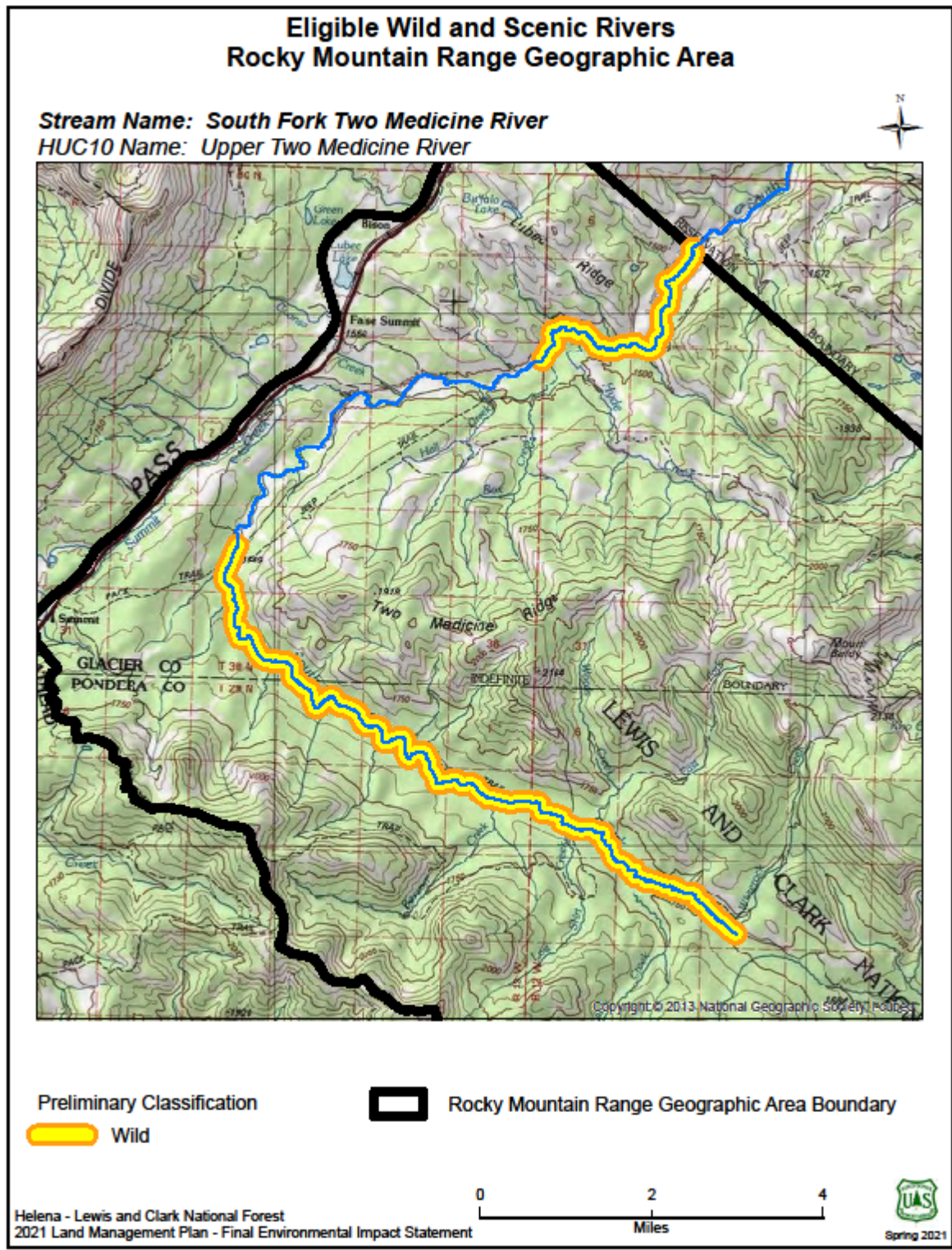


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# Rocky Mountain Range Geographic Area

## South Fork Two Medicine River

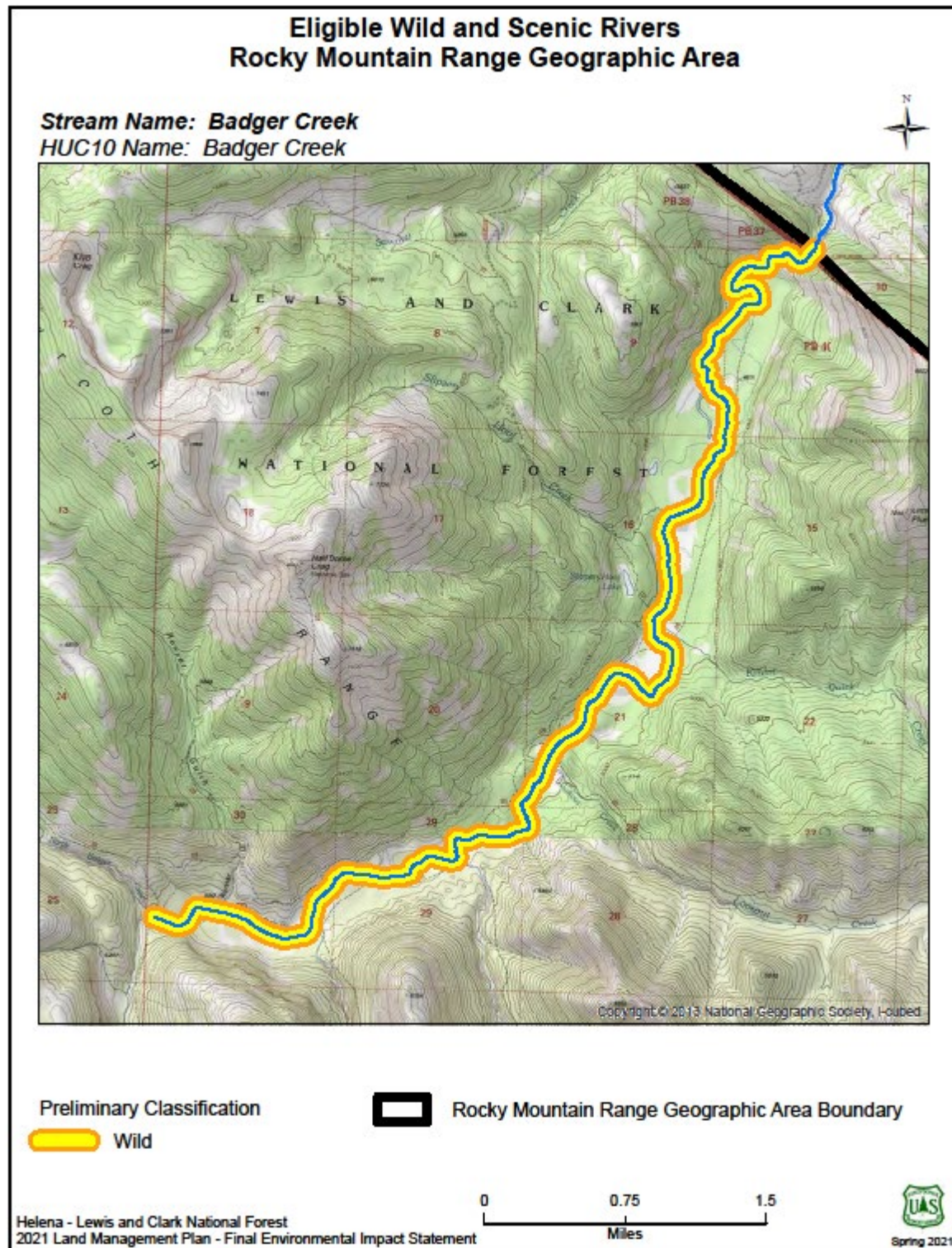
| <b>South Fork Two Medicine River</b>               |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery, Cultural   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1 - From FS boundary to confluence with Box Creek<br>Segment 2 – From private land boundary to the headwaters   |
| Miles of each segment                              | Segment 1: 3.4 miles<br>Segment 2: 9.5 miles  |
| Potential classification                           | Segment 1 – Wild<br>Segment 2 - Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Upper Two Medicine River<br>Beginning Point: T30N, R12W, Section 5   |
| County(ies)  | Glacier (Segment 1) /Pondera (Segment 2)  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | Incredible scenery with big canyons and big waterfalls (75 foot).   |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





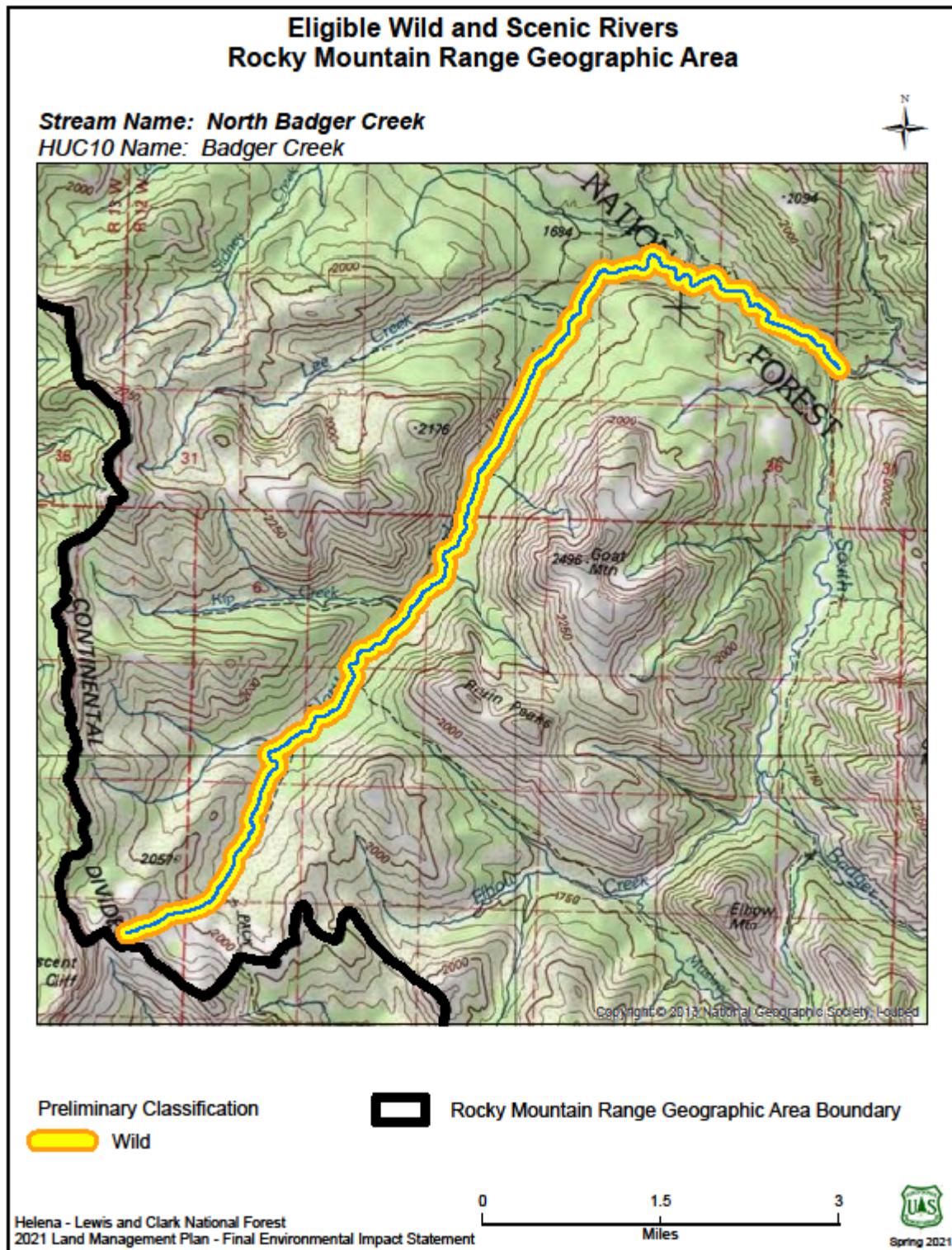
### Badger Creek

| <b>Badger Creek</b>                                |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery, Cultural   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the FS boundary to the confluence with North and South Badger Creeks   |
| Miles of each segment                              | 7.3 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Badger Creek<br>Beginning Point: T29N, R11W, Section 3   |
| County(ies)  | Pondera   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



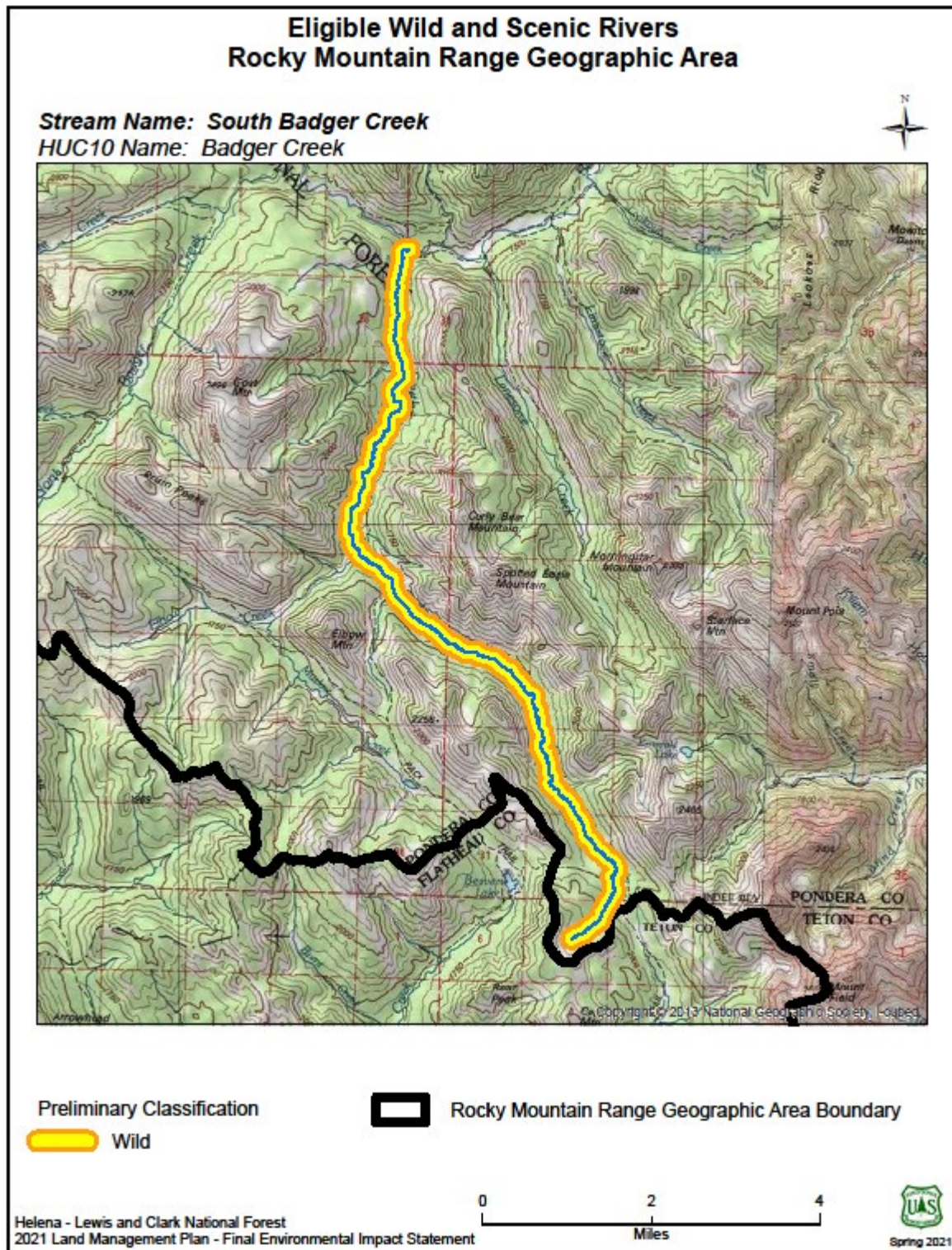
### North Badger Creek

| <b>North Badger Creek</b>                       |   |
|---|---|
| Is the river free-flowing?<br>Yes or No         | Yes   |
| Potential Outstanding Remarkable Value(s)       | Fish<br>Cultural  |
| Area of comparison                              | State of Montana  |
| Eligible segments                               | From the mouth to the headwaters  |
| Miles of each segment                           | 10.4 miles  |
| Potential classification                        | Wild  |
| Location  | Geographic area: Rocky Mountain Range<br>HUC 10: Badger Creek<br>Beginning Point: T29N, R12W, Section 25  |
| County(ies)                                     | Pondera   |
| Identified in previous eligibility studies. Y/N | Yes   |
| <b>Resource Description</b>                     |   |
| Scenery   | No ORV  |
| Recreation                                      | No ORV  |
| Geologic  | No ORV  |
| Fisheries                                       | Part of WCT meta- population with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front. |
| Wildlife  | No ORV  |
| Cultural  | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.   |
| Botanical/natural                               | No ORV  |
| Natural other                                   | No ORV  |



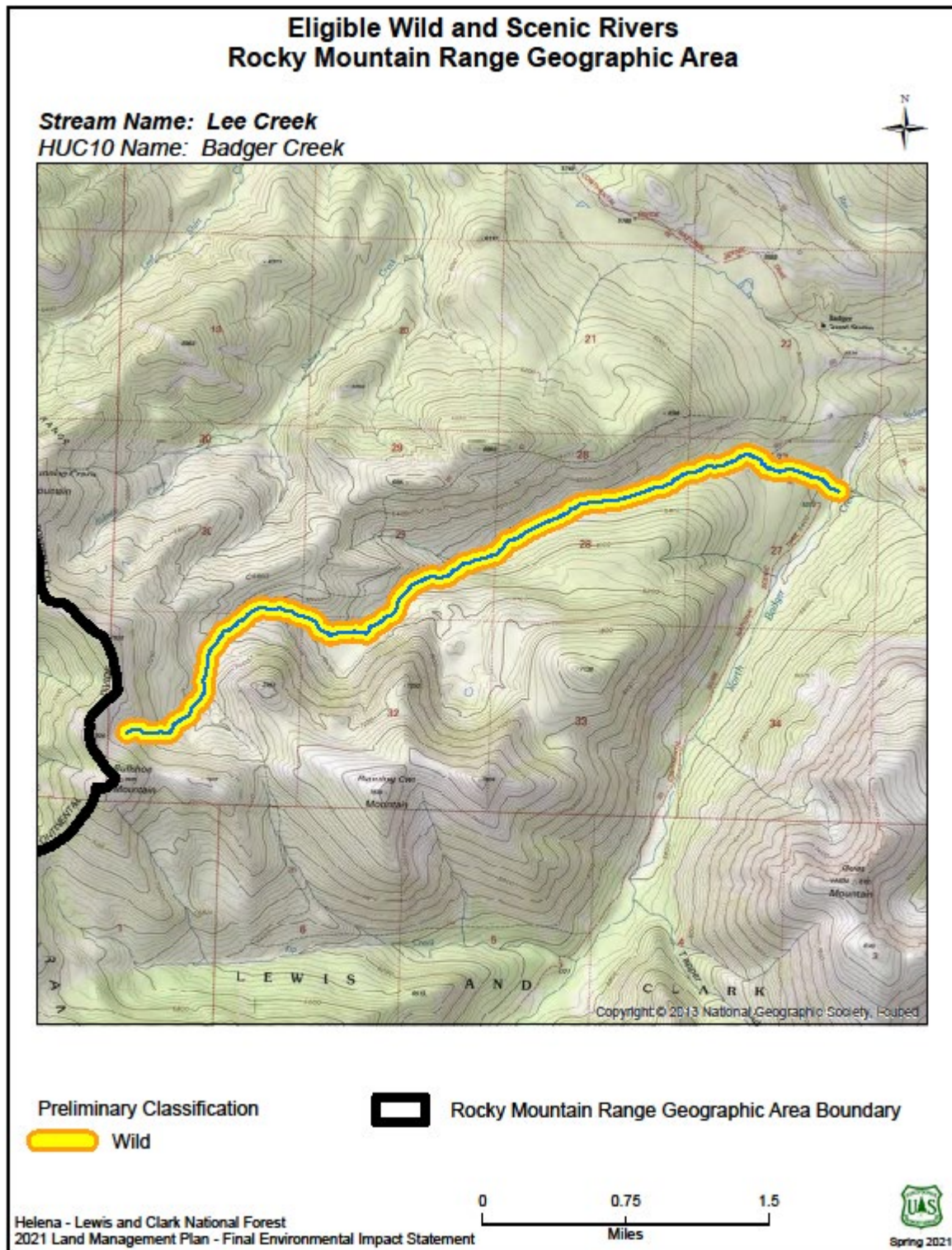
### South Badger Creek

| <b>South Badger Creek</b>                          |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Cultural  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to the headwaters  |
| Miles of each segment                              | 10.9 miles  |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Badger Creek<br>Beginning Point: T29N, R12W, Section 25  |
| County(ies)  | Pondera   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



### Lee Creek

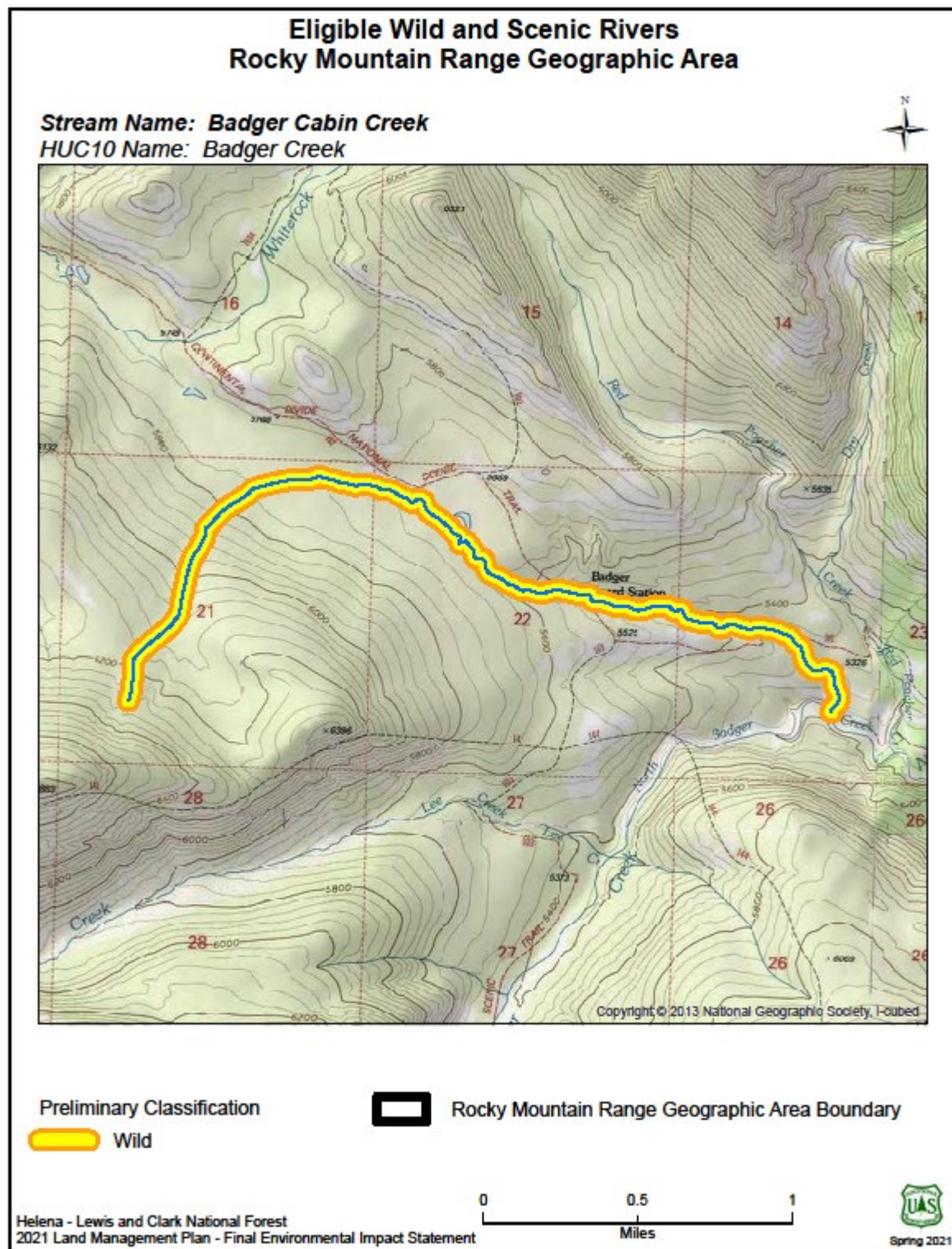
| <b>Lee Creek</b>                                   |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to the headwaters  |
| Miles of each segment                              | 4.6 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Badger Creek<br>Beginning Point: T29N, R12W, Section 27  |
| County(ies)  | Pondera   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Part of a WCT meta- population of fish with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





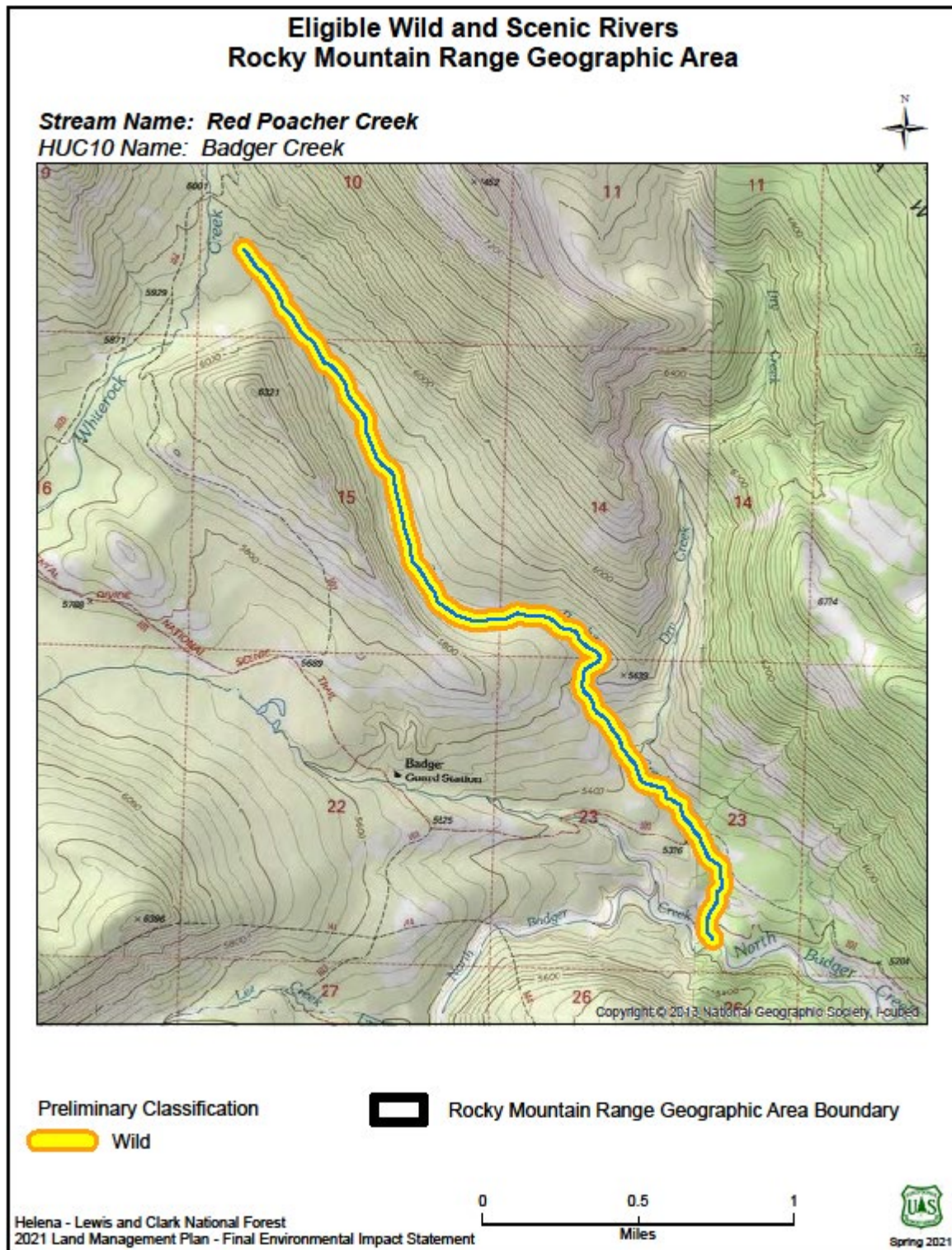
### Badger Cabin Creek

| <b>Badger Cabin Creek</b>                          |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to headwaters  |
| Miles of each segment                              | 3.2 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Badger Creek<br>Beginning Point: T29N, R12W, Section 23  |
| County(ies)  | Pondera   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Part of WCT meta- population with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



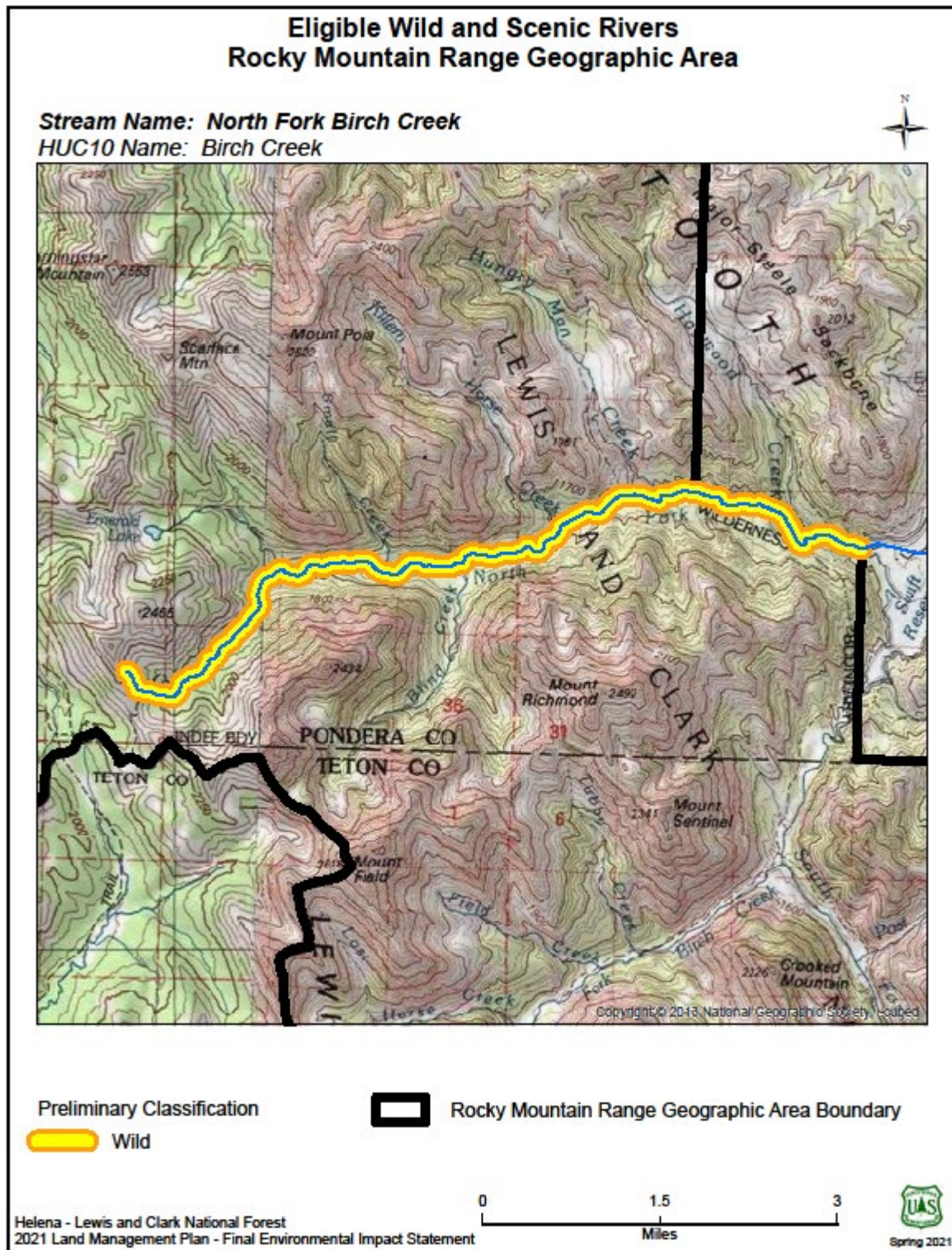
### Red Poacher Creek

| <b>Red Poacher Creek</b>                           |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to headwaters  |
| Miles of each segment                              | 3.1 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Badger Creek<br>Beginning Point: T29N, R12W, Section 23  |
| County(ies)  | Pondera   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | Part of meta- population with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



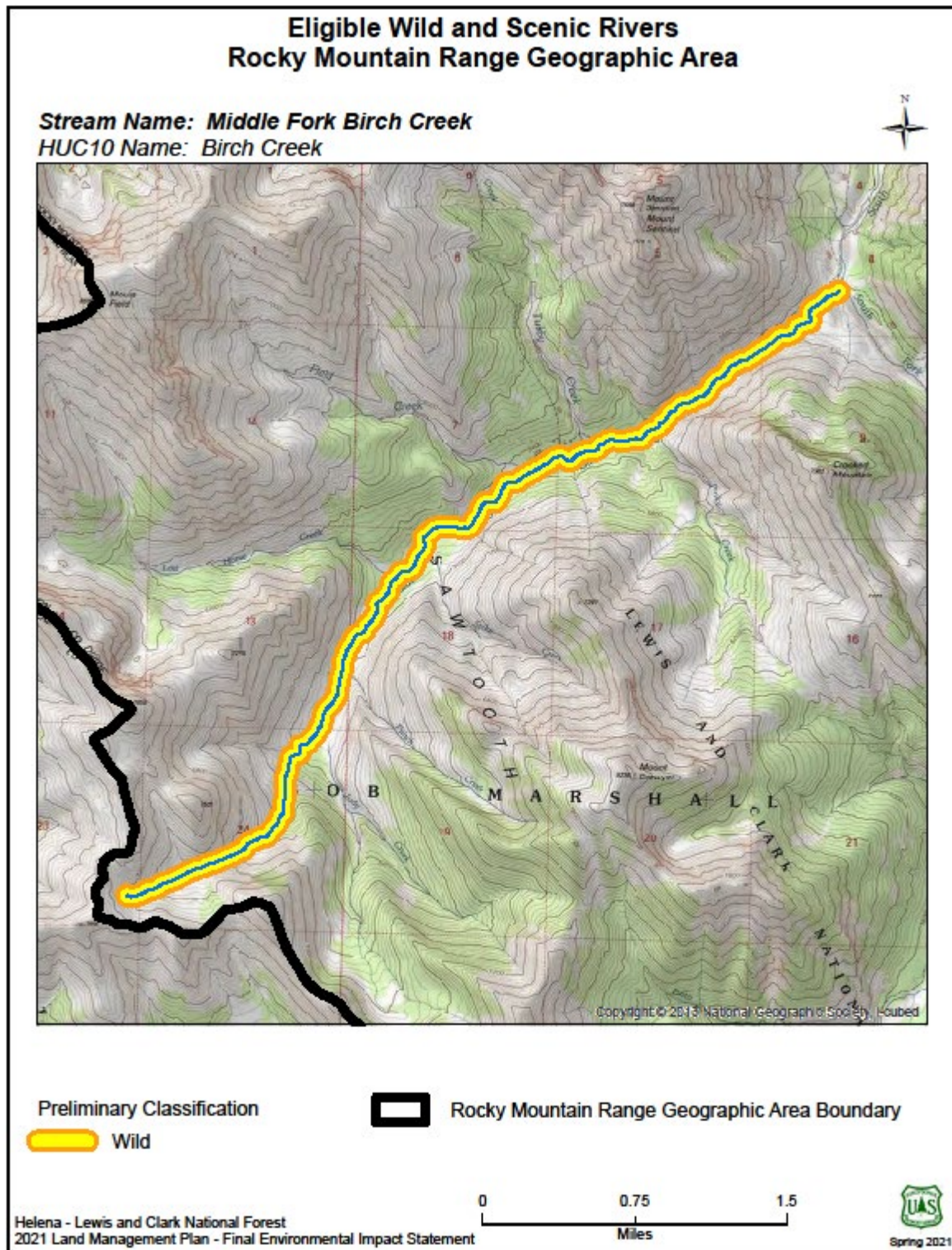
### North Fork Birch Creek

| <b>North Fork Birch Creek</b>                      |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery, Cultural   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From FS boundary to headwaters  |
| Miles of each segment                              | 7.8 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Birch Creek<br>Beginning Point: T28N, R10W, Section 27   |
| County(ies)  | Pondera   |
| Identified in Previous Eligibility Studies. Yes/No | Yes   |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



### Middle Fork Birch Creek

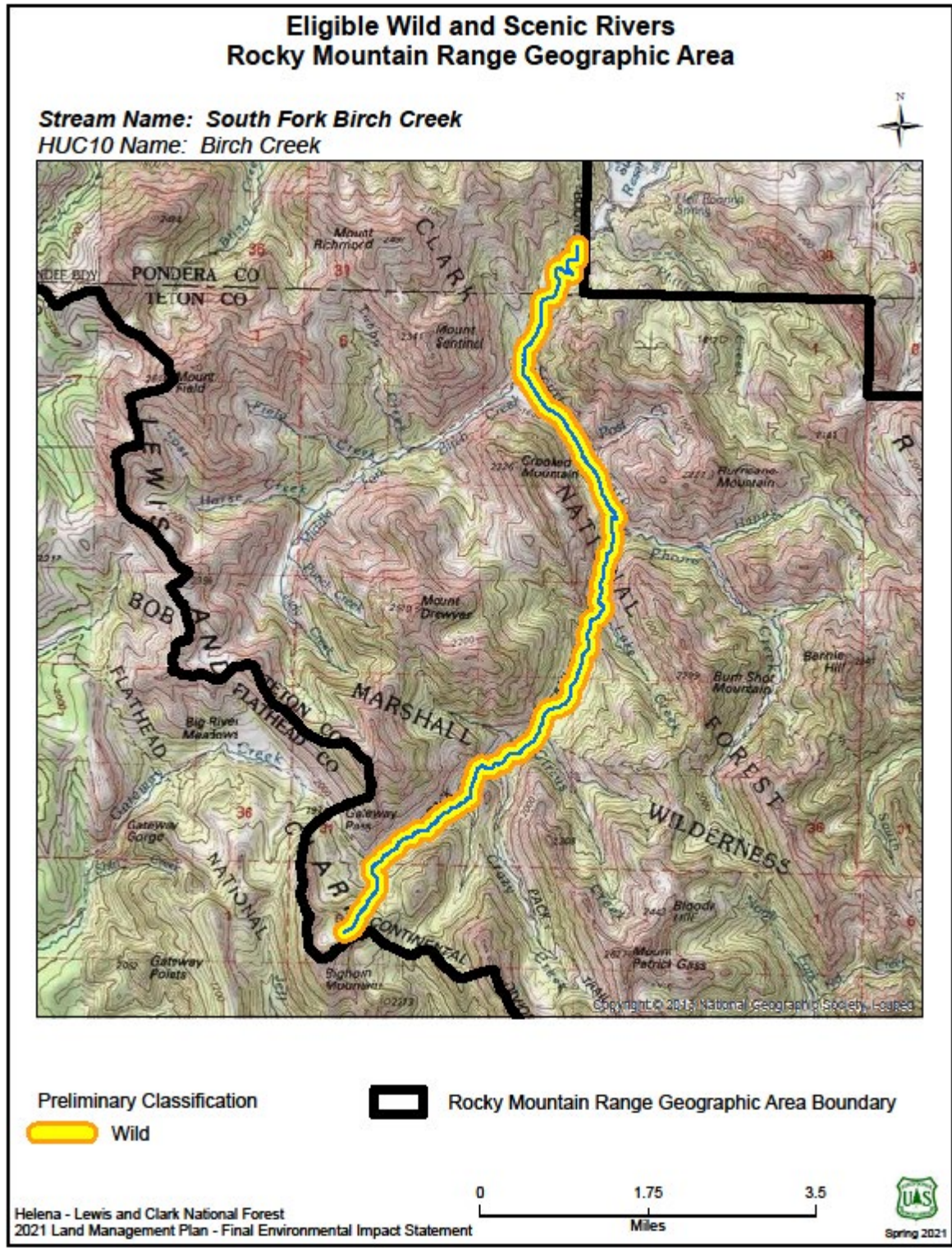
| <b>Middle Fork Birch Creek</b>                     |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery, Cultural   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to the headwaters  |
| Miles of each segment                              | 5.2 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Birch Creek<br>Beginning Point: T27N, R10W, Section 4  |
| County(ies)  | Teton   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | Beautiful waterfalls.   |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





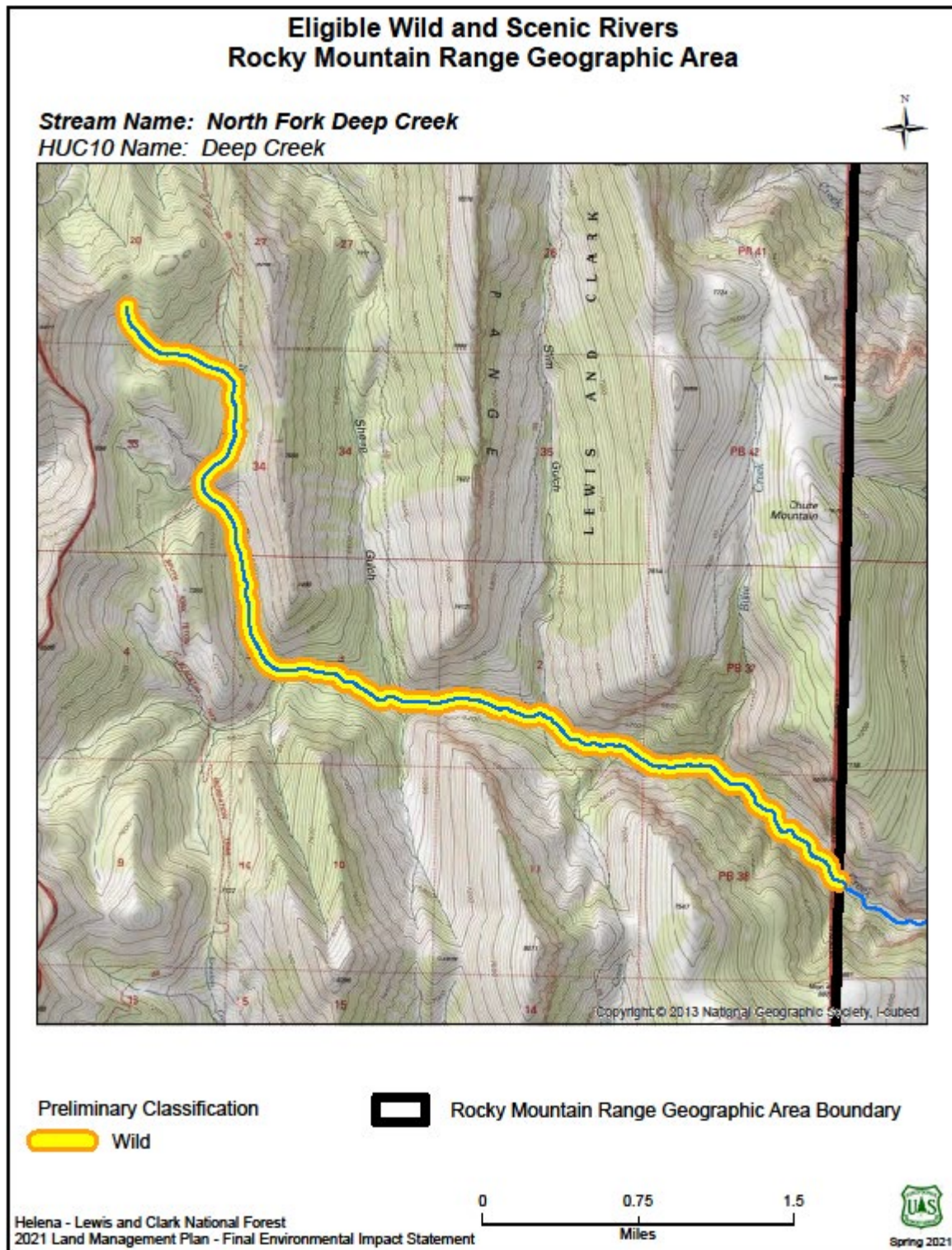
## South Fork Birch Creek

| <b>South Fork Birch Creek</b>                      |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery, Recreation, Fish, Wildlife, Cultural   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From entrance into Swift Reservoir to the headwaters  |
| Miles of each segment                              | 9.8 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Birch Creek<br>Beginning Point: T28N, R10W, Section 33   |
| County(ies)  | Teton   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | Compressed canyon with falls, pools, waterfalls, caves, and cliffs.   |
| Recreation   | One of the primary routes to the Chinese Wall within the Bob Marshall Wilderness. Receives a considerable amount of international interest and use.                                       |
| Geologic   | No ORV  |
| Fisheries  | Populations of pure westslope cutthroat trout which is protected by waterfalls. One of the most secure populations east of the continental divide. Potential long-term source population. |
| Wildlife   | Harlequin duck breeding, most important duck habitat in region, one of five key breeding streams on the Forest  |
| Cultural   | Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.                             |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



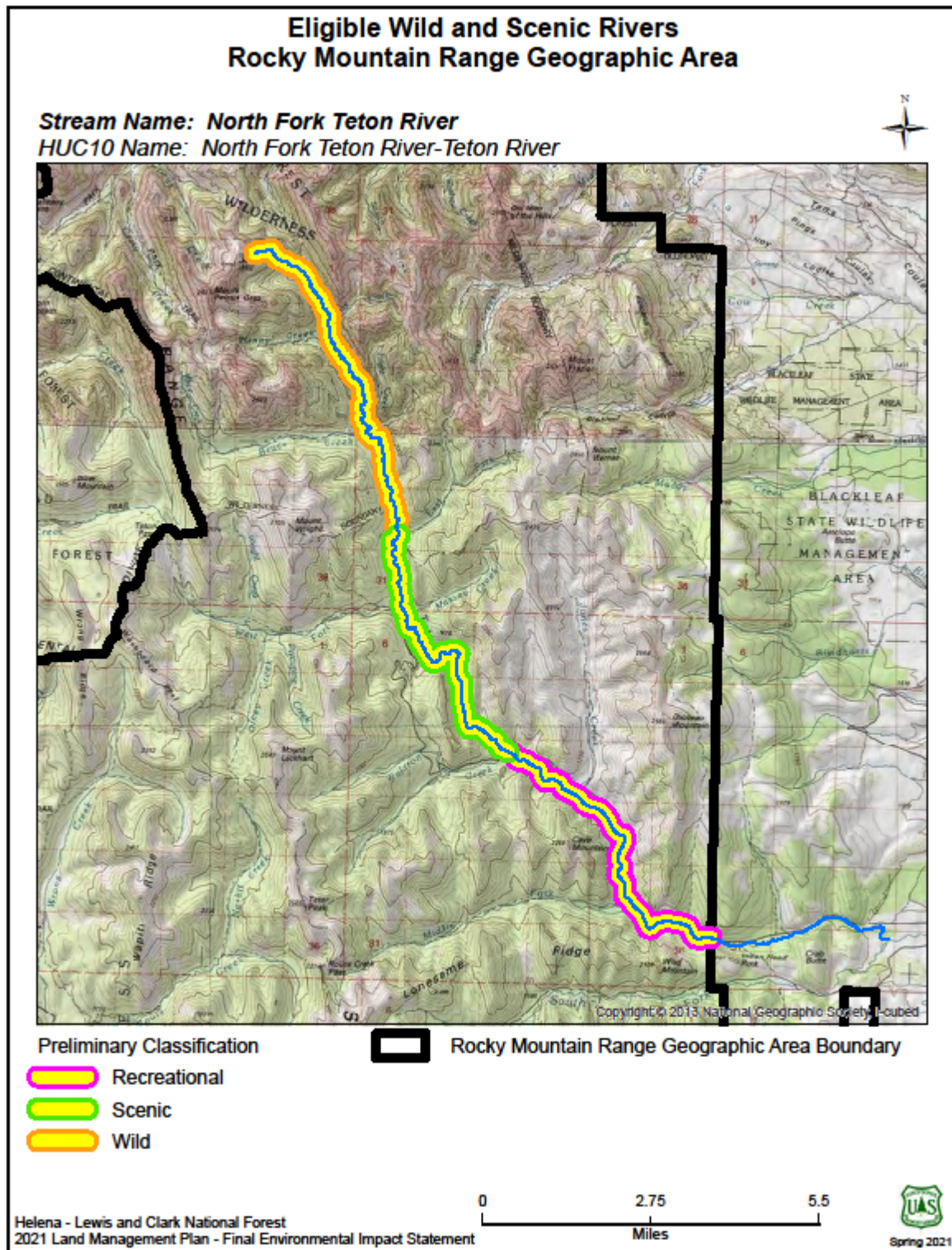
### North Fork Deep Creek

| <b>North Fork Deep Creek</b>                       |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From FS boundary to headwaters  |
| Miles of each segment                              | 5.5 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Deep Creek<br>Beginning Point: T23N, R9W, Section 12 |
| County(ies)  | Teton   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | Scenery is dominated by a limestone canyon with steep sides that drop down to the river bottom.       |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



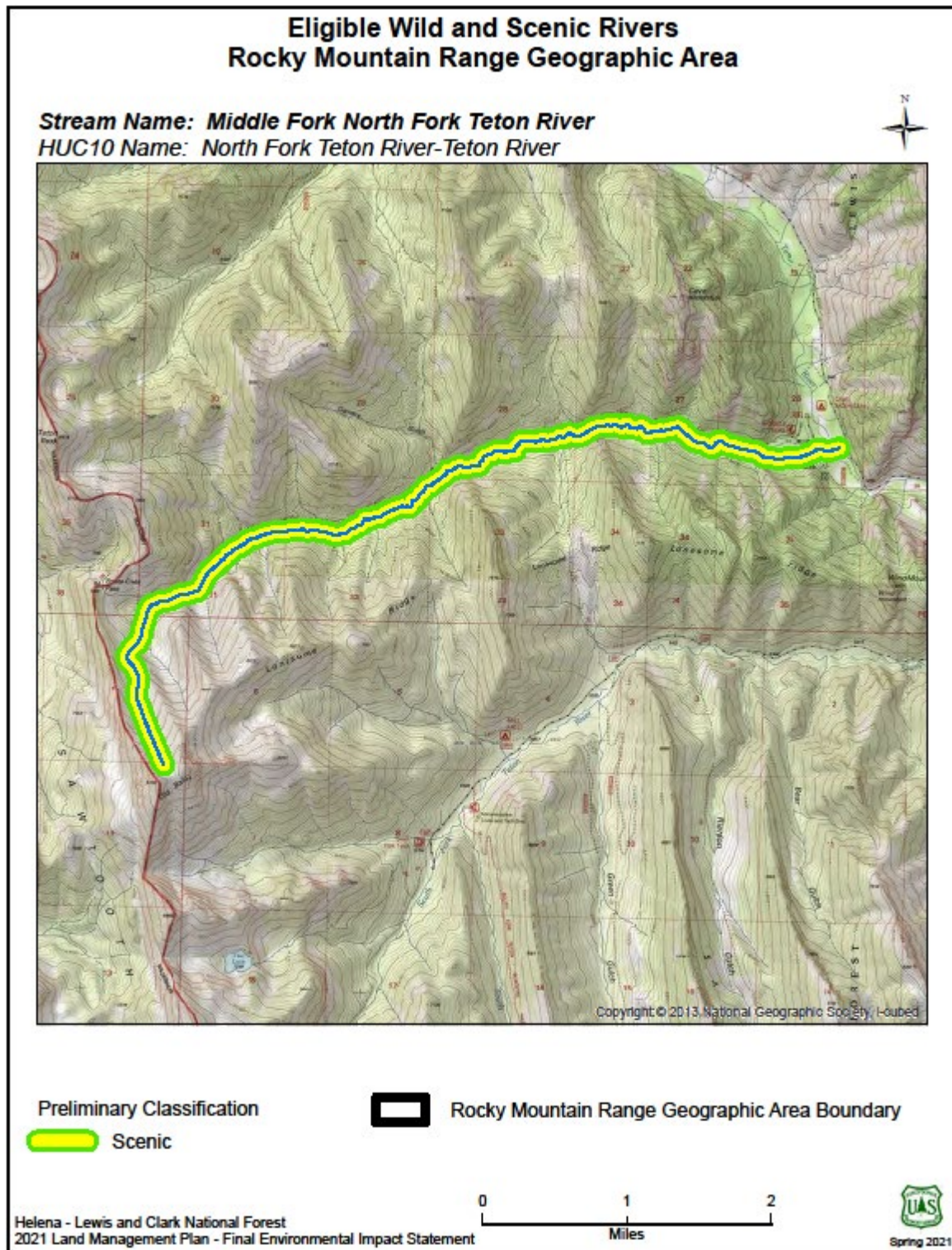
## North Fork Teton River

| <b>North Fork Teton River</b>                      |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Recreation, Scenery, and Fishery  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1: From FS Boundary to FSR #114 road crossing north of Elko Campground (bottom of the box canyon)<br>Segment 2: From FSR #114 road crossing north of Elko Campground to the Bob Marshall Wilderness boundary<br>Segment 3: From the Bob Marshall Wilderness boundary to the headwaters    |
| Miles of each segment                              | Segment 1: 5.5 miles<br>Segment 2: 5.3 miles<br>Segment 3: 6.4 miles  |
| Potential classification                           | Segment 1: Recreational<br>Segment 2: Scenic<br>Segment 3: Wild   |
| Location   | Geographic area: RM Range<br>HUC 10: Teton River-NF Teton River (1003020501)<br>Beginning Point: T25N, R9W, Section 36  |
| County(ies)  | Teton County  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | Exceptional scenery through the box canyon.   |
| Recreation   | Recreational floating through the box canyon.   |
| Geologic   | No OR   |
| Fisheries  | This meta-population is slightly hybridized. However, it is over 95% pure and is also the strongest WCT population within the entire Teton River drainage. As a meta-population, it is highly productive, at least within the main stem segments. There are fisheries ORVs in all three segments. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



### Middle Fork North Fork Teton River

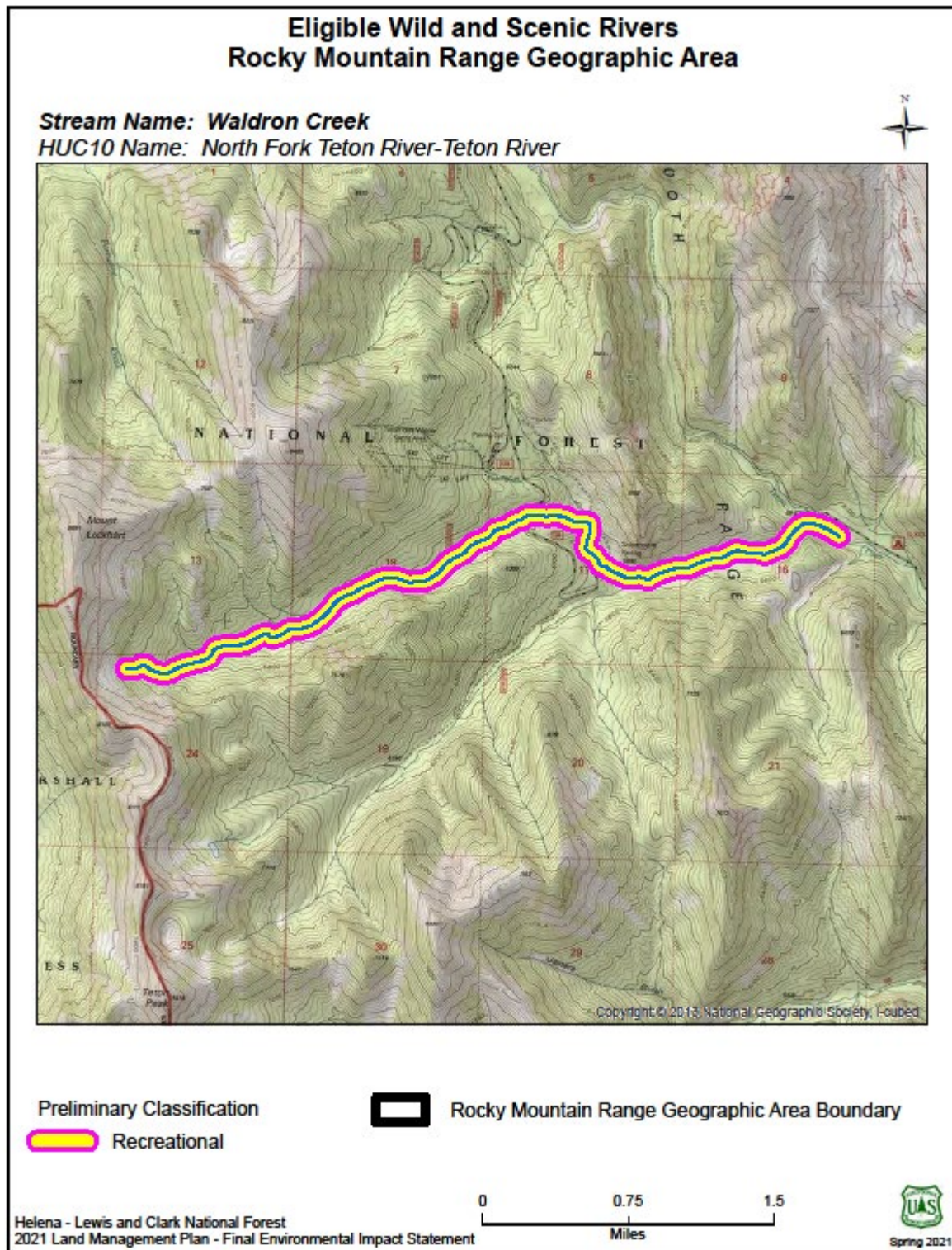
| <b>Middle Fork North Fork Teton River</b>          |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to headwaters  |
| Miles of each segment                              | 6.8 miles   |
| Potential classification                           | Scenic  |
| Location   | Geographic area: RM Range<br>HUC 10: Teton River-NF Teton River (1003020501)<br>Beginning Point: T25N, R9W, Section 26  |
| County(ies)  | Teton County  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | This meta-population is slightly hybridized. However, it is over 95% pure and is also the strongest WCT population within the entire Teton River drainage. As a meta-population, it is highly productive, at least within the main stem segments. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





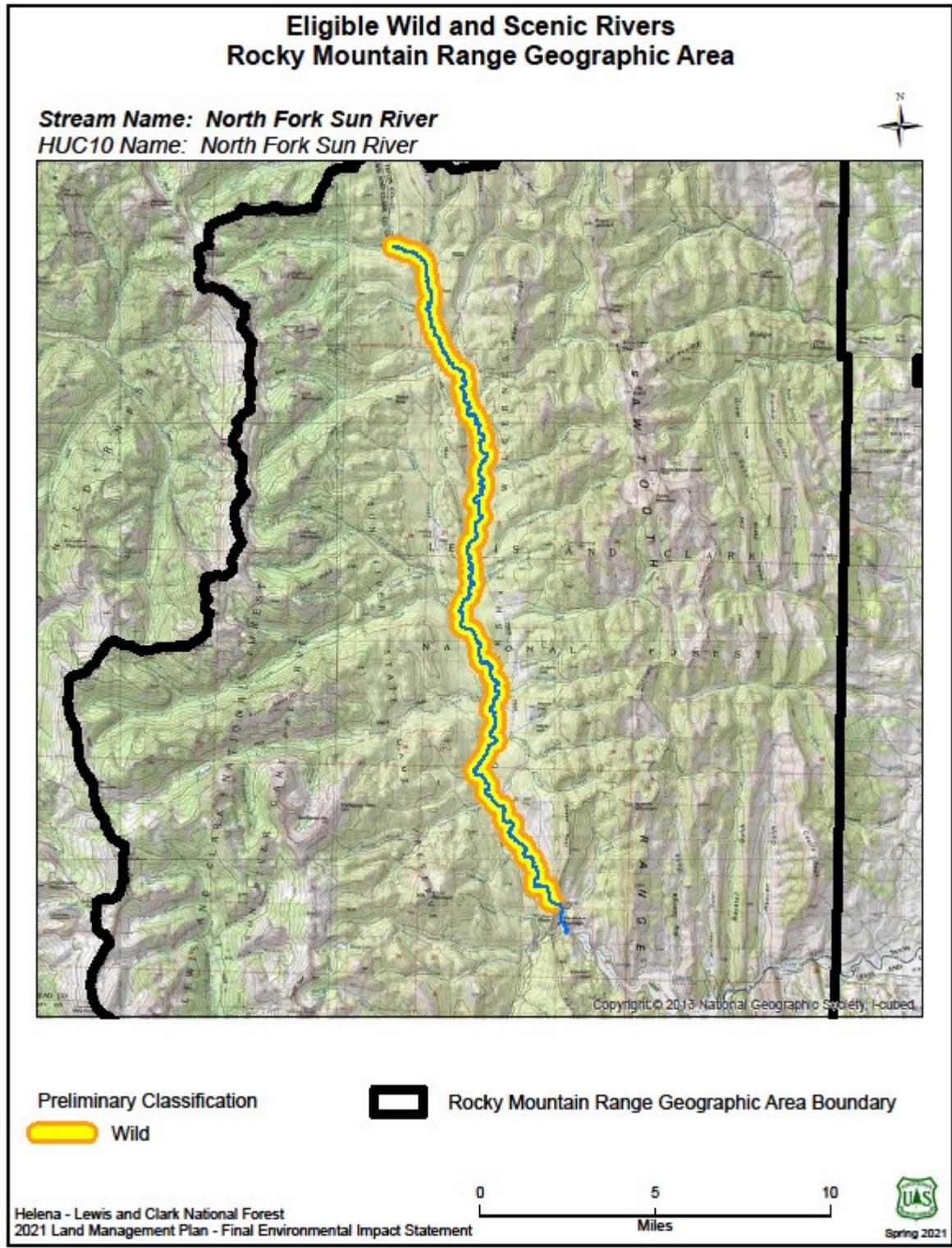
### Waldron Creek

| <b>Waldron Creek</b>                               |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From the mouth to headwaters  |
| Miles of each segment                              | 4.3 miles   |
| Potential classification                           | Recreational  |
| Location   | Geographic area: RM Range<br>HUC 10: Teton River-NF Teton River (1003020501)<br>Beginning Point: T25N, R9W, Section 16  |
| County(ies)  | Teton County  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | This meta-population is slightly hybridized. However, it is over 95% pure and is also the strongest WCT population within the entire Teton River drainage. As a meta-population, it is highly productive, at least within the main stem segments. |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



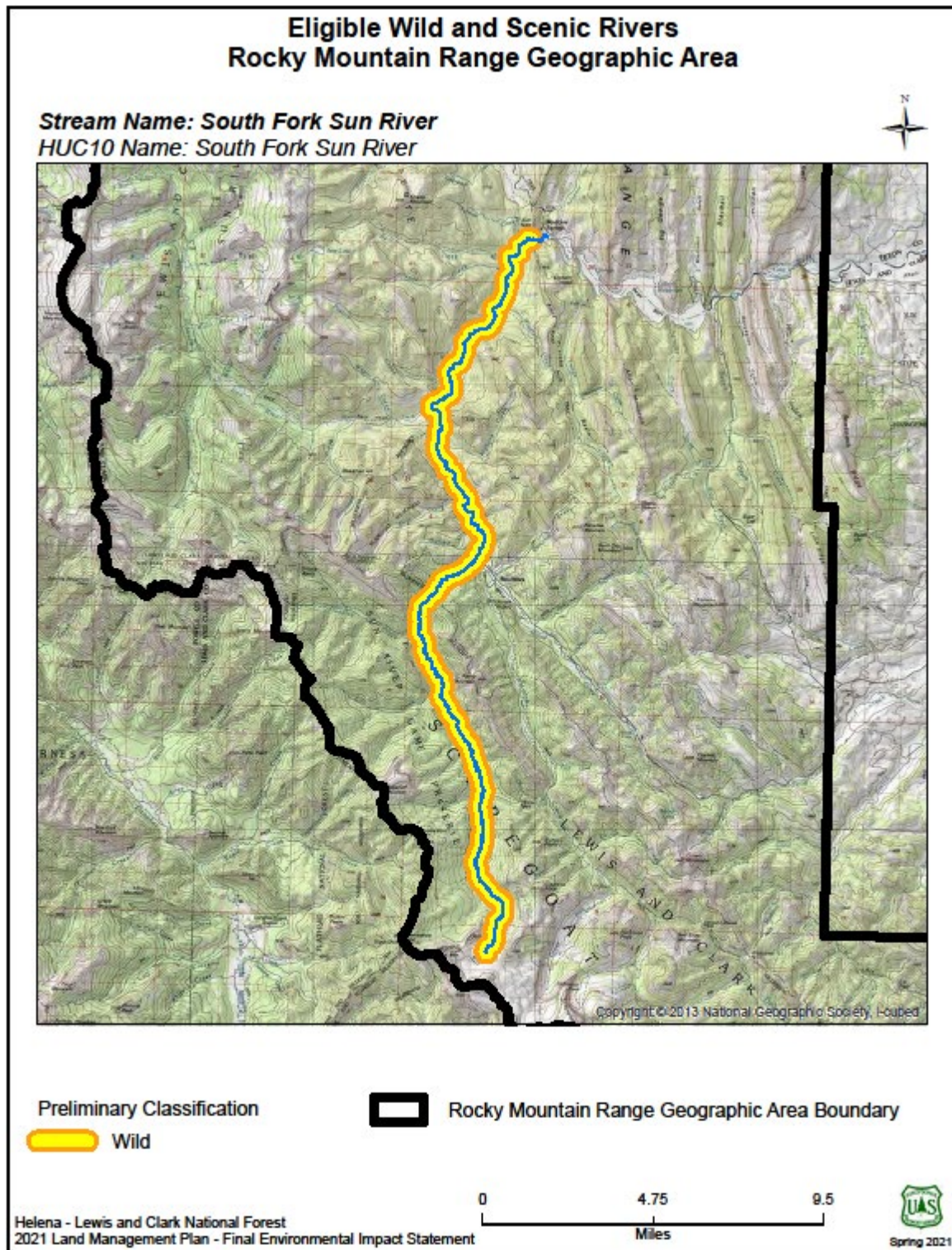
### North Fork Sun River

| <b>North Fork Sun River</b>                        |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Scenery, Recreation  |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From Bob Marshall Wilderness boundary to the headwaters  |
| Miles of each segment                              | 26.1 miles   |
| Potential classification                           | Wild   |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: N Fork Sun River<br>Beginning Point: T22N R10W Section 26   |
| County(ies)  | Teton  |
| Identified in Previous Eligibility Studies. Yes/No | Yes  |
| <b>Resource Description</b>                        |  |
| Scenery  | Large, broad valley, ringed by peaks and panoramic views.  |
| Recreation   | The North Fork of the Sun River is one of the core drainages of Bob Marshall wilderness. Hunting is the primary recreation activity; however, the area is very popular for wildlife viewing, wilderness camping and fishing as well. |
| Geologic   | No ORV   |
| Fisheries  | No ORV   |
| Wildlife   | No ORV   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |



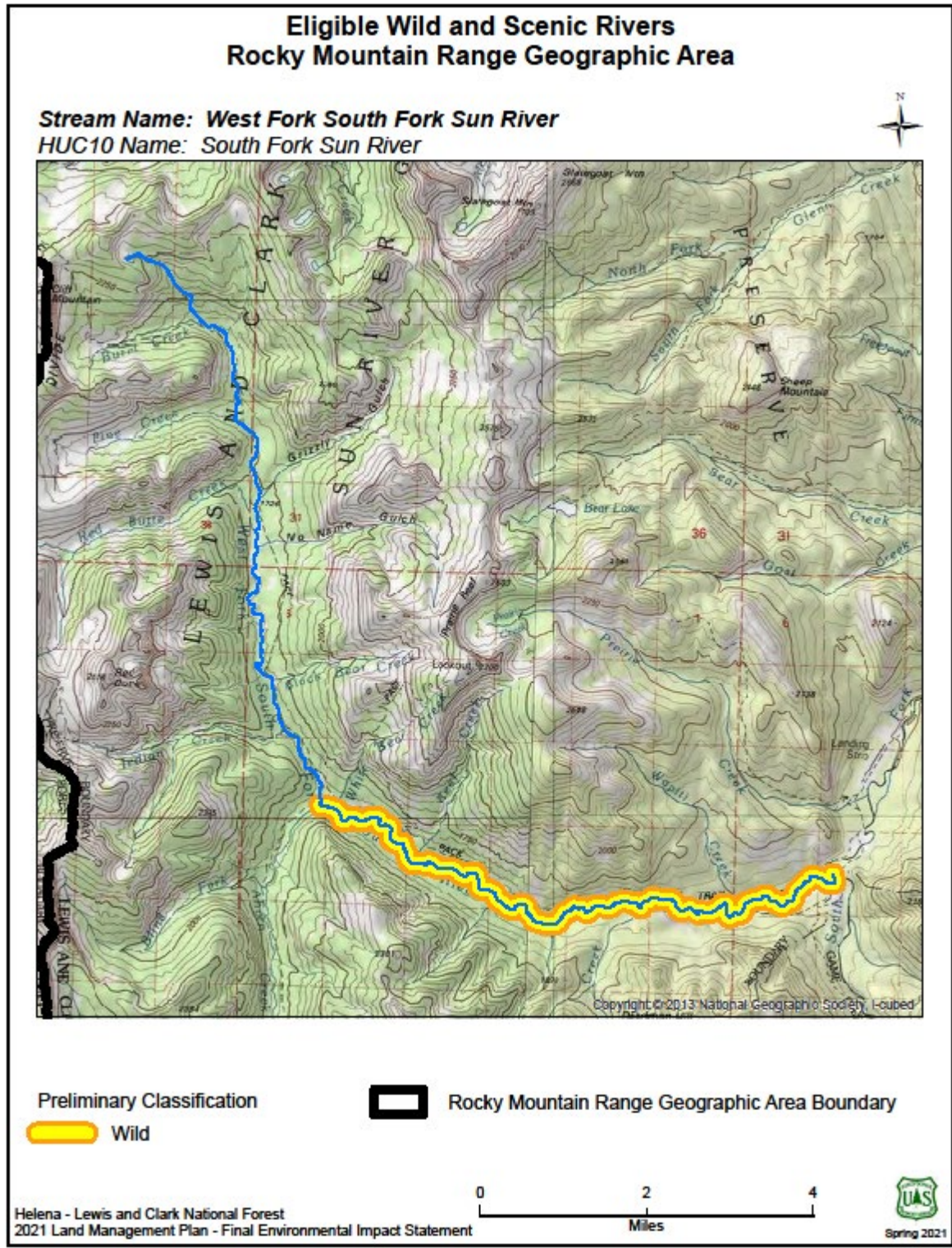
### South Fork Sun River

| <b>South Fork Sun River</b>                        |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Recreation, Wildlife   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From Bob Marshall Wilderness boundary to headwaters  |
| Miles of each segment                              | 26.2 miles   |
| Potential classification                           | Wild   |
| Location   | Geographic area: Rocky Mtn Range<br>HUC 10: S Fork Sun River<br>Beginning Point: T22N, R10W, Section 26  |
| County(ies)  | Teton  |
| Identified in previous eligibility studies. Yes/No | Yes  |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | This area is extremely popular for recreational fishing. The area is also used extensively for hiking, horseback riding, camping, and for the overall wilderness experience. |
| Geologic   | No ORV   |
| Fisheries  | No ORV   |
| Wildlife   | Outstanding Harlequin duck habitat. Un-impacted by development, pristine high functioning.   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |



### West Fork South Fork Sun River

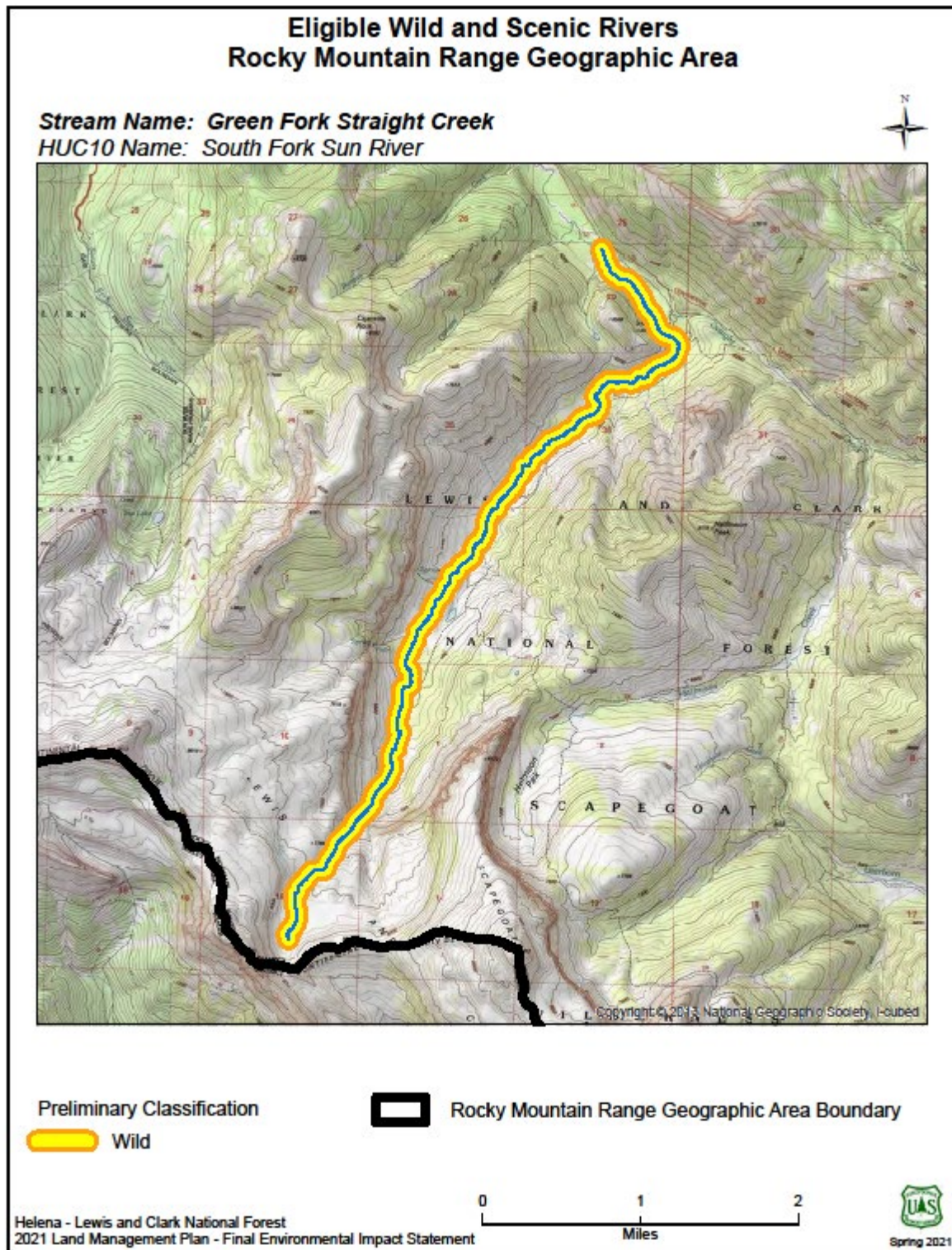
| <b>West Fork South Fork Sun River</b>              |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Recreation, Wildlife   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From mouth to confluence with Ahorn Creek  |
| Miles of each segment                              | 8.4 miles  |
| Potential classification                           | Wild   |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: South Fork Sun River<br>Beginning Point: T21N, R10W, Section 20   |
| County(ies)  | Lewis and Clark  |
| Identified in previous eligibility studies. Yes/No | No   |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | Trails along this river provide one of the primary access routes to the Chinese Wall in the Bob Marshall Wilderness. Recreational fishing along this route is also very popular. |
| Geologic   | No ORV   |
| Fisheries  | No ORV   |
| Wildlife   | Key harlequin breeding area.   |
| Cultural   | No ORV   |
| Botanical/natural                                  | No ORV   |
| Natural other                                      | No ORV   |





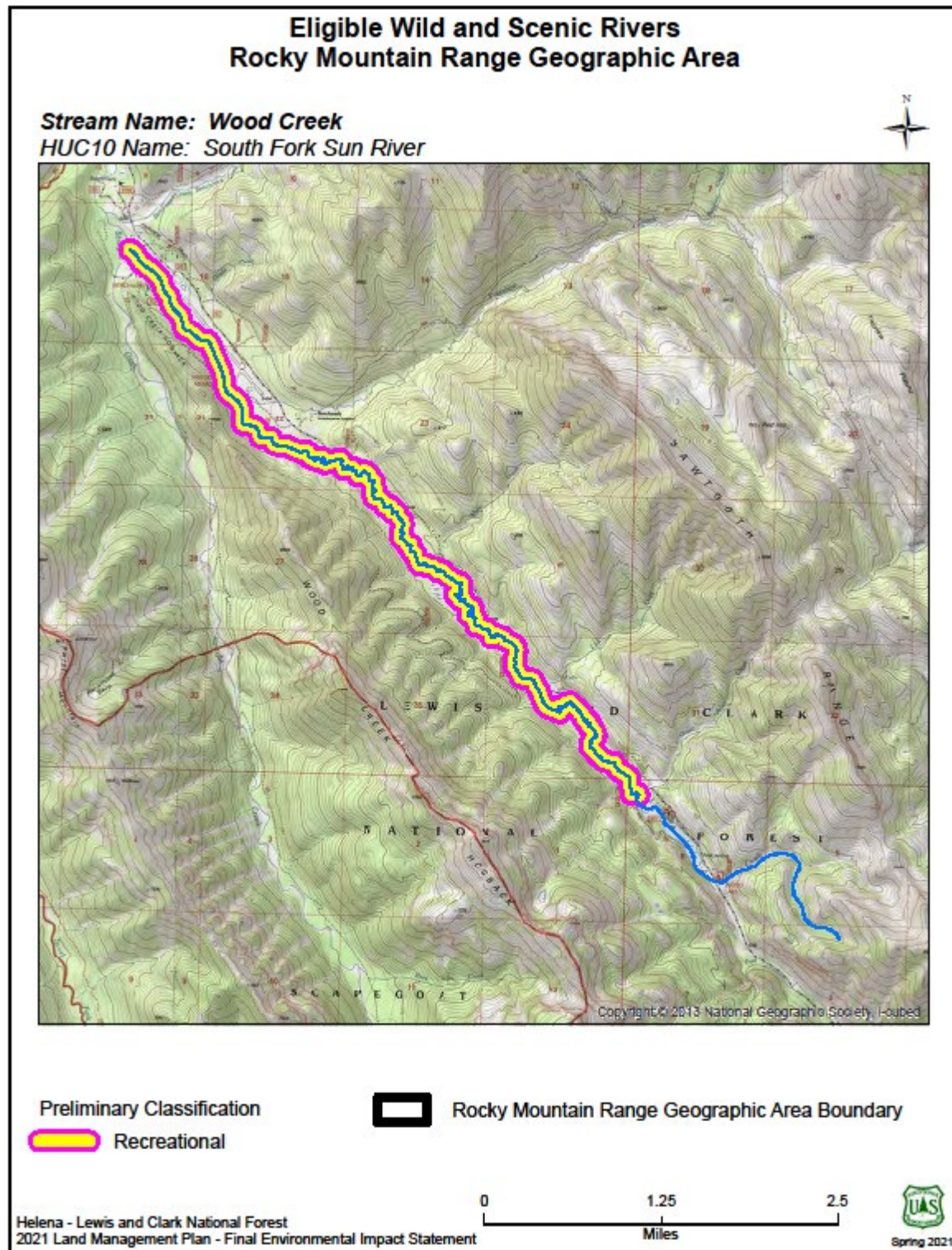
## Green Fork Straight Creek

| <b>Green Fork Straight Creek</b>                      |  |
|---|--|
| Is the river free-flowing?<br>Yes or No               | Yes  |
| Potential Outstanding<br>Remarkable Value(s)          | Scenery, Geology   |
| Area of comparison                                    | State of Montana   |
| Eligible segments                                     | From the mouth to the headwaters   |
| Miles of each segment                                 | 5.9 miles  |
| Potential classification                              | Wild   |
| Location  | Geographic area: Rocky Mountain Range<br>HUC 10: S Fork Sun<br>Beginning Point: T19N, R10W, Section 25   |
| County(ies)   | Lewis and Clark  |
| Identified in previous<br>eligibility studies. Yes/No | Yes  |
| <b>Resource Description</b>                           |  |
| Scenery   | Spectacular scenery. River located along a cliff face. In spring runoff, waterfalls shoot out of openings in the cliff face.   |
| Recreation  | No ORV   |
| Geologic  | There are a number of caves in the cliffs along this area resulting from the Geology. Geology is the Madison group which is a combination of over thrust structures within the Sawtooth range on the Rocky Mountain front. |
| Fisheries   | No ORV   |
| Wildlife  | No ORV   |
| Cultural  | No ORV   |
| Botanical/natural                                     | No ORV   |
| Natural other   | No ORV   |



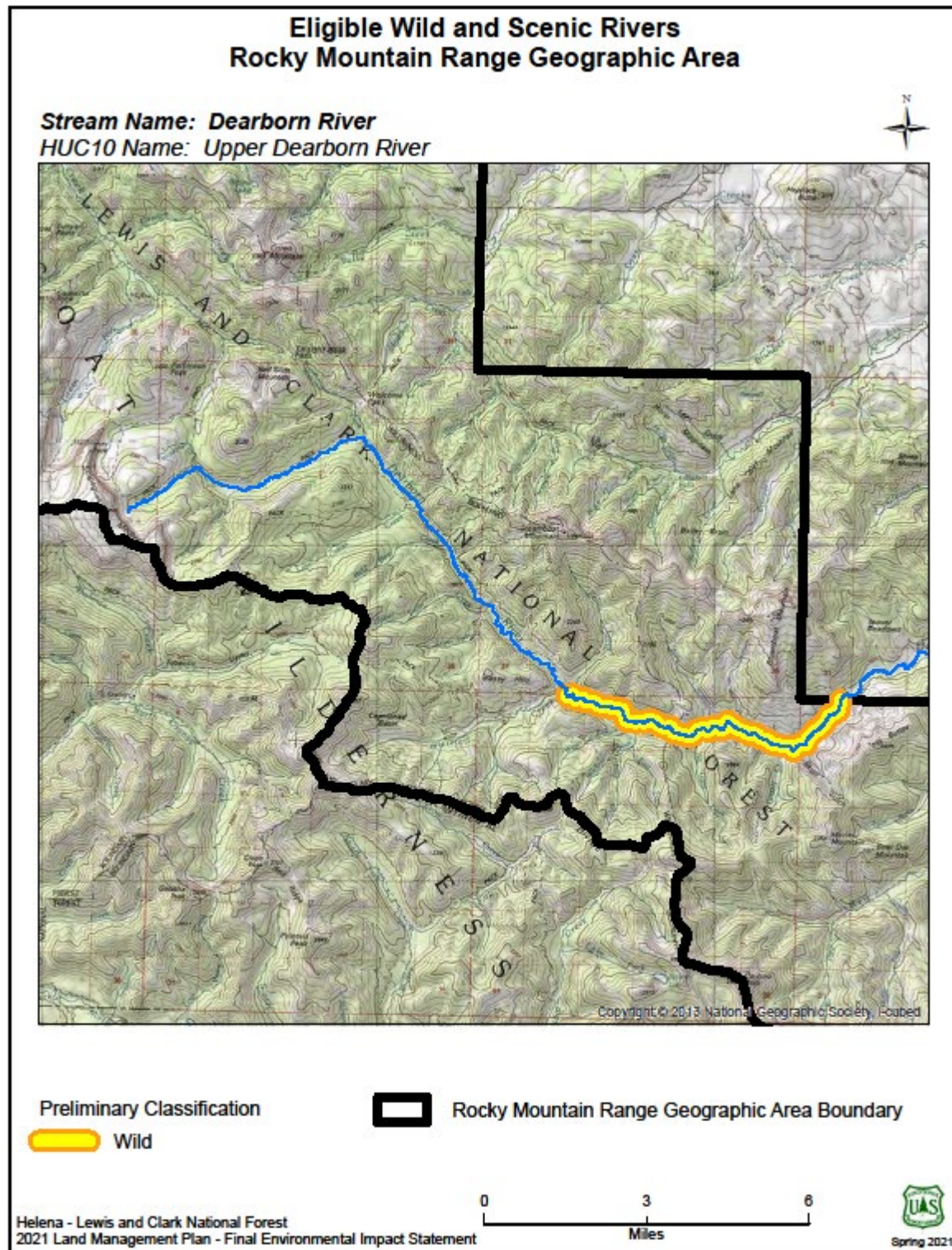
## Wood Creek

| <b>Wood Creek</b>                                  |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Wildlife  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From dam on Wood Lake northwest to the confluence with Straight Creek   |
| Miles of each segment                              | 7.1 miles   |
| Potential classification                           | Recreational  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: South Fork Sun River<br>Beginning Point: T20N, R10W, Section 16  |
| County(ies)  | Lewis and Clark   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | Unique for the productive diverse habitat. Overall best habitat diversity east of continental divide. Northern bog lemming habitat with only known habitat east of divide. Breeding habitat for western toads and trumpeter swans. Beaver activity has turned it into a complex habitat. Collectively elevates to an ORV. |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



### Dearborn River

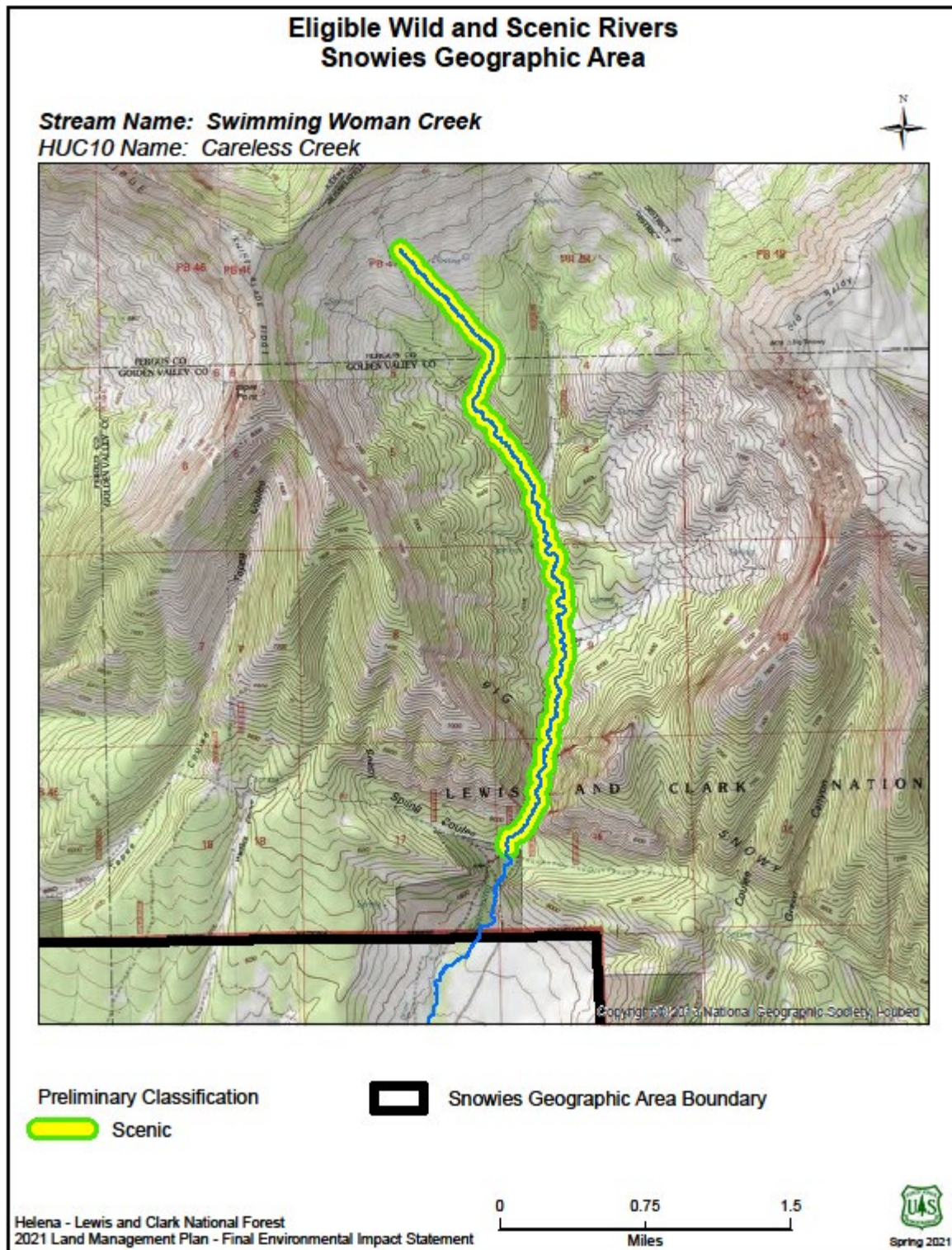
| <b>Dearborn River</b>                              |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery   |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From FS boundary to the confluence with Whitetail Creek   |
| Miles of each segment                              | 6.5 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Rocky Mountain Range<br>HUC 10: Upper Dearborn River<br>Beginning Point: T17N, R7W, Section 6                                    |
| County(ies)  | Lewis and Clark   |
| Identified in previous eligibility studies. Yes/No | Yes   |
| <b>Resource Description</b>                        |   |
| Scenery  | There is spectacular scenery in Devils Glen area, which is located within the in the lower section of the river, just inside the forest boundary. |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



## Snowies Geographic Area

### Swimming Woman Creek

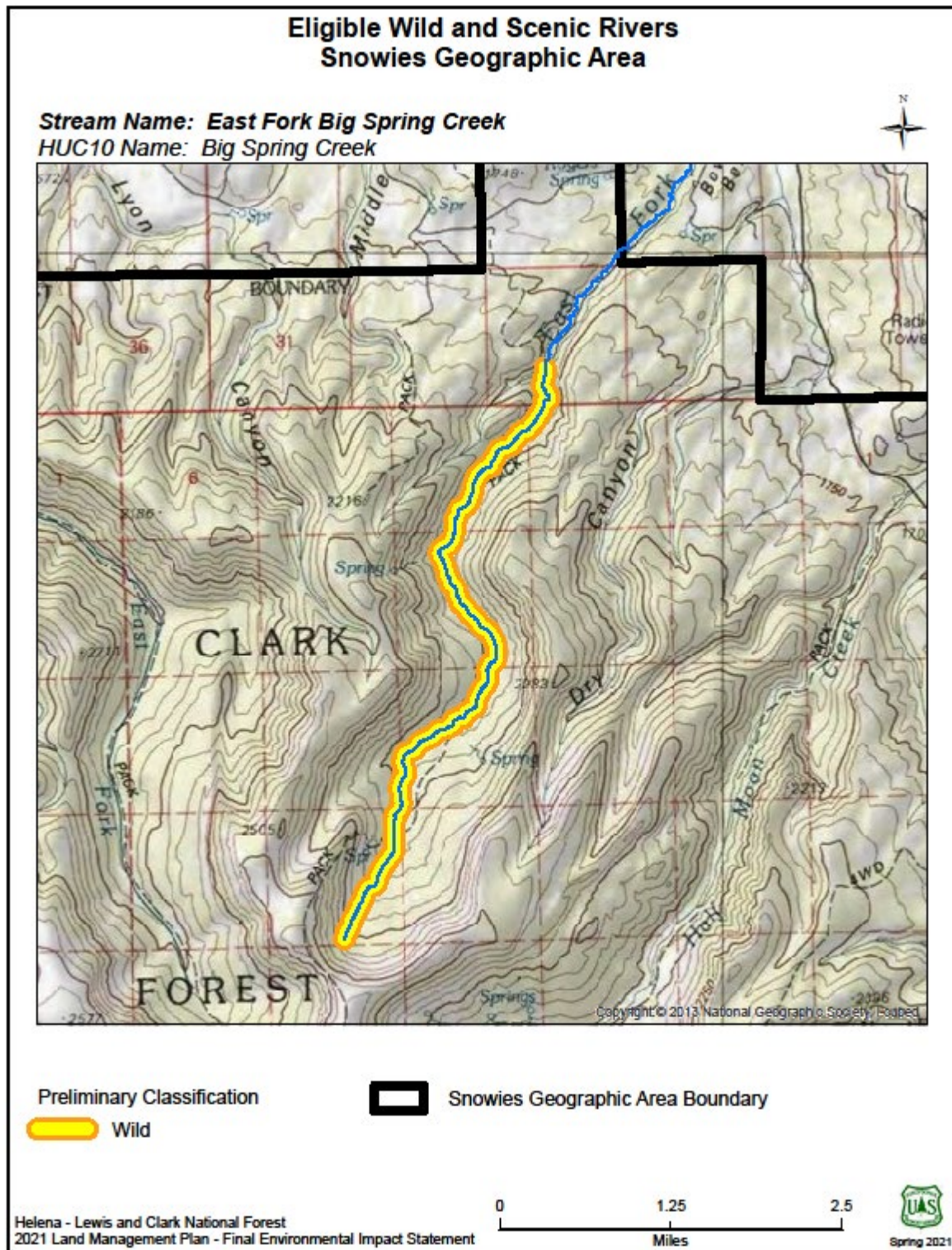
| <b>Swimming Woman Creek</b>                        |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Scenery, Geology  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From private landboundary to headwaters   |
| Miles of each segment                              | 3.9 miles   |
| Potential classification                           | Scenic  |
| Location   | Geographic area: Snowies<br>HUC 10: Careless Creek<br>Beginning Point: T11N, R19E, Section 16   |
| County(ies)  | Golden Valley/Fergus  |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | The scenic quality of this area is tied directly to the geologic features located here, which are spectacular and national in significance.   |
| Recreation   | No ORV  |
| Geologic   | Swimming Woman Creek flows out of a very unique geologic feature called a Pseudo(false)-Cirque formed by Landslide Sapping. This is a process resulting from the head ward erosion of a canyon consisting of hard overlying rocks (Madison Limestone) over softer material (Wolsey Shale). As the lower rock are eroded away the upper rocks slides into the canyon and are carried away by the creek. The entrance to the canyon is very narrow and broadens out into a large steep-walled amphitheater. The canyon is the best known example anywhere in North America and the world. |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





### East Fork Big Spring Creek

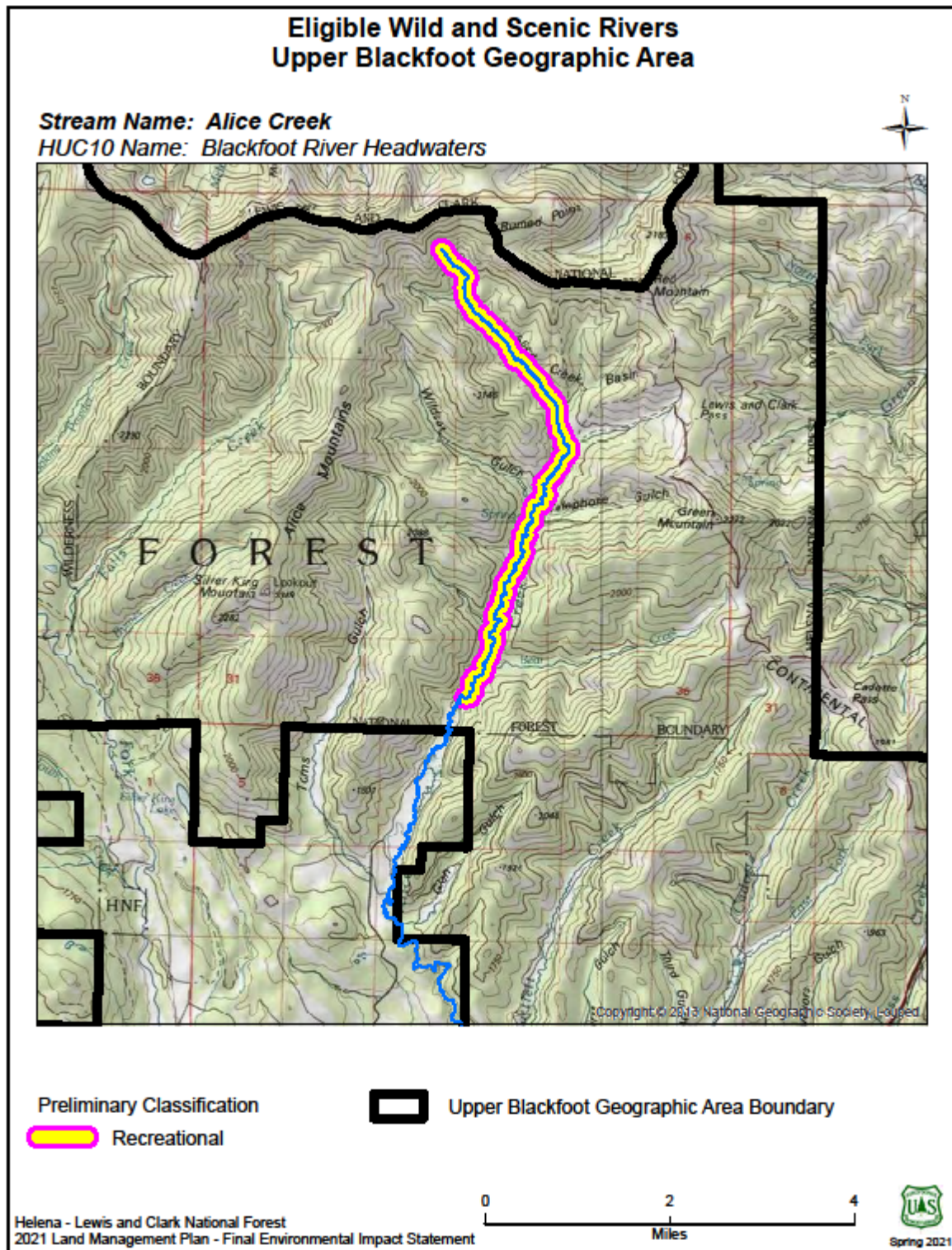
| <b>East Fork Big Spring Creek</b>                  |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From confluence with a no name stream in T13N R19E Section 33 to the headwaters                             |
| Miles of each segment                              | 5.3 miles   |
| Potential classification                           | Wild  |
| Location   | Geographic area: Snowies<br>HUC 10: Big Spring Creek (1004010309)<br>Beginning Point: T13N, R19E Section 33 |
| County(ies)  | Fergus County   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | The most secure population of WCT in the Snowy Mountain Range and potentially the Judith River Basin.       |
| Wildlife   | No ORV  |
| Cultural   | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



## Upper Blackfoot Geographic Area

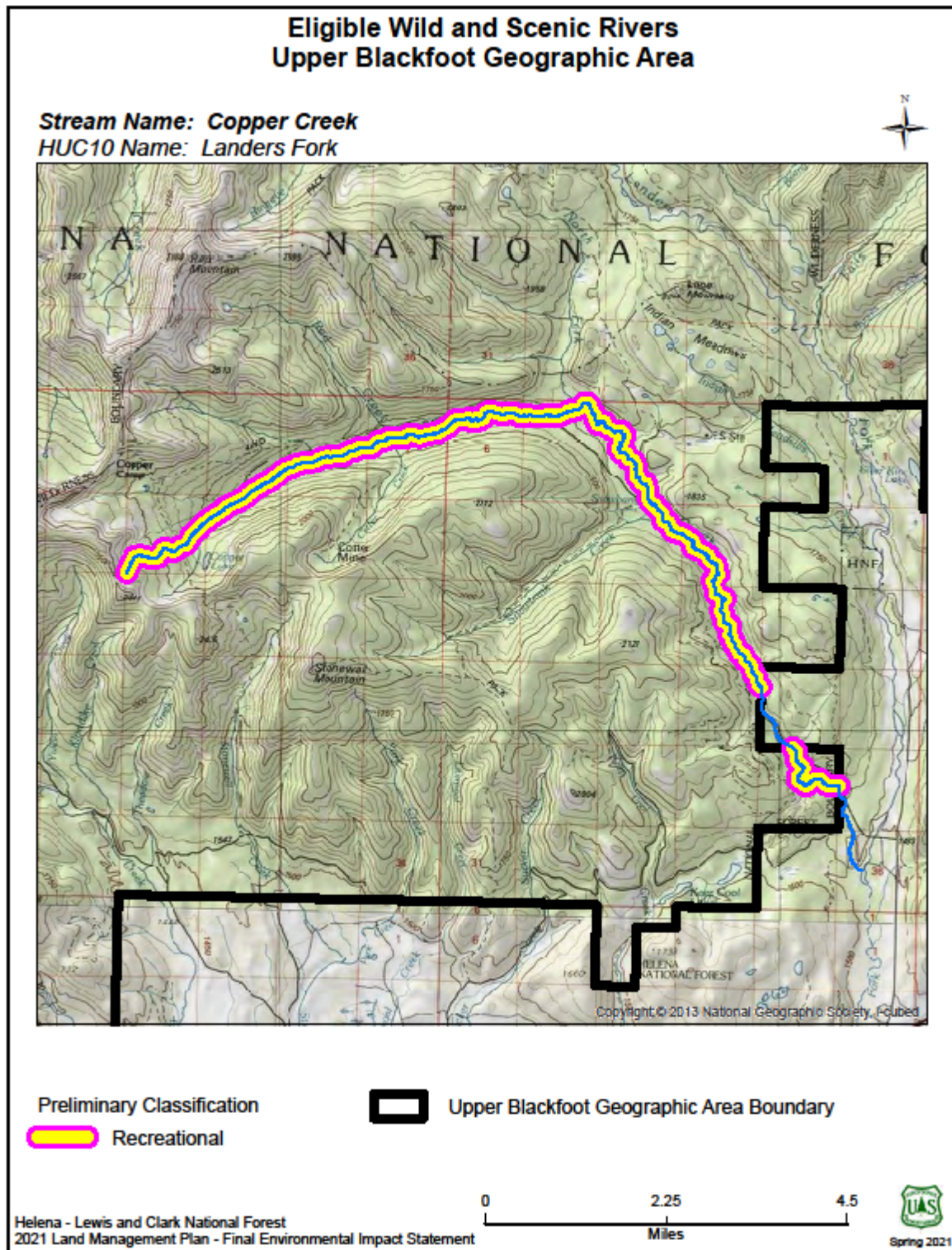
### Alice Creek

| <b>Alice Creek</b>                                 |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Cultural  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | From private land boundary to the headwaters  |
| Miles of each segment                              | 6.5 miles   |
| Potential classification                           | Recreational  |
| Location   | Geographic area: Upper Blackfoot<br>HUC 10: Blackfoot River Headwaters<br>Beginning Point: T16N, R7W, Section 33  |
| County(ies)  | Lewis and Clark   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | No ORV  |
| Wildlife   | No ORV  |
| Cultural   | This stream is included in the Alice Creek Historic District which is registered on the National Register of Historic Places. The area includes high cultural site concentrations and was used repeatedly as a travel corridor for crossing the divide to hunting grounds east of the mountains. The travel corridor was also used by Captain Lewis on his return journey and the trail is a part of the Lewis & Clark National Historic Trail. |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |



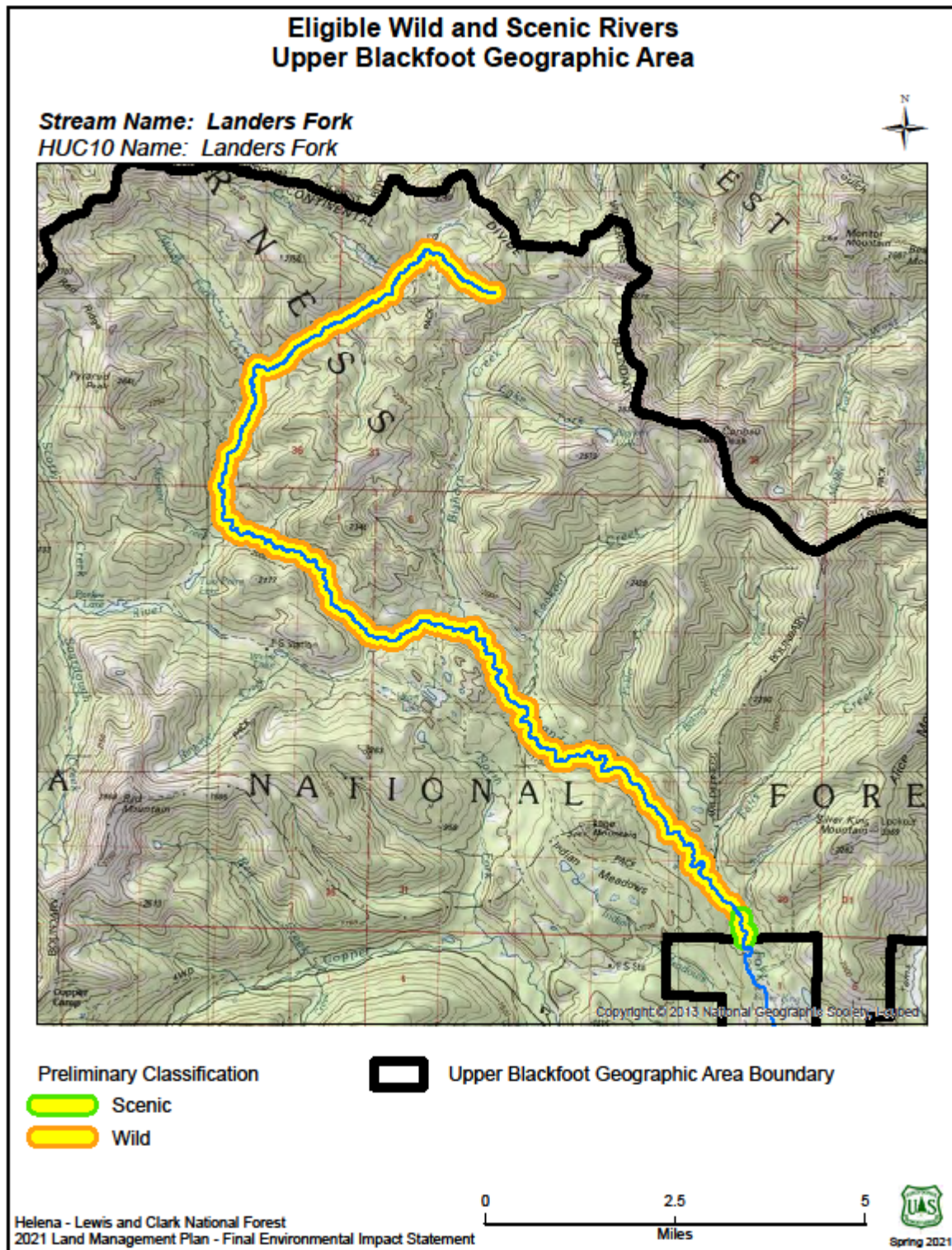
### Copper Creek

| <b>Copper Creek</b>                                |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1: From FS boundary to FS boundary<br>Segment 2: From FS boundary to the headwaters   |
| Miles of each segment                              | Segment 1: 1.1 miles<br>Segment 2: 12.0 miles   |
| Potential classification                           | Segment 1: Recreational<br>Segment 2: Recreational  |
| Location   | Geographic area: Upper Blackfoot<br>HUC 10: Landers Fork<br>Beginning Point: T15N, R8W, Section 26  |
| County(ies)  | Lewis and Clark   |
| Identified in previous eligibility studies. Yes/No | Yes   |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | This stream and the tributary of Snowbank Creek are major sources of bull trout spawning and rearing habitat for the entire Blackfoot River drainage. |
| Wildlife   | No ORV  |
| Historic/ Prehistoric                              | No ORV  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV.   |



## Landers Fork

| <b>Landers Fork</b>                                |   |
|--|---|
| Is the river free-flowing?<br>Yes or No            | Yes   |
| Potential Outstanding Remarkable Value(s)          | Fish  |
| Area of comparison                                 | State of Montana  |
| Eligible segments                                  | Segment 1: From FS boundary to the confluence with Byrnes Creek<br>Segment 2: From the confluence with Byrnes Creek to the headwaters |
| Miles of each segment                              | Segment 1: 0.3 miles<br>Segment 2: 18.5 miles   |
| Potential classification                           | Segment 1: Scenic<br>Segment 2: Wild  |
| Location   | Geographic area: Upper Blackfoot<br>HUC 10: Landers Fork<br>Beginning Point: T16N, R8W, Section 36                                    |
| County(ies)  | Lewis and Clark   |
| Identified in previous eligibility studies. Yes/No | No  |
| <b>Resource Description</b>                        |   |
| Scenery  | No ORV  |
| Recreation   | No ORV  |
| Geologic   | No ORV  |
| Fisheries  | This stream is one of the top sources of bull trout spawning and rearing habitat for the entire Blackfoot River drainage.             |
| Wildlife   | No ORV  |
| Historic/ Prehistoric                              | No ORV on Forest Service  |
| Botanical/natural                                  | No ORV  |
| Natural other                                      | No ORV  |





### Snowbank Creek

| <b>Snowbank Creek</b>                              |  |
|--|--|
| Is the river free-flowing?<br>Yes or No            | Yes  |
| Potential Outstanding Remarkable Value(s)          | Fish   |
| Area of comparison                                 | State of Montana   |
| Eligible segments                                  | From the mouth to the headwaters   |
| Miles of each segment                              | 4.4 miles  |
| Potential classification                           | Scenic   |
| Location   | Geographic area: Upper Blackfoot<br>HUC 10: Blackfoot River- Keep it Cool Creek<br>Beginning Point: T15N, R8W, Section 9 |
| County(ies)  | Lewis and Clark  |
| Identified in previous eligibility studies. Yes/No | No   |
| <b>Resource Description</b>                        |  |
| Scenery  | No ORV   |
| Recreation   | No ORV   |
| Geologic   | No ORV   |
| Fisheries  | This stream contains the highest density of bull trout spawning in the entire Blackfoot River basin.                     |
| Wildlife   | No ORV   |
| Historic/ Prehistoric                              | No ORV   |
| Botanical/ natural                                 | No ORV   |
| Natural other                                      | No ORV   |

