United States Department of Agriculture

Forest Service

Grand Mesa, Uncompahgre, and Gunnison National Forests

Working Draft of the Revised Land Management Plan

Delta, Garfield, Gunnison, Hinsdale, Mesa, Mineral, Montrose, Ouray, Saguache, San Juan, and San Miguel Counties, Colorado

June 2019

The Collegiate Peaks on the Gunnison Ranger District on a beautiful bluebird day.

Acronyms and Abbreviations

AQ – Air quality
AQTC – Aquatic ecosystems
CCF – One hundred cubic feet
CFR – Code of Federal Regulations
CHR – Cultural and historic resources
CRA – Colorado Roadless Area
DBH – Diameter at breast height
DC – Desired conditions
DTRL – Designated trails
ENMI – Energy and mineral resources
FFM – Fire and fuels management
FLPMA – Federal Land Policy and Management Act of 1977
FSH – Forest Service Handbook
FSM – Forest Service Manual
FW – Forestwide
GA – Geographic area
GDL – Guideline
GMUG – Grand Mesa, Uncompahgre, and Gunnison National Forests
HIREC – High-Use Recreation Area
IND – Monitoring indicator
INFR – Infrastructure
IVSP – Invasive species
ECO – Key ecosystem characteristics
LSU – Lands and special uses
MA – Management area
MIST – Minimum Impact Suppression Tactics
MON – Monitoring question
MTR – Mountain resort
OBJ – Objective
PART – Partnerships and coordination
PLEO – Paleontology
REC – Recreation
RECWLD – Recommended Wilderness
RMGD – Riparian and groundwater-dependent ecosystems
RNA – Research Natural Area
RNG – Range
ROS – Recreation opportunity spectrum
SBWY – Scenic byway
SCEC – Socioeconomics

SCNY – Scenery
SIA – Special Interest Area
STND – Standard
SPEC – Species
SUIT – Suitability
TEV – Terrestrial ecosystems and vegetation
TMBR – Timber
TSTN – Transportation
UC – Utility corridor
µeq/L – Microequivalents per liter
WUI – Wildland urban interface
WTR – Watershed
WWE – Westwide Energy
WLDF – Wildlife
WLDN – Wilderness
WSR – Eligible Wild and Scenic Rivers

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Draft Revised Land Management Plan

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Planning documents are posted at:	Forest Plan Revision Webpage

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Chapter 1. Introduction

Introduction

This land management plan provides direction for the management of the Grand Mesa, Uncompahgre, and Gunnison National Forests (GMUG) by guiding programs, practices, and projects. Land management plans are referred to as forest plans. For ease of discussion throughout the forest plan, the term “Forests” is used to reference the GMUG as an administrative unit. The term “forest” refers to the resources.

What is a Forest Plan?

Forest plans (Figure 1) establish overall management direction and guidance for each national forest. The GMUG’s forest plan guides project implementation, practices, and uses that assure sustainable multiple use management and outputs for the Forests. The forest plan describes desired conditions, goals, objectives, standards, and guidelines, and identifies land suitability for multiple uses and resources in the plan area. This is similar to a city or county comprehensive plan that helps guide land use and development. Forest plan direction applies only to National Forest System lands and does not imply or form direction for other ownerships (36 CFR 219.2).

Forest plans are strategic in nature and do not compel any action, authorize projects or activities, or guarantee specific results. Forest plans provide the vision and strategic direction needed to move a national forest toward ecological, social, and economic sustainability. Projects and activities must be consistent with the forest plan (36 CFR 219.15), and so a forest plan may restrict the agency when it authorizes or conducts those activities. Project-level environmental analysis would be completed for specific proposals that would implement forest plan direction. Forest plans do not regulate public uses, though the plan can provide direction that can then be enforced by Forest Order.

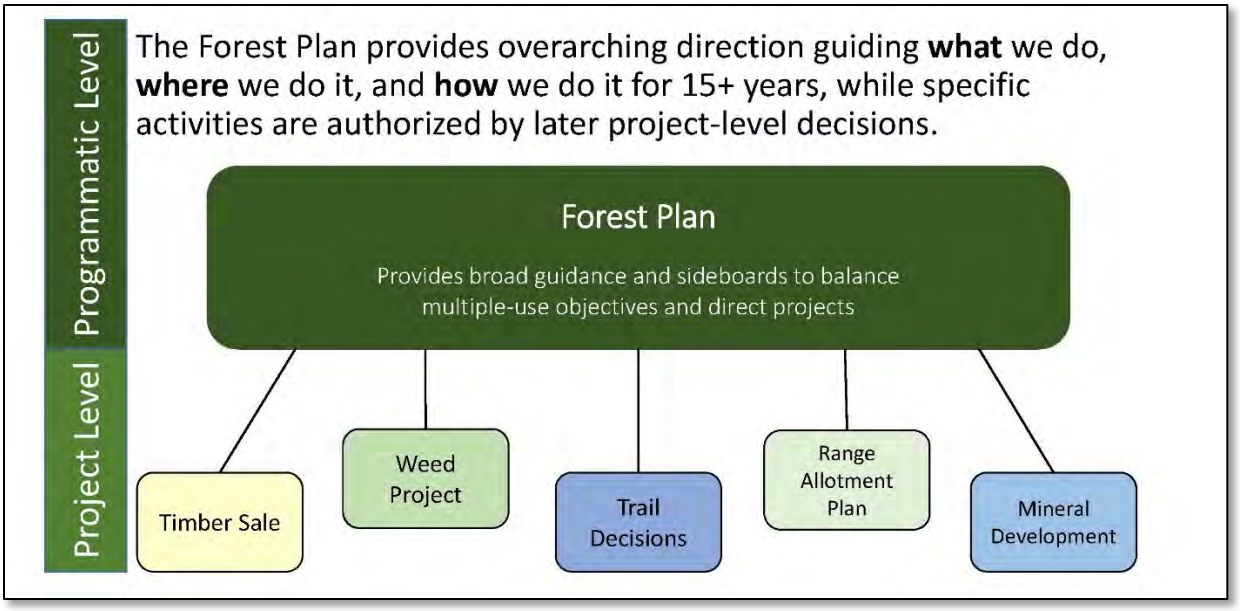

Figure 1. Schematic diagram explaining how a forest plan guides management of a national forest

Plan components included in forest plans provide integrated management direction that provide for the social, economic, and ecological sustainability and multiple uses of national forest lands and resources. In May 2012, the U.S. Department of Agriculture adopted 36 CFR 219 regulations, commonly called the 2012 Planning Rule, to guide science-based development, amendment, or revision of forest plans that promote the ecological integrity of national forests while considering social and economic sustainability.

The forest plan provides guidance for project- and activity-level decision-making on the Forests for approximately the next 15 plus years. This guidance includes:

- Forestwide components that provide for integrated social, economic, and ecological sustainability and ecosystem integrity and diversity as well as ecosystem services and multiple uses; components must be within Forest Service authority and consistent with the inherent capability of the plan area (36 Code of Federal Regulations (CFR) § 219.7 and CFR § 219.8–219.10);
- *(If any)* Recommendations to Congress for lands to include in the National Wilderness Preservation System, and the identification of rivers eligible for inclusion in the National Wild and Scenic Rivers System (36 CFR § 219.7(2)(v) and (vi));
- The area's distinctive roles and contributions within the broader landscape;
- Identification or recommendation of other designated areas (36 CFR § 219.7 (c)(2)(vii));
- Identification of suitability of areas for the appropriate integration of resource management and uses, including lands suited and not suited for timber production (36 CFR § 219.7(c)(2)(vii) and § 219.11),
- Identification of the maximum quantity of timber that may be removed from the plan area (36 CFR § 219.7 and § 219.11 (d)(6)),

- Identification of geographic area or management area-specific components (36 CFR § 219.7 (c)(3)(d),
- Identification of watersheds that are a priority for maintenance or restoration (36 CFR § 219.7 (c)(3)(e)(3)(f), and
- A monitoring program (36 CFR § 219.7 (c)(2)(x) and § 219.12).

The 2012 Planning Rule implemented a three-phase process that includes assessment, plan development, and monitoring. Assessments for the plan revision process were completed in 2017. The Working Draft Plan is being made available for public comment in spring 2019. Following the requisite Draft Plan/Draft EIS publication later in the process, the final decision and Final Plan will represent the culmination of the plan development phase and the beginning of the monitoring phase.

Implementing the Forest Plan

The forest plan guides resource management. The forest plan does not authorize projects, activities, or site-specific prohibitions or commit the Forest Service to take action. The Forests will follow all laws, regulations, and policies that relate to managing National Forest System lands. The forest plan is designed to supplement, not replace, direction from these sources. Other Forest Service direction, including laws, regulations, policies, executive orders, and directives (manual and handbook), are not repeated in the forest plan. Much of this direction is identified in Appendix 5. Reserved, outstanding, or private mineral rights; valid existing rights; and rights granted by the U.S. mining laws (General Mining Act of 1872), as amended, including the right of entry and reasonable access to public domain lands subject to the U.S. mining laws shall all be recognized.

During project-level, site-specific analysis, agency planning teams should:

1. Identify applicable Forestwide plan components (desired conditions, objectives, standards, and guidelines) for the proposed project (see Chapter 2), and
2. Identify management area specific plan components for the proposed project area (see Chapter 3).

Project and Activity Consistency with the Forest Plan

The National Forest Management Act of 1976 and the 2012 Planning Rule require that all projects and activities authorized by the Forest Service must be consistent with all applicable plan components (16 U.S.C. 1604 (i) as described at 36 CFR § 219.15 (c and d)). The approving document must describe how the given project or activity is consistent with applicable plan components by meeting the following criteria (36 CFR § 219.15(d)):

1. Desired conditions and objectives. Projects or activities contribute to the maintenance or attainment of one or more desired conditions or objectives or do not foreclose the opportunity to maintain or achieve any desired conditions or objectives over the long term.
2. Standards. Projects or activities comply with applicable standards.
3. Guidelines. Projects or activities
    a. Comply with applicable guidelines as set out in the plan, or

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

4. Suitability. Projects or activities occur in an area
   a. That the plan identifies as suitable for that type of project or activity, or
   b. For which the plan is silent with respect to its suitability for that type of project or activity.

When a proposed project or activity would not be consistent with the applicable plan components, the responsible official can do one of the following, subject to valid existing rights (36 CFR § 219.15(c)):

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

Plan Components

Plan components guide future projects and activities (Figure 2). Plan components are not commitments or final decisions to approve projects or activities.

Desired Conditions

The 2012 Planning Rule states, "a desired condition is a description of the specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined, but do not include completion dates." (36 CFR 291.7(e)(1)(i)

Some resources may already be at their desired condition, while for others, desired conditions may only be achievable over a long period of time.

Objectives

According to the 2012 Planning Rule, "an objective is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions." (36 CFR 219.9 (e)(1)(i))

Objectives were developed considering the historic and anticipated budget allocations for the Forests, as well as professional experience in implementing various resource programs. Objectives may either exceed or may not meet an accomplishment based on numerous factors, including budget and staffing increases or decreases, changes in planning efficiencies, and unanticipated resource constraints.

Standards

The 2012 Planning Rule defines standards as "a mandatory constraint on project and activity decision-making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements" (36 CFR 219.7(3)(1)(iii)). Standards are either applied Forestwide, or are identified as specific to a particular management area.

Guidelines

Guidelines are described in the 2012 Planning Rule as "a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements" (36 CFR 219.7(3)(1)(iv)). A guideline is either applied Forestwide or is identified as specific to a management area. To help identify the purpose, it is usually written as the first part of each guideline (e.g., "*To minimize invasive plant establishment and soil loss,* rehabilitation activities in burn areas…").

Management Approaches

Management approaches are optional plan content (FSH 1909.12 § 224) that describe principal strategies the responsible official intends to use to carry out projects and activities developed under the plan. Management approaches relate to desired conditions and may indicate the future course or direction of change while recognizing budget trends, program demands, and accomplishments. Optional plan content can be changed through administrative changes. See Appendix 3.

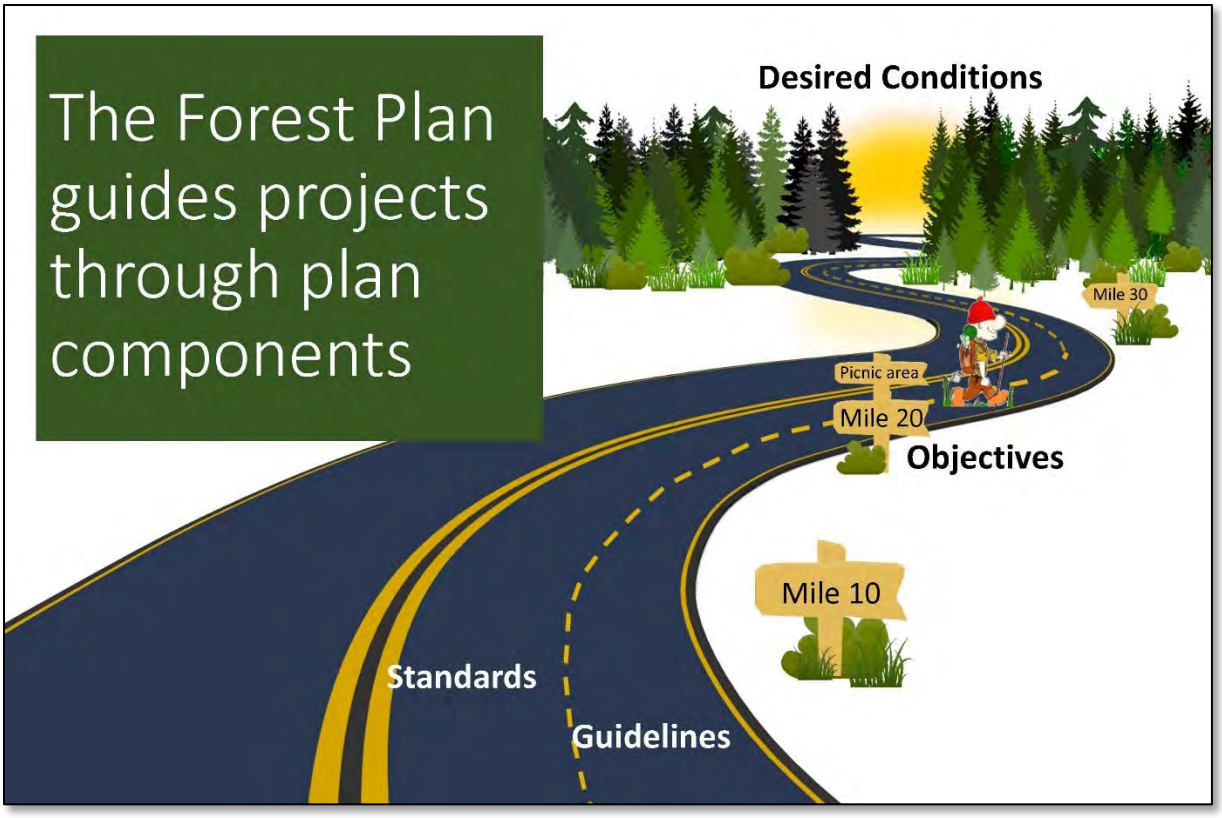

Figure 2. Schematic diagram illustrating how plan components provide guidance for projects to help keep management on track and moving towards desired conditions

Plan Component Numbering Protocol and Cross-referencing

Desired conditions, objectives, standards, guidelines, suitability, and monitoring questions and indicators have been given alphanumeric identifiers for ease in referencing within the forest plan (Figure 3). The identifiers include:

- the level of direction (e.g., FW = forestwide, MA = management area. Note that with management area direction, the management area number is also included);
- the type of direction (DC = desired condition, OBJ = objective, STND = standard, GDL = guideline, SUIT = suitability, MON = monitoring question, IND = monitoring indicator);
- the resource (for forestwide direction) (e.g., WTR = watersheds, TEV = terrestrial ecosystems and vegetation); and
- a unique number (i.e., in numerical order starting with 01).

Thus, forestwide direction for desired conditions associated with water and watersheds is identified starting with FW-DC-WTR-01; and management area direction for desired conditions in the mountain resorts management area is identified starting with MA-DC-MTR-01. The identifiers are included as part of the headings in Chapters 2 through 3, with the unique alphanumeric identifier preceding each plan component.

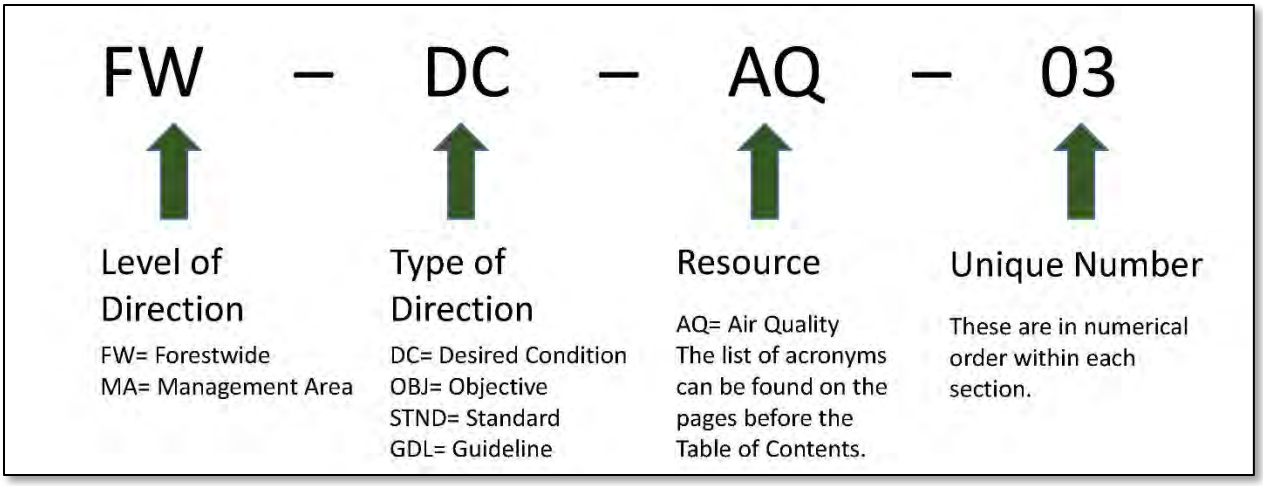

Figure 3. Plan component numbering protocol used for cross-referencing

Aside from identifying individual plan components, these unique numbers are also used to help with cross-referencing. Cross-references are used to communicate how plan components are integrated between various sections, highlighting the importance of viewing the plan holistically rather than just reviewing direction for a single resource. Further, cross-referencing reduces the need to repeat direction that applies to multiple resources and therefore helps to streamline the plan.

Forest Plan Vision, Roles, and Contributions

The Big Picture: A Vision of the Grand Mesa, Uncompahgre, and Gunnison National Forests

The GMUG comprises diverse lands within a diverse region, yet the Forests and surrounding communities are united by the shared vision of a landscape of resilient ecosystems sustaining balanced multiple-use opportunities far into the future. The multiple uses that occur on these Forests contribute to the identity and economies of adjacent communities, enhancing their prosperity and quality of life. These communities, in turn, are partners in protecting natural resources and perpetuating this unifying vision through collaboration, education, and shared stewardship.

Why the GMUG Matters: Distinctive Roles and Contributions in the Larger Landscape

Covering more than 3.2 million acres of lands that range in elevation from 5,000 to over 14,000 feet, the GMUG is a vast and diverse landscape, with mountain streams cascading through dense forests of spruce-fir, meadows interspersed in aspen groves, and riparian oases throughout sagebrush and oak shrublands. These lands provide large backcountry habitats essential for maintaining several rare, threatened, and endangered species, and a wide variety of fish, wildlife, and other species, sustaining biodiversity in an increasingly populated region. While cherished for their own intrinsic value, these ecosystems also support critical services and multiple use opportunities, the continued provision of which necessitates managing and maintaining their structure, function, and composition.

Distinctive roles and contributions form the foundation of the desired conditions in the Forest Plan.

Public Enjoyment

- The GMUG provides year-round recreation opportunities for rapidly increasing populations of Western Slope communities, and attracts visitors from the region and around the world. Recreation settings range from highly developed ski resorts to jeep trails to primitive wilderness, and attractions include world-renowned destinations such as Telluride and Crested Butte, six Scenic and Historic Byways, five 14,000+ foot peaks, and the Continental Divide National Scenic Trail, among others. Locals and visitors to the GMUG enjoy high-quality hiking and trail running; fishing; motorized recreation; camping; mountain biking; rafting and kayaking; hunting; horseback riding; scenic driving; wildlife and wildflower viewing; cross-country, back-country, and downhill skiing; snow-boarding; snowmobiling; and many other forms of recreation.
- The rugged mountains, canyons and mesas, rolling hills, and broad valleys provide scenic beauty, and the relatively natural environment offers an excellent field laboratory for environmental research and education, including research conducted by staff of the 90-year old, world-renowned Rocky Mountain Biological Laboratory.
- Historic, prehistoric, and paleontological sites across the GMUG's landscape inspire a sense of discovery and appreciation for the past, including the Old Spanish Trail, the mining history along the Alpine Loop in the San Juan Mountains, and scattered homesteads. As the

ancestral home of the Ute Peoples, these lands host a number of culturally significant sites valued by the Tribes.

Commodity Use and Community Connections

- With more water-related special uses than any other national forest, the GMUG serves as critical headwaters. Protecting and sustaining these watersheds provides a high-quality, local source of 1.9 million acre-feet of water that is consumed by western Colorado and the southwestern part of the United States.
- Accounting for nearly one-fifth of total net timber growth and a quarter of all growth on national forests in Colorado, the GMUG continues to be one of the largest commercial timber-producing forests in the Rocky Mountain Region. The GMUG's timber program plays an important role in maintaining the viability of the timber industry in the State of Colorado. The largest remaining sawmill in the State of Colorado is located in Montrose and obtains its wood fiber within a 400-mile radius.
- The GMUG has one of the largest rangeland resource bases (nearly 2.4 million acres) of any national forest in the United States, with approximately 51,000 permitted cattle and 27,000 permitted sheep. The Forests' grazing program substantially influences the economic feasibility of ranching in a six-county area, contributing to the socioeconomic sustainability of local communities and helping to diversify the economies of areas dominated by public lands. The grazing program also helps to maintain agricultural open space on private lands pressured by subdivision and development (USDA Forest Service 2006). The 100-year-plus history of livestock grazing by ranching families in the region has contributed to a specialized rural agricultural society with a strong interest in and capacity for public land stewardship.
- The GMUG's energy and mineral resources, including those of the Somerset coalfield and the Southern Piceance and Paradox basins, generate royalty revenue to the US treasury, strengthen local economies, and contribute to the national energy supply.
- The GMUG's outstanding scenery and recreation opportunities generate tourism, an important industry and a major economic contributor to local communities. The beauty and accessibility of the landscape also contributes to the desirability of the area for new businesses, as well as for year-round and part-time residents.
- The GMUG provides functional habitat for large populations of mule deer and Rocky Mountain elk, bighorn sheep, moose, a wide variety of game birds, and multiple trout species that attract a large number of hunters, anglers, and other visitors from across the country, providing an economic boon to local communities. More than 50,000 big game hunting permits are issued per year for the game units within the GMUG.

Via its sheer size and diversity of ecosystems, the GMUG supports the full range of ecosystem services, allowing for a wide variety of multiple uses. Management to maintain and improve GMUG ecosystems will ensure continued sustainable uses and intrinsic values into the future.

Chapter 2. Forestwide Direction

Part I: Social and Economic Environment

Socioeconomics (SCEC)

Desired Conditions

FW-DC-SCEC-01: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities through critical clean water supplies, commodities (including timber, forage, and minerals), and ample and wide-ranging scenic and recreation opportunities, fostering robust industries (including tourism) and supporting local employment and income. The plan area connects local residents and visitors with nature by providing a wide range of key ecosystem services, benefits, and opportunities such as volunteering, education, and scientific learning, contributing to the quality of life, sense of place, and connection with both nature and the region's history. See *Why the GMUG Matters: Distinctive Roles and Contributions in the Larger Landscape*, as well as Timber FW-OBJ-TMBR-01, Range FW-DC-RNG-01, Recreation FW-OBJ-REC-03 and FW-OBJ-REC-04, and Scenery FW-OBJ-SCNY-02.

Partnerships and Coordination (PART)

Desired Conditions

FW-DC-PART-01: Partnerships with Federal, state, county, and tribal agencies, universities, nongovernmental organizations, and private landowners are fostered, providing opportunities for robust dialogue, shared stewardship, and meaningful engagement in Forest Plan implementation and project development, implementation, and monitoring efforts.

Educational and Interpretive Programs (EDU)

Desired Conditions

FW-DC-EDU-01: Educational and interpretive programs and activities enrich visitor experience and understanding of the natural resources on the Forests and their role in providing valued ecosystem services. These programs connect people to the natural environment and foster a sense of place and shared stewardship.

Part II: Ecological Sustainability

Air Quality (AQ)

Desired Conditions

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

FW-DC-AQ-02: Air quality-related values in the Class I Wilderness Areas (West Elk, La Garita, and Maroon Bells-Snowmass) are maintained at natural conditions and do not exceed critical loads or thresholds; visibility is on a path towards natural conditions per the Regional Haze Rule and is not further degraded.

FW-DC-AQ-03: Air quality for the Class II areas[1] within the planning area are maintained or improved with respect to pollutant concentrations and deposition so that human health and the integrity of associated air quality-related values and aquatic and terrestrial ecosystem components are protected.

Objectives

FW-OBJ-AQ-04: To comply with the Clean Air Act and the Wilderness Act, within 5 years of plan approval, supplement existing third-party monitoring by developing and implementing a monitoring framework for GMUG's Class I areas and selected Class II areas that is able to detect compliance with, and validate no exceedances of, critical loads, including visibility, for air quality-related values[2] (Class I areas: West Elk, La Garita, Maroon Bells-Snowmass Wilderness).

Standards

FW-STND-AQ-05: Ambient air quality and visibility across the Forests are within federal and state standards.

FW-STND-AQ-06: Over the implementation life of the forest plan, work with air quality regulatory agencies to prevent or reduce the atmospheric deposition of nitrogen and sulfur and allow no more than a 10% change from established baseline for lakes with an acid neutralizing capacity of greater than or equal to 25 µeq/L; for lakes with an acid neutralizing capacity of less than 25 µeq/L, allow no more than 1 µeq/L decrease in acid neutralizing capacity.

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[1] Class II areas account for the remainder of wilderness areas on the GMUG: the Raggeds, Uncompahgre, Mt Sneffels, and Lizard Head Wilderness areas. Map available at https://www.fs.fed.us/air/co.htm. Class I areas are those wilderness areas that were in existence as of August 7, 1977, and larger than 5,000 acres.

[2] Air quality-related values in GMUG's Class I areas are: visibility and water. The critical loads/thresholds for the various indicators of these air quality-related values are located at https://www.fs.fed.us/air/index.htm.

FW-STND-AQ-07: Over the implementation life of the Forest Plan, work with air quality regulatory agencies to prevent or reduce airborne nutrient and mercury deposition in high-elevation lakes in the GMUG's Class I Areas; allow no detectable mercury, no more than 2 µeq/L of ammonium, and no late summer nitrate.

Guidelines

FW-GDL-AQ-08: To maintain air quality on the GMUG, projects on- and off-Forest[3] seeking a Prevention of Significant Deterioration (PSD) permit[4] or large-scale NEPA projects (i.e., oil and gas) should not result in critical load exceedances in Class I areas.

FW-GDL-AQ-09: Where air pollution from on- and off-Forest projects may affect sensitive air quality-related values or other forest resources, best available control technology should be used on new projects and best available retrofit technology should be used on old projects under new review.

Key Ecosystem Characteristics (ECO)

Structure, Composition, and Function

Desired Conditions

FW-DC-ECO-01: Ecosystems contain a mosaic of vegetation conditions, densities, and structures. This mosaic occurs at a variety of scales such as geographic and watershed scales, reflecting the disturbance regimes that naturally affect the area. Natural ecological cycles (i.e., hydrologic, energy, nutrient, disturbance, etc.) facilitate the shifting of plant communities, structures, and ages across the landscape over time. See also FW-GDL-TMBR-09.

FW-DC-ECO-02: Ecosystems are resilient to the frequency, extent, and severity of disturbances (such as human impacts, wildland fire in fire-adapted systems, flooding in riparian systems, insects, and pathogens). Natural disturbance regimes, including wildland fire, are restored where practical and allowed to function in their natural ecological role to enhance resources, including habitat for species associated with fire-adapted systems. Native insect and disease populations are generally at endemic levels with occasional outbreaks, and the scale of insect and disease outbreaks is restricted by variation among vegetation structures. Desired conditions for seral

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[3] In addition to mitigating impacts from forest management activities that may cause air quality impacts over the forest, the federal Clean Air Act requires that Air Quality-Related Values (AQRVs) of the forest be protected from off-Forest sources of air pollution. Air Quality-Related Value monitoring activities establish baseline conditions for these values and provide data to assess long-term and spatial trends. The Forest Service works with air quality regulatory agencies through the Prevention of Significant Deterioration provisions of the Clean Air Act, SIP revisions, and other regulatory actions, to review and evaluate planned activities that have potential to impact the AQRVs of the forest, and to make recommendations to the regulatory agencies leading to protection of AQRVs.

[4] This is the PSD program of the Clean Air Act. One purpose of the PSD process is to aid in the protection and enhancement of air quality in national wilderness areas and other locations of scenic, recreational, historic, or natural value.

stage distribution and fire regimes by ecosystem are listed in Table 1. See also Fire and Fuels FW-OBJ-FFM-01 and FW-GDL-FFM-02, and Key Ecosystem Characteristics FW-DEC-ECO-02 for pertinent direction to support this desired condition.

Table 1. Desired conditions for seral stage distribution and fire regime by ecosystem at the geographic area scale

[Seral stage desired ranges are derived from the output of state and transition models that were developed originally in 2005 for the GMUG and refined in 2018 based on best available scientific information in 2018. To reflect uncertainty in future climate conditions and potential impacts of climate change on disturbance regimes, desired condition ranges are expanded by 5% on each end of the state and transition model outputs. Additional context can be found in the Revised Terrestrial Ecosystems Assessment (GMUG 2018).]

Ecosystem	Seral Stage (percent)			Fire regime[1]	
	Early	Early-mid	Late-mid/Late	Severity	Fire Return Interval (years)
Spruce-Fir	22–37	15–29	38–58	High	200–500
Spruce-Fir-Aspen	8–24	17–34	43–70	High	150–300
Aspen	3–19	18–31	35–72	High	75–140
Lodgepole Pine	17–44	31–45	18–43	<9,500 feet, mixed; >9,500 feet, high	<9,500 feet 50–200; > 9,500 feet 200–400
Cool-Moist Mixed Conifer	21–38	15–31	37–59	High-mixed	50–200
Warm-Dry Mixed Conifer	15–32	10–25	18–29 / 32–40 (fire-maintained open)	Low-mixed	20–50
Ponderosa Pine	NA[2]			Low	10–40
Pinyon-Juniper	5–19	24–42	45–69	High	200–1000
Pinyon-Juniper with shrub component	23–56	34–48	4–34%	Low-mixed	35–200
Bristlecone-Limber Pine	9–25	14–25	46–81	<10,000 feet= low-mixed/ >10,000 feet= none	<10,000 feet=9–55/ >10,000 feet=NA
Montane Shrubland, Oak-Serviceberry-Mountain Mahogany	12–28	NA	72–90	High	25–50

[1] Fire regime sources cited: Expert opinion; Aoki 2010; Baker 1992; Baker 2006; Brown and Shepperd 2003; Donnegan et al. 2001; Eisenhart 2004; Floyd et al. 2000; Floyd et al. 2004; Kulakowski and Veblen 2006; Peet 1981; Romme 1982; Romme et al. 2009; Wright et al. 1979.

[2] Seral stages are not readily applicable to ponderosa pine, rather structural stages and disturbance mechanisms are more appropriate. Desired conditions include multi-aged stands made up of small even-aged patches (0.1 to 1 acre in size). Ideally stands would have a minimum of 3 to 4 age classes. Disturbance mechanisms include low-intensity fire with occasional areas of mixed-severity fire.

FW-DC-ECO-03: Despite changing and uncertain future environmental conditions, ecosystems maintain all of their essential components. Areas of rapidly changing climate support functioning

ecosystems dominated by species native to the context area[5], though perhaps new to that specific location. Areas of climate refugia continue to support species historically present; have high ecological integrity, are resilient to future conditions, allow for species migration, and have low or no undesirable anthropogenic impacts.

Objectives

FW-OBJ-ECO-04: Within 10 years of plan approval, identify areas of potential climate refugia (Morelli et al. 2016) on the Forests and implement monitoring for a subset of these areas.

Guidelines

FW-GDL-ECO-05: To maintain their presence on the Forests, management activities in areas with biological soil crusts should be designed to minimize adverse impacts. See also Range FW-STND-RNG-06 and Rec FW-GDL-REC-09.

Connectivity

Desired Conditions

FW-DC-ECO-06: Vegetation connectivity, configuration, and abundance provide for genetic exchange, daily and seasonal movements of animals, including migratory pollinators, and predator-prey interactions across multiple spatial scales. Habitat configuration and availability and species genetic diversity allow long-distance range shifts of plant and wildlife populations, in response to changing environmental and climatic conditions. Conditions provide for the life history, distribution, and natural population fluctuations of the species within the capability of the ecosystem. See also Native Species Diversity FW-DC-SPEC-01 and FW-OBJ-SPEC-03.

Snags and Coarse Wood

Desired Conditions

FW-DC-ECO-07: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling. Vegetation characteristics (e.g., tree density, litter depth) support favorable water flow and quality. Coarse woody debris and snags occur at levels sufficient to support soil productivity and wildlife habitat. See also Key Ecosystem Characteristics FW-GDL-ECO-08 and Soils FW-GDL-SOIL-06.

Guidelines

FW-GDL-ECO-08: To maintain ecological integrity and meet wildlife habitat needs, management activities should not result in snag and coarse woody debris levels outside of those in Table 2. Exceptions include the wildland urban interface (WUI), see also Fuels FW-GDL-FFM-04.

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[5] As defined in the GMUG Terrestrial Ecosystems Assessment, the context area is 20 million acres surrounding and including the GMUG, delineated by ECOMAP subsections (Cleland et al. 2007).

Table 2. Recommended coarse woody debris for wildlife habitat and ecosystem processes

[Coarse woody debris is typically defined as dead standing and downed pieces larger than 3 inches in diameter (Harmon et al. 1986), which corresponds to the size class that defines large woody fuel (Brown et al. 2003).]

Forest Ecosystem	Minimum Number of Snags per 100 Acres and Minimum DBH[1]	Downed Wood (woody material > 3" diameter)[2] (tons per acre)	Optimal Range of Coarse Woody Debris (snags + downed wood) (tons per acre)[3]
Spruce-Fir	≥ 600 (12")	8–28	10–30
Spruce-Fir-Aspen	≥ 550 (12")	5–20	10–30
Aspen	≥ 500 (10")	5–15	10–30
Lodgepole Pine	≥ 300 (10")	5–15	10–30
Ponderosa Pine	≥ 200 (12")	2–10	5–20
Warm-Dry Mixed Conifer	≥ 200 (12")	2–10	5–20
Cool-Moist Mixed Conifer	≥ 400 (12")	5–15	10–30
Pinyon-Juniper	≥ 100 (10")	1–5	5–20
Bristlecone-Limber Pine	≥ 200 (12")	2–10	5–20

[1] Snag height should be a minimum of 25 feet. At least 50% of the snags retained should represent the largest size classes available. If larger snags are not present, a greater number in the smaller size classes should be retained. Snags do not need to be retained on every acre.

[2] At project implementation, leave larger and longer logs onsite, including in riparian management zones as applicable, based on site capability. A wide variety of downed wood size classes and decay is preferred.

[3] A wide variety of snags and downed wood throughout the plan area is preferred, in terms of abundance, distribution, juxtaposition, and condition (degree of decay) commensurate with the capability of the land (Garbarino 2015). Optimal Ranges of Coarse Woody Debris represents a range to best meet most resource needs, in terms of acceptable risks of fire hazard and fire severity (outside of the WUI) while providing desirable quantities for soil productivity, soil protection, and wildlife. Generally, this is 5 to 20 tons per acre for warm dry forest types and 10 to 30 tons per acre for all other types (Brown et al. 2003). These are the recommended ranges to manage for at the stand-level during project implementation. This can be accomplished by managing for a combination of either higher snag amounts and lower downed wood amounts or lower snag amounts and higher downed wood amounts, depending on the purpose, need, and objectives of the project.

Old Growth

Desired Conditions

FW-DC-ECO-09: Old growth stands, as defined in Appendix 6, are well-distributed within all forested ecosystems, and occur in amounts and patch sizes needed to support species that depend on old growth habitat. Old growth contributes to ecosystem integrity, provides habitat for associated species, and contributes to overall ecosystem biodiversity. Natural disturbance processes continue to influence old growth conditions.

Guidelines

FW-GDL-ECO-10: To support species dependent on old growth habitat and to maintain structural diversity, old growth stands should occur as larger blocks with a patch size greater than or equal to 640 acres, where physically and biologically capable. Retain smaller stands on remote (difficult to access) sites, north-facing slopes, and in riparian areas.

Terrestrial Ecosystems and Vegetation (TEV)

Aspen

Guidelines

FW-GDL-TEV-01: To create and maintain aspen islands important as biodiversity hotspots for wildlife, areas that stimulate aspen regeneration or otherwise contribute to maintaining aspen refugia on the landscape are prioritized for treatments and managed to reduce over-browsing. See also Native Species Diversity FW-OBJ-SPEC-03.

Sagebrush

Desired Conditions

FW-DC-TEV-02: Sagebrush ecosystems support the habitat needs of Gunnison sage-grouse and other sagebrush obligate species. See Invasive Species FW-OBJ-IVSP-02 and *At-Risk Species* section, *Gunnison sage-grouse*.

Montane-Subalpine Grasslands

Desired Conditions

FW-DC-TEV-03: Depending on site capability, bare soil is no more than 30% within a stand and is most often less than 10%. Vegetation percent cover averages 40–60% grass, and 10–30% forbs. See also Range FW-GDL RNG-14 and FW-GDL-RNG-15.

Alpine Uplands

Objectives

FW-OBJ-TEV-04: Within 10 years of plan approval, enhance the resiliency of alpine ecosystems on 100 acres of GMUG lands through implementing recreation management plans, completing mine land reclamation, or conducting other management activities. See Key Ecosystems Characteristics FW-DC-ECO-03.

Standards

FW-STND-TEV-05: Campfires in alpine ecosystems shall only be permitted in existing fire grates or in fire pans.

Guidelines

FW-GDL-TEV-06: To maintain the ecological integrity of and associated native species in alpine ecosystems, management activities and visitor use should not result in a long-term net increase in ground disturbance in alpine ecosystems.

Riparian Management Zones and Groundwater-Dependent Ecosystems (RMGD)

Riparian Management Zone is updated terminology that replaces the term water influence zone used in the previous forest plan.

Desired Conditions

FW-DC-RMGD-01: Riparian management zones have the distribution of physical, chemical, and biological conditions appropriate to support their inherent resiliency to natural disturbances, human activities, and climate variability.

FW-DC-RMGD-02: Within the riparian management zones, the biological composition of native flora (e.g., willows and cottonwoods) and fauna (e.g., beaver) support the associated ecosystem services (e.g., filtering of sediment, modulation of floods, carbon sequestration); providing a dynamic equilibrium of natural structure (e.g., channel morphology, floodplain development, large wood) and connectivity (e.g., periodic flooding, aquatic organism passage).

FW-DC-RMGD-03: Hydrologic processes (e.g., infiltration, streamflow, hillslope runoff, or groundwater) within the riparian management zones function properly, providing appropriate periodic and/or permanent hydrologic connectivity throughout the respective riparian areas and thereby sustaining native biologic composition.

FW-DC-RMGD-04: Within the respective landform (valley bottom or confined canyon), the natural stream channel and floodplain (e.g., channel type, width-to-depth ratio) operates or is restored to a dynamic equilibrium, such that over the life of the forest plan, the stream system neither aggrades nor degrades.

FW-DC-RMGD-05: Flow through the soil profile and groundwater systems function under normal patterns of recharge, flow, and discharge and are free of contamination. Groundwater-dependent ecosystems (e.g., wetlands, springs, and stream baseflows) have the water sources and hydrologic processes (e.g., water-table elevations) necessary to persist and to sustain associated special status plant and animal species and peat production where present.

Objectives

FW-OBJ-RMGD-06: During each 10-year period following plan approval, restore or enhance at least 2,500 to 5,000 acres of riparian and meadow habitat, and restore hydrologic function for at least 15 to 30 miles of perennial, intermittent, or ephemeral streams. Actions to help accomplish this objective may include: implementing erosion-control restoration techniques, removing conifer encroachment, promoting riparian plant species growth and recovery, road decommissioning, re-introducing beavers where they can be sustained, etc.

See also Native Species Diversity FW-OBJ-SPEC-03, and MA-OBJ-HIREC-02.

Standards

See also *Watershed and Water Resources* section.

FW-STND-RMGD-07: Riparian management zones (Figure 4, Figure 5) shall be delineated as follows:

- Category 1: Perennial and intermittent streams: consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of riparian vegetation, or 100-feet slope distance (200 feet, including both sides of the stream channel), whichever is greatest.
- Category 2: Fens, wetlands, lakes/ponds and reservoirs: consist of the body of water or wetland and the area to the outer edges of the riparian vegetation; or to the extent of the

seasonally saturated soil; or 100-feet slope distance from the edge of the wetland or the maximum pool elevation of constructed pond and reservoirs with shorelines composed of riparian vegetation, whichever is greatest (Table 3).

Table 3. Minimum widths of inner and outer areas within riparian management zones

[Works cited to determine riparian management zone: Watershed Conservation Practices Handbook (R2 FSH 2509.25) and expert opinion.]

Category	Waterbody	Total Width (feet)
1	Perennial and intermittent streams	100 each side (200 total)
2	Wetlands greater than one-quarter acre, fens, ponds, lakes, and reservoirs	100

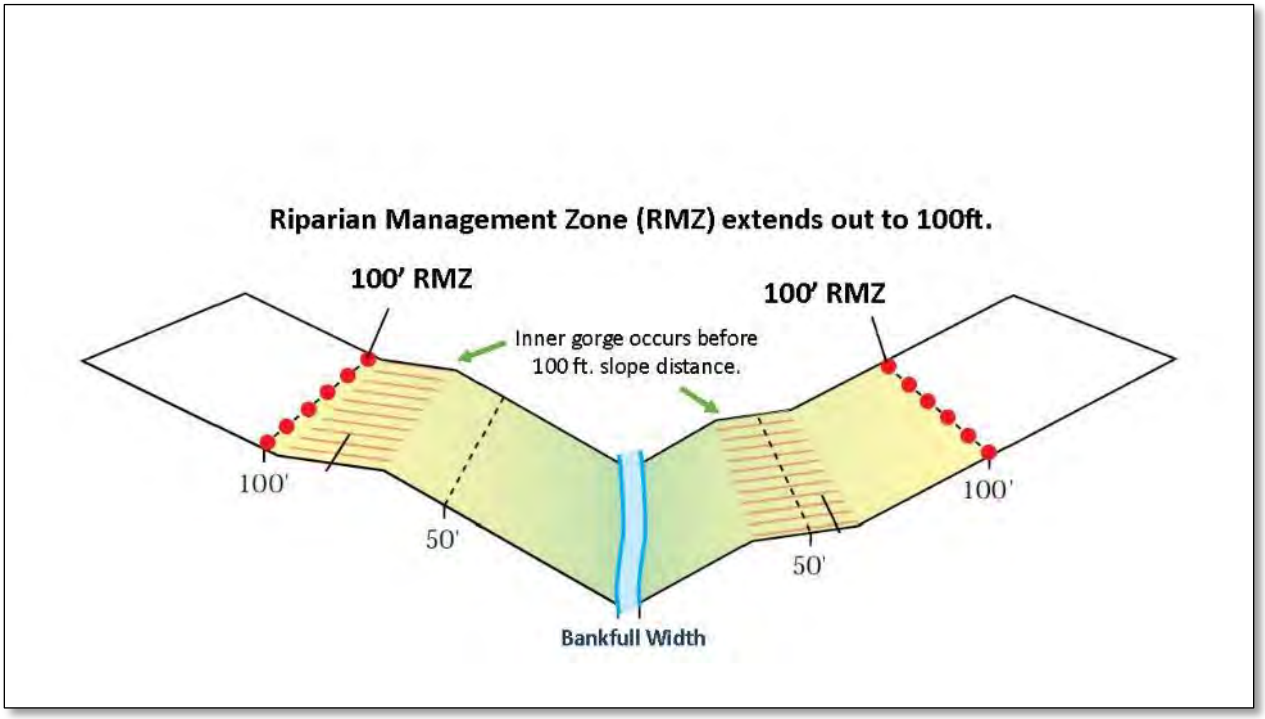

Figure 4. Representative riparian management zone for a confined channel

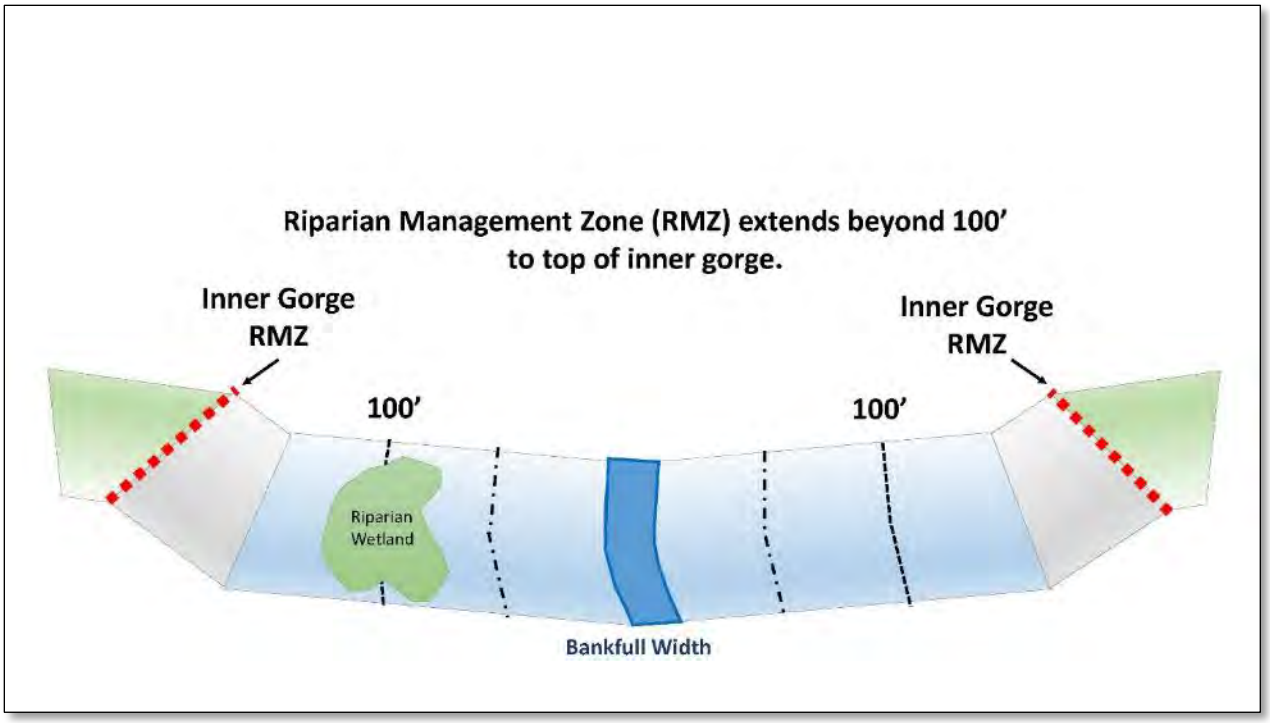

Figure 5. Representative riparian management zone for a valley bottom

FW-STND-RMGD-08: To maintain or restore riparian ecosystem integrity, in the riparian management zone allow only those actions that maintain or improve long-term stream health and riparian ecosystem conditions, as consistent with the Watershed Conservation Practices Handbook (R2 FSH 2509.25 and FS 990A or equivalent direction).

FW-STND-RMGD-09: To maintain stream thermal cover and prevent windthrow within the riparian management zone, clearcut harvest shall not occur in riparian management zones.

Guidelines

FW-GDL-RMGD-10: To reduce the likelihood of sediment input to streams and reduce adverse effects to stream channels and riparian areas, new sand and gravel pit extraction, and/or placer mining/extraction, should be located outside of the riparian management zone.

FW-GDL-RMGD-11: New water diversions and impoundments should be located and constructed such that their location and operation has the minimal impact on the structure, function, composition, and connectivity of riparian management zones.

FW-GDL-RMGD-12: To minimize effects to aquatic resources, refueling activities, equipment maintenance, and storage of fuels and other toxicants should be located outside of riparian management zones.

FW-GDL-RMGD-13: To minimize impacts to the riparian area, temporary incident management facilities (e.g., incident bases, camps, staging areas, helispots, and other facilities) for incident activities should be located outside riparian management zones. When no practical alternative exists, all appropriate measures to maintain, restore, or enhance aquatic and riparian associated resources should be used.

FW-GDL-RMGD-14: To maintain the structure and function of riparian management zones, firelines should be located and configured to minimize sediment delivery and limit the creation of new stream channels.

FW-GDL-RMGD-15: To maintain ecological integrity and support native species (including at-risk species), design projects to avoid ditching, damming, dewatering, or flooding of fens and wetlands.

FW-GDL-RMGD-16: To monitor water flows to, within, or between groundwater-dependent ecosystems, groundwater developments (e.g., recreation and administrative sites, drinking water wells, wastewater facilities) should have functional water flow meters installed.

Aquatic Ecosystems (AQTC)

Desired Conditions

FW-DC-AQTC-01: Physical (e.g., stream temperature, pool frequency, spawning habitat) and biological (e.g., large wood, overbank vegetation) conditions in aquatic ecosystems provide the habitat requirements for aquatic and semiaquatic species, including native amphibians, native and desired nonnative fishes, macroinvertebrates, and native plant and periphyton communities.

FW-DC-AQTC-02: Environmental flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (e.g., bankfull width, depth, entrenchment ratio, slope, and sinuosity); ensure floodplain inundation occurs, allowing floodplain development; and ensure that the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained.

Standards

FW-STND-AQTC-03: To prevent incidental mortality of native species during spawning and rearing periods (typically spring through summer), water drafting/pumping sites for non-wildland fire uses will be screened and located away from native fish spawning and amphibian rearing locations. Pumps will use low entry velocity to minimize removal of aquatic species from aquatic habitats, including juvenile fish, amphibian egg masses, and tadpoles.

FW-STND-AQTC-04: New, replacement, and reconstructed crossings (culverts, bridges, and other stream crossings) on perennial streams will accommodate flood flows and allow aquatic organism passage, unless the accommodation would increase nonnative species encroachment on native fish and amphibian habitat. Exceptions include temporary structures in place for less than one year. See also Native Species Diversity FW-GDL-SPEC 06.

FW-STND-AQTC-05: Cooperate with Federal, State, Tribal, local governments and other stakeholders to identify and secure environmental flows needed to maintain riparian resources, channel conditions, and aquatic habitat.

Guidelines

FW-GDL-AQTC-06: To prevent entrainment and/or entrapment of fishes and other aquatic organisms, new and reauthorized water withdrawal systems (e.g., impoundments, diversions, and associated ditches) should have screens (or comparable structures/equipment).

FW-GDL-AQTC-07: To maintain stream channel stability and aquatic habitat, large wood should not be cut and/or removed from stream channels unless the wood threatens critical infrastructure and/or public safety (e.g., mid-channel bridge piers).

FW-GDL-AQTC-08: To prevent incidental mortality of at-risk species and to minimize the spread of aquatic nuisance species and aquatic pathogens, aircraft dip sites and drafting locations should be located away from known occurrences of at-risk species (e.g., cutthroat trout, boreal toad, etc.) and in areas free of aquatic nuisance species and aquatic pathogens.

FW-GDL-AQTC-09: To protect the ecological functions that beavers provide, management actions to reduce beaver dam threats to infrastructure should use techniques that sustain beavers (e.g., using pipes to reduce water levels, notching dams to restore streamflow).

See also plan direction for the *Conservation Watershed Network*, beginning with FW-DC-SPEC-54.

Invasive Species (IVSP)

Desired Conditions

FW-DC-IVSP-01: Native plant communities composed of a diverse mix of native grass, forb, shrub, and tree species dominate the landscape, while invasive species are nonexistent or low in abundance and do not disrupt ecological function.

Objectives

FW-OBJ-IVSP-02: Annually, invasive species management actions are employed on 10 to 20% of inventoried acres so that: new infestations are prevented; densities of existing infestations are reduced; total acres or areas infested are reduced; infested areas are restored/rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics (size, density, species, location, etc.), management opportunities, and resource values at risk; and uninfested areas are maintained and/or protected. Priority treatments will include:

- Early treatment of new infestations so that they are eradicated before becoming entrenched.
- Annual treatment of administrative sites until populations are eradicated.
- Treatment of cheatgrass in sagebrush, particularly Gunnison sage-grouse designated critical habitat. See also Native Species Diversity FW-OBJ-SPEC-03.

Standards

FW-STND-IVSP-03: For all proposed projects or activities, the risk of invasive species introduction or spread shall be determined and appropriate mitigation measures shall be implemented using best management practices and integrated pest management practices (USDA Forest Service 2013), including but not limited to decontamination procedures on vehicles and equipment and the use of weed-free products. See also Native Species Diversity FW-GDL-SPEC-10.

FW-STND-IVSP-04: Contracts and permits for activities on the Forests, including facility maintenance and leases, will include requirements to both prevent the introduction and/or spread

of invasive species and treat invasive species on National Forest System lands and resources that occur as a result of their actions.

Guidelines

FW-GDL-IVSP-05: To prevent the spread and establishment of invasive plant species following ground-disturbing activities, areas identified as needing mitigation should be reseeded during the first growing season following the disturbance to establish ground cover. Reseeding should be done with a mixture of plant species native to the context area. Plant and seed materials used should be appropriate to the site, capable of establishment, and not invasive, and should include species preferred by pollinators. See also *Pollinator* section.

FW-GDL-IVSP-06: To minimize invasive plant establishment and soil loss, rehabilitation activities in burn areas (wildland or prescribed) should use weed-free shredded woody materials (if available) for mulch.

FW-GDL-IVSP-07: To minimize or eliminate the risk of damage to non-target plant populations, personnel involved in invasive plant treatments should be able to identify at-risk species.

FW-GDL-IVSP-08: To protect sensitive aquatic resources, fisheries, recreation opportunities, and water quality, and/or avoid the introduction of aquatic nuisance species, the Forests should restrict or prohibit the use of watercraft (motorized and nonmotorized) on sensitive water bodies, including those identified as at-risk by Colorado Parks and Wildlife, and may require the inspection of watercraft by a certified inspector.

Fire and Fuels Management (FFM)

Desired Conditions

See FW-DC-ECO-02.

Objectives

FW-OBJ-FFM-01: Mitigate the effects from wildland fire and improve watershed health on an average of 120,600–326,000 acres per decade through the implementation of vegetation management techniques, including the use of wildland fire (planned and unplanned) and mechanical methods. Actions to help accomplish this objective may include: moving ponderosa pine stands towards fire-maintained open stand structure with a mix of age and size classes, strategically locating fuel treatments with natural and constructed barriers to create ‘fuel reduction zones’ on the landscape, and prioritizing treatments within the *Protection Emphasis Areas, including the Wildland Urban Interface.*

Guidelines

FW-GDL-FFM-02: To ensure that wildland fires burn in an ecological manner, fuel complexes (surface loading, ladder fuels, canopy cover, patch sizes/age classes), should be managed to meet the appropriate fire regime for the ecosystem type as described in the *Key Ecosystem Characteristics* section, Table 1.

Fire Management Emphasis Areas

The Forests' 2007 Fire Use Amendment originally mapped two emphasis areas: protection emphasis areas and enhancement emphasis areas, available, on an ignition by ignition basis, to utilize wildland fires to benefit specific resources or to move landscapes closer to desired conditions. Due to continuing development in the wildland urban interface as well as other changing conditions, priorities, and definitions, these areas have not been spatially identified on the landscape for this Forest Planning effort; rather, criteria have been developed to identify and refine these emphasis areas as they change over time.

Decisions regarding how a specific wildland fire would be managed in either of these emphasis areas are made at the time of ignition through the Wildland Fire Decision Support System (WFDSS); wildland fires may be managed to burn with the intensity and frequency of the reference fire regime when fire weather conditions are appropriate and resources are available to successfully meet objectives. In both emphasis areas, prescribed fire and mechanical fuels treatments would still be used to enhance or protect the resources, within the constraints of other management considerations (i.e., wildlife, wilderness, etc.).

Enhancement Emphasis Areas

The first of these fire management emphasis areas, the enhancement emphasis areas, are locations where wildland fire, as a natural disturbance process, can play a key role in maintaining, restoring, and enhancing ecosystem resiliency. In the enhancement emphasis areas, there are opportunities to utilize natural ignitions to achieve desired conditions on the landscape.

Enhancement emphasis areas are identified by one or more of the following criteria:

- Wilderness areas
- Roadless areas
- Areas where fire can function as a natural process and can enhance the ecological values of the landscape
- Areas where both landscape-scale mosaics and resiliency can be enhanced by fire
- Areas where specific resource management objectives (i.e., enhancement of wildlife habitat, timber, range, watershed, fuels, etc.) can be achieved by fire
- Areas where the risk/impact of fire on valued resources is negligible or can be readily mitigated.

Protection Emphasis Areas, including the Wildland Urban Interface

The second of these, the protection emphasis areas, are located where there are identified values on the landscape, whether they are natural resource values, subdivisions, communities, private property, or other infrastructure, and where these values are at risk of being damaged or destroyed by wildland fire. In these areas, the risk or impact of fire on valued resources could be significant or catastrophic and may be unable to be mitigated in a timely manner. In the protection emphasis areas, the fire and fuels management emphasis is hazardous fuels reduction and fire suppression to protect these values.

Protection Emphasis Areas are identified by one or more of the following criteria:

- Human life
- Wildland urban interface (WUI)

- Ski areas
- Communication sites
- Transmission lines and other utility corridors
- Forest Service infrastructure
- Cultural/historic sites
- Other identified values.

The WUI on the GMUG is currently mapped as a one-mile buffer around all private land due to existing or potential human life, homes, outbuildings, fences, etc. on those private lands; however, some locations, such as communication sites, are mapped as points within the Forests. Many local communities have community wildland fire protection plans that have identified WUI utilizing a different buffer size; collaboration with local stakeholders to refine and utilize an appropriate WUI buffer can be used in the design of site-specific fuels reduction projects.

Desired Conditions

FW-DC-FFM-03: Wildland fires are actively and successfully suppressed where necessary to protect life, investments, and valuable resources. Wildland fires in the protection emphasis areas, particularly in the WUI and near infrastructure values, primarily exhibit surface fire behavior with flame lengths typically less than 4 feet; the potential for torching, crowning, and spotting, as well as the resistance to control, are low. Redundant natural and manmade barriers are present within these areas to provide both defensible space and safe locations for firefighters to be successful with suppression efforts. See also Fire and Fuels FW-OBJ-FFM-01.

Guidelines

FW-GDL-FFM-04: To reduce the risk to values, reduce fire intensity, and improve the safety of firefighters within the protection emphasis areas, active management in areas immediately adjacent to structures should result in the following characteristics:

- surface fuel loadings are 40-60% lower than in enhancement emphasis areas of the same vegetation type;
- crown base heights are 40-80% higher than in enhancement emphasis areas of the same vegetation type;
- densities/basal area of live trees may be 20-60% lower than in enhancement emphasis areas of the same vegetation type;
- ladder fuels, consisting of shrubs, brush, and young trees, are non-existent or infrequent; and
- snags are maintained at an average of less than two per acre.

FW-GDL-FFM-05: To reduce the risk to values, reduce fire intensity, and improve the safety of firefighters within the protection emphasis areas in pinyon/juniper and shrub vegetation types, 40-70% of the protection emphasis area, as measured at a subwatershed (HUC 12 scale), is maintained in strategically located early or early/mid seral stages.

FW-GDL-FFM-06: To reduce impacts from suppression activities, Minimum Impact Suppression Tactics (MIST) should be used where sensitive resources (as defined by MIST) are present.

Native Species Diversity (SPEC)

General Species Diversity

Species (General)

Desired Conditions

FW-DC-SPEC-01: Human disturbance to wildlife and fish is minimized at a scale that impacts vital functions of their life history (breeding, feeding and rearing young) with a goal of ensuring persistence of the species. Forest management provides for wildlife movement within and among National Forest System parcels. See also Ecosystems FW-DC-ECO-06.

FW-DC-SPEC-02: Forage availability is maintained or increased, where capable, and contributes to ecosystem resiliency and forage for nongame species, livestock, and big game.

Objectives

FW-OBJ-SPEC-03: During each 10-year period following plan approval, restore or enhance at least 25,000 to 80,000 acres of habitat. Of acres treated, 30 percent should be conducted in Wildlife Management Areas (MA 3.2), while other priority treatment areas should include (but are not limited to): aspen, riparian areas, ecotones, winter range in pinyon-juniper communities, connectivity areas, and designated critical habitat. Actions to help accomplish this objective may include: improving wildlife or habitat connectivity by removing unneeded structures, implementing vegetation management practices that maintain or enhance connectivity, retrofitting or designing new structures (e.g., building new or converting existing fences to wildlife-friendly fence specifications such as a lay-down fence), improving aquatic and riparian resources (e.g., remove barriers, restore dewatered stream segments, connect fragmented habitat, provide organism passage, etc.), etc. See also Wildlife Management Area MA-DC-WLDF-01.

FW-OBJ-SPEC-04: During the first 5 years following plan approval, install vent pipe screens on all restrooms at developed or dispersed recreation sites to prevent bird entrapment.

Standards

FW-STND-SPEC-05: To prevent bird entrapment, vent pipe screens must be included on facilities (e.g., new restrooms, replacement of existing restrooms, oil and gas structures, etc.). Include the specifications for installing vent pipe screens as part of the engineering plans.

Guidelines

FW-GDL-SPEC-06: To conserve wildlife and fish habitat connectivity and restore natural hydrologic function, constructed features (e.g., exclosures, water developments, range improvements, fences, and culverts) should be maintained to support the purpose(s) for which they were built and removed when no longer needed or modified to provide benefits to wildlife. New infrastructure (e.g., fences, roads, facilities, water developments) should be designed to reduce impacts to habitat connectivity, based on the best available scientific information.

FW-GDL-SPEC-07: To minimize habitat impacts and direct disturbance of raptors and migratory birds during nesting and winter periods, utilize buffers and/or timing restrictions based upon best available scientific information. Effective site-specific topographic barriers may be used to modify these buffers.

Pollinators

Desired Conditions

FW-DC-SPEC-08: Composition and phenology of native plant communities provide floral resources and nesting sites and materials to support native pollinator species and allow effective pollination as an ecosystem service. See also Ecosystems FW-DC-SPEC-08, Invasives FW-GDL-IVSP-05, and Lands FW-STND-LSU-07 regarding apiaries.

Objectives

FW-OBJ-SPEC-09: Within 10 years of plan approval, management activities on the Forests will maintain, restore, or create 106,000 acres[6] of pollinator habitat.

Guidelines

FW-GDL-SPEC-10: To maintain pollinator function in the ecosystem, application of pesticides should prevent population-level impacts to pollinators.

Bats

See FW-DC-ECO-06.

Guidelines

FW-GDL-SPEC-11: To meet the habitat needs for bats, mine closures should allow for bat access when it has been determined the mine supports or has the potential to support a bat colony.

FW-GDL-SPEC-12: To maintain habitat and reduce disturbance by human activities where known bat use and concentrations of bats occur (e.g., maternity colonies, hibernacula, or seasonal roosts), seasonal or permanent access restrictions should be applied, and the national decontamination protocol should be followed. These habitats generally include abandoned mines, caves, and other known identified features.

- Maternity sites: April 15 through September 1
- Swarming sites: August 15 through October 15 (30 minutes before sunset to 30 minutes after sunrise)
- Winter hibernacula: October 15 through May 15

FW-GDL-SPEC-13: To meet the habitat needs for roosting and reproductive female bats, nesting owls, and other cavity-dependent species; retain large live trees and snags (from the largest size class available) in residual patches during timber harvest (including salvage) and other management actions. Maintain clumps of dead and live trees of 0.25 acre or larger in areas containing a preponderance of snags exceeding 18 inches DBH. Clumps should be scattered throughout the treatment area where feasible. Live trees that are prone to wind-throw due to their height and canopy density should be removed. See also Ecosystems FW-GDL ECO-08.

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[6] This amount represents the GMUG's contribution to the agency-wide objective of maintaining, restoring, or creating seven million acres of pollinator habitat.

- Exceptions to the recommended leave-tree patch size would occur when a stand is being managed for a specific vegetation type that has a basal area of <30 square feet per acre (e.g., savanna or grassland), when recommended management for at-risk species conflicts with these guidelines, or removal of trees due to public or operational safety concerns.

Big Game Species

Desired Conditions

FW-DC-SPEC-14: Relatively undisturbed areas provide habitat blocks that function as security areas for populations of big game and other species. Migration and movement corridors provide sufficient cover to allow for relatively unabated movement of big game species across the landscape. See also Chapter 3, Wildlife Management Area section, Ecosystems FW-DC ECO-06, and Native Species Diversity FW-OBJ-SPEC-03.

Standards

FW-STND-SPEC-15: Maintain effective separation between domestic sheep and bighorn sheep on active grazing allotments. Effective separation is defined as spatial or temporal separation between bighorn sheep and domestic sheep. Tier 1 bighorn sheep herds with the greatest potential to contribute to population viability in the plan area are prioritized in managing for effective separation. Tier 2 herds, where they interact or have the potential to interact with Tier 1 herds, are also prioritized for managing for effective separation.

FW-STND-SPEC-16: To maintain effective separation among species in habitat occupied by bighorn sheep, the use of recreational pack goats and the use of goats and sheep for invasives and/or noxious weed management is prohibited.

Guidelines

FW-GDL-SPEC-17: To maintain long-term population viability and herd population and distribution objectives, activities that displace bighorn sheep, Rocky Mountain elk, mule deer, pronghorn, and moose should not be authorized in production areas during their reproductive period (Table 4) and on severe and critical winter range and winter concentration areas. The areas described are delineated by Colorado Parks and Wildlife and are updated as data or conditions change. Though these designated polygons provide baseline direction on where this use is occurring, these timing limitations could be applied to areas outside of the Colorado Parks and Wildlife delineated polygons if conditions and data support this.

Table 4. Big game timing restrictions

Species	Dates of Restriction
Production Areas	
Pronghorn antelope	May 1 – July 1
Elk	May 15 – June 30
Rocky Mountain bighorn sheep lambing areas	April 15 – June 30
Desert bighorn sheep	February 1 – May 1
Winter Range	
Pronghorn	December 1 – April 30

Species	Dates of Restriction
Elk	December 1 – April 30
Mule deer	December 1 – April 30
Rocky Mountain bighorn sheep	November 1 – April 15
Desert bighorn sheep	December 1 – April 15

FW-GDL-SPEC-18: To improve elk distribution, 30–100% of a sub-watershed should provide wildlife security habitat (patches of >250 acres).

Boreal Toad

Guidelines

FW-GDL-SPEC-19: To prevent incidental mortality and protect winter hibernacula (overwintering habitat such as small animal burrows), operating heavy equipment within a 1.6-mile radius of documented boreal toad breeding ponds should only take place when there is at least 1 foot of packed snow or 2 inches of frozen soil. See also Aquatics FW-GDL-AQTC-08 and FW-STND-AQTC-03, and Conservation Watershed Network FW-GDL-SPEC-56.

Gunnison's Prairie Dog

Standards

FW-STND-SPEC-20: To maintain population viability, ground-disturbing activities (i.e., oil and gas development, new roads, etc.) shall not be authorized on Gunnison's prairie dog colonies.

Guidelines

FW-GDL-SPEC-21: To prevent disturbances that impact population recruitment, avoid disturbance (e.g., prescribed burning, oil and gas development, etc.) of active prairie dog colonies from March 1 to June 15.

At-risk species

At-risk species include federally listed threatened, endangered, proposed, and candidate species, as well as species of conservation concern (SCC). *Note: At the time of the release of the working draft Forest Plan for public comment, the Regional Forester's list of species of conservation concern is under development. At such time that the species of conservation concern are finalized by the Regional Forester, associated plan components will be incorporated into this section, as appropriate.*

At-risk Species (General)

Desired Conditions

FW-DC-SPEC-22: Ecological conditions provide habitat contributing to survival, recovery, and conservation of species under the Endangered Species Act, improve conditions for species of conservation concern, and sustain common and uncommon native species (species of interest).

Standards

FW-STND-SPEC-23: Management actions shall maintain or improve habitat conditions in the long-term for all at-risk species, contributing to the stability and/or recovery of these species.

FW-STND-SPEC-24: Collection of plant species of conservation concern shall be permitted for research, scientific, or conservation purposes only.

Guidelines

FW-GDL-SPEC-25: To maintain viable populations of at-risk and rare plant species, ground-disturbing or other activities with negative impacts, including construction of new roads, should not occur within 600 feet of known locations of at-risk plant species populations. For at-risk plant species populations already located within 600 feet of roadsides: map locations to share with road crews prior to maintenance work, use water only for dust abatement, do not seed, spray or mow, avoid covering plants if grading road, and consider plant location during snow and ice control measures (Panjabi and Smith 2014).

FW-GDL-SPEC-26: To maintain viable populations of at-risk species, particularly in alpine habitats, the Forests will limit use (motorized or nonmotorized, foot or stock traffic) to designated routes (seasonally or in limited areas, not Forestwide); implement seasonal closures on recreational use over limited areas; limit activities that require special use permits; and/or implement other such temporary or limited-area measures as needed to reduce impacts of recreation and forest use.

Uncompahgre Fritillary Butterfly (Federally Endangered) and Nokomis Fritillary Butterfly

Standards

FW-STND-SPEC-27: To avoid direct take (Uncompahgre fritillary butterfly) and to maintain population viability (nokomis fritillary butterfly), collection of Uncompahgre fritillary and nokomis fritillary butterflies is not allowed, except for scientific purposes. Collection of Uncompahgre fritillary butterfly is authorized only under a permit obtained and administered by the U.S. Fish and Wildlife Service.

Guidelines

FW-GDL-SPEC-28: To assist in species recovery and to avoid direct species and habitat impacts, livestock grazing, livestock trailing, and new or realigned recreation trails should remain at least a 600-foot buffer distance from Uncompahgre fritillary butterfly colonies and their snow willow habitat. See also Range FW-GDL-RNG-08.

Gunnison Sage-Grouse (Federally Threatened)

Desired Conditions

FW-DC-SPEC-29: Forb and grass production and ground cover provide residual vegetation suitable for nesting cover. Self-sustaining populations of Gunnison sage-grouse thrive on areas of suitable habitat, while potentially suitable unoccupied or historic habitat is in a condition that could support population expansion. (See structural habitat guidelines, Rangewide Conservation Plan pp. 212-213, Appendix H, and Grazing Objective 1-1, p. 211; and Appendix D of the Candidate Conservation Agreement, the primary constituent elements described in the Final Rule of the critical habitat designation). Known lek sites continue to be used during breeding seasons,

and new or historic lek sites become active as the sage-grouse population increases. See also Terrestrial Ecosystems & Vegetation FW-DC-TEV-02 and Invasive Species FW-OBJ IVSP-02.

Objectives

FW-OBJ-SPEC-30: Within 10 years of plan approval, identify and permanently or seasonally close duplicative or redundant system routes and illegal routes (non-system, user-created) within 2 miles of active leks.

FW-OBJ-SPEC-31: Within 5 years of plan approval, install educational signs at all pertinent kiosks, trailheads, or road access points that serve as portals to Gunnison sage-grouse habitat to request the public to leash pets when recreating.

FW-OBJ-SPEC-32: Within 5 years of plan approval, assess and identify sections of fence lines in Gunnison sage-grouse habitat with a high potential for sage-grouse collision and mortality based on best available scientific information. Evaluate options for removal (if no longer needed), relocation (if feasible), or fence marking to increase visibility.

FW-OBJ-SPEC-33: Within 2 years of plan approval, modify authorizations for all special use permits authorizing winter activities in designated critical sage-grouse habitat (including, but not limited to, those for recreation events, outfitters, and guides), to allow for management flexibility in the event of a severe winter, consistent with Species FW-GDL-SPEC-46, to include the following condition: “When severe winter conditions are identified, in order to protect Gunnison sage-grouse, the Forest Service reserves the right to restrict permittee’s travel from identified areas and/or routes, consistent with restrictions that would be placed on general public access, from approximately December 1 to March 31.”

Guidelines

FW-GDL-SPEC-34: To maintain, improve, or enhance existing Gunnison sage-grouse habitat, surface-disturbing activities should not be permitted within 0.6 mile of a lek.

FW-GDL-SPEC-35: To minimize or avoid permanent habitat loss, ground-disturbing projects in Gunnison sage-grouse habitat should incorporate reclamation measures or design features that accelerate recovery and native vegetation re-establishment of affected sage-grouse habitat, consistent with the best available scientific information.

FW-GDL-SPEC-36: To minimize permanent habitat loss, new special use authorizations that entail new infrastructure development should be avoided in occupied Gunnison sage-grouse habitat. Exceptions: the right-of-way is the only reasonable access to a legal right, i.e., private property, water right, mineral right.

FW-GDL-SPEC-37: To avoid creating new perching or nesting opportunities for avian predators, development of tall structures (e.g., powerlines, communication towers, weather stations or other similar structures) within 2 miles from the perimeter of leks (active and inactive), as determined by local conditions (e.g., vegetation or topography), should be avoided within nesting habitat if there is the potential to disrupt Gunnison sage-grouse breeding, nesting, or use of an area.

FW-GDL-SPEC-38: To avoid or minimize habitat loss, within Gunnison sage-grouse habitat, parallel and/or co-locate new construction or infrastructure within existing development footprints to the maximum extent feasible, unless adding to existing infrastructure would be

detrimental to Gunnison sage-grouse. Parallel or co-locate new utility lines with existing overhead lines or bury lines within existing development footprints, such as road prism. Co-locate new equipment on existing communication towers, other comparable structures, or within existing comparable development footprints (proximal to other vertical infrastructure) and/or visually conceal structure in a forested area. If not possible, site new infrastructure using topographic features to suppress noise and reduce the likelihood of avian collisions.

FW-GDL-SPEC-39: To minimize loss of habitat connectivity within Gunnison sage-grouse habitat, for infrastructure that requires temporary or permanent access routes (i.e., utility lines, communication sites, or other comparable infrastructure), siting options should be evaluated in conjunction with proposed access routes to determine the location that would cause the least amount of habitat fragmentation. Access routes should use existing impacted areas (i.e., use existing roads).

FW-GDL-SPEC-40: To reduce the potential for avian predation of Gunnison sage-grouse, require new authorizations and reauthorizations for infrastructure to include the most effective perch deterrents available on all powerline poles that are within nesting habitat or within line of site of lek sites.

FW-GDL-SPEC-41: To avoid or minimize habitat degradation within Gunnison sage-grouse habitat, the integrated weed prevention practices described in Appendix A of the Gunnison Basin Candidate Conservation Agreement should be integrated into all projects with potential to introduce or spread invasive plant species. See also Invasive Species FW-STND-IVSP-03 for additional pertinent direction.

FW-GDL-SPEC-42: To minimize the risk of collision and predation within Gunnison sage-grouse habitat, remove or relocate fences if feasible, and build new fences and maintain existing fences to wildlife-friendly specifications as recommended by Colorado Parks and Wildlife (Hanophy 2009) or best available scientific information.

FW-GDL-SPEC-43: To minimize disturbance during the breeding season in Gunnison sage-grouse habitat, seasonal timing restrictions on construction, maintenance, and access (except emergency maintenance), including public access, should be applied from March 1 through May 15. Roads should be closed to motorized and mechanized travel during this time period, with the following exceptions: permittees, access to private property, emergency maintenance, law enforcement, and administrative use. Travel associated with excepted uses should occur after 9 a.m.

FW-GDL-SPEC-44: To maintain population viability during critical biological periods for Gunnison sage-grouse, the Flattop Mountain area on the Gunnison Ranger District should be seasonally closed from December 1 to June 15 to motorized and mechanized travel, or all forms of public uses, if necessary to sustain the Gunnison sage-grouse population, with the following exceptions: permittees, access to private property, emergency maintenance, law enforcement and administrative use. Travel associated with excepted uses should occur after 9 a.m. See also MA-STND-WLDF-02.

FW-GDL-SPEC-45: To avoid disturbance to sage-grouse during the breeding season, noise resulting from management activities from March 1 to July 15 should not exceed disturbance thresholds in breeding habitat, as determined by best available scientific information.

FW-GDL-SPEC-46: To minimize impact to Gunnison sage-grouse during severe winters, area travel closures should be implemented to protect identified grouse concentration areas. Closure decisions will be made in the context of managing for multiple resources, including big-game concentrations, public recreation, and range condition, and could occur anytime from December 1 to March 31. The following criteria should be considered to determine if winter conditions warrant an area closure:

- Snow depth
- Temperature
- Snow condition and consistency
- Prior year's range condition.

FW-GDL-SPEC-47: To avoid disturbance to sage-grouse during critical biological periods, recreation events, outfitting, and guiding permits should avoid Gunnison sage-grouse habitat.

Canada Lynx (Federally Threatened)

Desired Conditions

FW-DC-SPEC-48: Connected forested habitats allow lynx and other large and medium size carnivores to move long distances in search of food, cover, and mates (Ruediger et al. 2000, Interagency Lynx Biology Team 2013) within and between lynx analysis units. Habitat connectivity allows lynx movement within identified linkage areas between mountain ranges, adjacent forests, and across highways.

FW-DC-SPEC-49: Canada lynx populations and habitat on the Forests contribute toward range-wide species conservation and recovery, consistent with the best available scientific information (Lynx Conservation Assessment and Strategy or most recent conservation plan). Each lynx analysis unit contains a diversity of seral stages, including early, mid, and late-successional subalpine coniferous forest and mixed aspen-conifer stands. Regenerating conifer stands provide habitat for snowshoe hares. Spruce-fir stands impacted by spruce-bark beetles are regenerating. Lynx analysis units contain structural habitat diversity (uneven age classes) to support prey species. See also FW-GDL-TMBR-09.

Objectives

FW-OBJ-SPEC-50: Within 3 years of plan approval, update mapping that identifies snow-compacting activities, including designated and groomed routes and areas of persistent, winter-long snow compaction within each lynx analysis unit.

Standards

FW-STND-SPEC-51: The Southern Rockies Lynx Amendment direction (Appendix 2), as amended and modified by the GMUG Forest Plan record of decision, shall be applied.

FW-STND-SPEC-52 (VEG S7): Harvest activities in stands that represent high-quality lynx habitat may occur in up to, but not more than, 7 percent of identified high-probability lynx use areas within areas identified as suitable for timber production over a period of 15 years from the date of the forest plan decision. Harvest activities in VEG S7 stands, in combination with all vegetation management activities, including incidental damage resulting in either stand initiation

structural stage conditions, a reduction of horizontal cover, or both, are tracked for 15 years from the date of the forest plan decision. See also Appendix 2 for more background on this standard.

Guidelines

FW-GDL-SPEC-53: To maintain snowshoe hare occupancy and the lynx competitive advantage over other predators during winter, concentrate recreation activities and manage over-the-snow winter travel routes for no net increase in snow compaction at the scale of each lynx analysis unit.

Conservation Watershed Network

Target species for the selected conservation watershed networks, and the hydrologic unit 12 codes (HUC 12) are listed in Table 5.

Table 5. Target species and HUC 12 codes for subwatersheds

Subwatershed	HUC12 Code	Target Species	National Forest Unit
North Fork Escalante Creek	140200050303	Colorado River Cutthroat Trout	Uncompahgre
Kelso Creek	140200050302	Colorado River Cutthroat Trout	Uncompahgre
Clear Fork Muddy Creek	140200040202	Colorado River Cutthroat Trout	Gunnison
Paonia Reservoir	140200040401	Colorado River Cutthroat Trout	Gunnison
Robinson Creek	140200040303	Colorado River Cutthroat Trout	Gunnison
Upper Smith Fork	140200021201	Colorado River Cutthroat Trout	Gunnison
Steuben Creek	140200020402	Colorado River Cutthroat Trout	Gunnison
Fall Creek	140300030108	Colorado River Cutthroat Trout	Uncompahgre
Headwaters Buzzard Creek	140100051102	Boreal Toad	Grand Mesa
Upper East River	140200010201	Boreal Toad	Gunnison
Texas Creek	140200010104	Boreal Toad	Gunnison

Desired Conditions

FW-DC-SPEC-54: Conservation watershed networks have high-quality habitat and functionally intact ecosystems that contribute to and enhance conservation and recovery of specific target species. Each network contributes to establishment of a meta-population to improve the resiliency of the respective population.

Objective

FW-OBJ-SPEC-55: Within 5 years of plan approval, complete a watershed plan identifying major threats to target species. Within 10 years of plan approval, complete two activities to address these threats.

Guidelines

FW-GDL-SPEC-56: To protect habitat for boreal toad in the Upper East River subwatershed (140200010201), where there is no known occurrence of *Batrachochytrium dendrobatidis*—the causative pathogen for the chytrid fungus—heavy equipment should undergo decontamination protocols.

Paleontology (PLEO)

Desired Conditions

FW-DC-PLEO-01: Paleontological resources are managed to maintain and/or expand a range of sustainable multiple uses of such resources, including but not limited to educational/interpretation, research, recreational, and cultural uses.

Soil Resources (SOIL)

Desired Conditions

FW-DC-SOIL-01: Soil quality and function sustain ecological processes.

Standards

FW-STND-SOIL-02: Vegetation management activities shall not create detrimental soil conditions, including loss of ground cover, severely burned soils, detrimental soil displacement, erosion or compaction, on more than 15 percent of an activity area. In activity areas where less than 15 percent detrimental soil conditions exist from prior activities, the cumulative detrimental effect of the current condition and proposed activity must not exceed 15 percent following project implementation and restoration. In areas where more than 15 percent detrimental soil conditions exist from prior activities, the effects from project implementation and restoration must address currently impaired soil functions to improve the long-term soil condition in comparison to pre-treatment condition. See also Watershed FW-STND-WTR-05.

FW-STND-SOIL-03: When decommissioning roads, temporary roads, skid trails, landings, burn pile scars, and non-system roads, use treatment methods that have been demonstrated to improve soil productivity and quality.

Guidelines

FW-GDL-SOIL-04: To protect soil quality, ground-based equipment for vegetation management should only operate on slopes less than 40 percent. Exceptions will be considered only with site-specific analysis where soil, slope, and equipment are determined appropriate to maintain soil function.

FW-GDL-SOIL-05: To maintain soil quality and stability, ground-disturbing management activities should not occur on landslide-prone areas.

FW-GDL-SOIL-06: To provide nutrients and reduce soil erosion, project activities should provide sufficient effective ground cover in reference to site potential. Coarse woody debris is retained following management activities per FW-GDL-ECO-08.

See also FW-GDL-ECO-05.

Watersheds and Water Resources (WTR)

Desired Conditions

FW-DC-WTR-01: Watershed conditions and the integrity of public water supplies are maintained or improved, and priority watersheds achieve or are moving toward a higher

functioning condition class as defined by the national watershed condition framework (or similar protocol). See also *Ecosystem* section and FW-INFR-OBJ-03.

FW-DC-WTR-02: The Forest Service and stakeholders actively coordinate in sustaining ecological and hydrologic processes to continue to provide critical water supplies to communities and water users.

FW-DC-WTR-03: State of Colorado water quality standards are met and State-classified uses are supported for all waterbodies. Water quality for those waterbodies listed as impaired or potentially impaired on the State of Colorado 303(d) list and Monitoring and Evaluation list, respectively, move toward fully supporting State-classified uses.

Objectives

FW-OBJ-WTR-04: Over the life of the plan, trend at least 15 percent of subwatersheds toward improved watershed conditions, including their chemical, physical, and biological attributes, based upon the Watershed Condition Framework or other accepted protocols. Actions to help accomplish this objective may include: rehabilitating areas to reduce erosion and sedimentation delivery to waterbodies, improving 303(d) listed streams, and/or other passive or active restoration efforts. See also Infrastructure FW-OBJ-INFR-03 and Ecosystems FW-DC-ECO-01.

Standards

FW-STND-WTR-05: Projects, including those in the riparian management zone and involving rangeland infrastructure, and all roads, including temporary roads, will comply with Watershed Conservation Practices Handbook (R2 FSH 2509.25 and FS 990A or equivalent direction). See also *Transportation*, *Riparian Management Zone*, and *Range* sections.

Part III: Multiple Uses and Ecosystem Services of the Forests

Cultural and Historic Resources (CHR)

Desired Conditions

FW-DC-CHR-01: Significant, vulnerable cultural resources are not only identified, protected, evaluated, and interpreted, but are also stabilized, rehabilitated, or scientifically studied for their information potential in coordination with tribes and stakeholders. Cultural resources provide enduring, key ecosystem services: a sense of place and community identity, and/or opportunities for cultural tourism.

Objectives

FW-OBJ-CHR-02: Within 5 years of plan approval, areas of Tribal importance, including discrete cultural landscapes, are spatially identified based on cultural affiliation, time period, and/or relationship with natural resources and features.

FW-OBJ-CHR-03: Within 5 years of plan approval, fire-sensitive cultural resource locations (e.g., historic structures, wickiups, and culturally-modified trees) are identified in Heritage GIS in order to facilitate protective measures during wildland fire management.

FW-OBJ-CHR-04: Within 5 years of plan approval, identify and map populations of Osha *(Ligusticum porter)* for Tribes.

Standards

FW-STND-CHR-05: Heritage staff are notified as soon as possible during unplanned wildland fires in order to determine the presence or likelihood of threatened cultural resources and to coordinate appropriate protection measures.

FW-STND-CHR-06: Fire-sensitive cultural resource (e.g., historic structures, wickiups, and culturally modified trees are protected during prescribed fires, when feasible during wildland fires, or as requested by tribes.

Guidelines

FW-GDL-CHR-07: To preserve a sense of place and community identity, historic structures and buildings are considered for adaptive reuse and/or leasing. See also Infrastructure FW-GDL-INFR-07.

Designated Trails (DTRL)

Designated trails include national scenic, historic, and recreation trails. In the Working Draft Forest Plan, Designated Trails encompass a mapped area of approximately 77,600 acres (2.5% of the Forests) that overlays multiple other Management Areas.

Continental Divide National Scenic Trail

Desired Conditions

FW-DC-DTRL-01: The Continental Divide National Scenic Trail is a well-defined trail that provides for high-quality hiking and horseback riding opportunities, and other compatible non-motorized trail activities, in a naturally-appearing setting along the Continental Divide. Where possible, the trail provides visitors with expansive views of the natural landscapes along the Continental Divide. See also Scenery FW-GDL-SCNY-03.

FW-DC-DTRL-02: The Continental Divide National Scenic Trail can be accessed from multiple locations, allowing visitors to select the type of terrain, scenery, and trail length (e.g., ranging from long-distance to day use) that best accommodate their desired outdoor recreation experience(s).

- Wild and remote backcountry segments provide opportunities for solitude, immersion in natural landscapes, and primitive outdoor recreation.
- Frontcountry and easily accessible trail segments complement local community interests and contribute to their sense of place.

FW-DC-DTRL-03: The Continental Divide National Scenic Trail is well-maintained, signed, and passable.

Objectives

FW-OBJ-DTRL-04: Within 10 years of plan approval, relocate the Continental Divide National Scenic Trail off of roads.

Standards

FW-STND-DTRL-05: No extraction of mineral materials subject to 36 CFR 228 Subpart C shall occur within the visible foreground, up to one half-mile of either side of the Continental Divide National Scenic Trail.

FW-STND-DTRL-06: Existing motorized use may continue on the Continental Divide National Scenic Trail, as long as it does not substantially interfere with the trail's nature and purpose.

FW-STND-DTRL-07: New motorized events shall not be permitted on the Continental Divide National Scenic Trail. Existing permitted motorized events may continue.

FW-STND-DTRL-08: Motorized use shall not be allowed on newly constructed segments of the Continental Divide National Scenic Trail.

Guidelines

FW-GDL-DTRL-09: If management activities result in short-term impacts to the scenic integrity of the Continental Divide National Scenic Trail, mitigation measures should be included, such as screening, feathering, and other scenery management techniques to minimize visual impacts within and adjacent to the trail (within visible foreground, up to one half-mile of the trail at a minimum).

FW-GDL-DTRL-10: To promote high-quality scenic, primitive hiking and horseback riding opportunities along the Continental Divide National Scenic Trail, the minimum trail facilities necessary to safely accommodate the amount and types of use anticipated on any given trail segment should be provided.

FW-GDL-DTRL-11: To conserve natural, historic, and cultural resources, the Continental Divide National Scenic Trail should not be used for timber pile landings or as a temporary road for any purpose.

FW-GDL-DTRL-12: To conserve natural, historic, and cultural resources, hauling or skidding along the Continental Divide National Scenic Trail should be allowed only where the trail is currently located on an open road and no other reasonable options are available.

FW-GDL-DTRL-13: To ensure continuous recreational access along the Continental Divide National Scenic Trail, alternate routes should be made available in the case of temporary closures resulting from natural events, such as fire or flood, or land management activities.

FW-GDL-DTRL-14: To promote naturally appearing settings, unplanned fires in the visible foreground (up to one-half mile) of the Continental Divide National Scenic Trail should be managed using minimum impact suppression tactics or other tactics appropriate for the protection of national scenic trail values. Prescribed fires in the foreground of the Continental Divide National Scenic Trail should be managed to incorporate national scenic trails values. Construction of firelines by heavy equipment should not be allowed within the visible foreground of the Continental Divide National Scenic Trail unless necessary for emergency protection of life and property.

FW-GDL-DTRL-15: To protect the CDNST's scenic values, special-use authorizations for new communication sites, utilities, and renewable energy sites should not be visible within the visible foreground (up to one-half mile), and should not be visually dominant within the

middleground viewshed (up to 4 miles). **Exception:** the Utility Corridor Management Area and Monarch Ski Area.

FW-GDL-DTRL-16: To maintain the integrity of the Continental Divide National Scenic Trail and the values for which it was designated, new linear utilities and special use authorizations that cross the trail should be avoided. Where unavoidable, these should be limited to a single crossing of the trail per special user authorization. **Exception:** the Utility Corridor Management Area and Monarch Ski Area.

FW-GDL-DTRL-17: To promote a naturally appearing, non-motorized setting on the Continental Divide National Scenic Trail, constructing permanent roads or motorized trails across or adjacent to the trail should be avoided.

Old Spanish National Historic Trail

Desired Conditions

FW-DC-DTRL-18: The Old Spanish National Historic Trail maintains its nature and purpose, sustains its historic, rugged, scenic, and spacious character; and cultural landscapes, landmarks, and traditional cultural properties are preserved along the trail. Travelers along the trail have opportunities to learn about its history and significance, and to experience and appreciate the cultural and natural environment that traders experienced in their travels. Trailside interpretation and related visitor information services enhance visitor appreciation of the outdoors, natural resources, history, and scenic values, while also promoting stewardship and protection of the trail and cultivating economic development opportunities for heritage tourism.

Objectives

FW-OBJ-DTRL-19: Within 10 years of plan approval, sign and interpret 5 miles of the Old Spanish National Historic Trail.

National Recreation Trails

Desired Conditions

FW-DC-DTRL-20: The Bear Creek and Crag Crest National Recreation Trails are well-maintained, signed, and passable, and conflicts among recreation uses are rare. These trails contribute to the health, conservation, and recreation goals and values of the communities in which they are located and the forest visitors who use them. The Bear Creek and Crag Crest National Recreation Trails provide high-quality, nonmotorized recreation opportunities where visitors can experience the natural-appearing and historic landscapes of the area.

Objectives

FW-OBJ-DTRL-21: Within 5 years of plan approval, condition surveys will be completed and deferred maintenance needs will be initiated along the Bear Creek and Crag Crest National Recreation Trails.

Energy and Mineral Resources (ENMI)

All Minerals or Energy Projects

Desired Conditions

FW-DC-ENMI-01: Abandoned and inactive mines disturbed by past mineral exploration and mine development have been returned to stable conditions and an appropriate, functioning, vegetative state, and do not pose health, safety, or environmental hazards. See also Native Species Diversity FW-GDL-SPEC-11.

For additional pertinent desired conditions, see Social and Economic Environment FW-DC-SCEC-01.

Standards

See also *Watersheds and Water Resources* section.

FW-STND-ENMI-02: Reclamation plans will be developed, approved, and reviewed routinely for all authorized mineral projects. Reclamation plans will be designed to return the land to productive uses consistent with ecological goals, or to support other management activities once exploration, development or production activities are complete. Reclamation bonds must not be released until monitoring demonstrates reclamation success to a level defined in the reclamation plan.

FW-STND-ENMI-03: Permanent structures and/or occupancy for mining purposes are limited to only those that are necessary and incidental to approved mining operations.

Guidelines

FW-GDL-ENMI-04: To minimize long-term monitoring and maintenance requirements, mine reclamation should use a geomorphic approach that results in landforms similar to adjacent natural terrain and hydrologic functions similar to natural systems.

Objectives

See FW-OBJ-TEV-04.

Locatable Minerals

With regard to locatable minerals requirements, see also direction in 36 CFR 228 Subpart A, the applicable Wilderness Act(s), and other applicable direction.

Salable Minerals (also known as Mineral Materials)

With regard to salable minerals requirements, see also direction in 36 CFR 228 Subpart C. Development of salable minerals requires inclusion of forest plan direction from numerous other resource areas that may occur in the form of project design features, conditions of approval, or others.

Standards

FW-STND-ENMI-05: Salable minerals shall not be developed on segregated or withdrawn lands where removal is prohibited by statute or order. If not specifically prohibited, removal will not be detrimental to reason for withdrawal. 36 CFR 228.41(b)(1, 2).

FW-STND-ENMI-06: Saleable minerals shall not be developed on unpatented mining claims unless mineral claimants are given notice and removal does not endanger or materially interfere with activity on a claim. 36 CFR 228.41(b)(3).

See also FW-STND-DTRL-05.

Leasable Minerals and Energy Resources including Oil and Gas, Coal, Geothermal, and Others

Development of leasable minerals will require inclusion of direction from numerous other resource areas in the Revised Forest Plan. These components are incorporated at the development stage as project design features and/or conditions of approval.

Standards

Specific to leasing actions, the following standards apply:

FW-STND-ENMI-07: Ensure that new mineral leases within Colorado Roadless Areas are consistent with the Colorado Roadless Rule (36 CFR 294.46).

FW-STND-ENMI-08: The unsuitability assessment in 43 CFR 3461 will be conducted at the project-level when considering specific lands for coal leasing. See also Appendix 10, Coal Unsuitability Assessment – *Forthcoming at the time of the release of the Working Draft Forest Plan.*

Objectives

FW-OBJ-ENMI-09: Within 3 years of plan approval, revise oil and gas leasing analysis to identify lands open or closed to oil and gas leasing.

Additional Direction

Geothermal

See Appendix 5, Relevant Federal Statutes, Regulations, Policies, and Agreements, Other Management. Management is guided by the Final Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States (USDI and USDA 2008), or any subsequently adopted programmatic analysis for regional geothermal leasing, unless more restrictive stipulations are prescribed by the GMUG.

Solar and Wind

Solar and wind are addressed under special use management direction in agency policy in FSH 2709.11 Chapters 70 and 80. Forest plan direction identified for numerous other resource areas will apply that may occur in the form of conditions of approval, project design features, or other project requirements.

Hydroelectric

Hydroelectric plants are operated under special use management direction in agency policy in FSM 2770 and FSH 2709.15 Chapter 60, authorized under several acts (Federal Power Act of June 20, 1920, Acts of March 3, 1899, and June 25, 1910, and Energy Policy Act of October 24,

1992) and codified in 7 CFR Section 2.60(a)(28). Forest plan direction identified for numerous other resource areas will apply that may occur in the form of conditions of approval, project design features, or other project requirements.

Energy Infrastructure

Energy infrastructure is authorized under the detailed requirements of the applicable special uses or minerals laws, regulations, and policies. Forest plan direction identified for numerous other resource areas will apply.

Infrastructure (INFR)

Applies to all infrastructure: Fire, Administrative, and Other – Range; Recreation; Historical/Heritage Facilities; and Permitted Special Use Infrastructure.

Desired Conditions

FW-DC-INFR-01: Safe, accessible, functionally efficient, aesthetically pleasing, energy-efficient, and cost-effective buildings and related facilities (owned, operated, occupied, or authorized by the Forest Service) needed to achieve resource management objectives are maintained or constructed; un-needed facilities are decommissioned.

FW-DC-INFR-02: Infrastructure is resilient to climate change/extreme weather events. See Appendix 3, Management Approaches, Infrastructure –*Planning for Resilient Infrastructure*.

Objectives

FW-OBJ-INFR-03: Within 10 years of plan approval, five actions will be completed in vulnerable and/or poor/impaired watersheds[7] to reinforce existing Forest Service infrastructure to withstand extreme weather events. See Appendix 3, Management Approaches, Infrastructure – *Planning for Resilient Infrastructure*. See also FW-DC-WTR-01.

Standards

FW-STND-INFR-04: Facilities meet all applicable health and safety and accessibility standards.

FW-STND-INFR-05: Structures, signage, and other built environment elements reflect the style and character that blends with the local environment and are consistent with the scenic character for the given area. See also *Scenery* section.

FW-STND-INFR-06: Building leases, facility development, and facility maintenance contracts will require treatment and integrated management of invasive species. See also *Invasive Species* section.

Guidelines

[7] As identified in the GMUG Watershed Vulnerability Assessment (USDA 2013a) and the Watershed Condition Framework ratings.

FW-GDL-INFR-07: To ensure infrastructure operations on the GMUG are sustainable, consider historic structures and buildings for adaptive reuse/leasing. See also Cultural and Historic Resources FW-GDL-CHR-07.

FW-GDL-INFR-08: To ensure infrastructure is resilient to climate change and extreme weather events, facilities should not be located within floodplain boundaries for a 100-year-flood as a minimum, and should be designed to accommodate extreme weather events. Protect present and future facilities that cannot be located outside of the 100-year-floodplain by structural mitigation (deflection structures, riprap, etc.).

Transportation System (TSTN)

Desired Conditions

FW-DC-TSTN-01: A minimum and efficient forest transportation system is in place and maintained at least to the minimum standards appropriate for safe public access, to support multiple uses that contribute to social and economic sustainability in the plan area, and the protection of resources. Conversely, road closures are effective in eliminating motor vehicle traffic, and road decommissioning is effective in eliminating motor vehicle traffic and restoring ecological integrity.

Standards

See also *Watersheds and Water Resources* section.

FW-STND-TSTN-02: National Forest System roads are well-marked through the proper use of signage. National Forest System roads intended for use by high-clearance vehicles are clearly distinguished from those intended for standard passenger cars.

FW-STND-TSTN-03: All temporary roads will be closed and rehabilitated within 2 years following completion of the use of the road, which involves re-contouring where significant side slope exists, elimination of ditches and other structures, out-sloping during construction, removal of ruts and berms, removal of culverts or other instream structures and associated fills, effectively blocking the road to normal vehicular traffic where feasible, and construction of drainage features such as cross ditches and water bars. Invasive species monitoring will occur after road decommissioning and will be followed by weed treatments where needed. Effectiveness of road closures will also be monitored.

FW-STND-TSTN-04: National Forest System roads determined through the NEPA process to be not needed are either a) converted to another use, such as a trail, or b) decommissioned within 3 years of the determination.

FW-STND-TSTN-05: Methods used to decommission, close, or relocate routes are appropriate to the setting and designed and maintained to blend with the natural environment and with the established scenic integrity objective for the given area. See also Appendix 4.

Lands and Special Uses (LSU)

Lands

Desired Condition

FW-DC-LSU-01: National Forest System lands are consolidated, providing reasonable access and efficiency of land management while protecting resource values. All National Forest System roads and trails that access the Forest or cross private inholdings have legal access or a documented right-of-way, and boundary lines and property corners are easily locatable.

Access

Standards

FW-STND-LSU-02: For access requests, grant Federal Land Policy and Management Act of 1977 (FLPMA) permits (which do not convey any interest in real property, are not transferrable, and are issued for a set term) to ensure the minimal encumbrance on National Forest System lands necessary to facilitate the use. Exception: when the long-term use is highly likely and the disposal of National Forest System land is highly unlikely, a FLPMA easement may be granted (which conveys a limited interest in real property, is transferrable, and generally has no expiration date). FLPMA easements shall not be granted to simply avoid future permit reissuances or other similar action.

FW-STND-LSU-03: Only one access road or trail to parcels shall be granted.

Guidelines

FW-GDL-LSU-04: To improve processing efficiency, for roads providing access to more than one parcel, the special use permit should be issued to a road users association or homeowners association, when such associations exist.

FW-GDL-LSU-05: To improve accessibility for the public, road and trail rights-of-way acquisitions meeting at least one of the following criteria should be prioritized:

- Identified as a priority by and in cooperation with local governments and State and Federal agencies, and/or
- Improves access for recreationists including hunting, fishing, and trail users.

Special Use Permits

See also *Infrastructure* direction.

Standards

FW-STND-LSU-06: Special uses that can reasonably be met on private lands shall not be approved unless they are in the public interest.

FW-STND-LSU-07: The Forests shall not grant permits for requests for new apiaries (specified in FSH 2709.11, Chapter 10, use code 214). See also Pollinators, FW-DC-SPEC-08.

FW-STND-LSU-08: To maximize public benefit of the special use program, special use requests shall be addressed according to the following priorities (in order of priority):

1. Those related to public safety (i.e., emergency communication infrastructure; upgrades to meet safety standards).
2. Those contributing to the general public benefit (i.e., public access; a reliable supply of electricity, natural gas, or water; a communication network and/or broadband).

3. Those that benefit only private users (i.e., road permits, special use authorizations for an individuals' powerlines, telephones, waterlines, etc.).

See also Invasive Species FW-STND-IVSP-04.

Guidelines

FW-GDL-LSU-09: To reduce the number of acres encumbered, structures associated with special uses should be concentrated, paralleled, or co-located on existing sites or designated corridors.

Boundary Lines

Standards

FW-STND-LSU-10: Boundary lines shall be surveyed, marked, and recorded in support of land and resource management objectives, in response to litigation, and to resolve encroachment.

FW-STND-LSU-11: Boundary lines for non-National Forest System land purposes (i.e., fence construction) are the responsibility of the private landowner.

Land Acquisitions and Conveyances

Standards

FW-STND-LSU-12: Newly acquired lands shall be assigned a management area consistent with existing, adjacent management areas.

Range (RNG)

Desired Conditions

FW-DC-RNG-01: Livestock grazing and its associated activities occur on National Forest System lands. These activities contribute to the stability and social, economic, and cultural aspects of rural communities while maintaining or achieving desired ecological conditions. See Native Species Diversity FW-DC SPEC-02 and Socioeconomics FW-DC-SCEC-01.

Objectives

FW-OBJ-RNG-02: Annually, maintain ecological integrity and productivity of all ecotypes by evaluating allotment management with permit holders to adjust timing, intensity, and frequency of livestock grazing when necessary to respond to changing ecological conditions or resource concerns.

FW-OBJ-RNG-03: During each 10-year period following plan approval, permittees are to maintain or reconstruct at least 10% of the range improvements assigned in their term grazing permits.

FW-OBJ-RNG-04: Every 3 years following plan approval, conduct sufficiency reviews of at least 10% of grazing decisions to ensure that NEPA-based decisions remain current and sustainable for all active grazing allotments.

Standards

See also *Key Ecosystem Characteristics, Terrestrial Ecosystems and Vegetation,* and *Watersheds and Water Resources* sections and FW-STND-SPEC-15 and 16.

FW-STND-RNG-05: Short- and long-term monitoring methods (i.e., moderate utilization level, grazing response index, canopy cover) shall be used to determine if grazing objectives for each allotment (as identified through the NEPA process and defined in their allotment management plan) are being met (using protocols such as May 2014; Holechek 1988; Holechek et al. 2010; Rangeland Analysis Training Guide, 1996; Colorado Rangeland Monitoring Guide, 2014). If short-term monitoring shows that objectives aren't being met, rangeland management personnel shall adjust the timing, frequency, and/or intensity of livestock grazing to meet objectives. If long-term monitoring reflects the same, management direction shall be changed.

FW-STND-RNG-06: No salting or mineral supplementation shall occur on or adjacent to known populations and/or habitat of at-risk plant species, highly erosive soils, biological soil crusts, within 0.25 mile of a water body or riparian management zone, nor in known archeological sites and other historic properties. See also FW-GDL-ECO-05.

FW-STND-RNG-07: Prior to authorizing grazing following wildland fire, rehabilitation, or seeding, Forest Service rangeland management specialist(s) will confirm range readiness on a case by case basis utilizing ecological condition, best management practices, desired conditions, and best available scientific information. Livestock use may be authorized for rehabilitation treatments (i.e., to prepare a site before seeding, incorporate seed and organic matter into the soil, remove noxious weeds, etc.).

Guidelines

FW-GDL-RNG-08: To minimize bank destabilization and associated sedimentation, new and revised allotment management plans should limit or prevent concentrated livestock use in riparian management zones and wetland-upland interfaces, including those containing habitat for Uncompahgre fritillary butterfly, via stocking levels, duration, timing, and/or physical structures (such as off-site water developments or hardened stream crossings).

FW-GDL-RNG-09: To maintain rangelands in satisfactory condition and improve sites in unsatisfactory condition, livestock grazing should not exceed moderate utilization (40 to 60% of the current above-ground biomass) in key areas. Exceptions may be allowed to meet objectives related to scientific studies, fuels reduction, invasive plant control, or other targeted grazing or site-specific objectives. Utilize the Rangeland Analysis Training Guide, 1996, and the Colorado Rangeland Monitoring Guide, 2014, when assessing rangeland condition (as well as other methods/guides as they are developed).

FW-GDL-RNG-10: To allow plants time to recover (grow) following livestock grazing, grazing systems should be designed so that plants are generally not grazed more than once a season, not grazed the same time every year, and not during the entire vegetative growth period (season-long grazing), except where determined necessary to achieve or maintain desired ecological conditions.

FW-GDL-RNG-11: To minimize soil compaction and impacts to alpine and riparian areas and at-risk species, bed grounds for sheep should be used less than 3 days. Bed grounds should be located on rocky or otherwise hardened sites, and be located at least 0.25 mile away from riparian management zones, at-risk or rare plant species, or known at-risk butterfly habitat.

Trailing sheep through these sensitive areas should be avoided. See also At-risk Species FW-DC SPEC-22.

FW-GDL-RNG-12: To minimize unintended wildlife impacts, infrastructure for livestock should incorporate best management practices and the Watershed Conservation Handbook (or equivalent), i.e., installing wildlife escape ramps in troughs, designing ponds with a gentle slope to avoid entrapping animals, covering open-topped water storage tanks, wire spacing on fencing to avoid wildlife entrapment. See also FW-SPEC-GDL-06.

FW-GDL-RNG-13: To maintain quality and quantity of water flows to, within, or between groundwater-dependent ecosystems, spring developments should have spring orifices, points of diversion, pools, and lengths of runout channels protected (e.g., excluded with fences or barriers) from livestock trampling and have flow controls to limit the quantity diverted to that needed by the livestock. See Riparian FW-DC-RMGD-05.

FW-GDL-RNG-14: To reduce impacts to soil and vegetation, the concentrated use of montane meadows for livestock grazing should be avoided when soils are saturated. When no other options are available, use should be rotated annually. See also Terrestrial Ecosystems and Vegetation FW-DC-TEV-03.

FW-GDL-RNG-15: To minimize impacts to soil and vegetation, new stock tanks and wildlife waters should be placed in locations that reduce concentrations of grazing animals and subsequent vegetation and soil effects in open grasslands and meadows. See also Terrestrial Ecosystems and Vegetation FW-DC-TEV-03.

Recreation (REC)

Desired Conditions

FW-DC-REC-01: The GMUG provides a variety of high-quality, year-round recreation opportunities across a range of resilient recreation settings. Recreation opportunities and facilities meet persisting and evolving needs of diverse user groups. Unique cultural, historical, and ecological resources are featured through recreation opportunities, education, and interpretation, which connect visitors to the past, present, and future of the Forests.

FW-DC-REC-02: Recreation is integrated with other management activities that may be more prominent than recreation in certain places, but these multiple uses are compatible. Most visitors are focused in recreation emphasis management areas. Outside of these concentrated use areas, the Forests provide for a myriad of developed and dispersed recreation opportunities, which are available for a variety of recreation uses, group sizes, and densities.

See also *Why the GMUG Matters: Distinctive Roles and Contributions in the Larger Landscape* and the *Socioeconomics* sections, FW-DC-SCEC-01.

Objectives

FW-OBJ-REC-03: Within 10 years of plan approval, ensure access portals (e.g., trails, parking lots, and trailheads) to 14,000-foot peaks include adequate facilities to mitigate ecological impacts associated with increasing use.

FW-OBJ-REC-04: Annually, maintain 500 miles of Forest Service trails, prioritizing those in the high-use recreation areas (MA 4.2).

Standards

FW-STND-REC-05: Motorized and mechanized use shall be restricted to designated system routes. Motorized and mechanized travel includes, but is not limited to, travel by bicycles, electric-assist bicycles, mountain bikes, unicycles, tricycles, skateboards, and mountain boards.

FW-STND-REC-06: Designate or otherwise manage (i.e., harden for more long-term, concentrated use; temporarily close and rehabilitate; institute a permit system; prohibit camping via closure order, etc.) dispersed campsites when use levels result in unacceptable ecological impacts. Measured at the scale of a drainage or localized geographic area such as a forest road or a lake, unacceptable impacts include a cluster of 15 or more campsites, with multiple campsites rating over a 6 on the Overall Impact Rating using the National Minimum Recreation Site Monitoring Protocol. Indications of unacceptable ecological impacts and a general characterization of unsustainable use levels are outlined in the bullets below and measured through the protocol. When addressing campsites, see *Ecosystems - Riparian Management Zone* section and Infrastructure FW-STND-INFR-05 for more detailed direction.

- Ecological impacts – Observable indicators of unacceptable ecological impacts include sparse ground vegetation due to soil compaction, widespread bare mineral soil, and/or evident soil erosion. Additional signs may include exposed tree roots and/or reduced vegetation vigor.
- Unsustainable use levels – An indicator of unsustainable use levels is the expansion of dispersed campsites. This includes the growth of the size and number of campsites using the minimum protocol method for rapid assessment. Expansion in the number and size of sites indicates that the existing infrastructure is crowded and overflowing during peak periods.

FW-STND-REC-07: Institute responsive management actions in day-use areas when unacceptable ecological impacts and/or unsustainable use levels occur. Indications of unacceptable ecological impacts and unsustainable use levels are outlined in the bullets below. Possible management actions may include: developing a site-specific visitor use management plan; adjusting infrastructure, signage, and/or amenities; implementing a permit, fee, or reservation system; allocating use-type days (e.g., odd calendar days or only Wednesday through Saturday for certain uses); and/or seeking partnership opportunities to limit impacts (i.e., shuttle system or stewardship education), etc.

- Ecological impacts – Indicators of unacceptable ecological impacts can include large areas of denuded vegetation, unmanaged sanitation issues (trash accumulation, human waste, etc.), eroded trails and streambanks, and/or water quality degradation.
- Unsustainable use levels – Indicators of unsustainable use levels can include considerably decreased visitor satisfaction, persistent use conflicts, parking issues (i.e., congestion, reduced safety, and unauthorized use), and/or evident burden on other existing infrastructure.
- Other considerations that may inform day-use area management could include concerns voiced from local communities, partners, and/or user groups.

Guidelines

FW-GDL-REC-08: To reduce ecological impacts, the Forests shall prohibit building, maintaining, attending, or using a campfire within the riparian management zone. See also *Riparian Management Zones* section.

FW-GDL-REC-09: To prevent the creation of unauthorized routes, particularly within 100 feet of water, build natural-appearing barriers that discourage passage when unauthorized routes are created. See also *Riparian Management Zones* section.

FW-GDL-REC-10: To maintain or improve the recreation setting, all management activities, including development of new facilities, should be consistent with or move the area toward achieving the desired recreation opportunity setting and associated site modification as defined in Table 6 and mapped. See Appendix 1 for maps. *Exceptions:* Where a Forest Road and Trail Act (FRTA) easement has been executed, the Forests will defer to the county route decisions and management as specified in the FRTA easement.

FW-GDL-REC-11: To ensure public safety, prevent wildlife habituation, and minimize encounters between wildlife and humans, the Forests should require bear-resistant containers (certified through the Interagency Grizzly Bear Committee) be used for food and refuse storage during overnight use at developed recreation sites or dispersed recreation areas.

Table 6. Setting descriptions and site modifications for the recreation opportunity (ROS) spectrum (summer and winter)

Recreation Opportunity Spectrum (ROS) class	Setting Description	Working Draft Plan Acres and % of Forests		Development Scale	Level of Site Modification (FS
		Summer	Winter		
Primitive	**Primitive** ROS settings encompass remote and predominantly unmodified landscapes. Primitive ROS settings contain no motorized recreation, and no mechanized recreation if the primitive setting is within a designated wilderness area. These settings provide quiet solitude away from roads and developed areas, are generally free of human influence, and facilitate opportunities for exploration and self-reliance. Signing and other infrastructure is minimal. Historic structures are occasionally present. During the winter, constructed trails that are evident in the summer months are covered during periods of snow, which yields an even more naturally appearing primitive setting.	326,300 (11%)	281,700 (10%)	1	Minimum site modification. Rustic improvements designed for protec rather than comfort of the users. U materials excluded. Minimum cont obvious regimentation. Spacing in to minimize contacts between use access not provided or permitted.
Semiprimitive (motorized and nonmotorized)	**Semiprimitive Nonmotorized** ROS settings provide opportunities for exploration and challenge. Unobtrusive structures such as signage and bridges to accommodate foot and horse traffic are occasionally present to direct use and/or protect the setting's natural and cultural resources. Closed or administrative roads may be present, but do not dominate the landscape or detract from visitors' semiprimitive nonmotorized experiences. These settings are free of motorized recreation transport, but the use of mechanized transport may occur. Sounds originating from outside of this setting may be audible from within the outskirts, closer to adjacent motorized settings. During the winter, trails are ungroomed and often unmarked.	1,352,900 (46%)	941,100 (32%)	2	Little site modification. Rustic or ru improvements designed primarily site rather than the comfort of the synthetic materials avoided. Minim subtle. Little obvious regimentatio and extended to minimize contact Motorized access provided or per access over primitive roads. Interp informal.
	Semiprimitive Motorized ROS settings provide motorized recreation opportunities in predominantly natural-appearing settings. Routes are designed for off-highway and high-clearance vehicles that connect to local communities, access key destinations and vantage points, provide day trips on scenic loops, or facilitate longer expeditions. Mechanized travel may also occur. These settings provide opportunities for visitors to explore larger extents of rugged landscapes in a given timeframe than nonmotorized travel can accommodate. Structures and facilities are used to direct use and/or for the purpose of protecting the setting's natural and cultural resources. Bridges are sometimes present to accommodate foot, horse, mechanized, and all-terrain vehicle traffic. Portions of this setting may function as staging areas for visitors to park their off-highway or high-clearance vehicles and explore adjacent semiprimitive nonmotorized and	851,800 (29%)	1,343,100 (45%)		

Recreation Opportunity Spectrum (ROS) class	Setting Description	Working Draft Plan Acres and % of Forests		Development Scale	Level of Site Modification (FS
		Summer	Winter		
	primitive settings via nonmotorized travel. During the winter, routes are either ungroomed or groomed and are often signed and marked. Vast areas to travel cross-country in designated areas are available during certain winter months, offering visitors an opportunity for exploration and challenge.				
Roaded natural	**Roaded Natural** ROS settings are managed as natural-appearing with portions and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate passenger car travel. Sanitation, potable water, interpretive signing, and other amenities are strategically placed to serve as destination points and/or portals to adjacent semiprimitive settings. Signage, facilities, bridges, and other infrastructure blend with and complement the surrounding natural setting. During the winter, the road system is plowed to accommodate passenger car travel. Winter trails are likely groomed and may have ancillary facilities such as warming huts.	426,400 (14%)	394,900 (13%)	2-5	Site modification moderate. Facilit protection of natural site and comf Contemporary/rustic design of imp generally based on use of native r Inconspicuous vehicular traffic co provided. Roads may be hard surf formalized. Development density a units per acre. Primary access ma standard roads. Interpretive servic generally direct.
Rural	**Rural** ROS settings are high-use areas such as ski areas and other developed recreation areas with consistent, concentrated use. Rural settings often serve as a recreation destination and sometimes provide access to adjacent roaded natural and semiprimitive settings. Rural settings are accessed from paved roads and are generally close to communities. Developed recreation facilities are highly structured, hardened, and designed for day and overnight use by small to large groups. These settings also function as outdoor classrooms for interpretive programs and other structured learning. Roads and parking areas are generally paved and structures and facilities provide shelter, sanitation, potable water, and other amenities. Winter rural settings include high-use areas (such as mountain resorts) and provide access for near-by communities to celebrate holidays, participate in events, and enjoy winter recreational activities in a more developed and actively social setting.	8,700 (<1%)	5,600 (<1%)	3-5	Site heavily modified. Some facilit for comfort and convenience of us not provided. Facility design may i materials. Extensive use of artificia and trails. Vehicular traffic control Primary access usually over pave Development density 3–5 family u materials typically native. Interpret formal or structured.

Scenery (SCNY)

See also *Why the GMUG Matters: Distinctive Roles and Contributions in the Larger Landscape.*

Desired Conditions

FW-DC-SCNY-01: The Forests reflect a range of scenic quality sustained by a diverse and resilient landscape. High quality, natural-appearing scenery and scenic values persist in viewsheds from areas with high public use such as scenic byways and scenic travel corridors, nationally designated trails, and developed recreation sites, with constructed elements harmonizing with natural features including vegetation, water features, landforms, geology.

Objectives

FW-OBJ-SCNY-02: Within 10 years of plan approval, conduct three projects that improve the scenic integrity in areas that do not meet established scenic integrity objectives. Priority activities include decommission or rehabilitate unauthorized system roads and routes, remove unnecessary fences, restore grasslands and aspen, and paint facilities, particularly within the immediate foreground of scenic byways. See also Scenic Byways FW-DC-SBWY-01.

Guidelines

FW-GDL-SCNY-03: To maintain or improve scenic character over the long-term and perpetuate high-quality scenic values consistent with the GMUG's distinctive roles and contributions, all forest management activities should be consistent with or move the area toward achieving desired scenic integrity objectives (SIOs). This includes shaping and blending any even-aged regeneration cuts to the extent practicable with the natural terrain. SIOs are both defined and associated to distinct Management Areas and overlays in Appendix 4 and mapped in the scenic integrity objective map. For maps, see Appendix 1.

FW-GDL-SCNY-04: To maintain scenic character and meet scenic integrity objectives, new or reconstructed features and facilities should:

- Be clustered within existing areas,
- Be consistent with the built environment image guide,
- Use colors and materials that blend with the natural appearing landscape, and
- Encourage vegetation that screens views to facilities.

FW-GDL-SCNY-05: To maintain scenic character for Concern Level 1 routes, large facilities (including, but not limited to, powerlines, gas wells, and power stations) should be screened, and vegetation should be managed to enhance the scenic quality within the immediate foreground (300 ft.).

Scenic Byways (SBWY)

In the Working Draft Forest Plan, Scenic Byways encompass a mapped area of approximately 72,900 acres (2.3% of the Forests) that overlay multiple other Management Areas.

Desired Conditions

FW-DC-SBWY-01: The intrinsic scenic, natural, historical, cultural, archaeological, and recreational qualities for which the scenic byways were designated are maintained or improved and showcased through exhibits, signs, and programs, connecting visitors to attractive and accessible natural landscapes, and contributing to recreation tourism and local economies. See also *Scenery* section.

Timber and Other Forest Products (TMBR)

Desired Conditions

Vegetation management contributes to a variety of desired conditions. See Social and Economic Environment FW-DC-SCEC-01; Key Ecosystem Characteristic FW-DC-ECO-01, 02 and 07; and Fire and Fuels Management FW-DC-FFM-04.

Suitability

Approximately 971,000 acres of land on the Forests have been identified as suitable for timber production in the Working Draft Forest Plan. Lands are identified as suitable for timber production through the process detailed in Appendix 8. Even though lands may be identified as suitable for timber production, those lands may not be feasible for harvest. Feasibility is determined at the site-specific, project level. See Appendix 8 for more information.

Objectives

FW-OBJ-TMBR-01: Annually, offer 55,000 CCF of forest products, including sawtimber, fuelwood, and other products.

Standards

FW-STND-TMBR-02: The maximum size limit of openings created by even-aged management in one harvest operation shall be 40 acres, regardless of forest type, with the following exceptions:

- proposals for larger openings have been approved by the regional forester after a 60-day public review and are determ ined to be consistent with other plan components; or
- coppice cuts/clearcuts in aspen may be larger, with a maximum size limit of openings created by even-aged management of 100 acres ; or
- areas harvested as a result of natural catastrophic conditions (including those resulting from fire, insects, diseases, and windstorms).

FW-STND-TMBR-03: Timber harvest shall be conducted to assure that the technology and knowledge exist to restock these areas adequately with trees within 5 years after final harvest. Minimum restocking levels for suitable timber lands are defined in Table 7. Exceptions to these levels are allowed if supported by a project-specific determination of adequate restocking. Restocking levels for unsuitable timber lands must be specified with the silvicultural prescription. Project-specific determination of adequate stocking must be based on the plan's desired conditions and objectives applicable to the area and project and be consistent with all other applicable plan components.

Table 7. Minimum restocking level for suitable timber lands, by species

[Sources consulted include the 2003 Wasatch Cache Revised Forest Plan, pp. 106, and the Rio Grande Draft Forest Plan pp. 41, with numbers updated to reflect GMUG needs (i.e., removing pure Douglas-fir and including ponderosa pine, and reducing the density of mixed conifer to 100) based on professional silvicultural expertise.]

Species	Minimum Stocking (Trees/Acre)	Percentage of Area Meeting Minimum Stocking
Lodgepole pine	150	70
Mixed conifer	100	70
Spruce-fir	150	70
Aspen	300	70
Ponderosa pine	100	70

FW-STND-TMBR-04: Timber shall not be harvested for the purpose of timber production on lands not suited for timber production. Timber harvest may occur on these lands for purposes other than timber production. See Appendix 8 – Timber Suitability Analysis.

FW-STND-TMBR-05: Timber shall not be harvested on lands where soil, slope, or other watershed conditions may be irreversibly damaged, as identified in project-specific findings.

FW-STND-TMBR-06: Silvicultural systems shall be selected to achieve desired conditions and objectives or to meet site-specific project needs, not primarily for the greatest dollar return or timber output.

FW-STND-TMBR-07: The quantity of timber that may be sold per decade will be less than or equal to the sustained yield limit of 1,389,762 CCF per decade with the following exceptions: harvesting of timber stands that are substantially damaged by fire, windthrow, or other catastrophe or that are in imminent danger from insect or disease attack. These exceptions may be harvested over and above the sustained yield limit. See Appendix 8 – Timber Suitability Analysis.

FW-STND-TMBR-08: Clearcutting may be used where it has been determined by the responsible official in the project record to be the optimum method. Other types of even-aged harvest shall be used only where determined by the responsible official in the project record to be appropriate. Determinations shall follow interdisciplinary review and be based on site-specific conditions and the desired conditions for vegetation, wildlife habitat, scenery, and other resources.

Guidelines

FW-GDL-TMBR-09: To promote landscape mosaics, habitat heterogeneity, and minimize habitat fragmentation (particularly for lynx), and meet desired conditions for diverse seral stages, during project design where 75% or more of the stand will be salvaged to recover economic value, late-successional forest patches that are expected to remain green or mostly green in the next 15 years should be identified for retention during project implementation. See also FW-SPEC-STD-51, 52 and Appendix 2 – Southern Rockies Lynx Amendment Direction.

FW-GDL-TMBR-10: To achieve optimal volume production and maintain ecosystem integrity, regeneration harvests of even-aged timber stands on GMUG lands should not be undertaken until the stands have reached or surpassed 95% of the culmination of the mean annual increment

measured in cubic feet. Exceptions may be made where resource management objectives or special resource considerations require earlier harvest, such as:

- stands at high risk for insect or disease attack or dead/dying stands,
- wildlife habitat improvement,
- ecosystem restoration, or
- fuels reduction.

Utility Corridors and Communication Sites (UC)

In the Working Draft Forest Plan, Utility Corridors encompass a mapped area of approximately 47,800 acres (1.5% of the Forests) that overlays multiple other Management Areas.

See also *Infrastructure* section for pertinent direction.

Desired Conditions

FW-DC-UC-01: Utility corridors encompass and concentrate existing and potential future utility corridors for aerial and underground electric and communications utilities, including fiber optic lines; oil and gas transmission pipelines; water pipelines greater than 12” diameter; trans-mountain water diversion systems (excluding reservoirs). Concentration of infrastructure within the corridors reduces the proliferation of infrastructure across the landscape and minimizes the environmental footprint from development. Corridors encompass both designated Westwide Energy (WWE) corridors and other non-WWE corridors. Although other multiple uses may occur within these areas, the management emphasis is primarily to support infrastructure. Active vegetation management maintains safe and defensible space for existing infrastructure (i.e., fuels reduction treatments; hazard tree removal). These corridors are defined by a centerline and a stated width. Designation of corridors does not authorize any projects, mandate that future projects be confined to the corridors, or preclude the agency from denying a project in a designated corridor.

Standards

FW-STD-UC-02: West-wide Energy (WWE) corridor direction and interagency operating procedures for such corridors are incorporated by reference as mandatory requirements (USDA Forest Service 2009).

Guidelines

See also direction in the *Infrastructure* and *Transportation* sections.

FW-GDL-UC-03: To minimize impact on affected resources and streamline special use authorizations within utility corridors that are not designated WWE corridors, the interagency operating procedures from the WWE Corridor ROD (USDA Forest Service 2009) should be applied, as relevant, to special use authorizations and re-authorizations.

FW-GDL-UC-04: To minimize the acres encumbered and associated environmental and scenic impacts, fiber optic lines and broadband infrastructure should be paralleled with existing utilities. Other new communication infrastructure should be paralleled, co-located and/or existing sites should be expanded. Where not possible, lines should be buried, unless:

- Burial within National Forest System lands is incompatible with adjacent overhead lines or other utilities, or
- Burial is not technically or geologically feasible or greater long-term disturbance would result.

FW-GDL-UC-05: To minimize associated environmental and scenic impacts, distribution lines for utilities should be placed underground except where:

- Burial within National Forest System lands is incompatible with adjacent overhead lines or other utilities, or
- Burial is not technically or geologically feasible or greater long-term disturbance would result.

Eligible Wild and Scenic Rivers (WSR)

Note: At the time of the availability of the Working Draft Plan for public review, the eligibility study is in progress; using public comment, the draft eligibility study will be revised and included as an appendix to the Draft Forest Plan.

Desired Conditions

FW-DC-WSR-01: Eligible wild river segments are free of impoundments and waters are free-flowing. Shorelines are essentially primitive with little or no evidence of human activity, with the exceptions of historical or culturally significant features. The areas are generally inaccessible except by trail for nonmotorized travel. Water quality meets or exceeds state standards for aesthetics, for propagation of fish and wildlife adapted to the river habitat, and for human contact.

FW-DC-WSR-02: Eligible scenic river segments are free of impoundments and waters are free-flowing. Shorelines are largely primitive and undeveloped with no substantial evidence of human activity. Roads may occasionally reach or bridge scenic river corridors.

FW-DC-WSR-03: Eligible recreation river segments may have some existing impoundment or diversion features, but waterways remain free-flowing and riverine in appearance. Recreation river segments are accessible by road or trail, improvements occur, and encounters with people are expected.

Standards

FW-STND-WSR-04: Management actions within the river corridors of eligible river segments shall be consistent with management direction contained in FSH 1909.12, Chapter 80, Section 84, FSM 2354, or other current direction.

Chapter 3. Management Area Direction

The GMUG contains several areas that require additional or different direction and plan components. These areas are identified as management areas. A management area represents a management emphasis for an area or several similar areas on the landscape. Some management areas have been designated by Congress, such as Designated Wilderness; other areas are

identified by this Forest Plan. Plan components for a management area may differ from Forestwide guidance by:

- Constraining an activity where Forestwide direction does not;
- Constraining an activity to a greater degree than Forestwide direction; or
- Providing for an exception to Forestwide direction, when Forestwide direction would otherwise conflict with the management emphasis of the management area.

All Forestwide plan components are otherwise applied to management areas.

The distribution of Management Areas in the Working Draft Forest Plan is identified in Table 8. Management Areas in the Working Draft Forest Plan. See Appendix 1 for associated maps.

Table 8. Management Areas in the Working Draft Forest Plan.

Management Area	Acres (Rounded to 100)	% of Forests
1.1 - Designated Wilderness	553,400	17.5%
1.2 - Wilderness Area to be Analyzed	4,300	0.1%
1.2/3.1 - Wilderness Area to be Analyzed/CO Roadless Area	18,100	0.6%
1.3 - Tabeguache and Roubideau Designated Areas	27,800	0.9%
2.1 - Special Interest Areas, including - (new) Gunnison Research SIA - Alpine Tunnel - Dry Mesa Quarry - Mt. Emmons Iron Fen - Ophir Needles - Slumgullion	4,100	0.1%
2.1/3.1 - Special Interest Area/CO Roadless Area	11,800	0.4%
2.2 - Research Natural Areas, including - Dry Forks Escalante - Gothic	100	0.0%
2.2/3.1 - Research Natural Area/CO Roadless Area	1,000	0.0%
2.3 - Fossil Ridge Special Recreation Area	33,800	1.1%
3.1 - CO Roadless Area	655,600	20.8%
3.2 - Wildlife Management Area	81,200	2.6%
3.2/3.1 - Wildlife Management Area/CO Roadless Area	196,900	6.2%
4.1 - Mountain Resort	10,300	0.3%
4.2 – High-Use Recreation Area	87,300	2.8%
4.2/3.1 - High-Use Recreation Area/CO Roadless Area	14,300	0.5%
5 - General Forest	1,266,000	40.1%

Non-FS Land (included so that figure totals 100%)	*188,400*	*6.0%*

Wilderness and Areas where Natural Processes Dominate (MA 1)

Designated Wilderness - MA 1.1 (WLDN)

Desired Conditions

MA-DC-WLDN-01: Each area's wilderness character is maintained or improved over time, supported by diverse and resilient ecosystems. Natural disturbance regimes such as fire, insects, and disease generally occur without human influence. Nonnative vegetation is rare and infrastructure is uncommon or absent. See also Air Quality FW-OBJ-04.

MA-DC-WLDN-02: Recreation opportunities offer experiences that are primitive and unconfined, provide solitude, and promote self-reliance. Visitors are expected to be familiar with and use primitive skills in an environment that offers a high degree of risk and challenge. Contact with others decreases with increasing distance from entry portals and trails. Resource impacts from recreational activities are not overt, but evidence of established camps, generally concentrated within designated dispersed areas, may be present.

MA-DC-WLDN-03: Trails support public participation in wilderness experiences and preserve wilderness character. From entry portals, trails are the primary mode of travel, with their presence decreasing with increasing distance; travel deep within wilderness is primarily cross-country without established trails.

Objectives

MA-OBJ-WLDN-04: Within 10 years of plan approval, remove all nonessential improvements and nonconforming structures within designated wilderness that can be packed out or safely destroyed on site.

Standards

MA-STND-WLDN-05: Activities or occupancies not expressly allowed in the Wilderness Act that will be authorized by special use permit: (1) will follow the minimum required decision guide; and (2) will not result in permanent structures, unless allowed by the Wilderness Act, subsequent legislation establishing a particular Wilderness unit, or existing rights. Competitive recreation events shall not be authorized to occur within designated wilderness areas. Outfitting/guiding activities may be authorized where necessary analyses indicate a need for proposed activities and capacity analyses demonstrate that such activities will not degrade wilderness character.

MA-STND-WLDN-06: Equipment, personal property, or supplies shall be prohibited to be stored in wilderness areas longer than 7 days.

MA-STND-WLDN-07: The Forests shall require that dogs be leashed and/or under direct verbal control by the dog's owner or handler at all times, and not disturb, harm, or damage wildlife, other animals, people, or property. The Forests shall require that dogs be leashed in the Oh-Be-Joyful Valley within Raggeds Wilderness, except for working stock dogs, or dogs used for legal hunting purposes.

MA-STND-WLDN-08: To maintain wilderness character, the following uses shall be prohibited within 100 feet of any National Forest System Trail, and within 200 feet of any waterbody:

- camping;
- hitching, tethering, hobbling, or fencing any pack or saddle animal; and
- tying stock directly to trees except during loading and unloading.

To maintain wilderness character, additional constraints may be applied through Forest order.

MA-STND-WLDN-09: Group size of more than 15 people or a group of people and stock consisting of a combined total of more than 25 shall be prohibited in all wilderness areas where the GMUG is the lead Forest. Activities authorized by special use permit may exceed these group size limitations when the activity: (a) will benefit the wilderness character, or (b) is necessary for public health and human safety. Group size limits for the Maroon-Bells Snowmass and the Collegiate Peaks Wilderness areas are established by their respective lead Forests.

MA-STND-WLDN-10: The use of a drone in a designated wilderness shall be prohibited.

Guidelines

MA-GDL-WLDN-11: To maintain wilderness character and limit resource damage, designate or otherwise manage dispersed campsites when use levels result in unacceptable impacts. Pristine areas should be closed to camping when sites are unable to recover within 1 year. See also Forestwide Recreation FW-STND-REC-06.

MA-GDL-WLDN-12: To maintain wilderness character, new trails should not be constructed in wilderness areas. If they improve wilderness character or reduce natural resource impacts, re-routes may be permitted.

Recommended Wilderness - MA 1.2 (RECWLD)

This section applies to recommended wilderness, if any areas result from step four of the wilderness process (FSH 1909.12 Chapter 70).

Desired Conditions

MA-DC-WLDN-13: The wilderness characteristics for which areas were recommended for wilderness designation are maintained or improved.

Standards

MA-STND-WLDN-14: Plan direction for existing designated wilderness (MA 1.1) is applied to recommended wilderness.

Tabeguache and Roubideau Areas - MA 1.3

Management within the Tabeguache and Roubideau areas will be consistent with public law (*16 U.S. Code § 539i*, section 9), so as to maintain the areas' existing wilderness character.

Special Areas and Designations (MA 2)

Special Interest Areas - MA 2.1 (SIA)

Desired Conditions

MA-DC-SIA-01: Special interest areas preserve the characteristics for which the areas are established.

Objectives

MA-OBJ-SIA-02: Within 5 years of plan approval, complete special interest area management plans, including official boundary descriptions and maps, for existing and newly designated special interest areas.

Guidelines

MA-GDL-SIA-03: To maintain the characteristics for which the special interest area is established, special use permits or other appropriate authorizations should be compatible with the special interest area, including the collection of rocks, minerals, and botanical or paleontological materials.

Research Natural Areas - MA 2.2 (RNA)

Desired Conditions

MA-DC-RNA-01: Vegetation in research natural areas is in a natural condition unaltered by human activities. Ecological processes such as succession and disturbance regimes (e.g., insect and disease, fire, climatic changes) occur within the natural range of variability for the ecosystem types for which each research natural area was established to represent as reference areas. Nonnative plant species are absent.

Objectives

MA-OBJ-RNA-02: Within 3 years of plan approval, complete establishment reports for recommended research natural areas.

Standards

MA-STND-RNA-03: Management activities within research natural areas shall be consistent with the direction in FSM 4063 or other current research natural area direction to ensure natural conditions and ecological processes in research natural areas are maintained.

MA-STND-RNA-04: To protect the Gothic Research Natural Area, camping and off-route travel is prohibited within the RNA.

Fossil Ridge Special Recreation Area (MA 2.3)

Management within the Fossil Ridge Recreation Management Area is consistent with public law (*16 U.S. Code § 539i*, section 5).

Natural Areas with Focused Management (MA 3)

Colorado Roadless Areas - MA 3.1 (CRA)

Management within Colorado Roadless Areas will be consistent with the *Colorado Roadless Rule*, 36 CFR 294 Subpart D - Colorado Roadless Area Management.

Desired Conditions

MA-DC-CRA-01: Colorado Roadless Areas are characterized by high quality soil, water, and air and natural-appearing landscapes that provide drinking water, habitat for diverse plant and animal communities, outstanding backcountry recreational experiences and high quality scenery, and other roadless area characteristics, as defined at 36 CFR 294.41. Natural processes within the context of the range of natural variability (insects, disease, and fire) occur with minimal human intervention.

Wildlife Management Area - MA 3.2 (WLDF)

Desired Conditions

MA-DC-WLDF-01: Large blocks of diverse habitat are relatively undisturbed by routes, providing security for the life history, distribution, and movement of many species, including big-game species. Habitat connectivity is maintained or improved as fragmentation by routes is reduced. See also Native Species Diversity FW-OBJ-SPEC-03.

Standards

MA-STND-WLDF-02: To provide security habitat for wildlife species by minimizing impacts associated with roads and trails, there shall be no net gain in system routes, both motorized and nonmotorized, where areas are already in exceedance of the 1 mile per square mile limit[8] as calculated within this management area boundary. Within the Flattops Wildlife Management Area on the Gunnison Ranger District, there shall be no new trail development. Exception: this does not apply to administrative routes.

Recreation Emphasis Management Areas (MA 4)

Mountain Resorts - MA 4.1 (MTR)

Desired Conditions

MA-DC-MTR-01: Mountain resorts on the GMUG primarily provide for skiing and other snow sports, and may also provide for other seasonal or year-round natural-resource-based recreational activities (e.g., hiking, mountain biking, and sight-seeing). Recreation opportunities are managed for large numbers of visitors in developed settings. Where feasible and desired, other snow sports such as backcountry skiing, snowshoeing, and/or cross-country skiing opportunities may be facilitated or enhanced by visitor services.

MA-DC-MTR-02: The primary focus of the Mountain Resorts Management Area is the protection of sustainable recreation resources and public safety. Ecological values are provided

[8] Trail density sources cited: Expert opinion; Canfield et al. 1999; Miller and Hobbs 2000; Lenth et al. 2008; Reed and Merenlender 2008; Rogala et al. 2011; Preisler et al. 2013; Weidman and Bleich 2014; Wisdom et al. 2018;

to the extent possible while protecting the public and meeting primary recreation use objectives. Resource management activities are designed and implemented to maintain or enhance existing resources. Forested areas are managed as sustainable cover with a variety of species and age classes in patterns typical of the natural landscape character of the area. Disturbed areas are revegetated to protect scenery and minimize erosion.

MA-DC-MTR-03: Base areas serve as entrance portals and are designed as gateways to public lands, including signage and/or interpretive elements to inform visitors about the public lands that the mountain resort encompasses. Facilities may be extensively used throughout the year to satisfy a variety of seasonal recreation use demands. Facilities and infrastructure are designed to blend with the national forest setting as seen from key viewpoints. Facilities that no longer serve a useful purpose are removed. Directional, regulatory, and informational signs are common and consistent with the mountain resort sign plan. Signs foster safe use, identify routes, and provide visitor information.

Standards

MA-STND-MTR-04: Mountain resort management plans shall include vegetation management measures that are updated on a 10 to 20 year basis and/or when conditions have significantly changed due to shifts in forest health (e.g., insect and disease).

MA-STND-MTR-05: Snow management, including snowmaking and snow-farming, shall be conducted in a manner that prevents slope failures and gully erosion, as well as bank erosion and sediment damage in receiving channels.

MA-STND-MTR-06: Improvements, facilities, and access points shall be designed and located to provide for visitor safety.

Guidelines

MA-GDL-MTR-07: To sustainably design infrastructure and recreational features and limit impacts to water resources and soils, a geohazard and soils analysis should be conducted in the initial phases of project planning to assesses and provide information about the permit area such as slope stability, soil composition, and water supply/system/influence.

MA-GDL-MTR-08: To concentrate ecological impacts within the permit area, special features (e.g., mountain bike trails, terrain parks, mountain coasters, or challenge courses) should be located within or near previously developed portions of the permit area. Special features should be strategically distributed within or near several previously developed portions to avoid clustering infrastructure too closely, compromising scenery objectives or visitor experience, or generating severe ecological impacts.

MA-GDL-MTR-09: To maintain a relatively natural-appearing setting, motorized travel within permitted boundaries is generally limited to administrative or emergency purposes except when authorized by special use permit (e.g., snowcat operations).

MA-GDL-MTR-10: To maintain a relatively natural-appearing setting, infrastructure associated with other seasonal or year-round recreational activities should require limited permanent structures.

MA-GDL-MTR-11: To improve forest visitor safety, avoid physical hazards, manage known avalanche zones, or maintain policy compliance, mountain resort permit boundaries may be amended.

MA-GDL-MTR-12: To maintain high-quality scenery and recreational values, and to sustainably achieve snow management objectives, stands and islands of trees should be managed to provide for a variety of species and size classes that perpetuate forest cover. Vegetative management should complement snow management objectives, scenery objectives, and recreation values, including the desired recreation opportunity setting.

MA-GDL-MTR-13: To control trail density and minimize impacts to soils and water resources associated with trail use and development, trail density (e.g., foot or mechanized) should not exceed 2.5 miles of trails per square mile (or current research guideline) within each operational boundary. When this threshold has been reached, existing trails should be decommissioned when new trails are constructed. This practice should occur at a 1 to 1 ratio, where 1 mile of existing trail is decommissioned for every 1 mile of new trail constructed.

High-Use Recreation Areas - MA 4.2 (HIREC)

Desired Conditions

MA-DC-HIREC-01: High-Use Recreation Areas are places of focused public visitation that provide accessible, high quality, and diverse recreation opportunities that are generally located near improved roads. Roads and trails are maintained frequently due to heavy use. Highly developed infrastructure is designed, maintained, and upgraded to accommodate large volumes of visitors and to respond to changing uses and demands. Facilities maintain public safety, educate visitors, and provide appropriate sanitation and other amenities for user comfort. Developed campgrounds, trailheads with toilets, interpretive and educational signs, and fee sites are normal. To improve recreational experiences and curtail natural resource impacts, recreation management is focused in these areas.

Objectives

MA-OBJ-HIREC-02: Within 5 years of plan approval, accomplish management actions in at least 10 noticeably degraded dispersed recreation areas (rated as an Overall Impact Rating of 6 to 8 using the National Minimum Recreation Site Monitoring Protocol), as detailed in Recreation FW-STND-REC-06. The standard REC-06 will be applied to determine when thresholds have been reached and more active management is needed. Priority areas include:

- Crested Butte
- Taylor Park
- Existing campsites within the riparian management zone (See Riparian Management Zones).

See also FW-OBJ-REC-04.

Guidelines

MA-GDL-HIREC-03: To improve recreational experiences and curtail natural resource impacts, management controls should be implemented and adjusted based on changing

environmental conditions, visitation patterns, and use types. Typical management controls prescribed include:

- Camping only in designated sites
- Shorter stay limits for camping in comparison to existing 14-day national standard
- No unauthorized overnight use
- Parking restrictions
- Additional amenities supported through a fee program
- Developed facilities
- Restricted modes of transportation on roads and trails to reduce safety issues and social conflict.

MA-GDL-HIREC-04: To protect infrastructure, mitigate natural resource damage, provide for public safety, and maintain positive visitor experiences, implement controls such as limiting modes of transportation on certain routes, establishing directional trails, constructing larger accessible trails or boardwalks, or creating parallel system routes or stacked loops to accommodate higher volumes of use where necessary.

MA-GDL-HIREC-05: To concentrate ecological impacts, new developments and facilities should use existing, impacted areas.

See also *Forestwide Recreation* section.

General Forest, Active Vegetation Management (MA 5)

See Forestwide direction.

Chapter 4. Monitoring

Introduction

Forest plan monitoring provides feedback for the Forests' planning cycle by testing assumptions, tracking relevant conditions, and evaluating management implementation and effects of management practices. The monitoring program to be developed as part of the forest plan should be strategic, effective, and useful. As such, it does not replace project-level monitoring, such as photo points after a prescribed burn, but rather it provides higher-level information to help review the efficacy of the forest plan and progress towards desired conditions. Forest plan monitoring is an important part of the continuous improvement of the plan through the adaptive management process. Direction for monitoring and evaluation of forest plans is contained in 36 CFR 219.12, and in planning directives at 1909.12, Chapter 30.

The Role of Monitoring under the 2012 Planning Rule

The National Forest Management Act requires "continuous monitoring and assessment in the field" to evaluate "the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land" (16 USC 1604(g)(3)(C)). The 2012 Planning Rule emphasizes a three-part iterative cycle of assessment, planning, and monitoring in a continuous feedback loop. Monitoring is meant to support the assessment process and evaluate plan implementation over time. This framework is designed to "inform integrated resource management and allows the Forest Service to adapt to changing conditions, including climate change, and improve management based on new information and monitoring" (§ 219.5 (a)).

Specific Requirements for Monitoring under the 2012 Planning Rule

A monitoring plan consists of monitoring questions and indicators that are designed to inform the management of resources on the Forests by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives. The monitoring program must also be coordinated with the Regional Forester and Forest Service State and Private Forestry and Research and Development (§ 219.12 (a)(1)), and it should consider a broader-scale monitoring strategy to address monitoring questions at a geographic scale broader than one single national forest (§ 219.12 (b)). Furthermore, in developing the monitoring plan, the responsible official should also provide opportunities for public participation, "taking into account the skills and interests of affected parties," as well as the scope, methods, forum, and timing of those opportunities (§ 219.4 (a)). This monitoring plan was informed by public input received throughout the development of the forest plan.

Monitoring may involve evaluating if standards and guidelines are implemented (implementation monitoring), if management actions and standards and guidelines are effective in achieving goals and objectives (effectiveness monitoring), the long-term trend, and condition of key resources (condition or surveillance monitoring). At a minimum, the plan monitoring program must contain one or more monitoring questions and associated indicators that address the following eight items (see §219.12[a][5][i-viii]):

i. The status of select watershed conditions,

ii. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems,

iii. The status of focal species to assess the ecological conditions required under § 219.9,

iv. The status of a select set of the ecological conditions required under § 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern,

v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives,

vi. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area,

vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities, and

viii. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

A monitoring evaluation report will be produced and published every two years (§ 219.12 (d)). It "must indicate whether or not a change to the plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information… [and] must be used to inform adaptive management of the plan area" (§ 219.12 (d)(2)). The monitoring program and evaluation report are part of the administrative record (§ 219.14 (b)), and the forest supervisor must document "how the best available scientific information was used to inform planning, the plan components, and other plan content, including the plan monitoring program" (§219.13 (a)(4)).

Best Available Scientific Information and Fiscal Constraints

Evaluating ecosystem integrity and sustainability requires the synthesis and interpretation of high quality data and information from multiple social and ecological scales. While the 2012 Planning Rule directs national forests to use the best available scientific information for plan monitoring, it also recognizes the need to remain within the financial capabilities of the unit. To meet these goals, the proposed forest plan monitoring strategy supplements data and information collected by Forest Service staff using the best available scientific information available from Forest Service Research and partners, within existing staffing and budgetary limitations. The monitoring questions and indicators contained here rely heavily on federal, state, and other public partners. The protocols, data standards, and metadata from partner organizations were also considered in determining the best available scientific information. For example, reliance on the Forest Service Research's Forest Inventory and Analysis program allows the Forests to use the longest continuous forest census and to evaluate management from long-term trends observed in forest conditions. Datasets generated and maintained by partners that have been evaluated for applicability (Table 9) will inform future management, with minimal additional investment needed by the Forest.

Proposed Forest Monitoring Framework

The proposed monitoring framework addresses each of the eight monitoring requirements, uses the best available scientific information, and is feasible to implement with existing resources. It is designed to promote iterative evaluation of plan components associated with social and ecological desired conditions, and to facilitate effective and efficient biennial reporting.

The proposed monitoring framework is composed of the following elements.

Monitoring Requirement identifies which of the eight monitoring requirements a specific question and set of indicators addresses. In many cases, questions meet the requirements of two or more monitoring requirements.

Monitoring Question is the plan-level monitoring question. Monitoring questions are priority questions of high relevance for forest planning and decision-making that can be used to test relevant assumptions, track relevant changes, and measure progress toward achieving desired conditions.

Indicators are measurable attributes of social and ecological conditions that are used to answer monitoring questions and evaluate progress toward maintaining or achieving desired conditions.

Data Source represents the datasets or sources of information from which measures of indicators are derived at the time the plan was developed. New data sources will likely become available as technology evolves. Similarly, data sources that exist during the development of the plan may become obsolete. The Forests recognize the need for adaptive management of the monitoring plan itself, and will incorporate changes over time as appropriate.

Frequency describes the timing and frequency of monitoring reporting. Frequencies are determined by the frequency of data collection and/or the spatial and temporal variability of resources (i.e., it takes several years of data collection to establish a trend for many resources).

Associated Plan Components note plan components that the monitoring question is relevant to.

Adaptive Management Actions: The Forests' monitoring plan also includes adaptive management actions that are paired with most monitoring questions. These actions are intended to serve two primary functions. First, they highlight the relevance of the monitoring questions and data to land management decision-making. Without this lens it can be difficult to sift through volumes of data and analyses to identify salient, possibly actionable information and decision-points. Second, they offer some specific examples of ways that monitoring data may be used to adapt management actions, as management should be informed and adapt to information on changing conditions, stagnant conditions where the goal is to achieve some improvement, or new information about the status of natural resources on the Forests.

These actions are not an exhaustive list of potential adaptive management applications. Instead, they highlight some realistic ways in which monitoring data might be interpreted, evaluated, and used by line officers and land managers to adaptively inform their decision-making.

Table 9. Monitoring questions and indicators

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
How is the public using the Forests, what activities are people participating in, and what is the current satisfaction level of the recreational benefits and facilities provided? (v)	Visitation on the Forests; Forests' economic benefits to the community; percent satisfaction for "very satisfied," "somewhat satisfied," and "total satisfaction." **Data source:** NVUM; augmented by more detailed data from partners as available. **Frequency reported:** 6 and 10 year reports.	**FW-DC-REC-01:** The GMUG provides a variety of high-quality, year-round recreation opportunities across a range of resilient recreation settings. Recreation opportunities and facilities meet persisting and evolving needs of diverse user groups…	Modify or improve recreation opportunity settings and/or facilities based on needs identified by the public regarding recreation opportunities and experiences on the Forests. The Forest Service defines a recreation opportunity setting as the combination of physical, biological, social, and managerial conditions that give value to a place.
What is the status and trend of the Forests' roads and trails? (v)	Miles of roads and trails: (1) open year-round or seasonally; (2) built and decommissioned; (3) maintained by maintenance level; and, (4) maintained or improved to standard. // Use of roads and trails. **Data Source:** INFRA/NVUM **Frequency Reported:** 2 years	**FW-OBJ-REC-04:** Annually maintain 500 miles of FS trails, prioritizing those in the Recreation Emphasis MA.	Consider National Visitor Use Monitoring (NVUM) data in prioritization of trail maintenance.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
Are the ecological impacts associated with dispersed camping activity sustainable with the current use levels? (v)	Multiple sites (within a cluster of 15 or more campsites) with an Overall Impact Rating of 6, 7, or 8. Measured at the scale of a drainage or localized geographic area such as a forest road or lake. Multiple sites within a cluster of campsites is defined as 'two or more campsites'. Individual campsites not located in clusters should be monitored where moderate to high use is known or anticipated, and/or are located in more susceptible ecosystems. **Data Source:** National Minimum Recreation Site Monitoring. [Overall Impact Rating = sum of ratings for (1) ground cover, (2) tree damage, and (3) disturbed area.] **Frequency Reported:** 2 years	**FW-STND-REC-06:**: Designate or otherwise manage dispersed campsites when use levels result in unacceptable ecological impacts… // **FW-DC-REC-01:** The GMUG provides a variety of high-quality, year-round recreation opportunities across a range of resilient recreation settings… // **FW-DC-REC-02:**...Outside of these concentrated areas, the Forests provide for a myriad of dispersed recreation opportunities... // **MA-OBJ-HIREC-02:** Within 5 years of plan approval, accomplish management actions to at least 10 sites that receive an Overall impact Rating of 6 to 8... // **MA-WLDN-GDL-11:** To maintain wilderness character and limit resource damage, designate or otherwise manage dispersed campsites...	Designate dispersed campsites, prohibit camping via closure order, temporarily close and rehabilitate the sites, harden for more long-term/concentrated use, establish stay limits and/or a permit, fee, or reservation system. Consider implementing management actions through partnership efforts and investments as appropriate.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
What is the status and trend of wilderness character in designated wilderness areas, and wilderness characteristics in any working administrative recommended wilderness areas? (v)	Trends in wilderness character in designated wilderness areas (five qualities: untrammeled, natural, undeveloped, solitude or primitive and unconfined recreation, and other features of value), and wilderness characteristics in any working administrative recommended wilderness areas (social and ecological characteristics that provide the basis for wilderness recommendation) as per indicators, measures, and measure type described in the Wilderness Character Monitoring Technical Guide and discussed in the Wilderness Stewardship Performance Guidebook. **Data Source:** Wilderness Stewardship Performance; Wilderness Character Monitoring **Frequency Reported:** 6 year and 10 year reports	**MA-DC-WLDN-01:** Each area's wilderness character is maintained or improved over time, supported by diverse and resilient ecosystems. … // **MA-GDL-WLDN-11:** To maintain wilderness character and limit resource damage, designate or otherwise manage dispersed campsites... // **MA-DC-RECWLD-13:** The wilderness characteristics for which areas were recommended for wilderness designation are maintained or improved.	Evidence of declining trends in wilderness character (designated wilderness areas) or wilderness characteristics (any working recommended wilderness areas) could trigger actions to improve or restore conditions. For example, if monitoring shows evidence of declining trends in naturalness or primitive and unconfined recreation due to impacts from dispersed camping, the following actions could be triggered: Designate dispersed campsites, temporarily close and rehabilitate the sites, or establish stay limits and/or a permit, fee, or reservation system.
What is the status and trend of the contribution of forest goods and services to economic activity in the local area? (vii)	IMPLAN **Data Source:** http://implan.com/ **Frequency Reported:** 2 years	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities…	

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Volume cut and sold, value of cut and sold **Data Source:** https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml **Frequency Reported:** 2 years	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services…; **FW-OBJ-TMBR-02**: Annually, offer 55,000 CCF of forest products, including sawtimber, fuelwood, and other products.	Change type and quantity of timber offered for sale in response to market conditions.
-	Recreation visitor, activity participation, satisfaction, crowding, substitution behavior **Data Source:** https://apps.fs.usda.gov/nvum/results **Frequency Reported:** 6 and 10 year reports	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities…	Prioritize management actions that address growing activity types and areas of dissatisfaction.
-	Permitted and authorized AUMs, number of animals, number of permittees, number of active allotments, acres of active allotments **Data Source:** https://iweb.fs.usda.gov **Frequency Reported:** 2 years	**FW-DC-RNG-01:** Livestock grazing and its associated activities occur…	Convert vacant allotments to active via issuance of Term Grazing Permits. Reopen closed allotments (new NEPA). Consider permits for both sheep and cattle on the same allotment. Relocate domestic sheep allotment to area away from bighorn sheep. Consider cattle grazing on sheep allotments. Consider sheep and cattle on the same allotment.
-	Payments by county and agency, acres by agency **Data Source:** https://www.nbc.gov/pilt/counties.cfm **Frequency Reported:** 2 years	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities…	-

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Payments by county and NF, acres by county and NF **Data Source:** https://www.fs.usda.gov/main/pts/securepayments/projectedpayments **Frequency Reported:** 2 years	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities…	-
-	Locatable and salable volume minerals **Data Source:** https://www.nbc.gov/pilt/counties.cfm **Frequency Reported:** 2 years	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities…	-
-	Oil, gas, and coal production, mineral value, royalties **Data Source:** https://www.onrr.gov/About/production-data.htm **Frequency Reported:** 2 years	**FW-DC-SCEC-01**: The provision of sustainable forest goods and services contributes to the social and economic well-being of local communities…	-
How is GMUG climate changing relative to historic norms? (vi)	Temperature (monthly mean by predictive services area), Precipitation (monthly total, PSA), SPEI Drought index (monthly mean, PSA) **Data Source:** https://wrcc.dri.edu/wwdt/time/ **Frequency Reported:** 2 years	**FW-DC-ECO-03:** Despite changing and uncertain future environmental conditions, ecosystems maintain all of their essential components. Areas of rapidly changing climate support functioning ecosystems dominated by species native to the context area, though perhaps new to that specific location. Areas of climate refugia continue to support species historically present…	If climate trends are inconsistent with those expected and underpinning current plan content, consider additional or revised plan direction.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
What is the status and trend of terrestrial ecosystem integrity on the GMUG? (ii, viii, vii)	Cover type, structural stage **Data Source:** FIA **Frequency Reported:** 10 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures... **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling.... **FW-GDL-ECO-08**: To maintain ecological integrity and meet wildlife habitat needs, management activities should not result in snag and coarse woody debris levels outside of those in Table 2.... **FW-DC-RNG-01:** Livestock grazing and its associated activities… contribute to the stability and social, economic, and cultural aspects of rural communities while maintaining or achieving desired ecological conditions.	Distribution of structural stages relative to desired conditions informs priorities for vegetation management.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Seedlings and saplings per acre by ecosystem **Data Source:** FIA, FACTS (natural regeneration stocking survey data, planting survival rates) **Frequency Reported:** 10 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures… **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling.... **FW-DC-RNG-01:** Livestock grazing and its associated activities… contribute to the stability and social, economic, and cultural aspects of rural communities while maintaining or achieving desired ecological conditions.	Planting survival and trends in regeneration on FIA plots informs species selection for seedling planting projects.
-	Snags per acre, down wood per acre **Data Source:** FIA **Frequency Reported:** 10 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures… **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling.... **FW-GDL-ECO-08**: To maintain ecological integrity and meet wildlife habitat needs, management activities should not result in snag and coarse woody debris levels....	Prioritize wildlife habitat management in ecosystems with snags or coarse wood outside of desired condition quantities.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Occurrence, location, acreage, severity, behavior of wildland fire. Summary of beneficial acres analysis. **Data Source:** GMUG Fire Occurrence and Fire Perimeter data, MTBS, FACTS, Beneficial acres reports, Fire Behavior Observations **Frequency Reported:** 2 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures... **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling....	Consider how disturbance locations fit into spatial landscape treatment priorities. Adjust high priority areas past on new disturbances/treatments.
-	Extent, severity, and locations of insect or disease caused tree mortality **Data Source:** Aerial detection surveys **Frequency Reported:** 2 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures... **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling....	If Aerial Detection Survey shows White Pine Beetle Rust, institute field monitoring for bristlecone and limber pine populations.
-	Vegetation management activities (with habitat/ecosystem/fuels objectives) **Data Source:** FACTS, WIT (database of record) **Frequency Reported:** 2 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures... **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling.... **FW-GDL-ECO-08**: To maintain ecological integrity and meet wildlife habitat needs, management activities should not result in snag and coarse woody debris levels outside of those in Table 2....	Have the wildfire protection enhancement areas been prioritized for treatment? If not, why not?

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Range condition and trend **Data Source:** GIS updated with field data **Frequency Reported:** 10 years	**FW-DC-ECO-01**: Ecosystems contain a mosaic of vegetation conditions, densities, and structures... **FW-DC-ECO-02**: Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances… **FW-DC-ECO-07**: Vegetation protects soil, facilitates moisture infiltration, and contributes to nutrient cycling.... **FW-DC-RNG-01:** Livestock grazing and its associated activities… contribute to the stability and social, economic, and cultural aspects of rural communities while maintaining or achieving desired ecological conditions.	Decreasing trends could trigger: change in livestock numbers, class, or season of use.
-	Acres of invasive plants; treatment records with success rate (efficacy of treatment) **Data Source:** FACTS; TESP/IS **Frequency Reported:** 2 years	**FW-DC-IVSP-01:** Native plant communities composed of a diverse mix of native grass, forb, shrub, and tree species dominate the landscape, while invasive species are nonexistent or low in abundance and do not disrupt ecological function. **FW-OBJ-IVSP-02:** Annually, invasive species management actions are employed on 10 to 20% of inventoried acres…	If treatment success rate is low, adjust treatment strategies.
What is the status and trend of fire behavior in protection enhancement areas?	Flame Length **Data Source:** Fire behavior observations **Frequency Reported:** 2 years	**FW-DC-FFM-03**: Wildland fires are actively and successfully suppressed where necessary to protect life, investments, and valuable resources. Wildland fires in the protection emphasis areas…	If fire behavior in wildfire protection emphasis areas is undesirable (i.e. too severe), consider changing fuel treatment strategies.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
What is the status and trend of conditions in priority watersheds? (i)	Completion of essential projects identified in the watershed restoration action plan. **Data Source:** Watershed condition framework **Frequency Reported:** 2 years	**FW-DC-WTR-01:** Watershed conditions and the integrity of public water supplies are maintained or improved, and priority watersheds achieve or are moving toward a higher functioning condition class as defined by the national watershed condition framework (or similar protocol).	
What is the status and trend of soil productivity and function? (viii)	Detrimental soil disturbance protocol. **Data Source:** Field data **Frequency Reported:** 2 years	**FW-DC-SOIL-01**: Soil quality and function sustain ecological processes.	
What is the status and trend of aquatic and riparian ecosystem integrity on the GMUG? (ii)	Number of state-listed waterbodies (including 303(D) and Monitoring and Evaluation list) **Data Source:** Colorado Department of Public Health and Environment Regulation #93 **Frequency Reported:** 2 years	**FW-DC-WTR-03**: State of Colorado water quality standards are met and State-classified uses are supported for all waterbodies. Water quality for those waterbodies listed as impaired or potentially impaired on the State of Colorado 303(d) list and Monitoring and Evaluation list, respectively, move toward fully supporting State-classified uses…	
-	Water temperature, turbidity, instream sedimentation, environmental flows **Data Source:** Field data; partners (Colorado Parks and Wildlife, CWCB) **Frequency Reported:** 6 years	**FW-DC-AQTC-01**: Physical (e.g., stream temperature, pool frequency, spawning habitat) and biological (e.g., large wood, overbank vegetation) conditions in aquatic ecosystems provide the habitat requirements for aquatic and semiaquatic species… **FW-DC-AQTC-02**: Environmental flows are sufficient to create and maintain riparian, aquatic, and wetland habitats…	

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Number of fish passage barriers removed or created; miles of road decommissioned with RMZ; culverts removed/replaced; stream miles of habitat improvements. **Data Source:** WIT; partners (Colorado Parks and Wildlife; CWCB) **Frequency Reported:** 2 years	Aquatic and Watershed DCs; **FW-OBJ-RMGD-06:** During each 10-year period following plan approval, restore or enhance at least 2,500 to 5,000 acres of riparian and meadow habitat, and restore hydrologic function for at least 15 to 30 miles of perennial, intermittent, or ephemeral streams. Actions to help accomplish this objective may include…	
-	Threats to target species (Colorado River Cutthroat Trout, Boreal Toad) in conservation watershed networks on the GMUG **Data Source:** Field data **Frequency Reported:** 6 years	**FW-DC-SPEC-54**: Conservation watershed networks have high quality habitat and functionally intact ecosystems…; **FW-OBJ-SPEC-55:** Within 5 years of plan approval, complete a watershed plan identifying major threats to identified species...	Once threats are identified, "Within 10 years of plan approval, complete two activities to address these threats."
-	Percent streambank stabilization; sediment levels; stubble height; water temperatures; turbidity; game cameras **Data Source:** Field data **Frequency Reported:** 6 years	**FW-DC-RMGD-01**: Riparian management zones have the distribution of physical, chemical, and biological conditions appropriate to support their inherent resiliency to natural disturbances, human activities, and climate variability. **FW-GDL-RNG-08**: To minimize bank destabilization and associated sedimentation…	Revise Allotment Management Plans to address streambank issues where needed.

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
What is the status and trend of terrestrial wildlife, birds, and insects and their habitats (including at-risk species and focal species) on the GMUG? (vii, iv)	Migratory bird counts **Data Source:** Bird Conservancy of the Rockies (http://rmbo/v3/avian/Home.aspx); purple marten monitoring data, NRIS wildlife data **Frequency Reported:** 2 years	**FW-GDL-SPEC-07**: To minimize habitat impacts and direct disturbance of raptors and migratory birds during nesting and winter periods, utilize buffers and/or timing restrictions based upon best available scientific information. Effective site-specific topographic barriers may be used to modify these buffers.	
-	Uncompahgre Fritillary Butterfly population counts and colony maps **Data Source:** Western Colorado University **Frequency Reported:** 2 years	**FW-DC-SPEC-22**: Ecological conditions provide habitat contributing to survival, recovery, and conservation of species under the Endangered Species Act... **FW-GDL-SPEC-28**: To assist in species recovery and to avoid direct species and habitat impacts, livestock grazing, livestock trailing, and new or realigned recreation trails should be buffered by 600 feet of Uncompahgre fritillary butterfly colonies and their snow willow habitat.	If populations show declining trend, consider additional management of possible risk factors, including domestic sheep trailing and recreation impacts
-	Elk, mule deer, and bighorn sheep core habitat areas, seasonal habitat ranges, species production areas, and species seasonal concentration areas **Data Source:** Colorado Parks and Wildlife (co.us/learn/Pages/KMZ-Maps.aspx) **Frequency Reported:** 4 years	**FW-DC-SPEC-02**: Forage availability is maintained or increased, where capable, and contributes to ecosystem resiliency and forage for nongame species, livestock, and big game… **FW-DC-SPEC-14**: Relatively undisturbed areas provide habitat blocks that function as security areas for populations of big game and other species.	

Monitoring Question (and associated requirement)	Indicator(s)	Associated Plan Component(s)	Adaptive Management Actions
-	Northern goshawk core habitat areas, seasonal habitat ranges, species production areas, species seasonal concentration areas **Data Source:** Forest Service data, historic records **Frequency Reported:** 4 years	**FW-GDL-SPEC-07**: To minimize habitat impacts and direct disturbance of raptors and migratory birds during nesting and winter periods, utilize buffers and/or timing restrictions based upon best available scientific information. Effective site-specific topographic barriers may be used to modify these buffers.	
-	Gunnison sage-grouse core habitat areas, seasonal habitat ranges, species production areas, species seasonal concentration areas, extent of sagebrush and subspecies composition **Data Source:** Forest Service data, Colorado Parks and Wildlife **Frequency Reported:** 2 years	**FW-DC-SPEC-29**: Forb and grass production and ground cover provide residual vegetation suitable for nesting cover. Self-sustaining populations of Gunnison sage-grouse thrive on areas of suitable habitat, while potentially suitable unoccupied or historic habitat is in a condition that could support population expansion…	
-	Beaver presence/absence **Data Source:** HUC-12 watersheds or stream reaches with beaver activity **Frequency Reported:** 2 years	**FW-DC-RMGD-02:** Within the riparian management zones, the biological composition of native plants (flora, e.g., willows and cottonwoods) and animals (fauna, e.g., beaver) support the ecosystem services… **FW-OBJ-RMGD-06**: During each 10-year period following plan approval, restore or enhance at least 2,500 to 5,000 acres of riparian and meadow habitat, and restore hydrologic function for at least 15 to 30 miles of perennial, intermittent, or ephemeral streams…	If data indicate that there are watersheds or stream reaches that would benefit from it, consider beaver relocation and/or construction of beaver dam analogs.

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Glossary

A

Access

Road or trail route over which a public agency claims a right-of-way for public use; a way of approach.

Acid neutralizing capacity

The equivalent sum of all bases or base-producing materials in an aqueous system that can be titrated with a strong acid to an equivalence point.

Adaptive management

An approach to natural resource management where actions are designed and executed and effects are monitored for the purpose of learning and adjusting future management actions, which improves the efficiency and responsiveness of management.

Age class

Age class is one of the intervals, commonly 10 years, into which the age range of trees is divided for classification or use. Age class distribution refers to the location and/or proportionate representation of different age classes in a forest.

Air quality: Class I, II, and III areas

The area classification scheme established by Congress to facilitate implementation of the prevention of significant deterioration of the air quality provisions of the Clean Air Act.

Class I areas receive the highest degree of protection, with only a small amount of certain kinds of additional air pollution allowed.

Mandatory Class I areas were designated by Congress and include international parks, national wilderness areas or national memorial parks larger than 5,000 acres, or national parks larger than 6,000 acres, that were in existence (or authorized) on August 7, 1977. The 1990 amendments to the Clean Air Act specified that acreage added to these areas after 1977 must also receive Class I designation. Mandatory Class I areas may not be redesignated to any other classification.

Congress initially designated all other attainment areas as **Class II** and allowed a moderate increase in certain air pollutants.

No **Class III areas**, where a large amount of new air pollution would be allowed, were designated by Congress, but a process was established for redesignating Class II areas to the more protective Class I or the less protective Class III status. Only states or Native American governing bodies have authority to redesignate these areas, except as noted above.

Air quality-related values

Resource that may be adversely affected by a change in air quality. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource. Values are specific for each designated wilderness area.

Assessment

For the purposes of land management planning at 36 CFR 219, an assessment is the identification and evaluation of existing information to support land management planning.

Assessments are not decision-making documents, but provide current information on select topics relevant to the plan area in the context of their borders.

At-risk species

A term used to collectively refer to the federally recognized threatened, endangered, proposed, and candidate species and species of conservation concern within the planning area.

Aquatic ecosystem

The stream channel, lake or estuary bed, water, and biotic communities and the habitat features that occur therein. (FSM 2526)

B

Bark beetle

Bark beetles are members of the family Circulionidae, subfamily Scolytinae whose adults and larvae tunnel in the cambium region (bark and sapwood) of living, dying, and recently dead or felled trees.

Basal area

The cross-sectional area, in square feet, of a tree measured at breast height (4.5 feet). Basal area of an area is generally estimated in terms of square feet per acre.

Best management practices

Methods or techniques that have been determined to be the most effective and practical means of achieving an objective while making the optimum use of resources.

Big game

Those species of large mammals normally managed for sport hunting, generally including antelope, bighorn sheep, deer, elk, moose, and mountain goat.

Biological diversity, or biodiversity

The full variety of life in an area, including the ecosystem, plant, and animal communities, species and genes, and the processes through which individual organisms interact with one another and with their environment.

Biotic

Typically refers to living organisms in their ecological rather than their physiological relations.

Browse

The buds, shoots, and leaves of woody plants eaten by livestock or wild animals.

C

Canada lynx

The Canada lynx (*Lynx canadensis*) is a North American mammal of the cat family, Felidae, which ranges across Canada and into Alaska as well as some parts of the northern United States, including Colorado.

Candidate species

For species under the purview of the U.S. Fish and Wildlife Service (Service), a species for which the Service possesses sufficient information on vulnerability and threat to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published.

Canopy

The uppermost spreading, branchy layer of a forest.

Canopy cover

The proportion of ground or water covered by the vertical projection of the outermost perimeter of the natural spread of foliage or plants.

Capability

The potential of an area to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current management practices at a given level of management intensity. It is also dependent on existing resource and site conditions such as climate, slope, landform, soil, and geology, as well as the application of management practices, such as silviculture or the protection from fire, insects, and disease.

Carr

A type of waterlogged wooded terrain that typically represents a successional stage between swamp and the eventual formation of forest. Characteristic trees include alder and willow.

Channel

A passage, either naturally or artificially created, that periodically or continuously contains moving water, or that forms a connecting link between two bodies of water. River, creek, run, branch, and tributary are some of the terms used to describe natural channels, which may be single or braided. Canal and floodway are some of the terms used to describe artificial channels.

Clearcut

1. A stand in which essentially all trees have been removed in one operation to produce an even-aged stand. Depending on management objectives, a clearcut may or may not have reserve trees left to attain goals other than regeneration (see regeneration method two-aged methods).

2. A regeneration or harvest method that removes essentially all trees in a stand. A minor live component of the stand may be retained for purposes other than regeneration. The retained trees, referred to as leave trees, should generally comprise less than 10 percent of the growing space of the stand.

Climax

The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition.

Coarse woody debris

Provides living spaces for a host of organisms and serves as long-term storage sites for moisture, nutrients, and energy. Coarse woody debris consists of any woody material greater than 3 inches in diameter and is derived from tree limbs, boles, roots, and large wood fragments and fallen trees in various stages of decay.

Code of Federal Regulations (CFR)

The listing of various regulations pertaining to management and administration of national forests and other Federal lands.

Collaboration

Working with someone to produce or create something.

Commercial thinning

An intermediate harvest of commercial-sized trees to meet a variety of management objectives including reducing stand density to improve tree growth, improving forest health, or to meet other stand structural or composition objectives.

Concern level 1

A Scenery Management System term, these areas generally include all visible areas from primary travel routes, use areas, and water bodies, where there is high public interest in the area's scenic qualities.

Connectivity

Ecological conditions that exist at several spatial and temporal scales that provide landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to fluctuations in climate.

Conservation watershed network

A specific set of sub-watersheds (12-digit hydrologic unit codes) where prioritization for long-term conservation and preservation of Colorado River cutthroat trout and boreal toad occurs; specifically in areas where either nonnative species are absent and/or where these native species (cutthroat trout and boreal toad) are self-sustaining. Evaluation of management activities in conservation watershed networks will follow appropriate levels of review prior to resource management.

Constraint

A qualification of the minimum or maximum amount of an output or cost that could be produced or incurred in a given time period.

Construction

The displacement of vegetation, soil, rock, and the installation of infrastructure involved in the process of building a complete, permanent road facility. The activities occur at a location or corridor that is not currently occupied by a road.

Coppice (Coppice with standards)

Coppice is a vegetation reproduction method with clear felling or clearcutting. Clear felling stimulates sprouting from the residual roots. Standards are selected overstory trees reserved for a longer rotation at the time each crop of coppice material is cut.

Corridor (utility or right-of-way)

A linear strip of land defined for the present or future location of transportation or utility right-of-way within its boundaries.

Council on Environmental Quality

An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effects on the environment, conducts environmental studies, and advises the President on environmental matters.

Cover type

The dominant vegetation in an area—for example, aspen, ponderosa pine, or sedges.

Critical habitat

For a threatened or endangered species, (1) the specific areas within the geographical area occupied by the species, at the time it is listed under the Endangered Species Act, on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require species management considerations or protection; and (2) specific areas outside of the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such area are essential for the conservation of the species. Critical habitat is designated through rule making by the Secretary of the Interior or Commerce.

Crown

The upper part of a tree or other woody plant carrying the main branch system and foliage.

Culmination of mean annual increment

Mean annual increment of growth and culmination of mean annual increment of growth. Mean annual increment of growth is the total increment of increase of volume of a stand (standing crop plus thinnings) up to a given age divided by that age. Culmination of mean annual increment of growth is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum. In land management plans, mean annual increment is expressed in cubic measure and is based on the expected growth of stands, according to intensities and utilization guidelines in the plan.

Cultural landscapes

Cultural resources that represent the combined works of nature and humans.

Cultural resources

An object or definite location of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, places, or objects and traditional cultural properties. Cultural resources include the entire spectrum of resources for which the Heritage Program is responsible, from artifacts to cultural landscapes, without regard to eligibility for listing on the National Register of Historic Places.

D

Decadence

A process, condition, or period of deterioration or decline.

Deciduous

A deciduous tree or shrub sheds its leaves annually.

Decommission

Demolition, dismantling, removal, obliteration, and/or disposal of a deteriorated or otherwise unneeded asset or component, including necessary cleanup work. This action eliminates the deferred maintenance needs for the fixed asset. Decommissioning roads includes activities that result in the stabilization and restoration of unneeded roads to a more natural state.

Degradation

To wear down by erosion, especially through stream action.

Demand

The amount of an output that users are willing to take at a specified price, time period, and condition of sale.

Designated dispersed campsite

A site designated and signed by the Forest Service for the purpose of overnight camping. These sites typically do not include amenities as developed campsites do, but are designated to concentrate use.

Designated wilderness

Designated wilderness refers to any area of land designated by Congress as part of the National Wilderness Preservation System that was established by the Wilderness Act of 1964.

Desired condition

A description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. (36 CFR 219.7(e)(1)(i))

Developed recreation

Recreation that occurs at constructed developments such as campgrounds, picnic grounds, resorts, ski areas, trailheads, etc. Facilities might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings. Campgrounds and picnic areas are examples of developed recreation sites.

Developed site

Developed recreation sites are relatively small, distinctly defined areas where facilities are provided for concentrated public use, such as campgrounds and picnic areas.

Diameter at breast height (dbh)

The diameter of a standing tree measured at a point 4 feet 6 inches from ground level on the uphill side.

Dispersed recreation

Outdoor recreation that is spread out over the land and in conjunction with roads, trails, and undeveloped waterways. Activities are typically day-use oriented and include hunting, fishing, boating, hiking, off-road vehicle use, cross-country skiing, motorbiking, and mountain climbing.

Disturbance

Any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment.

Diversity

The distribution and abundance of different plant and animal communities and species within an area. This term is not synonymous with “biological diversity.”

Down or downed

A tree or portion of a tree that is dead and lying on the ground.

Downed woody material or debris

Woody material, from any source, that is dead and lying on the forest floor.

E

Easement

A right afforded a person or agency to make limited use of another’s real property for access or other purposes.

Ecological conditions

The biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems. Ecological conditions include habitat and other influences on species and the environment. Examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads, and other structural developments, human uses, and invasive species.

Ecological integrity

The quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influences.

Ecological process

The actions or events that link organisms (including humans) and their environment, such as disturbance, successional development, nutrient cycling, carbon sequestration, productivity, and decay.

Ecological sustainability

The capability of ecosystems to maintain ecological integrity.

Economic sustainability

The capability of society to produce and consume or otherwise benefit from goods and services, including contributions to jobs and market and nonmarket benefits.

Ecosystem

A spatially explicit, relatively homogenous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. Usually described in terms of its composition, structure, function, and connectivity.

Ecosystem services

The direct and indirect contributions of ecosystems to human well-being. They directly or indirectly support survival and quality of life. Ecosystem services can be categorized into types:

Provisioning services – products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources, and medicines.

Regulating services – benefits obtained from the regulation of ecosystem processes such as climate and natural hazards, water purification, waste management, pollination, and pest control.

Cultural services – nonmaterial benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation, and aesthetic values.

Supporting services – ecosystem services that are necessary for the production of all other ecosystem services. Examples include biomass production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of habitat.

Edge

The place where plant communities meet or where successional stages or vegetative conditions within plant communities come together.

Endangered species

Any species that the Secretary of Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act

Public Law 93-205, approved in 1973 and since amended, the Endangered Species Act provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend.

Enhancement emphasis area

An area in which wildland fire, as a natural disturbance process, can play a key role in maintaining, restoring, and enhancing ecosystem resiliency. In enhancement emphasis areas, there are opportunities to utilize natural ignitions to achieve desired conditions on the landscape. For criteria used to determine these areas, see Appendix 3 2, Part II, Fire Management Emphasis Areas.

Environmental Flows

Environmental flows describe the quantity, timing, and quality of freshwater flows and levels necessary to sustain aquatic and riparian ecosystems which, in turn, support human cultures, economies, sustainable livelihoods, and well-being. (Arthington et al. 2018)

Environmental Impact Statement (EIS)

A formal public document prepared to analyze the impacts on the environment of a proposed project or action and released for comment and review. It is prepared first in draft or review form and later in final form. An EIS must meet the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) guidelines, and directives of the agency responsible for the proposed project. An impact statement includes the following points: 1) the environmental impact of the proposed action, 2) any adverse impacts that cannot be avoided by the action, 3) the alternative courses of actions, 4) the relationships between local short-term use of the human environment and the maintenance and enhancement of long-term productivity, and 5) a description of the irreversible and irretrievable commitment of resources, which would occur if the action were accomplished.

Erosion

Detachment or movement of the land surface by water, wind, ice, gravity, or other geological activity. Accelerated erosion is much more rapid than normal, natural, geologic erosion, primarily as a result of the influence of activities of man, animals, or natural catastrophes.

Even-aged management

The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and therefore, tree sizes throughout the forested area). The difference in age between trees forming the main canopy level of a stand generally does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed-tree cutting methods produce even-aged stands (36 CFR 219.3).

Executive order

An order of regulation issued by the President or some administrative authority under his or her direction.

F

Facility

Structures needed to support the management, protection, and use of the national forests, including buildings, utility systems, dams, and other construction features. There are three types of facilities: recreation, administrative, and permittee.

Fen

An ancient wetland ecosystem dependent on nutrient-rich local or regional groundwater flow systems maintaining perennial soil saturation and supporting continuous organic soil (i.e., peat) accumulation. (FS-990A)

Fire regime

Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects as well, in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes typically are described as cycles because some parts of the histories are repeated, and the repetitions can be counted and measured, such as fire return interval.

Floodplain

The flat area of land adjacent to a river channel that is composed of unconsolidated sediments (alluvium) deposited when the river overflows its banks at flood stages.

Focal species

A small subset of species whose status infers the integrity of the large ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area.

Forage

All browse and herbaceous foods that are available to grazing animals.

Forb

Any herbaceous flowering plant other than grasses.

Foreground

A term used in scenery management to describe the portions of a view between the observer and as far as one-quarter to one-half mile distant.

Forest health

The perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, and vigor, presence of unusual levels of insects and diseases, and resilience to disturbance.

Forest plan

Source of management direction for an individual national forest that specifies activity and output levels for a period of time. Management direction in the plan is based on the issues identified at the time of the plan's development.

Forest plan revision

The process for revising a forest plan includes working identification of the need to change the plan based on the assessment, development of a proposed plan, consideration of the environmental effects of the proposal and preparation of a draft environmental impact statement, providing an opportunity for the public to comment on the proposed plan, providing an opportunity for the public to object before the proposal is approved, and finally, approval of the plan and preparation of the final environmental impact statement.

Fragmentation

A process that occurs wherever a large, contiguous habitat is transformed into smaller patches that are isolated from each other by a landscape matrix unlike the original. This matrix can differ from the original habitat in either composition or structure. The crucial point is that it functions as either a partial or total barrier to dispersal for species associated with the original habitat. A clear threat to population persistence occurs when fragmentation isolates pairs and populations, as opposed to fragmentation within the home range of individual pairs.

Fuel

Organic material that will support the start and spread of a fire: duff, litter, grass, weeds, forbs, brush, trees, and dead wood materials.

Fuel load

The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available (consumable) fuel or total fuel and is typically dry weight.

Fuels management

The manipulation of vegetation for the purpose of changing the characteristics of a fire as it burns.

Fuels reduction treatment

Manipulation or removal of fuels to lessen potential damage and resistance to control (includes mechanical and prescribed fire treatments). Fuels reduction treatments result in a change in the amount, configuration, and spacing of live and dead vegetation, with the purpose of creating conditions that result in more manageable fire behavior and reduced severity during wildland fires.

Fuelwood

Round, split, or sawed wood of general refuse material, which is cut into short lengths for burning as fuel.

G

Game species

Any species of wildlife or fish for which hunting seasons and bag limits have been established, and are normally harvested by hunters and fishermen.

General Mining Act of 1872

Provides for claiming and gaining title to locatable minerals on public lands. Also referred to as the “general mining laws” or “mining laws.”

Geographic area

A spatially contiguous land area identified within the planning area. A geographic area may overlap with management areas.

Geographic information system (GIS)

An information processing technology to input, store, manipulate, analyze, and display spatial resource data to support the decision-making processes of an organization. Generally, an electronic medium for processing map information.

Goal

A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms, and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed. (36 CFR 219.3)

Grass/forb

An early forest successional stage during which grasses and forbs are the dominant vegetation.

Groundwater

All water below the ground surface, including water in the saturated and unsaturated zones. (USDA Forest Service General Technical Report WO-86a, 2012)

Groundwater-dependent ecosystems

Communities of plants, animals, and other organisms whose extent and life processes are dependent on access to or discharge of groundwater

Group selection

A method of regenerating uneven-aged stands in which trees are cut, in small groups, and new age classes are established. The width of groups is commonly approximately twice the height of the mature trees, with small openings providing suitable microclimates for shade-tolerant tree species to regenerate, and the larger openings providing suitable microclimates for more shade-intolerant tree species to regenerate.

Guideline

A constraint on project or activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Guidelines are intended to help achieve or maintain a desired condition or conditions, avoid or mitigate undesirable effects, or meet applicable legal requirements.

H

Habitat

The natural environment of a plant or animal. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Healthy ecosystem

An ecosystem in which structure and functions allow the maintenance of biological diversity, biotic integrity, and ecological processes over time.

Herbaceous

Of, denoting, or relating to herbs.

Hibernacula

Habitat niches where certain animals, e.g., bats, over-winter, such as caves, mines, tree hollows, or loose bark.

Hydrologic unit code (HUC)

A unique numeric code that is used to identify watersheds in the United States for the purpose of providing a standardized base for use by water-resource organizations in locating, storing, retrieving, and exchanging hydrologic data (Seaber and others 1987).

I

Ignition

The initiation of combustion.

IMPLAN

Acronym for the computer model used as an analysis tool to display social effects of various alternatives developed during the land management planning effort.

Indicator

A measurable attribute of social and ecological conditions that is used to answer monitoring questions and evaluate progress toward maintaining or achieving desired conditions.

INFRA

INFRA is a collection of web-based data entry forms, reporting tools, and GIS tools that enable the Forest Service to manage and report accurate information about the inventory of constructed features and land units as well as the permits sold to the public and to partners.

Infrastructure

The facilities, utilities, and transportation system needed to meet public and administrative needs for operation, e.g., buildings, roads, and power supplies.

Inholding

Land within the proclaimed boundaries of a national forest that is owned by a private citizen, an organization, or an agency.

Interdisciplinary team

A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad enough to adequately solve the problem.

Intermittent stream

A stream or reach of stream channel that flows, in its natural condition, only during certain times of the year or in several years. Characterized by interspersed, permanent surface water areas containing aquatic flora and fauna adapted to the relatively harsh environmental conditions found in these types of environments (Briggs 1996).

Interpretation

Explaining the meaning or significance of something.

Invasive species

Native species are those that have occurred, now occur, or may occur in a given area as a result of natural processes.

Exotic (a.k.a. nonnative, foreign, or alien) species are those that live outside their native range and arrived there by human activity, either deliberate or accidental.

Invasive species have the ability to thrive and spread aggressively outside their natural range. They affect both aquatic and terrestrial areas and can be plants, vertebrates, invertebrates, and pathogens.

Invertebrate

An animal lacking a spinal column.

Irretrievable

Applies to losses of production, harvest, or uses of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost while an area is used as a road surface. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible

Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

K

Key area

A relatively small portion of a range selected because of its location, use or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the overall acceptability of current grazing management over the range. Society for Range Management. 1998. Glossary of terms used in range management, fourth edition. Edited by the Glossary Update Task Group, Thomas E. Bedell, Chairman. Used with permission.

L

Land exchange

The conveyance of non-Federal land or interests to the United States in exchange for National Forest System land or interests in land.

Landscape

A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area.

Landscape scale

A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar form throughout. Landscapes vary in size, from many thousands of acres to only a few kilometers in diameter.

Landslide

The moderately rapid to rapid downslope movement of soil and rock that may or may not be water-saturated.

Late-successional forest

A stage of forest succession where the majority of trees are mature or overmature.

Large woody debris

Large pieces of relatively stable woody material located within the bankfull channel and appearing to influence bankfull flows.

Single – A single piece that has a length equal to or greater than 3 meters or two-thirds of the wetted stream width and 10 centimeters in diameter one-third of the way from the base.

Aggregate – Two or more clumped pieces, each of which qualifies as a single piece.

Rootwad – Rootmass or boles attached to a log less than 3 meters in length.

Leasable minerals

Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920, as amended, or by other specific legislation. They include coal, phosphate, asphalt, sulfur, potassium, sodium minerals, and oil and gas, and hardrock minerals on acquired NFS lands. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

Lease

A legal contract that conveys the right to explore for, develop and produce the specified mineral commodity for a specific period of time under certain agreed-upon terms and conditions.

Leave tree

A tree marked to be left standing in an area where it would otherwise be felled.

Linkage

Broader regions of connectivity that are important to facilitate the movement of multiple species and maintain ecological processes.

Litter

A surface layer of loose organic debris, consisting of freshly fallen or slightly decomposed organic materials.

Locatable minerals

Minerals or materials subject to claim and development under the Mining Law of 1872, as amended. Generally includes metallic minerals such as gold and silver, and other materials not subject to lease or sale, like some bentonites, limestone, talc, some zeolites, etc.

Lynx analysis unit

An area of at least the size used by an individual lynx, from about 25 to 50 square miles.

M

Maintenance

The upkeep of the entire Forest Development Transportation Facility, including surfaces and shoulders, parking and side areas, structures, and such traffic control devices as are necessary for its safe and efficient use (36 CFR 212.1). Maintenance is not for the purpose of upgrading a facility, but to bring it to the originally constructed or subsequently reconstructed conditions.

Maintenance level

The level of service provided by, and maintenance required for, a specific road. For more information, see the entry for **road maintenance level**.

Management action

An action humans impose on a landscape for the purpose of managing natural resources.

Management approach

Management approaches describe the principal strategies and program priorities the responsible official intends to employ to carry out projects and activities developed under the plan. They can convey a sense of priority and focus among objectives and likely management emphasis. They are optional plan content.

Management area

A land area identified within the planning are that has the same set of applicable plan components. A management area does not have to spatially contiguous.

Management direction

A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them. (36 CFR 219.3)

Management prescription

Management practices and intensity selected and scheduled for application on a specific area to attain multiple use and other goals and objectives. (36 CFR 219.3)

MBF

One thousand board feet of timber.

Mechanical treatment

Mechanical vegetation treatment is any activity undertaken to modify the existing condition of the vegetation accomplished with mechanical equipment.

Mechanized

Wheeled forms of transportation, including nonmotorized carts, wheelbarrows, bicycles, and any other nonmotorized, wheeled vehicle.

Memorandum of understanding

A legal agreement between the Forest Service and other agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund-obligating document.

Microequivalents per liter (µeq/L)

One equivalent per liter is equal to one thousand milligram-equivalents per one thousand milliliters (meq/mL). Chemical analyses of solutes in a sample are expressed in unit concentrations that are chemically equivalent in terms of atomic or molecular weight and electrical charge.

Mineral

Locatable – Hard rock minerals that are mined and processed for the recovery of metals. They may include certain nonmetallic minerals and uncommon varieties of mineral materials such as valuable and distinctive deposits of limestone or silica.

Leasable – Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulfur, and geothermal resources.

Salable (or mineral materials) – A collective term to describe common varieties of sand, gravel, stone, pumice, cinders, clay, and other similar materials. Common varieties do not include deposits of those materials that may be locatable. In general, these minerals are widely spread and are relatively low in unit value. They are generally used for construction materials and for road building purposes.

Mineral entry

Claiming public lands administered by the Forest Service under the Mining Law of 1872 for the purpose of exploiting minerals. May also refer to mineral exploration and development under the mineral leasing laws and Material Sale Act of 1947.

Mining

Extraction of valuable minerals or other geological materials from the earth.

Mitigate, or mitigation

To avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

Modification

A description in scenic quality objectives when activities may dominate, but must use naturally established form, color, and texture. These areas should appear natural when viewed in the background.

Monitoring

A systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships.

Montane

Of or inhabiting mountainous country.

Mosaic

The intermingling of plant communities and their successional stages in such a manner as to give the impression of an interwoven design.

Motorized equipment

A machine that uses a motor, engine, or other nonliving power source. This includes, but is not limited to, machines such as chain saws, aircraft, snowmobiles, generators, motorboats, and motor vehicles. It does not include small battery or gas powered hand carried devices such as shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

Motorized use

The designation of roads, trails, and areas that are open to motor vehicle use as specified in the Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 / 36 CFR Parts 212, 251, 261, Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule.

Multiple use

The management of all the various renewable surface resources of the national forests so that they are used in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in the use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output. (36 CFR 219.19)

N

National Environmental Policy Act (NEPA)

A 1969 act declaring a national policy that encourages productive and enjoyable harmony between humankind and the environment, to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the nation, and to establish a Council on Environmental Quality. (The Principal Laws Relating to Forest

Service Activities, Agriculture Handbook No. 453, USDA Forest Service, 359 pp.) The NEPA process is an interdisciplinary process that concentrates decision-making around issues, concerns, alternatives, and the effects of alternatives on the environment. NEPA regulations are set out in Forest Service Handbook 1909.15.

National Forest Management Act

A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of regional guides and forest plans, and the preparation of regulations to guide that development.

National Forest System lands

All national forest lands reserved or withdrawn from the public domain of the United States, all national forest lands acquired through purchase, exchange, donation, or other means, the national grasslands and land utilization projects administered under title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 USC 1010-1012), and other lands, waters, or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system. 16 USC 1609(a).

National Historic Preservation Act

Extends the policy in the Historic Sites Act to State and local historical sites as well as those of national significance, expands the National Register of Historic Places, establishes the Advisory Council on Historic Preservation and the State Historic Preservation Officers, and requires agencies to designate Federal Preservation Officers. Section 106 directs all Federal agencies to take into account the effects of their undertakings (actions, financial support, and authorizations) on historic properties included in or eligible for the National Register. Section 110 establishes inventory, nomination, protection, and preservation responsibilities for federally owned historic properties.

National Minimum Recreation Site Monitoring Protocol

This protocol provides a consistent process for monitoring recreation sites. The process calculates an Overall Impact Rating for each site by assessing and tallying ratings for the following factors: (a) groundcover disturbance of the main campsite (1-4); (b) impact to standing trees and roots (1-2); and, (c) the size of the disturbed area, including satellite tent pads and stock-holding areas (0-2). The sum of these ratings is the Overall Impact Rating that ranges from 0 to 8.

National Register of Historic Places

The Nation’s official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Register is administered by the National Park Service.

Native American Graves Protection and Repatriation Act (NAGPRA)

Provides a process for museums and Federal agencies to return certain Native American cultural items—human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional excavation, and unanticipated discovery of Native American cultural items on Federal and Tribal lands, and penalties for noncompliance and illegal trafficking. The Act requires agencies and museums to identify holdings of such remains and objects and to work with appropriate Native American groups toward their repatriation. Permits for the excavation and/or

removal of “cultural items” protected by the Act require Tribal consultation, as do discoveries of “cultural items” made during activities on Federal or Tribal lands.

Natural range of variation

The variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application. In contrast to the generality of historical ecology, the natural range of variation concept focuses on a distilled subset of past ecological knowledge developed for use by resource managers; it represents an elicit effort to incorporate a past perspective into management and conservation decisions. The pre-European influenced reference period considered should be sufficiently long, often several centuries', to include the full range of variation produced by dominant natural disturbance regimes such as fire and flooding and should also include short-term variation and cycles in climate. The natural range of variation is a tool for assessing the ecological integrity and does not necessarily constitute a management target or desired condition. The natural range of variation can help identify key structural, functional, compositional, and connectivity characteristics, for which plan components may be important for either maintenance or restoration of such ecological conditions.

Nonmotorized activities

Activities that do not incorporate the use of a motor, engine, or other nonliving power source. This includes such machines as aircraft, hovercraft, motorboats, automobiles, motor bikes, snowmobiles, bulldozers, chainsaws, rock drills, and generators.

O

Objective

A concise, measureable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonable foreseeable budgets.

Old forest

The overstory is dominated by late seral or climax species of a certain age and size, and has other characteristics such as snags, canopy layers, downed woody material, and trees with rotten, dead, or broken tops**.**

Opening

Meadows, clearcuts, and other areas of vegetation that do not provide cover.

Oshá

Oshá, also known as osha (*Ligusticum porteri*), is a perennial herb found in parts of the Rocky Mountains and northern Mexico, especially in the southwestern United States. Oshá is strictly a mountain plant that requires partial shade. It is most commonly found in deep, moist soils rich in organic material.

Output

The goods, end products, or services that are purchased, consumed, or used directly by people. Goods, services, products, and concerns produced by activities that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives.

Overstory

That portion of a plant community consisting of the taller plants on the site; the forest or woodland canopy.

P

Party

A group of people readily recognized as traveling together.

Perennial stream

A stream or reach of a channel that flows continuously or nearly so throughout the year and whose upper surface is generally lower than the top of the zone of saturation in areas adjacent to the stream.

Planned ignition

The intentional initiation of a wildland fire by a hand-held, mechanical, or aerial device where the distance and timing between ignition lines or points and the sequence of igniting them is determined by environmental conditions (weather, fuel, topography), firing technique, and other factors that influence fire behavior and fire effects (see prescribed fire).

Planning period

The lifetime of the plan. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits.

Planning Rule

The 2012 Planning Rule provides the overarching framework for individual forests and grasslands in the National Forest System to use in developing, amending, and revising land management plans, which are also known as forest plans. The planning rule identifies a framework for revising land management plans that consists of three phases: assessment, plan revision, and monitoring.

The Forest Service is required by statute to have a national planning rule: the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976, requires the Secretary of Agriculture to issue regulations under the principles of the Multiple-Use Sustained-Yield Act of 1960 for the development and revision of land management plans.

Plant community

Any assemblage of plants that occur in the same area and form a distinct ecological unit.

Precommercial thinning

The selective felling, deadening, or removal of trees from a young stand maintaining a specific stocking or density stand management.

Prescribed fire

A wildland fire originating from a planned ignition to meet specific objectives identified in a written, approved, prescribed fire plan for which National Environmental Policy Act requirements (where applicable) have been met prior to ignition (see planned ignition).

Prescription

A planned sequence of treatments designed to change current stand structures to one that meets management goals

Primitive road

A road constructed with no regard for grade control or designed drainage, sometimes by merely repeatedly driving over an area. These roads are of single lane, typically with native surfacing, and sometimes usable with 4-wheel-drive vehicles only.

Productive

The ability of an area to provide goods and services and sustain ecological values.

Project record

The documents and materials considered in the making of a forest plan, plan revision, or plan amendment. Also known as the planning record.

Proposed action

In terms of the National Environmental Policy Act (NEPA), the project, activity, or decision that a Federal agency intends to implement or undertake, which is the subject of an environmental impact statement or environmental assessment.

Protection emphasis area

An area in which the values on the landscape, whether they be natural resource values or subdivisions, communities, private property, or other infrastructure, are at risk of being damaged or destroyed by wildland fire. In these areas the risk, or impact, of fire on valued resources could be significant or catastrophic and cannot be mitigated in a timely manner. For criteria used to determine these areas, see Appendix 3 2, Part II, Fire Management Emphasis Areas.

Public access

Generally refers to a road or trail route over which a public agency claims right-of-way for public use.

Public participation

Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

R

Range allotment

Rangelands are managed as allotments and pastures. An allotment is a designated area of land available for permitted livestock grazing. Grazing is authorized for a specified number and kind of livestock. It is the basic land unit used to facilitate management of the range resource on National Forest System lands administered by the Forest Service.

Range condition

The state of the plant community on a range site in relation to the potential natural community or the desired plant community for that site. It is typically rated in the general category of satisfactory or unsatisfactory.

Rangeland

Land on which vegetation is predominantly grasses, forbs, or shrubs suitable for grazing or browsing. Rangeland may include some forest and barren land.

Ranger district

Administrative subdivision of a national forest, supervised by a district ranger who reports to the forest supervisor.

Rare plant species

A plant species that has received a NatureServe ranking of S1, S2, G1, or G2 and have fewer than five known occurrences on the GMUG.

Reclamation

Returning disturbed lands to a form and productivity that will be ecologically balanced and in conformity with a predetermined land management plan.

Reconstruction

Activities performed on an existing road or other facility to restore it to a specified standard.

Recreation opportunity spectrum (ROS)

Also known as recreation setting (see entry below). Allocations that identify a variety of recreation experience opportunities categorized into six classes on a scale from primitive to urban. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs, based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use. The six classes are:

Primitive – Very high probability of experiencing solitude, self-reliance, and challenge; natural landscape with natural processes allowed to function; very low interaction between users; restrictions and controls not evident; access limited; generally cross-country travel.

Semiprimitive nonmotorized – Good probability of experiencing solitude, self-reliance, and challenges; natural primitive landscapes; some evidence of users; minimum subtle controls; access by low standard trails and cross-country travel; natural processes allowed to function with subtle vegetative alterations. Managed for nonmotorized use.

Semiprimitive motorized – Moderate probability for self-reliance and experiencing solitude away from travelways (roads/trails); risk associated with motorized equipment; predominantly natural landscapes; low concentration of users and interaction by users along travelways; minimum but subtle restrictions; vegetative alterations visually blend with the landscape. Existing routes are designated for off highway vehicles and other high clearance vehicles. Mountain bikes and other mechanized equipment are present.

Roaded natural – Low opportunity to avoid other users; little opportunity for risk or challenge; substantial modified landscapes; moderate evidence and interaction of users; controls and restrictions present; variety of motorized users and access; various shapes and sizes of vegetative alterations that blend with the landscape. The road system is well defined and can accommodate sedan travel.

Rural – Good opportunity to affiliate with others; facilities important; self-reliance of little importance; altered landscapes but attractive; high interaction among users; obvious and prevalent controls; extensive motorized use; vegetation maintained. Rural settings represent most developed recreation sites.

Urban – Opportunity to affiliate with others important; outdoor skills associated with competitive events; landscapes extensively changed with dominant structures; large numbers of user interactions; intensive controls are numerous; motorized use prevalent, including mass transit; vegetation planted and maintained. Highly developed ski areas and resorts are examples of a typical urban setting on National Forest lands.

Recreation setting

The social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban.

Recreation site

A defined, public recreation area. The Forest Service uses two categories for recreation sites: dispersed and developed. Both types may have improvements needed to protect resources such as signs, road closure devices, bear resistant food storage devices, and/or sanitation facilities. Some recreation sites are designed and managed for overnight use and some are designed and managed for day-use only (e.g., interpretive signs at roadside pull-outs, trailheads at roadside pull-outs or at road closures, picnic areas or boat launches that are closed at night, ski areas that do not have overnight lodging).

Developed sites have agency improvements made out of manmade materials that are intended to provide for public recreation and user comfort/convenience. Examples on National Forest Service lands include, but are not limited to: ski areas, campgrounds, sites with cabins, huts, lodges, recreation residences, visitor centers, and trailheads.

Dispersed sites have minimal to no agency improvements made out of manmade materials. Dispersed sites may include outfitter camps or other primitive camping spots along a road, trail, or water body, or at a road closure.

Reforestation

Management activities used to increase or accelerate the establishment of forest cover to meet resource objectives.

Regeneration

Natural – A group or stand of young trees created from germination of seeds from trees on the site or sprouting from trees on the site.

Artificial – A group or stand of young trees created by direct seeding or by planting seedlings or cuttings.

Regeneration harvest

Timber harvest system intended to create a new age class (see regeneration method).

Regeneration method

A cutting procedure by which a new age class is created. The major methods are clearcutting, seed-tree, shelterwood, selection, and coppice. Regeneration methods are grouped into four categories: coppice, even-aged, two-aged, and uneven-aged.

Region

An administrative unit within the National Forest System based on geographical location. Each of the nine Forest Service regional offices is supervised by a regional forester. The Rio Grande National Forest is part of the Rocky Mountain Region, also known as Region 2. The Rocky Mountain Regional Office is strategically located in Lakewood, Colorado, between the foothills of the Rocky Mountains and downtown Denver.

Rehabilitation

1) Actions taken to protect or enhance site productivity, water quality, or other values for a short period of time.

2) A short-term scenic condition objective used to restore landscapes containing undesirable visual or other resource impacts to the desired scenic or other acceptable quality level.

Research natural area

Designated areas of land established by the Chief of the Forest Service under 36 CFR 251.23 for research and educational purposes and to typify important forest and range types of the Forest, as well as other plant communities that have special or unique characteristics of scientific interest and importance.

Resilience

The ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape.

Resistance

The capacity of ecosystems to tolerate disturbances without exhibiting significant change in structure and composition. The concepts of resistance and resilience are jointly referred to as resilience.

Responsible official

The Forest Service employee who has the delegated authority to make a specific decision. For example, the regional forester will select the preferred alternative for the forest plan.

Restore/restoration

Assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. It is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity, and sustainability.

Revegetation

The reestablishment and development of a plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through the direct action of reforestation or reseeding.

Right-of-way

Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project or facility passing over, upon, under, or through such land (36 CFR 251.51). The privilege that one person or persons particularly described may have of passing over the land of another in some particular line (FSH 2709.12 05 10).

Riparian area

A riparian ecosystem is a transition area between the aquatic ecosystem and the adjacent terrestrial ecosystem, identified by soil characteristics or distinctive vegetation communities that require free or unbound water (FS-990A). Riparian areas may be associated with lakes, reservoirs, estuaries, hot springs, marshes, streams, fens, wet meadows, and intermittent or permanent streams where free and unbound water is available. This habitat is transitional between true bottomland wetlands and upland terrestrial habitats, and while associated with watercourses, may extend inland or upland for considerable distances.

Riparian management zone

Riparian management zones are delineated as follows (See FW-STND-RMGD-07):

Category 1: Perennial and intermittent streams: consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to

the outer edges of riparian vegetation, or 100-feet slope distance (200 feet, including both sides of the stream channel), whichever is greatest.

Category 2: Fens, wetlands, lakes/ponds and reservoirs: consist of the body of water or wetland and the area to the outer edges of the riparian vegetation; or to the extent of the seasonally saturated soil; or 100-feet slope distance from the edge of the wetland or the maximum pool elevation of constructed pond and reservoirs with shorelines composed of riparian vegetation, whichever is greatest.

Road

A motor vehicle route more than 50 inches wide, unless identified and managed as a trail.

Road maintenance level

Defines the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (FSH 7709.58, section 12.3). The maintenance levels are:

Maintenance level 1 – Intermittent service roads during the time they are closed to vehicular traffic. The closure period is 1 year or longer. Basic custodial maintenance is performed.

Maintenance level 2 – Roads open for use by high-clearance vehicles, minor traffic, no warning signs. Passenger car traffic is not a consideration.

Maintenance level 3 – Roads open and maintained for a prudent driver in a standard passenger car, low speed travel, warning signs provided. User comfort and convenience are not considered priorities.

Maintenance level 4 – Roads that provide a moderate degree of user comfort and convenience at moderate travel speeds, single or double lane, aggregate or paved surface.

Maintenance level 5 – Roads that provide a high degree of user comfort and convenience, single or double lane, generally paved surface, or aggregate-surfaced with dust abatement.

Rocky Mountain Region

The Forest Service organizational unit consisting of Colorado, Wyoming, South Dakota, Nebraska, and Kansas. Also called Region 2.

Rotation

The planned number of years between the formation of a generation of trees and its final cutting at a specified stage of maturity.

S

Sacred site

Per Executive Order 13007 – any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the Indian tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

Salvage harvest

The removal of dead trees or trees damaged or dying because of injurious agents, other than competition, that recovers economic value that would otherwise be lost, or because the removal of the dead or damaged trees contributes to achieving plan desired conditions or objectives.

Sanitation harvest

Intermediate harvest to remove trees to improve stand health by stopping or reducing the actual or anticipated spread of insects and diseases.

Sawtimber

Larger diameter trees of sufficient size and quality to be manufactured into dimensional lumber products. Species and minimum diameters of sawtimber trees are established by regional timber markets.

Scale

The degree of resolution at which ecological processes, structures, and changes across space and time are observed and measured.

Scenic character

A combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place; scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity.

Scenic condition

Measurable standard for scenic resource management based on the acceptable degree of alteration of the characteristic landscape. The acceptable degree of alternation for a given landscape is dictated by the area's scenic integrity objective.

Scenic integrity objective

Scenic integrity objectives serve as the desired conditions for the scenic resources and represent the degree of intactness of positive landscape attributes. Scenic integrity objectives are categorized into five levels. The highest ratings are given to those landscapes where valued landscape attributes will appear complete with little or no visible deviations. Lower ratings are given to those landscapes where modifications will be more evident.

Very high – Landscape is intact with changes resulting primarily through natural processes and disturbance regimes.

High – Management activities are unnoticed and the landscape character appears unaltered.

Moderate – Management activities are noticeable but are subordinate to the landscape character. The landscape appears slightly altered.

Low – Management activities are evident and sometimes dominate the landscape but are designed to blend with surroundings by repeating line, form, color, and texture of valued landscape character attributes. The landscape appears altered.

Very low – Human activities of vegetation and landform alterations may dominate the original, natural landscape character but should appear as natural occurrences when viewed at background distances.

Scenic resource

The composite of basic physiographic features, patterns, and land-use effects that typify a land unit and influence the scenic appeal the unit may have for visitors.

Secure habitat

An area where wildlife retreat for safety when disturbance in their usual range is intensified, such as by logging activities or during hunting seasons.

Sedge

A grass-like plant with triangular stems and inconspicuous flowers, typically growing in wet ground.

Sediment

Material suspended in water or that has been deposited in streams and lakes.

Seedling/sapling

A forest successional stage in which trees are less than 5 inches in diameter.

Seral

The gradual supplanting of one community of plants by another, the sequence of communities being termed a sere and each stage seral (successional).

Seral stage

A phase in the sequential development of a climax community.

Shrub/seedling

A forest successional stage in which shrubs and seedling trees are the dominant vegetation.

Silviculture

The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

Site capability (also known as ecological response unit)

A unit of land that is homogenous in character such that similar units will respond in the same way to disturbance or manipulation. Syn. ecological site, ecological type. Society for Range Management. 1998. Glossary of terms used in range management, fourth edition. Edited by the Glossary Update Task Group, Thomas E. Bedell, Chairman. Used with permission.

Skidding

Moving logs by sliding from stump to a collecting point.

Slope

The amount or degree of deviation from the horizontal or vertical.

Slope stability

The resistance of any inclined surface, as the wall of an open pit or cut, to failure by sliding or collapsing.

Snag

A standing, dead tree.

Social sustainability

The capability of society to support the network of relationships, traditions, culture, and activities that connects people to the land and to one another and supports vibrant communities.

Soil productivity

The capacity of a soil to support the growth of specified plants, plant communities, or a sequence of plant communities. Soil productivity may be expressed in terms of volume or weight/unit, area/year, percentage of plant cover, or other measures of biomass accumulation.

Soil survey

The systematic examination, description, classification, and mapping of soils in an area.

Spatial

Referring to the distance, interval, or area between or within things.

Special area

Area designated by law (by Congress) or statute or through administrative process (by the Secretary of Agriculture or a Forest Service official).

Special interest area

A type of management area designated by the forest supervisor for scenic, geologic, botanic, zoologic, paleontological, archaeological, historic, scenic, or recreational values, or combinations of these values. A special interest area is a type of special area designated through administrative process. Special interest areas are addressed in Forest Service Manuals 2360 and 2372.

Special use authorization or permit

A permit, term permit, lease, or easement that allows occupancy, use, rights, or privileges of National Forest System land.

Species

Organisms that successfully reproduce among themselves and cannot reproduce successfully with other organisms.

Stand

A community of trees or other vegetation sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguishable from adjacent communities that form a silvicultural or management entity.

Standards and guidelines

Principles specifying conditions or levels of environmental quality to be achieved.

Standard – a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. (36 CFR 219.7(e)(1) (iii))

Standards are required criteria for the design of projects and activities. Design criteria are the technical design details to ensure that projects and activities maintain or move toward the desired conditions, or at least to ensure that projects and activities do not preclude their maintenance or attainment. Design criteria provide the sideboards (i.e., define the limits) for projects and activities. Examples of other sources of constraints on the design of projects and activities include congressional direction, mineral leasing stipulations, regulations, timber sale contract clauses,

and special use authorization standard clauses. In addition, the responsible official may develop project-specific design criteria to constrain a project. A standard differs from a guideline in that a standard is strict design criterion, allowing no variation, whereas a guideline allows variation if the result would be equally effective.

Guideline – a constraint on project and activity decisionmaking that allows for departure from its terms, so long as the purpose of the guideline is met. Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. (36 CFR 219.7(e)(1) (iv))

Guidelines are similar to standards in that they are design criteria for projects and activities to help achieve the desired conditions and objectives, or at least to ensure that projects or activities do not foreclose their maintenance or attainment. Guidelines differ from standards in that they provide flexibility for compliance, while standards are concrete limitations.

Stewardship

Caring for the land and associated resources and passing healthy ecosystems to future generations.

Stipulation

A provision that modifies standard lease rights and is attached to and made a part of the lease.

Stocking

Live trees per acre needed to meet resource objectives as identified in the forest plan or through other management decisions.

Structural stage

Any of several developmental stages of tree stands described in terms of tree age or size and density. In general, the habitat structural stages developed by the Forest Service Rocky Mountain Region staff are used. This classification has different structural stages based on tree size (diameter at breast height) and tree canopy cover percent.

Structure

The horizontal and vertical physical elements of forests and grasslands and the spatial interrelationships of ecosystems.

Stubble

The basal portion of plants remaining after the top portion has been harvested. Also, the portion of the plants, principally grasses, remaining after grazing is completed.

Substrate

The rock material varying in size from boulders to silt that is found in the bed of rivers and streams.

Succession

The sequential process of long-term plant community change and development that occurs following a disturbance.

Successional stage (seral stage)

The relatively transitory communities that replace one another during development to potential natural community.

Suitable timber

Area that defines where timber harvest for the purpose of timber production may occur, subject to subsequent project-level, site-specific data and analysis. Timber harvest for purposes other than timber production may also occur here. Scheduled timber harvests occur on these lands, among other active management activities, to contribute to forestwide desired conditions and multiple use goals. **Suppression**

The work of extinguishing a fire or confining fire spread.

Surface water

Water on the surface of the earth.

Sustainability

The capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs.

Sustained yield

The amount of renewable resources that can be produced continuously at a given intensity of management.

"Sustained yield of the several products and services" means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land. (36 CFR 219.3)

Sustained yield limit

(FSH 1909.12 CH 60.5) - The amount of timber, meeting applicable utilization standards that can be removed from a forest annually in perpetuity on a sustained yield basis. It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of sustained yield limit is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The sustained yield limit is not a target but is a limitation on harvest, except when the plan allows for a departure.

T

Temporary road

A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization. Temporary roads are not included in a national forest's transportation atlas.

Terrestrial ecosystem

A plant community that is not dependent on a perpetual source of water to grow.

Thinning

Intermediate treatment to reduce stand density or stocking levels to meet a variety of management objectives including increasing tree growth or vigor, improving stand health or species composition, reducing fuels, or improving wildlife habitat.

Threatened and endangered species

An endangered species is a plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range. A threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Threshold

The point or level of activity beyond which an undesirable set of responses begins to take place within a given resource system.

Timber harvest

The removal of trees for wood fiber utilization and other multiple-use purposes.

Timber production

The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.

Managing land to provide commercial timber products on a regulated basis with planned, scheduled entries.

Timber sale

Selling of forest products with monetary value to meet forest plan objectives, including providing raw material for both commercial manufacturing and personal use.

Trail

A route 50 inches or less in width, or a route greater than 50 inches wide that is identified and managed as a trail.

Travel management

Providing for safe, environmentally responsible, and customer-responsive movement of vehicles and people to and through public lands. Travel management decisions are not made by this Forest Plan.

U

Understory

That portion of a plant community growing underneath the taller plants on the site.

Uneven-aged management

The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is typically regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree and group selection. (36 CFR 219.3)

Unplanned ignition

The initiation of a wildland fire by lightning, volcanoes, or unauthorized or accidental human-caused fire (see wildland fire).

Use of wildland fire

Management of wildland fire to meet resource objectives specified in land and resource management plans.

V

Vegetation management

Activities designed primarily to promote the health of forest vegetation in order to achieve desired results. When vegetation is actively managed, it is manipulated or changed by humans to produce desired results. Where active management of vegetation is required, techniques are based on the latest scientific research and mimic natural processes as closely as possible. Vegetation management is the practice of manipulating the species mix, age, fuel load, and/or distribution of wildland plant communities within a prescribed or designated management area in order to achieve desired results.

Viable population

A population of plants or animals large enough and distributed in such a way as to ensure its continued existence, despite all the hazards to survival such as illness, predators, old age, etc. throughout its existing range within the planning area.

Viewshed

The visible portion of the landscape seen from viewpoints. Viewpoints can include residences, recreational facilities, and travelways.

W

Water right

A property right granted by a State for the use of a portion of the public's surface water resource obtained under applicable legal procedures.

Watershed

An area of land with a characteristic drainage network that contributes surface or groundwater to the flow at that point; a drainage basin or a major subdivision of a drainage basin.

Wetlands

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that, under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (40 CFR 122. 2)

Wild, Scenic, and Recreational Rivers

A river or section of a river designated under the 1968 Wild and Scenic Rivers Act as wild, scenic, or recreational. Rivers may be designated by Congress or, if certain requirements are met, the Secretaries of Interior or Agriculture, as appropriate. Once designated under the Act, rivers receive special management direction that ensures the maintenance of the free-flowing nature and the outstanding natural, cultural, and recreational values of the river segment. Under the Act, river segments are required to be classified as wild, scenic, or recreational:

Wild Rivers – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic Rivers – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational Rivers – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wilderness

All lands included in the National Wilderness Preservation System by public law; generally defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation.

Wildland fire

A general term describing any nonstructural fire that occurs in the wildland. Wildland fires are categorized into two distinct types:

Wildfires – Unplanned ignitions or prescribed fires that are declared wildfires

Prescribed fires – Planned ignitions.

Wildland-urban interface (WUI)

The line, area, or zone where structures and other human developments meet or intermingle with undeveloped wildland or vegetation fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire.

Windthrow

The act of trees being uprooted by the wind.

Winter range

An area used by deer and elk during the winter months; generally at lower elevations and/or south and west exposures.

Withdrawal

An action that restricts the use of public land and segregates the land from the operation of some or all of the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management of public lands to other Federal agencies.

Appendix 1. Maps

Working Draft Plan maps include:

- Management Areas & Overlays
- Desired Recreation Opportunity Spectrum (ROS) Settings (Summer and Winter)
- Desired Scenic Integrity Objectives (SIOs)
- Suitable for Timber Production

These maps are available online:

- in PDF format at https://www.fs.usda.gov/detail/gmug/landmanagement/planning/?cid=fseprd638482
- as an interactive Storymap at https://usfs.maps.arcgis.com/apps/MapSeries/index.html?appid=f7f3b0f1fd4d415f9f3e7fd23327cecd

Appendix 2. Southern Rockies Lynx Amendment Direction

Background

The Southern Rockies Lynx Amendment was completed in 2008 and when signed it effectively amended forest plan direction for the Canada lynx (*Lynx canadensis*) on eight existing forest plans in the Rocky Mountain Region of the U.S. Forest Service, including that of the Grand Mesa, Uncompahgre, and Gunnison National Forests. The direction prescribed in the 2008 Southern Rockies Lynx Amendment is incorporated, as modified below, into the current direction and applies Forestwide. Supplemental guidance is included in the proposed forest plan that addresses the current conditions in the spruce-fir lynx habitat on the Forest. New text added by this Forest Plan is highlighted in gray.

Note the Southern Rockies Lynx Amendment direction was developed prior to the 2012 Planning Rule. The direction in the Southern Rockies Lynx Amendment is formatted differently than direction contained in this forest plan. Superscript numbers in the text refer to definitions contained in the Southern Rockies Lynx Amendment, which are included at the end of this appendix.

Southern Rockies Lynx Amendment – Management Direction

GOAL[14]

Conserve the Canada lynx.

ALL MANAGEMENT PRACTICES AND ACTIVITIES (ALL). The following objectives, standards, and guidelines apply to all management projects in lynx habitat in lynx analysis units (LAUs) in occupied habitat and in linkage areas, subject to valid existing rights. They do not apply to wildland fire suppression, or to wildland fire use[9].

Objective[30] ALL O1

Maintain[26] or restore[40] lynx habitat[23] connectivity[16] in and between LAUs[21], and in linkage areas[22].

Standard[44] ALL S1

New or expanded permanent developments[33] and vegetation management[50] projects[36] must maintain[26] habitat connectivity[16] in an LAU[21] and/or linkage area[22].

Guideline[15] ALL G1

Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways[18] or forest highways[12] across federal land. Methods could include fencing, underpasses or overpasses.

[9] "Fire use" is an outdated term but retained throughout this section, excerpted from the 2008 Southern Rockies Lynx Amendment. "Managed fire" is the contemporary equivalent.

Standard[44] LAU S1

Changes in LAU[21] boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.

VEGETATION MANAGEMENT ACTIVITIES AND PRACTICES (VEG). The following objectives, standards, and guidelines apply to vegetation management projects[36] in lynx habitat within lynx analysis units (LAUs) in occupied habitat. With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards, and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, roads, and the like. None of the objectives, standards, or guidelines apply to linkage areas.

Objective[30] VEG O1

Manage vegetation to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.

Objective VEG O2

Provide a mosaic of habitat conditions through time that support dense horizontal cover[19], and high densities of snowshoe hare. Provide winter snowshoe hare habitat[51] in both the stand initiation structural stage and in mature, multi-story conifer vegetation.

Objective VEG O3

Planned and unplanned (natural) ignitions are managed to promote fire as an ecological process, recognizing and upholding its natural role in effecting change in vegetation structure and composition over time.

Objective VEG O4

Focus vegetation management[50] in areas that have potential to improve winter snowshoe hare habitat[52] but presently have poorly developed understories that lack dense horizontal cover.

Standard[44] VEG S1

Where and to what this applies: Standard VEG S1 applies to all vegetation management[50] projects[36] that regenerate[38] forested stands, except for fuel treatment[13] projects[36] within the wildland urban interface[51] (WUI) as defined by HFRA[17], subject to the following limitation:

Fuel treatment projects[36] within the WUI[51] that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 or VEG S7 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). In addition, fuel treatment projects may not result in more than three adjacent LAUs exceeding the standard.

For fuel treatment projects[36] within the WUI[51] see guideline VEG G10.

The standard: Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages[45] limit disturbance in each LAU as follows:

If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects[36].

Standard VEG S2

Where and to what this applies: Standard VEG S2 applies to all timber management[47] projects[36] that regenerate[38] forests, except for fuel treatment[13] projects[36] within the wildland urban interface[51] (WUI) as defined by HFRA[17], subject to the following limitation:

Fuel treatment projects[36] within the WUI[51] that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests).

For fuel treatment projects[36] within the WUI[51] see guideline VEG G10.

The standard: Timber management[47] projects[36] shall not regenerate[38] more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period. This 15 percent includes the entire stand within an even-age regeneration area, and only the patch opening areas within group selections. Salvage harvest within stands killed by insect epidemics, wildfire, etc. does not add to the 15 percent, unless the harvest treatment would cause the lynx habitat to change to an unsuitable condition[24].

Standard VEG S5

Where and to what this applies: Standard VEG S5 applies to all precommercial thinning[35] projects, except for fuel treatment[13] projects that use precommercial thinning as a tool within the wildland urban interface (WUI) as defined by HFRA, subject to the following limitation:

Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 may occur on no more than three percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests) for the life of this amendment.

For fuel treatment projects within the WUI see guideline VEG G10.

The Standard: Precommercial thinning practices and similar activities intended to reduce seedling/sapling density are subject to the following limitations from the stand initiation structural stage[45] until the stands no longer provide winter snowshoe hare habitat.

Precommercial thinning[35] may occur only:

1. Within 200 feet of administrative sites, dwellings, or outbuildings; or
2. For research studies[39] or genetic tree tests evaluating genetically improved reforestation stock; or
3. For conifer removal in aspen, or daylight thinning[5] around individual aspen trees, where aspen is in decline; or

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

   a) That a project is not likely to adversely affect lynx; or

   b) That a project is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat.

5. In addition to the above exceptions (and above and beyond the three percent limitation for fuels projects within the WUI[51]), precommercial thinning may occur provided that:

   a) The additional precommercial thinning does not exceed one percent of the lynx habitat in any LAU for the life of this amendment, and the amount and distribution of winter snowshoe hare habitat within the LAU must be provided through appropriate site-specific analysis and consultation; and

   b) Precommercial thinning in LAUs with more than 30 percent of the lynx habitat currently in the stand initiation structural stage[45] is limited to areas that do not yet provide winter snowshoe hare habitat [52]; and

   c) Projects are designed to maintain lynx habitat connectivity[16] and provide snowshoe hare habitat over the long term; and

   d) Monitoring is used to determine snowshoe hare response.

Exceptions 2 and 3 may not occur in any LAU in which VEG S1 is exceeded (i.e., more than 30 percent of LAU in stand initiation structural stage).

Note: This standard is intended to provide snowshoe hare habitat while permitting some thinning, to explore methods to sustain snowshoe hare habitat over time, reduce hazardous fuels, improve forest health, and increase timber production. Project design must ensure any precommercial thinning provides an appropriate amount and distribution of snowshoe hare habitat with each LAU over time, and maintains lynx habitat connectivity within and between LAUs.

Project design should focus on creating irregular shapes for the thinning units, creating mosaics of thinned and unthinned areas, and using variable density thinning, etc.

Standard VEG S6

Where and to what this applies: Standard VEG S6 applies to all vegetation management[50] practices within multi-story mature or late successional conifer forests[29], except for fuel treatment[13] projects within the wildland urban interface (WUI) as defined by HFRA[17], subject to the following limitation:

Fuel treatment projects[36] within the WUI[51] that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests).

For fuel treatment projects[36] within the WUI[51] see guideline VEG G10.

The Standard: Vegetation management projects[36] that reduce winter snowshoe hare habitat[52] in multi-story mature or late successional conifer forests[29] may occur only:

1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or
2. For research studies[38] or genetic tree tests evaluating genetically improved reforestation stock; or
3. For incidental removal during salvage harvest[41] (e.g., removal due to location of skid trails); or
4. Where uneven-aged management (single tree and small group selection) practices are employed to maintain and encourage multi-story attributes as part of gap dynamics. Project design must be consistent with VEG O1, O2 and O4, except where impacts to areas of dense horizontal cover are incidental to activities under this exception (e.g., construction of skid trails).

Exceptions 2 and 4 may not occur in any LAU in which VEG S1 is exceeded.

Standard VEG S7 (FW-STND-SPEC-52)**:**

Harvest activities may occur in up to, but not more than, 7 percent of stands that represent high-quality lynx habitat in identified high-probability lynx use areas within areas identified as suitable for timber production over a period of 15 years from the date of the forest plan decision. Harvest activities in VEG S7 stands, in combination with all vegetation management activities, including incidental damage resulting in either stand initiation structural stage conditions, a reduction of horizontal cover, or both, are tracked for 15 years from the date of the forest plan decision. (See below for background on the addition of VegS7).

Guideline VEG G1

Vegetation management[50] projects[36] should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available.

Priority for treatment should be given to stem-exclusion, closed-canopy structural stage[46] stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat[52] should be near denning habitat[6].

Guideline VEG G4

Prescribed fire[34] activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.

Guideline VEG G5

Habitat for alternate prey species, primarily red squirrel[37], should be provided in each LAU.

Guideline VEG G10

Fuel treatment projects[36] within the WUI[51] as defined by HFRA[17] should be designed considering Standards VEG S1, S2, S5, S6, and S7 to promote lynx conservation.

Guideline VEG G11

Denning habitat[6] should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects[36] should be designed to retain some coarse woody debris[4], piles, or residual trees to provide denning habitat[6] in the future.

LIVESTOCK MANAGEMENT (GRAZ): The following objectives and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAUs) in occupied habitat. They do not apply to linkage areas.

Objective[30] GRAZ O1

Manage livestock grazing to be compatible with improving or maintaining[26] lynx habitat[23].

Guideline[15] GRAZ G1

In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.

Guideline GRAZ G2

In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.

Guideline GRAZ G3

In riparian areas[41] and willow carrs[3], livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.

Guideline GRAZ G4

In shrub-steppe habitats[43], livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs[21], to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

HUMAN USE PROJECTS (HU): The following objectives and guidelines apply to human use projects, such as special uses (other than grazing), recreation management, roads, highways, and mineral and energy development, in lynx habitat in lynx analysis units (LAUs) in occupied habitat, subject to valid existing rights. They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.

Objective[30] HU O1

Maintain[26] the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat[23].

Objective HU O2

Manage recreational activities to maintain lynx habitat and connectivity[16].

Objective HU O3

Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.

Objective HU O4

Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation[9] sites or ski areas.

Objective HU O5

Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.

Objective HU O6

Reduce adverse highway[18] effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity[16], and to reduce the potential for lynx mortality.

Guideline[15] HU G1

When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris[4], so winter snowshoe hare habitat[51] is maintained.

Guideline HU G2

When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.

Guideline HU G3

Recreation development and recreational operational uses should be planned to provide for lynx movement and to maintain the effectiveness of lynx habitat[23].

Guideline HU G4

Remote monitoring of mineral and energy development sites and facilities should be encouraged to reduce snow compaction.

Guideline HU G5

A reclamation plan should be developed (e.g., road reclamation and vegetation rehabilitation) for closed mineral and energy development sites and facilities that promote the restoration of lynx habitat.

Guideline HU G6

Methods to avoid or reduce effects to lynx habitat connectivity[16] should be used when upgrading unpaved roads to maintenance levels 4 or 5[27], where the result would be increased traffic speeds and volumes, or contribute to development or increases in human activity.

Guideline HU G7

New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity[16]. New permanent roads and trails should be situated away from forested stringers.

Guideline HU G8

Cutting brush along low-speed, low-traffic-volume roads[25] should be done to the minimum level necessary to provide for public safety.

Guideline HU G9

If project level analysis determines that new roads adversely affect lynx, then public motorized use should be restricted. Upon project[36] completion, these roads should be reclaimed or decommissioned, if not needed for other management objectives.

Guideline HU G10

Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction[1], unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs.

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

Use the same analysis boundaries for all actions subject to this guideline.

Guideline HU G11

When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat[10].

Guideline HU G12

Winter access for non-recreation special uses and mineral and energy exploration and development should be limited to designated routes[8] or designated over-the- snow routes[7].

LINKAGE AREAS (LINK): The following objective, standard, and guidelines apply to all projects within linkage areas in occupied habitat, subject to valid existing rights.

Objective[30] LINK O1

In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.

Standard[44] LINK S1

When highway[18] or forest highway[12] construction or reconstruction is proposed in linkage areas[22], identify potential highway crossings.

Guideline[15] LINK G1

National Forest System lands should be retained in public ownership.

Guideline LINK G2

Livestock grazing in shrub-steppe habitats[43] should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.

Required Monitoring

1. Maps of the location and intensity of snow compacting activities and designated and groomed routes that occurred inside LAUs during the period of 1998 to 2000 constitute baseline snow compaction. Changes in activities and routes are to be monitored every five years after the decision.
2. When fuels treatment and vegetation management project decisions are signed, report the following:
   a) Acres of fuel treatment in lynx habitat by Forest and LAU, and whether the treatment is within or outside the WUI as defined by HFRA.
   b) Whether or not the fuel treatment met the vegetation standards or guidelines. If standard(s) were not met, report which standard(s) was not met, why it could not be met, and how many acres were affected.
   c) Application of exception in Standard VEG S7:

      For areas where exceptions under VEG S7 were applied, report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.
   d) Tracking of VEG S1:

      Report acres and percent of each LAU in an unsuitable condition[24]. Report the type of activity converting habitat to an unsuitable condition.
   e) Application of exceptions in Standard VEG S5:

      For areas where any of the exceptions 1 through 5 listed in Standard VEG S5 were applied, report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.
   f) Application of exceptions in Standard VEG S6:

      For areas where any of the exceptions 1 through 4 listed in Standard VEG S6 were applied, report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.
   g) Total acres of lynx habitat treated under exemptions and exceptions to vegetation standards, to assure the 4.5 percent limit is not exceeded on any Forest over the life of the amendment (15 years).
3. Application of guidelines:
   a) Summarize what guideline(s) was not followed and why.
   b) Document the rationale for deviations to guidelines.

Background Information - VEG S7

Additional direction is needed to address the continued recovery of Canada lynx due to habitat conditions associated with the spruce beetle outbreak in the spruce-fir ecosystem, and to incorporate updated science on Canada lynx. This direction supplements management direction in the Southern Rockies Lynx Amendment. Consistent with the Rio Grande National Forest, standard VEG S7 is added. Consistent with the entirety of the SRLA, the direction is intended to retain existing high-quality habitat while encouraging vegetation management in areas where habitat quality for lynx and snowshoe hare can be improved in the long-term. The overall goal is to maintain areas that support high densities of snowshoe hare while promoting vegetation management that restores habitat and landscape connectivity for lynx movement.

Despite high levels of tree mortality due to spruce bark beetle infestation, high-quality lynx and snowshoe hare habitat persists. Vegetation management activities have the potential to benefit and adversely affect lynx and snowshoe hare habitat and populations (Interagency Lynx Biology Team 2013, p. 71). Most vegetation management activities reduce overstory canopy cover and understory horizontal cover, potentially reducing snowshoe hare densities and habitat values for Canada lynx. Conversely, vegetation management that integrates biologically meaningful habitat objectives will likely benefit snowshoe hare and lynx habitat values.

Standard VEG S7 applies to harvest[42] activities conducted in conifer forests that represent high-quality habitat for lynx, but no longer meet the definition for the original SRLA standard VEG S6 due to tree mortality and associated forest structural changes. These forest stands still provide high-quality habitat characterized by dense horizontal cover[19], and include forest structure that provides cover and food for snowshoe hares, and foraging habitat, traveling, and hiding cover for Canada lynx. Standard VEG S7 applies to stands that meet the criteria below, within the high probability lynx use area (95 percent use areas) as delineated in the Resource Selection Function model for the Rio Grande and GMUG National Forests (Squires et. al. 2018). Stands meeting the VEG S7 definition represent a disproportionately high-value subset of the overall suitable habitat in a lynx analysis unit. VegS7 stand criteria include:

- (Within identified High Probability Lynx Use Area); and
- Overstories predominantly of live or dead Engelmann spruce and subalpine fir, or either species, with a sub-canopy layer dominated by subalpine fir, or a combination of either Engelmann spruce or aspen, or both[10]; and
- Total live overstory canopy cover less than or equal to 40 percent; and
- Understory horizontal cover density from ground level to 3 meters above ground level is greater than or equal to 45 percent[19] during winter foraging conditions for snowshoe hares.

Based on the Resource Selection Function model (Squires et. al 2018), approximately 10,600 acres on the GMUG National Forests are currently identified as high-probability lynx use area (95 percent use areas). This area is connected to the larger portion of the high-probability lynx use area on the Rio Grande National Forest. VEG S7 should be applied consistently to stands

[10] According to a recent study on the Rio Grande National Forest (Squires et al. 2018), stands with Engelmann spruce and subalpine fir in the canopy and subalpine fir in the sub-canopy are disproportionally selected by lynx.

that meet the above criteria throughout the high-probability lynx use area on both the Rio Grande and GMUG National Forests. As more high-probability lynx use areas are identified on the GMUG in the future, using the best available scientific information, VEG S7 would be applied to qualifying stands within those additional areas.

Stands that meet the VEG S7 criteria should be avoided where possible. If entry does occur, minimize reduction in key habitat values consistent with best management practices for vegetation management in lynx habitat (see Appendix 3), and within the 7% allowance per the standard.

The prioritization focus for vegetation management activities for **non**-VEG S7 stands in the identified high use lynx use area is as follows:

1. Activities in stands with 0 to 24 percent horizontal cover density (unsuitable habitat[24]) and high site potential for active habitat improvement.
2. Activities in areas of 0 to 24 percent horizontal cover density (unsuitable habitat) with poor potential for further improvements in habitat values.
3. Activities in areas of 25 to 44 percent horizontal cover density (suitable but not high quality[19]).

Lynx Amendment Glossary

[1] *Area of consistent snow compaction* – An area of consistent snow compaction is an area of land or water that during winter is generally covered with snow and gets enough human use that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after (within 48 hours) snowfall.

These can be areas or linear routes, and are generally found in or near snowmobile or cross-country ski routes, in adjacent openings, parks and meadows, near ski huts or plowed roads, or in winter parking areas. Areas of consistent snow compaction were first determined based on the acreage or miles used during the period 1998 to 2000. Per FW-OBJ-SPEC-50, areas of consistent snow compaction will be re-determined within 3 years of Forest Plan approval, based on the acreage or miles used during the preceding 3 year period.

[2] *Broad scale assessment* – A broad scale assessment is a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social, and economic components of an area. (LCAS)

[3] *Carr* – Deciduous woodland or shrub land occurring on permanently wet, organic soil. (LCAS)

[4] *Coarse woody debris* – Any piece(s) of dead woody material, e.g., dead boles, limbs, and large root masses on the ground or in streams. (LCAS)

[5] *Daylight thinning* – Daylight thinning is a form of precommercial thinning that removes the trees and brush inside a given radius around a tree.

[6] *Denning habitat (lynx)* – Denning habitat is the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens.

Denning habitat must be within daily travel distance of winter snowshoe hare habitat – the typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed.

[7] *Designated over-the-snow routes* – Designated over-the-snow routes are routes managed under permit or agreement or by the agency, where use is encouraged, either by on-the- ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the agency.

The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition. The determination of baseline snow compaction will be based on the miles of designated over-the-snow routes authorized, promoted or encouraged during the period 1998 to 2000.

[8] *Designated route* – A designated route is a road or trail that has been identified as open for specified travel use.

[9] *Developed recreation* – Developed recreation requires facilities that result in concentrated use. For example, skiing requires lifts, parking lots, buildings, and roads; campgrounds require roads, picnic tables, and toilet facilities.

[10] *Diurnal security habitat (lynx)* – Places in lynx habitat that provide secure winter bedding sites in highly disturbed landscapes such as ski areas. Security habitat gives lynx the ability to retreat from human disturbance. Site characteristics and stand conditions make human access difficult and discourage human activity. Security habitats are sufficiently large to provide effective visual and acoustic insulation and to let lynx easily move away from any intrusion. Lynx security habitat must be in proximity to winter snowshoe hare habitat. (LCAS)

[11] *Fire use* – Fire use is the combination of wildland fire use and using prescribed fire to meet resource objectives. (NIFC) Wildland fire use is the management of naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. The use of the term wildland fire use replaces the term prescribed natural fire. (Wildland and Prescribed Fire Management Policy, August 1998)

> As of 2018, the term “fire use” is no longer used. Unofficially, this is now referred to as “wildland fire”, or simply fire management.

[12] *Forest highway* – A forest highway is a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (USC: Title 23, Section 101(a)), designated by an agreement with the FS, state transportation agency, and Federal Highway Administration.

[13] *Fuel treatment* – A fuel treatment is a type of vegetation management action that reduces the threat of ignition, fire intensity, or rate of spread, or is used to restore fire- adapted ecosystems.

[14] *Goal* – A goal is a broad description of what an agency is trying to achieve, found in a land management plan. (LCAS)

[15] *Guideline* – A guideline is a particular management action that should be used to meet an objective found in a land management plan. The rationale for deviations may be documented, but amending the plan is not required. (LCAS modified)

[16] *Habitat connectivity (lynx)* – Cover (vegetation) in sufficient quantity and arrangement to allow for the movement of lynx. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian communities may provide cover across open valley floors. (LCAS)

[17] *HFRA (Healthy Forests Restoration Act)* - Public Law 108-148, passed in December 2003. The HFRA provides statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management lands. It also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. (Modified from Forest Service HFRA web site.)

[18] *Highway* – The word highway includes all roads that are part of the National Highway System. (23 CFR 470.107(b))

[19] *Horizontal cover* – The visual obscurity provided by vegetation that extends to the ground or snow surface, primarily provided by tree stems and tree boughs, but may also be provided by shrubs, herbaceous vegetation, and landscape topography.

> For the purpose of the GMUG Forest Plan Revision, high-quality horizontal cover is defined as 45 percent or greater.

[21] *LAU (Lynx Analysis Unit)* – An LAU is an area of at least the size used by an individual lynx, from about 25 to 50 square miles (LCAS). An LAU is a unit for which the effects of a project would be analyzed; its boundaries should remain constant.

[22] *Linkage area* – A linkage area provides landscape connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas, where blocks of lynx habitat are separated by intervening areas of non-lynx habitat such as basins, valleys, or agricultural lands, or where lynx habitat naturally narrows between blocks. (LCAS updated definition approved by the Steering Committee 10/23/01)

[23] *Lynx habitat* – Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the southern Rocky Mountains, lynx habitat generally occurs between 8,000 and 12,000 feet in elevation. Primary vegetation consists of Engelmann spruce, subalpine fir, aspen-conifer mix and lodgepole pine on spruce-fir habitat types. On cool moist sites, Douglas-fir and aspen, when interspersed with subalpine forests, may also contribute to lynx habitat. Dry forest types (e.g., ponderosa pine, climax lodgepole pine) do not provide lynx habitat. (LCAS)

[24] *Lynx habitat in an unsuitable condition* –Lynx habitat in an unsuitable condition consists of lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter. Stand replacing fire, insect epidemics or certain vegetation management projects can create unsuitable conditions. Vegetation management projects that can result in unsuitable habitat include clearcuts and seed tree harvest, and sometimes shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. (LCAS)

> For the GMUG Forest Plan, habitat with horizontal cover 24 percent or less will be considered as unsuitable.

[25] *Low-speed, low-traffic-volume road* – Low speed is less than 20 miles per hour; low

volume is a seasonal average daily traffic load of less than 100 vehicles per day.

[26] *Maintain* – In the context of this decision, maintain means to provide enough lynx habitat to conserve lynx. It does not mean to keep the status quo.

[27] *Maintenance level* – Maintenance levels define the level of service provided by and maintenance required for a road. (FSH 7709.58, Sec 12.3) Maintenance level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most level 4 roads have double lanes and an aggregate surface. Some may be single lane; some may be paved or have dust abated. Maintenance level 5 is assigned to roads that provide a high degree of user comfort and convenience.

Normally, level 5 roads are have double lanes and are paved, but some may be aggregate surfaced with the dust abated.

[28] *Mid-seral or later* – Mid-seral is the successional stage in a plant community that is the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.

[29] *Multi-story mature or late successional forest* – This stage is similar to the *old multistory structural* stage (see below). However, trees are generally not as old, and decaying trees may be somewhat less abundant.

[30] *Objective* – An objective is a statement in a land management plan describing desired resource conditions and intended to promote achieving programmatic goals. (LCAS)

[31] *Old multistory structural stage* – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Oliver and Larson, 1996)

[32] *Old growth* – Old growth forests generally contain trees that are large for their species and the site, and are sometimes decadent with broken tops. Old growth often contains a variety of tree sizes, large snags, and logs, and a developed and often patchy understory.

[33] *Permanent development* – Any development that results in a loss of lynx habitat for at least the duration of a Forest Plan, approximately 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds, and many special use developments would be considered permanent developments.

[34] *Prescribed fire* – A prescribed fire is any fire ignited as a management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements met, before ignition. The term prescribed fire replaces the term management ignited prescribed fire. (NWCG)

[35] *Precommercial thinning* – Precommercial thinning is mechanically removing trees to reduce stocking and concentrate growth on the remaining trees, and not resulting in immediate financial return. (Dictionary of Forestry)

[36] *Project* - All, or any part or number of the various activities analyzed in an Environmental Impact Statement, Environmental Analysis, or Decision Memo. For example, the vegetation management in some units or stands analyzed in an EIS could be for fuel reduction, and therefore those units or stands would fall within the term *fuel treatment project* even if the remainder of the activities in the EIS are being conducted for other purposes, and the remainder of those units or stands have other activities prescribed in them. All units in an analysis do not necessarily need to be for fuel reduction purposes for certain units to be considered a *fuel reduction project.*

[37] *Red squirrel habitat* – Red squirrel habitat consists of coniferous forests of seed and cone-producing age that usually contain snags and downed woody debris, generally associated with mature or older forests.

[38] *Regeneration harvest* – The cutting of trees and creating an entire new age class; an even-age harvest. The major methods are clearcutting, seed tree, shelterwood, and group selective cuts. (Helms, 1998)

[39] *Research* – Research consists of studies conducted to increase scientific knowledge or technology. For the purposes of Standards VEG S5 and VEG S6, research applies to studies financed from the forest research budget (FSM 4040) and administrative studies financed from the NF budget.

[40] *Restore, restoration* – To restore is to return or re-establish ecosystems or habitats to their original structure and species composition. (Dictionary of Forestry)

[41] *Riparian area* – An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation. (LCAS)

[42] *Salvage harvest* – Salvage harvest is a commercial timber sale of dead, damaged, or dying trees. It recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest.

[43] *Shrub steppe habitat* – Shrub steppe habitat consists of dry sites with shrubs and grasslands intermingled.

[44] *Standard* – A standard is a required action in a land management plan specifying how to achieve an objective or under what circumstances to refrain from taking action. A plan must be amended to deviate from a standard.

[45] *Stand initiation structural stage* – The stand initiation stage generally develops after a stand-replacing disturbance by fire, insects or regeneration timber harvest. A new single-story layer of shrubs, tree seedlings, and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (Oliver and Larson, 1996)

[46] *Stem exclusion structural stage (Closed canopy structural stage)* – In the stem exclusion stage, trees initially grow fast and quickly occupy all of the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight

usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996)

[47] *Timber management* – Timber management consists of growing, tending, commercially harvesting, and regenerating crops of trees.

[48] *Uneven-aged timber management* - Uneven-aged management develops a stand with trees of three or more distinct age classes, either intimately mixed or in small groups of 2 acres or less (based on *The Dictionary of Forestry* Helms, 1998). Group openings do not exceed 20 percent of the stand in a single entry, but individual tree selection can occur throughout an entire stand or between the groups.

[49] *Understory re-initiation structural stage* – In the understory re-initiation stage, a new age class of trees gets established after overstory trees begin to die, are removed, or no longer fully occupy their growing space after tall trees abrade each other in the wind. Understory seedlings then re-grow and the trees begin to stratify into vertical layers. A low to moderately dense uneven-aged overstory develops, with some small shade- tolerant trees in the understory. (Oliver and Larson, 1996)

[50] *Vegetation management* – Vegetation management changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this decision, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

[51] *Wildland urban interface (WUI)* – Use the definition of WUI found in the Healthy Forests Restoration Act. The full text can be found at HFRA § 101. Basically, the wildland urban interface is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the WUI is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA. For full text see HFRA § 101.)

[52] *Winter snowshoe hare habitat* – Winter snowshoe hare habitat consists of places where young trees or shrubs grow densely – thousands of woody stems per acre – and tall enough to protrude above the snow during winter, so snowshoe hare can browse on the bark and small twigs (LCAS). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stages.

Appendix 3. Management Approaches and Possible Actions

Introduction

In compliance with 36 CFR 219.12, this appendix describes proposed and probable actions that may take place on the Grand Mesa, Uncompahgre, and Gunnison National Forests at the project level over the next 3 to 5 years. These projects implement the forest plan and work to maintain exiting conditions or achieve desired conditions described in the forest plan. Included are items such as program and project implementation strategies; inventories, assessment, resource analysis and other planning needs; and ongoing work with partners and cooperating agencies anticipated during the next 3 to 5 years.

The listed proposed and probable management practices are not intended to be all-inclusive, nor are they intended to be decisions or commitments, but simply projections of what actions may take place in the future. A plan amendment is not required to change or modify any proposed or possible actions. The list of the actions can be updated at any time through an administrative change to the plan. More information may be found under plan objectives and management approaches.

Forest Plan Objectives

As important measures that will help move the Forest toward desired conditions, objectives are reiterated in Table 10.

Table 10. Forest plan objectives

Resource	Objective
Air Quality	FW-OBJ-AQ-04: To comply with the Clean Air Act and the Wilderness Act, within 5 years of plan approval, supplement existing third-party monitoring by developing and implementing a monitoring framework for GMUG's Class I areas and selected Class II areas that is able to detect compliance with, and validate no exceedances of, critical loads, including visibility, for air quality - related values (Class I areas: West Elk, La Garita, Maroon Bells-Snowmass Wilderness).
Ecosystems	FW-OBJ-ECO-04: Within 10 years of plan approval, identify areas of potential climate refugia (Morelli et al. 2016) on the Forest and implement monitoring for a subset of these areas.
Ecosystems (Alpine)	FW-OBJ-TEV-04: Within 10 years of plan approval, enhance the resiliency of alpine ecosystems on 100 acres of GMUG lands through implementing recreation management plans, completing mine land reclamation, or conducting other management activities.
Ecosystems (Riparian Management Zone)	FW-OBJ-RMGD-06: During each 10-year period following plan approval, restore or enhance at least 2,500 to 5,000 acres of riparian and meadow habitat, and restore hydrologic function for at least 15 to 30 miles of perennial, intermittent, or ephemeral streams. Actions to help accomplish this objective may include: implementing erosion-control restoration techniques, removing conifer encroachment, promoting riparian plant species growth and recovery, road decommissioning, re-introducing beavers where they can be sustained or other management actions, etc.

Invasive Species	FW-OBJ-IVSP-02: Annually, invasive species management actions are employed on 10 to 20 percent of inventoried acres so that: new infestations are prevented, densities of existing infestations are reduced, total acres or areas infested are reduced, infested areas are restored/rehabilitated, existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics (size, density, species, location, etc.), management opportunities, and resource values at risk, and uninfested areas are maintained and/or protected. Priority treatments will include: • Early treatment of new infestations so that they are eradicated before becoming entrenched. • Annual treatment of administrative sites until populations are eradicated. • Treatment of cheatgrass in sagebrush, particularly Gunnison sage-grouse designated critical habitat.
Fuels	FW-OBJ-FFM-01: Mitigate the effects from wildland fire and improve watershed health on an average of 120,600–326,000 acres per decade through the implementation of vegetation management techniques, including the use of wildland fire (planned and unplanned) and mechanical methods. Actions to help accomplish this objective may include: moving ponderosa pine stands towards fire-maintained open stand structure with a mix of age and size classes, strategically locating fuel treatments with natural and constructed barriers to create 'fuel reduction zones' on the landscape, and prioritizing treatments within the protection emphasis areas.
Species	FW-OBJ-SPEC-03: During each 10-year period following plan approval, restore or enhance at least 25,000 to 80,000 acres of habitat. Of acres treated, 30 percent should be conducted in Wildlife Management Areas, while other priority treatment areas should include (but are not limited to): aspen, riparian areas, ecotones, winter range in pinyon-juniper communities, connectivity areas, and designated critical habitat. Actions to help accomplish this objective may include: improving wildlife or habitat connectivity by removing unneeded structures, implement vegetation management practices that maintain or enhance connectivity, retrofitting or designing new structures (e.g., building new or converting existing fences to wildlife-friendly fence specifications such as a lay-down fence), improving aquatic and riparian resources (e.g., remove barriers, restore dewatered stream segments, connect fragmented habitat, provide organism passage, etc.), etc.
Species	FW-OBJ-SPEC-04: During the first 5 years following plan approval, install vent pipe screens on all restrooms at developed or dispersed recreation sites to prevent bird entrapment.
Species (Pollinators)	FW-OBJ-SPEC-09: Within 10 years of plan approval, management activities on the Forest will maintain, restore, or create 106,000 acres of pollinator habitat.
Conservation Watershed Network	FW-OBJ-SPEC-55: Within 5 years of plan approval, complete a watershed plan identifying major threats to identified species. Within 10 years of plan approval, complete two activities to address these threats.
Species (Sage-grouse)	FW-OBJ-SPEC-30: Within 10 years of plan approval, identify and permanently or seasonally close duplicative or redundant system routes and illegal routes (non-system, user-created) within 2 miles of active leks.
Species (Sage-grouse)	FW-OBJ-SPEC-31: Within 5 years of plan approval, install educational signs at all pertinent kiosks, trailheads, or road access points that serve as portals to Gunnison sage-grouse habitat to request the public to leash pets when recreating.
Species (Sage-grouse)	FW-OBJ-SPEC-32: Within 5 years of plan approval, assess and identify sections of fence lines in Gunnison sage-grouse habitat with a high potential for sage-grouse collision and mortality based on best available scientific information. Evaluate options for removal (if no longer needed), relocation (if feasible), or fence marking to increase visibility.

Species (Sage-grouse)	FW-OBJ-SPEC-33: Within 2 years of plan approval, modify authorizations for all special use permits authorizing winter activities in designated critical sage-grouse habitat (including, but not limited to, those for recreation events, outfitters, and guides), to allow for management flexibility in the event of a severe winter, consistent with Species FW-GDL-SPEC-46, to include the following condition: "When severe winter conditions are identified, in order to protect Gunnison sage-grouse, the Forest Service reserves the right to restrict permittee's travel from identified areas and/or routes, consistent with restrictions that would be placed on general public access, from approximately December 1 to March 31.
Species (Lynx)	FW-OBJ-SPEC-50: Within 3 years of plan approval, update mapping that identifies snow compacting activities, including designated and groomed routes and areas of persistent, winter-long snow compaction within each lynx analysis unit.
Watersheds and Water Resources	FW-OBJ-WTR-04: Over the life of the plan, trend at least 15 percent of subwatersheds toward improved watershed conditions, including their chemical, physical, and biological attributes, based upon the Watershed Condition Framework or other accepted protocols. Actions to help accomplish this objective may include: rehabilitating areas to reduce erosion and sedimentation delivery to waterbodies, improving 303(d) listed streams, and/or other passive or active restoration efforts.
Cultural and Historic Resources	FW-OBJ-CHR-02: Within 5 years of plan approval, areas of Tribal importance, including discrete cultural landscapes, are spatially identified based on cultural affiliation, time period, and/or relationship with natural resources and features.
Cultural and Historic Resources	FW-OBJ-CHR-03: Within 5 years of plan approval, fire-sensitive cultural resource (e.g., historic structures, wickiups, and culturally modified trees) locations are identified in Heritage GIS in order to facilitate protective measures during wildland fire management.
Cultural and Historic Resources	FW-OBJ-CHR-04: Within 5 years of plan approval, identify and map populations of *Ligusticum porteri* (commonly known as oshá) for tribes.
Designated Trails	FW-OBJ-DTRL-04: Within 10 years of plan approval, relocate the Continental Divide National Scenic Trail off of roads.
Designated Trails	FW-OBJ-DTRL-19: Within 10 years of plan approval, sign and interpret 5 miles of the Old Spanish National Historic Trail.
Designated Trails	FW-OBJ-DTRL-21: Within 5 years of plan approval, condition surveys will be completed and deferred maintenance needs will be initiated along the Bear Creek and Crag Crest National Recreation Trails.
Energy and Mineral Resources	FW-OBJ-ENMI-09: Within 3 years of plan approval, revise oil and gas leasing analysis to identify lands open or closed to oil and gas leasing.
Infrastructure	FW-OBJ-INFR-03: Within 10 years of plan approval, five actions will be completed in vulnerable and/or poor/impaired watersheds to reinforce existing Forest Service infrastructure to withstand extreme weather events.
Range	FW-OBJ-RNG-02: Annually, maintain ecological integrity and productivity of all ecotypes by evaluating allotment management with permit holders to adjust timing, intensity, and frequency of livestock grazing when necessary to respond to changing ecological conditions or resource concerns.
Range	FW-OBJ-RNG-03: During each 10-year period following plan approval, permittees are to maintain or reconstruct at least 10% of the range improvements assigned in their term grazing permits.

Range	FW-OBJ-RNG-04: Every 3 years following plan approval, conduct sufficiency reviews of at least 10% of grazing decisions to ensure that NEPA-based decisions remain current and sustainable for all active grazing allotments.
Recreation	FW-OBJ-REC-03: Within 10 years of plan approval, ensure access portals (e.g., trails, parking lots, and trailheads) to 14,000-foot peaks include adequate facilities to mitigate ecological impacts associated with increasing use.
Recreation	FW-OBJ-REC-04: Annually, maintain 500 miles of Forest Service trails, prioritizing those in the high-use recreation areas.
Scenery	FW-OBJ-SCNY-02: Within 10 years of plan approval, conduct three projects that improve the scenic integrity in areas that do not meet established scenic integrity objectives. Priority activities include decommission or rehabilitate unauthorized system roads and routes, remove unnecessary fences, restore grasslands and aspen, and paint facilities, particularly within the immediate foreground of scenic byways.
Timber	FW-OBJ-TMBR-01: Annually, offer 55,000 CCF of forest products, including sawtimber, fuelwood, and other products.
Wilderness (MA 1.1)	MA-OBJ-WLDN-04: Within 10 years of plan approval, remove all nonessential improvements and nonconforming structures within designated wilderness that can be packed out or safely destroyed on site.
Special Interest Areas (MA 2.1)	MA-OBJ-SIA-02: Within 5 years of plan approval, complete special interest area management plans, including official boundary descriptions and maps, for existing and newly designated special interest areas.
Research Natural Areas (MA 2.2)	MA-OBJ-RNA-02: Within 3 years of plan approval, complete establishment reports for recommended research natural areas.
High-Use Recreation Areas (MA 4.2)	MA-OBJ-HIREC-02: Within 5 years of plan approval, accomplish management actions in at least 10 noticeably degraded dispersed recreation areas (rated as an Overall Impact Rating of 6 to 8 using the National Minimum Recreation Site Monitoring Protocol), as detailed in Recreation FW-STND-REC-06. Priority areas include: • Crested Butte • Taylor Park • Existing campsites within the riparian management zone.

Management Approaches by Resource/Management Area

Partnerships and Coordination

- Work to maintain and expand contracting and partnering opportunities with local governments, businesses, and organizations. Develop partnerships that leverage different sources of funding to support opportunities to contribute to economic and social sustainability of local communities.
- Complete stewardship projects or activities that engage communities or groups on shared stewardship pf public lands (e.g., terrestrial or aquatic ecosystem restoration projects, tree or shrub planting, native seed collection, trail building and maintenance, field trips, and citizen science monitoring, etc.).

Ecosystems

Terrestrial

- Collaborate with partners to establish priority locations for maintaining and restoring habitat connectivity where appropriate to improve adaptive capacity of native plants and animals.
- Restore fire to the landscape where conditions are appropriate.
- Monitor insect and disease infestations and treat epidemic outbreaks.
- Modify vegetation and use wildland fire to improve ecosystem resiliency and restore or maintain habitat when appropriate. For additional information regarding estimated possible acres of wildlife and fuels treatment, see Appendix 8 – Timber.
- Use vegetation treatments to restore the structure, function, and composition of riparian areas and meadows where encroachment is impacting meadow function.
- Restore nonfunctioning or functioning at-risk riparian areas so they are in, or are moving toward, proper functioning condition.
- Consider the zone of influence affecting groundwater sources sustaining fens when analyzing project proposals adjacent to these sites.

Bristlecone-Limber Pine

- To maintain maximum possible resilience and offset future mortality due to white pine blister rust, population size and age class diversity of bristlecone and limber pine should be increased through the following practices:
  - plant limber pine seedlings with quantitative resistance,
  - plant local bulked seed lots of bristlecone pine,
  - plant both species in both current and future suitable habitat (i.e., outside of current distribution), and/or
  - reduce competitor density around bristlecone/limber to increase cone production near disturbances to support natural regeneration.

Invasive Species

- Integrate recreation management and partners into the management of existing coordinated weed management areas to more fully address priority invasive species problems.
- Gravel and other soil or fill products placed on National Forest System lands should be sourced from pits that are free of invasive species.
- Focus invasive species treatments on high priority invasive species and infestations as identified in the most recent version of the invasive species action plan. Prioritize areas such as wilderness; research natural areas; botanical areas; wild, scenic and recreational river areas; and aquatic and riparian areas to maintain the integrity of native species and ecosystems. Promote early detection and rapid response as an effective approach to minimize spread.

Fire

- To maintain the desired fuel and vegetation conditions on the landscape and prolong the efficacy of treatments, all fuels treatments should have scheduled periodic maintenance treatments.

- Assess burned areas to determine suitable and effective emergency stabilization and rehabilitation needs to meet current and anticipated environmental conditions.
- If conditions have changed after plan approval, including development of additional infrastructure, the protection emphasis areas and enhancement emphasis areas will be updated to reflect changed conditions according to the defined criteria.
- Every five years following plan approval, ensure that protection emphasis areas and enhancement emphasis areas are accurately mapped and uploaded as Spatial Fire Planning shapes in Wildland Fire Decision Support System.
- Scheduled periodic maintenance treatments should be conducted for all fuels treatments. For additional information regarding estimated possible acres of fuels treatment, see Appendix 8 – Timber.

Native Species Diversity

General

- Establish a maintenance program for existing bat gates.
- To increase awareness, educate partners and visitors of the potential for pathogen transmission affecting native plants and animals (e.g., recreation pack goats and bighorn sheep, the need to decontaminate wading boots to reduce spread of chytrid fungus, or whirling disease, etc.).

Pollinators

- To support native pollinator species and increase resilience to future climate conditions, consider use of pollinator-friendly and climate-smart seed mixes in restoration and revegetation projects.

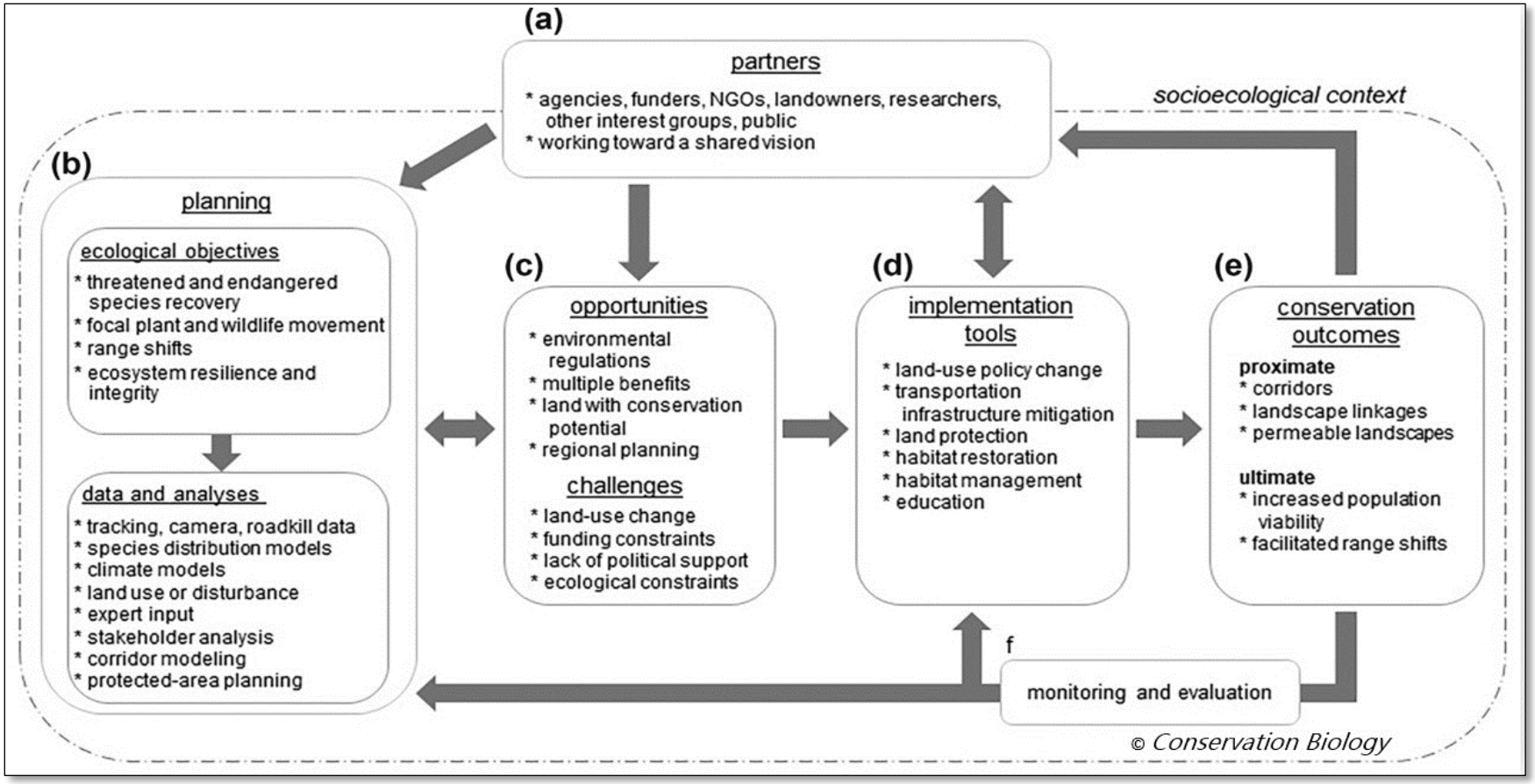
Birds

- Projects or activities should consider and undertake proactive migratory bird conservation actions as practicable, particularly during breeding season to maintain or improve habitat needs over the long-term for species identified as priority for conservation action.
- Increase the number of Naturewatch viewing sites that focus on bird conservation, and participate in events for International Migratory Bird Day.

Connectivity

- To facilitate wildlife movement across ownerships, the Forests seek opportunities to work with other federal, state, and private land owners to improve connectivity to large contiguous blocks of habitat (>500 acres).
- Coordinate with the Federal Highway Administration, Colorado Department of Transportation, Colorado Parks and Wildlife, other Federal land management agencies, local communities, and stakeholders to identify priority linkage areas (Beier et al. 2008; Hoctor et al. 2007; Meiklejohn et al. 2010) and improve habitat connectivity, reduce wildlife-vehicle collisions, provide for aquatic organism passage, and increase highway permeability. An example of a framework to demonstrate the process of connectivity implementation,

recognizing the importance of social processes to advance habitat connectivity for conservation of biodiversity and resilient landscapes is shown in Figure 6.



(Source: Keeley et al. 2018)

Figure 6. Example of a framework to demonstrate the process of connectivity implementation, including the role of social processes

At-Risk Species (General)

- Map populations of at-risk species (including species of conservation concern and threatened, endangered, proposed, or candidate species) so that interdisciplinary teams can use the information to design projects to avoid impacts to these species.

Gunnison Sage-grouse

Wildlife-friendly specifications as recommended by Colorado Parks and Wildlife (Hanophy 2009) currently suggests construction of new fences and maintenance of existing fence should include:

- Posts at minimum 16-foot intervals
- Gates, drop-downs, removable fence sections or other passages where animals concentrate and cross
- If area is identified as high-risk for sage-grouse collision based upon topography, use a high-visibility top wire, or flagging or clips to mark the fence
- Fencing wire placed on the side of the fence posts where the domestic animals are located
- Smooth wire on the bottom
- Height of top rail or wire should be 42 inches or less
- At least 12 inches between the top two wires
- At least 16 inches between the bottom wire or rail and the ground.

Lynx

- Evaluate and update current lynx linkage areas with partners to provide the desired habitat connectivity functions, as practical and needed based on available resources.
- To prioritize harvest in lynx habitat:
  - Choose areas with good habitat restoration potential that currently exhibit poor quality lynx habitat condition, (i.e., horizontal cover density less than 25 percent, subalpine fir is a minor component of the sub-canopy, favorable site conditions, and best available scientific information suggests that conditions could be improved through vegetation management);
  - Choose areas that provide poor quality lynx habitat and poor habitat restoration potential; and
  - Choose all other areas based on overall project considerations and needs.
- To improve lynx habitat, the following lynx habitat components are most important to integrate in vegetation management prescriptions:
  - Horizontal cover: Areas with greater than 45 percent are considered the highest quality snowshoe hare and lynx habitat.
  - Understory conifers: Preserve understory, particularly subalpine fir and Engelmann spruce, in the sub-canopy.
  - Size and basal area of dead trees: Sub-canopy development is reduced by salvage, thus snag retention is most important in areas with high amounts of live understory.

- Shade retention: Dead trees and remaining live trees should be retained strategically to provide shade protection for developing understory trees.
- Retain and protect live subalpine fir from incidental damage.
- Plant subalpine fir post-harvest.
- Canopy cover.
- Harvest in a mosaic framework: Consider location of harvest on the landscape in relation to lynx high-use areas.

Soils

- Implement resource improvement projects that are beneficial for maintaining and improving soil conditions and productivity, and water quantity and quality.
- Complete on-site investigations and refinement of maps for soil-disturbing projects that require site-specific, precise, and highly detailed soil information that is beyond the scale of the current soil surveys.

Watersheds and Water Resources

- Plan and implement improvement activities in priority watersheds that are functionally at-risk or impaired.
- Update the priority watershed list to reflect actual needs on the ground.
- Maintain and restore the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats.
- Maintain existing water right inventories, acquire water rights for new Federal uses in accordance with state and federal law, and review monthly water court resumes and enter into any water court case necessary to protect Forest Service water rights and water-dependent resources.
- Over the life of the plan, ensure all water rights owned by the Forest Service are put to their decreed beneficial use.
- When considering authorizations for water developments and uses, apply the Pathfinder approach (or other similar protocol) to coordinate with stakeholders and provide for balanced management of environmental flows.

Areas of Tribal Importance

- Identify, evaluate, and protect areas acknowledged as traditional cultural properties and work with associated communities to collaboratively manage areas acknowledged as traditional cultural properties by developing programmatic agreements, management plans, memoranda of understanding, or other management tools.

Cultural and Historic Resources

- Incorporate effects from climate change into ongoing cultural resources research, planning, and stewardship, including identification of threatened or vulnerable cultural resources, cultural landscapes, and tribally important resources with focus on development of adaptation strategies.

- Vulnerable cultural resources are protected from climate impacts by adjusting management approaches as needed through annual reviews and vulnerability assessments.
- Collaborate with partners to identify priority cultural resources vulnerable to climate change and other stressors (increased recreation, vandalism, etc.).
- Consider cultural resources as part of larger cultural landscapes as opposed to isolated phenomena.
- Protect fire-sensitive sites via activities that may include vegetation treatment, including prescribed fire and thinning, in and adjacent to site boundaries provided that appropriate protective measures are in place. Erosion, severe fire effects, and livestock congregation can result from "islanding" if sites are only avoided and not treated.
- Annually complete non-project inventory to uphold the Section 110 mandate of the National Historic Preservation Act by prioritizing the following:
  - Areas where eligible cultural resources are threatened or ongoing impacts are unknown
  - Areas indicated to have high cultural value or high density of cultural resources
  - Areas of importance to traditional communities
  - Areas where additional survey will contribute to a greater regional understanding of a specific management unit or special interest area.
- The most vulnerable cultural and historic resources should be identified in Heritage GIS.
- Develop and maintain collaborative partnerships and volunteer efforts to assist the Forest Service in researching and managing its cultural resources. Develop partnerships with traditional communities, nonprofits, volunteers, professional organizations, and schools.
- Develop management and preservation plans for administrative facilities and infrastructure that are significant cultural resources with special significance, or are sites that receive heavy visitor use.
- Encourage volunteer participation in cultural resource conservation activities such as research, site stabilization, conservation, and interpretation.
- Engage local communities in cultivating economic development opportunities for heritage tourism.

Designated Trails

- Forest Plan components are identified to apply to the trail itself, up to one-half mile on either side of the trail (the visible foreground), or both.
- Provide consistent signage along trail corridors at road and trail crossings to adequately identify trails and provide interpretive signs at key trail entry points and limited historic and/or cultural sites to orient visitors and enhance the visitor experience.
- Provide appropriate signage at prominent access points along the Old Spanish National Historic Trail to enhance trail user experience and safety.
- Identify and pursue opportunities to acquire lands or rights-of-way in or adjacent to the Continental Divide National Scenic Trail corridor.

Infrastructure

- Manage all facilities according to the current Facilities Master Plan.

Planning for Resilient Infrastructure

- To manage toward desired conditions for infrastructure that is resilience to climate change/extreme weather events (FW-DC-INFR-02) and to implement actions to reinforce existing infrastructure to withstand such events (FW-OBJ-INFR-03),
  - Geographically prioritize actions, as informed by the GMUG Watershed Vulnerability Assessment (USDA 2013). This assessment identified the following, in summary:
    - Subwatersheds where transportation infrastructure and water use-related structures (dams, reservoirs, ponds, ditches, diversions) are most vulnerable are in the San Juans and Upper Taylor geographic areas (p. 106)
    - Specifically, 9 subwatersheds in the San Juans are rated as the most high-risk (339,700 acres); 3 subwatersheds encompassing an even larger area (476,900 acres) are identified as the most high-risk in the Upper Taylor geographic area (p. 110).
    - Infrastructure construction/reconstruction in subwatersheds with high risk may need to be designed to handle higher flood levels or located in less vulnerable areas (p. 112).
  - Utilize best management practices identified in the Regional-Scale Climate Change Vulnerability Assessment for Infrastructure in the Rocky Mountain Region (USDA 2015), including, but not limited to,
    - Size structures to match the morphology of streams, using the "bankfull dimensions". While it is still prudent to check for the 100-year flood for designs, using the bankfull approach is a better approach in the context of a rapidly changing climate (p. 105).

Lands

Access

- Work with local county government to grant Forest Road and Trail Act easements on roads serving predominantly non-Forest Service purposes.

Title Claims and Encroachments

1. In order to resolve title claims and encroachments, those meeting one or more of the following criteria should be prioritized:
   - Those with the longest tenure in having been discovered or established;
   - Those that affect the greatest amount of National Forest System land;
   - Those that involve structures that cannot be simply removed;
   - Those that adversely affect significant historic or cultural resources; important wildlife habitat, riparian areas, wetlands, or rivers; or public access to or use of National Forest System land; or
   - Those that pose a threat to public safety or cause damage to resources.

Land Acquisitions and Conveyances

1. In order to create more manageable units, set aside nationally significant areas, and help achieve broader resource protection goals, land acquisitions meeting one or more of the following criteria should be prioritized:
    - Lands and associated riparian ecosystems on water frontage such as lakes and major streams;
    - Important wildlife habitat needed for the protection of federally listed endangered or threatened fish, wildlife, or plant species, including designated critical habitat. Supports objective of protection of fish and wildlife habitats;
    - Lands identified to facilitate wildlife movement and habitat connectivity, including in the vicinity of highway and road crossings;
    - Lands needed for the protection of significant historical or cultural resources, when these resources are threatened or when management may be enhanced by public ownership;
    - Lands that enhance recreation opportunities, public access, and protection of aesthetic values;
    - Lands needed for protection and management of administrative and congressionally designated areas including wilderness, nationally designated trails, and Colorado roadless areas;
    - Lands needed to enhance or protect watershed improvements that affect the management of riparian areas on National Forest System lands;
    - Environmentally sensitive lands such as wetlands and old growth;
    - Lands important to timber resource management; or
    - Lands that promote more effective management of the ecosystem and reduce administrative expenses through consolidation of National Forest System lands or ownership of split estates.
2. Land conveyances will be guided by the following criteria (in no particular order):
    - Parcels that will serve a greater public need in county, city, qualified non-governmental organizations, or other Federal agency ownership.
    - Inaccessible parcels isolated from other National Forest System lands. Parcels intermingled with private lands.
    - Parcels within major blocks of private land or intensively developed private land, the use of which is substantially for non-Forest Service purposes.
    - Parcels having boundaries, or portions of boundaries, with inefficient configurations (projecting necks or long, narrow strips of land, etc.) Supports more logical and efficient management.
    - Avoid adjustments that predominantly benefit the proponent.
3. Carefully consider the benefit of acquiring lands with infrastructure, legacy mining waste, and water rights the Federal Government would assume responsibility for maintaining, addressing, and using.

4. Work cooperatively with other Federal agencies, primarily the Bureau of Land Management and National Park Service, to transfer management of lands where doing so would gain efficiency and maximize public benefit.

Range

- Review active allotment management plans on a regular basis.
- Maintain and replace fencing, water developments, and other range improvements.
- To reduce negative economic impacts related to livestock grazing activities on National Forest System lands, the Forest Service should provide advance notice of at least 1 year to permittees prior to implementing a vegetation treatment that would affect rangeland vegetation within a proposed project area and/or may require reduced grazing use or rest periods.

Recreation

- Engage cooperators in stewardship activities and framework design.
- Outside of mountain resort permit areas, encourage innovative special uses through partnerships and other collaborative efforts.
- Improve trail systems by coordinating with municipalities, counties, states, other Federal agencies, and partners to allow for integration and connectivity.
- Expand public access to and education about the rich mining and cultural history of the Forest through programs such as cabin rentals and interpretation when possible.
- To facilitate ample dissemination of user-friendly public information about the GMUG, consistently updated visitor information will be provided in a variety of formats and forums such as physical hard copies, digital medium, and web-based content.
    - Provide readily available offsite and onsite information about recreation opportunities at fee campgrounds.
- To increase stewardship of public lands and promote responsible recreation, encourage GMUG staff and forest visitors to embrace and implement outdoor ethic principles such as those found in Leave No Trace (human-powered recreation), Stay the Trail (motorized recreation), and Tread Lightly! (human-powered and motorized recreation) programs.

Scenery

- In all vegetation treatment and fuel reduction projects, consider improving scenery resources, especially in areas that do not meet established scenery objectives.
- Consider providing the scenery management inventory and scenic integrity objective map to neighboring land management agencies for integration into projects and plans.
- Work collaboratively with local scenic byway committees to update and implement byway corridor plans.
- Set priorities for scenic integrity rehabilitation considering the following:
    - Foreground (within 300 feet to 0.5 mile) of high public use areas has the highest priority;
    - Amount of deviation from the desired scenic integrity objectives (where existing scenic integrity is lower than the desired scenic integrity objective map);

- Length of time it would take natural processes to reduce the visual impacts so that they meet the scenic integrity objectives;
- Length of time it will take rehabilitation measures to meet the scenic integrity objectives;
- Benefits to other resource management objectives to accomplish rehabilitation; and
- Restoration of scenic integrity in areas where it has been negatively impacted as other project work is accomplished or funds are available.

o Should a project have short-term impacts to scenery, consider displaying interpretive or informational signs to inform the public to improve understanding (e.g., short-term impacts on the aspen regeneration project might result in improving resilience and scenic integrity over the long-term).

Timber Management

o In areas suitable for timber production, harvest dead or dying trees (due to fire, insects, disease) to recover the economic value of the wood while providing for ecosystem function. This will be the primary focus of the timber program for the first years of the planning period.

o For additional information regarding estimated timber management practices and acres by vegetation type over the life of the Forest Plan, see Appendix 8 - Timber.

Utility Corridors and Communication Sites

o The Forest will work cooperatively with utility providers to expedite vegetation management needed to meet industry standards for public safety, protection of property, and reliability.

Wilderness (MA 1.1)

o To limit long-term impacts from visitor use while maintaining setting consistency, indirect methods should be used to accomplish management objectives, such as using brush to mask a user-created route.

o Over the life of the plan, move toward wilderness managed to standard under the Wilderness Stewardship Performance or appropriate for all wilderness areas where the GMUG is the lead Forest [all except Maroon Bells-Snowmass (White River National Forest) and Collegiate Peaks (Pike and San Isabel National Forests and Cimarron and Comanche National Grasslands)].

Special Interest Areas (MA 2.1)

o Interpretive opportunities for public education and enjoyment are emphasized at Alpine Tunnel, Slumgullion Earthflow, and Ophir Needles Special Interest Areas.

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Appendix 4. Scenic Integrity Descriptions

For the Working Draft Plan, working draft Scenic Integrity Objectives (SIOs) have been identified for Management Areas and overlays as demonstrated in Table 11. See Appendix 1 for associated maps. See plan component Scenery FW-GDL-SCNY-03.

Table 11. Scenic Integrity Objectives by Management Area and Overlay

[SIO: Scenic Integrity Objective]

Scenic Integrity Objective	Description	Management Areas and Overlays	Acres and % of the Forest
Very High	In areas with very high scenic integrity objectives, the scenic character should have only minor, if any, deviations. The areas should appear unaltered and the majority of the area should be dominated by ecological changes.	• 1.1 Designated Wilderness • 1.2 Areas to be analyzed as wilderness • Eligible Wild Rivers[1]	594,100 (20%)
High	In areas with high scenic integrity objectives, the scenic character should appear intact but may include deviations that are not evident (that is completely repeat the scenic attributes of size, shape, form, line, color, texture, or patterns common to the scenic character).	• 1.3 Tabeguache and Roubideau • 2.1 Some SIAs (Slumgullion Slide, Mt. Emmons Iron Fen, Ophir Needles, and Alpine Tunnel) • 2.3 Fossil Ridge RMA • 3.1 Roadless (with some exceptions) • Scenic Byways (with some exceptions) • Designated Trails (with some exceptions)	1,122,100 (38%)
Moderate	In areas with moderate scenic integrity objectives, the scenic character may appear slightly altered. Management activities, manmade structures and facilities should not dominate the scenic character (that is repeat the scenic attributes of size, shape, form, line, color, texture, or patterns common to the scenic character).	• 2.1 Proposed Gothic SIA • 2.2 Existing Research Natural Areas	813,400 (27%)
Low	In areas with low scenic integrity objectives, the scenic character may appear moderately altered. Management activities including manmade structures and facilities may begin to dominate the scenic character but use scenic attributes to blend into the landscape (that is repeat the scenic attributes of size, shape, form, line, color, texture, or patterns common to the scenic character).	• 2.1 Dry Mesa Quarry SIA • 4.1 Mountain Resorts (with some exceptions) • Utility corridors (with some exceptions)	436,600 (15%)

1 Please note that at the time of the working draft plan release, the Wild and Scenic River Eligibility process is still under development. As public comments on the draft eligibility report are incorporated to that report, any corresponding updates to the suite of eligible segments will be incorporated here.

Scenic Integrity Objectives for some Management Areas and overlays vary:

- 3.2 Wildlife Management Area - SIOs vary from High to Low depending on underlying area (i.e., Colorado Roadless Area) and other factors (i.e. concern level routes and distance zones, etc.).
- 4.2 High-Use Recreation Areas - SIOs vary from High to Low depending on underlying area (i.e, Colorado Roadless Area) and other factors (i.e., concern level routes and distance zones, etc.).
- 5 General Forest – SIOs vary from High to Low depending on underlying area (i.e. Recreation Opportunity Spectrum setting) or other factors (i.e., concern level routes and distance zones, etc.) and other factors.

Appendix 5. Relevant Federal Statutes, Regulations, Policies, and Agreements

Management direction in the Forest Service Directive System, including the Forest Service manuals and handbooks, is part of the forest plan management direction and is not repeated in forest plan directions. Management direction also includes applicable laws, regulations, and policies, although they are not restated in this forest plan.

Direction for managing National Forest System land comes from a variety of levels. National and regional direction includes laws, Executive orders, regulations, and Forest Service policies. The hierarchy of management direction from national and regional direction to the site-specific, project-level direction used in implementing the forest plan is illustrated in Figure 7.

Figure 7. Hierarchy of national forest management direction

Federal Statutes

Applicable Federal statutes that forest management must be in compliance with include those listed in Table 12.

Table 12. Federal statutes applicable to forest management

Title	Initiation
Agriculture Appropriations Act	May 23, 1908
Alaska National Interest Lands Conservation Act	December 2, 1980
American Indian Religious Freedom Act	August 11, 1978
American with Disabilities Act	1990
Anderson-Mansfield Reforestation and Revegetation Act	October 11, 1949
Antiquities Act	June 8, 1906
Architectural Barriers Act	1968
Bankhead-Jones Farm Tenant Act	July 22, 1937
Bald and Golden Eagle Protection Act	June 8, 1940, amended 1962
Cabin Fee Act	December 22, 2014
Carson-Foley Act of 1968 (PL 92-516)	
Clarke McNary Act	June 7, 1924
Clean Air Act	July 14, 1955
Clean Air Act	August 7, 1977; Amendments of 1977 and 1990
Clean Water Act as amended	1948; amended in 1972, 1977, 1981, and 1987
Color of Title Act	December 22, 1928
Cooperative Forestry Assistance Act	July 1, 1978
Department of Agriculture Organic Act	August 3, 1956
Disaster Relief Act	May 22, 1974
Emergency Flood Prevention Act (Agricultural Credit Act)	August 4, 1978
Endangered Species Act as amended	December 28, 1973
Energy Policy Act	August 8, 2005
Energy Security Act	June 30, 1980
Executive Order 13112	1999
Federal Advisory Committee Act	October 6, 1972
Federal Aid Highway Act	
Federal Cave Resources Protection Act	November 18, 1988
Federal Insecticide Rodenticide, and Fungicide Act	October 21, 1972
Federal Land Exchange Facilitation Act	August 20, 1988
Federal Land Policy and Management Act	October 21, 1976
Federal Lands Recreation Enhancement Act	2004
Federal Noxious Weed Act	January 3, 1975
Federal Power Act	June 10, 1920
Federal Records Act	September 5, 1950
Federal-State Cooperation for Soil Conservation Act	December 22, 1944

Title	Initiation
Federal Water Pollution Control Act	July 9, 1956, as amended (Water Quality Act of 1965, Clean Water Restoration Act of 1966)
Federal Water Project Recreation Act	July 9, 1965
Fish and Wildlife Conservation Act	September 15, 1960
Fish and Wildlife Coordination Act	March 10, 1934
Forest and Rangeland Renewable Resources Planning Act	August 17, 1974
Freedom of Information Act	November 21, 1974
General Exchange Act	March 20,1922
General Mining Law	1872
Geothermal Steam Act	1970
Granger-Thye Act	April 24, 1950
Healthy Forest Restoration Act	April 7, 1989
Highway Safety Act	September 9, 1966
Historic and Archaeological Data Preservation Act	May 24, 1974
Historical Sites Act	August 21, 1935
Knutson-Vandenberg Act	June 9, 1930
Land Acquisition Act	March 3, 1925
Land Acquisition-Declaration of Taking Act	February 26, 1931
Land and Water Conservation Fund Act	September 3, 1964
Law Enforcement Authority Act	March 3, 1905
Migratory Bird Treaty Act	1918
Mineral Leasing Act	February 25, 1920, as amended
Mineral Leasing for Acquired Lands Act	August 11, 1955
Mineral Materials Act	July 31, 1947
Multiple-Use Sustained Yield Act	June 12, 1960
National Environmental Policy Act	January 1, 1970
National Energy Conservation Policy Act	1978
National Forest Management Act	October 22, 1976
National Forest Roads and Trails Act	October 13, 1964
National Forest Ski Area Permit Act	1986
National Historic Preservation Act	October 15, 1966, as amended
National Trails System Act	October 2, 1968
National American Graves Protection and Repatriation Act	January 23, 1990
Occupancy Permits Acts	March 4, 1915
Organic Administration Act	June 4, 1897
Paleontological Resources Preservation Act	2009
Petrified Wood Act	1962
Pipelines Act	February 25, 1920
Public Lands Surveys Act	August 30, 1899
PL 102-575	October 30 1992
Real Property Quiet Title Action Act	October 25, 1992
Rehabilitation Act	1973, as amended

Title	Initiation
Renewable Resources Improvement Act	June 30, 1978
Research Grants Act	September 6 ,1958
Right of Eminent Domain Act	August 1, 1888
Rural Development Act	August 30, 1972
Safe Drinking Water Act	November 16, 1977, and Amendments
Secure Rural Schools and Community Self-Development Act	2000
Sikes Act	September 16, 1960
Sisk Act	December 4, 1967
Small Tracts Act	January 12, 1983
Soil and Water Resources Conservation Act	November 18, 1977
Solid Waste Disposal (Resources Conservation and Recovery Act) Act	October 21, 1976
Supplemental National Forest Reforestation Fund Act	September 19, 1972
Surface Mining Control and Reclamation Act	August 3, 1977
Surface Transportation Assistance Act	1978
Surface Use Act	1955
The Act	November 16,1973
The Act	May 26, 2000
Timber Export Act	March 4, 1917
Timber Exportation Act	April 12, 1926
Title Adjustment Act	April 28, 1930
Toxic Substances Control Act	October 11, 1976
Transfer Act	February 1, 1905
Uniform Federal Accessibility Standards	1968
Uniform Relocation Assistance and Land Acquisition Policies Act	January 2, 1971
U.S. Criminal Code (Title 18 USC Chapter 91- Public Lands)	June 25, 1948
Volunteers in the National Forests Act	May 18, 1972
Water Quality Improvement Act	April 3, 1965
Water Resources Planning Act	July 22, 1965
Watershed Protection an Flood Prevention Act	August 4, 1954
Wild and Scenic Rivers Act	October 2, 1968
Wildfire Suppression Assistance Act	2003
Wilderness Act	September 3, 1964
Wood Residue Utilization Act	December 19, 1980
Youth Conservation Corps Act	August 13, 1970

Regulations

The Forests also abide by regulations listed in, but not limited to those in, Table 13 as they pertain to the Forest Service.

Table 13. Regulations applicable to forest management

CFR	Title
36 CFR 60	National Register of Historic Places
36 CFR 63	Determinations of Eligibility for Inclusion in the National Register of Historic Places
36 CFR 68	Secretary of the Interior's Standards for the Treatment of Historic Places
36 CFR 79	Curation of Federally Owned and Administered Archeological Collections
36 CFR 212	Forest Development Transportation System
36 CFR 213	Administration Under Bankhead-Jones Act
36 CFR 219	Planning Rule
36 CFR 220	National Environmental Policy Act
36 CFR 221	Timber Management Planning
36 CFR 223	Sale an Disposal of National Forest System Timber
36 CFR 228	Minerals
36 CFR 241	Fish and Wildlife
36 CFR 251	Land Uses
36 CFR 254	Landownership Adjustments
36 CFR 261	Prohibitions
16 U.S.C. 470ii	Protection of Archeological Resources
P.L. 114-35	Cave Resources Protection Act
36 CFR 291	Occupancy and Use of Developed Sites and Area of Concentrated Public Use
36 CFR 293	Wilderness Primitive Areas
36 CFR 294	Special Areas, including Subpart D, Colorado Roadless Area management
36 CFR 295	Use of Motor Vehicles off Forest Development Roads
36 CFR 296	Archeological Resources Protection Act Uniform Regulations
36 CFR 297	Wild and Scenic Rivers
36 CFR 800	Advisory Council on Historic Preservation
36 CFR 1222-1238	Federal Records Act Uniform Regulations
40 CFR 121-135	Watersheds Programs
40 CFR 1500-1508	Council on Environmental Quality
	Guidance for Implementation of Federal Wildland Fire Management Policy (2009)
P.L. 108-148	The Healthy Forest Restoration Act
	Interagency Prescribed Fire Planning and Implementation Procedures Guide (2014)
NFES 2724	Interagency Standards for Fire and Fire Aviation Operations
PMS 484	National Cohesive Wildland Fire Management Strategy (2014)
43 CFR Part 10	Native American Graves Protection and Repatriation Act
43 CFR 8340	Off-road Vehicles
42 U.S.C. 7401	National Ambient Air Quality Standards

CFR	Title
NFPA 70	National Electrical Code
NFPN70B	National Fire Code
	USDA Forest Service National Fire Plan (2000)
2000	Uniform Building Code
7 CFR 15e	Enforcement of Nondiscrimination
28 CFR 36	Nondiscrimination on the Basis of disability by Public Accommodation and in Commercial Facilities

Executive Orders

Executive orders applicable to forest management are recorded in Table 14.

Table 14. Applicable Executive orders

Executive Order Number	Title
11593	Protection and Enhancement of the Cultural Environment
11990	Protection of Wetlands
11644/11989	Use of Off-Road Vehicles
11988	Floodplain Management
12088	Federal Compliance with Pollution Control Standards
12898	Environmental Justice
12962	Recreational Fisheries
13007	Indian Sacred Sites
13112	Invasive Species, as amended
13287	Preserve America

Policies and Guidelines

The forest plan will follow all applicable policies and guidelines, including:

- Forest Service Heritage Strategy
- All Forest Service Manuals
- All Forest Service Handbook
- Secretary of the Interior's Standards Guidelines for Archeology and Historic Preservation
- USDA Forest Service Strategic Plan: FY 2015-2020 or most current version

State and Local Direction

State and local direction applicable to forest management is listed below:

- Colorado Air Quality Protection Act
- Water Division 4 and 5, Water Decrees Forestwide.

- Memorandum of Understanding between the Forest Service and the Natural Resource Conservation Service for permitting and operating SNOTEL, SCAN, and manual snow survey sites.
- Memorandum of Understanding between the Forest Service and the State of Colorado Department of Public Health and Environment for management of water quality in State of Colorado define Source Water Assessment Areas on National Forest Systems lands in Colorado.
- Memorandum of Understanding between the Forest Service and the State of Colorado Department of Natural Resources and the Colorado Water Conservation Board to establish a framework for the parties to work together in a cooperative manner on issues regarding the management of water and water uses on National Forest System lands in Colorado.

Programmatic Decisions

- Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States (USDI and USDA 2008).
- Programmatic Environmental Impact Statement for West-wide Energy Corridors (USDA Forest Service 2009).

Appendix 6. Old Growth Definitions

Old growth definitions in the following tables have been modified from Mehl (1992) to reflect conditions on the Grand Mesa, Uncompahgre, and Gunnison National Forests.

Table 15. Spruce-fir old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum DBH (inches)	16
Minimum number of trees per acre	10
Minimum overstory canopy cover	40
Variation in tree diameter	Yes
Decadence – dead, broken, or deformed tops and/or bole or root rot	Yes
Multiple tree canopy layers	Yes
Minimum canopy closure (including overstory)	60
Dead Trees	
Standing	
Minimum DBH (inches)	10
Number of trees per acre	3
Down	
Minimum pieces per acre	Some
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Net growth near zero	Yes
Patchiness	Yes
Many stages of decomposition	Yes
Quality Attributes	
Above attributes in excess of minimums	Yes
Wide range of tree vigor	Yes
Distinctive bark	Yes

Table 16. Cool-moist and warm-dry mixed conifer old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum DBH (inches)	16
Minimum number of trees per acre	10

Attribute	Definition
Variation in tree diameter	Yes
Decadence – dead, broken or deformed tops and/or bole or root rot	Yes
Multiple tree canopy layers	No
Dead Trees	
Standing	
Minimum DBH (inches)	10
Number of trees per acre	2
Down	
Minimum pieces per acre	Some
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Wide range of tree vigor	Yes
Quality Attributes	
Above attributes in excess of minimums	Yes
Multiple tree canopy layers	Yes
Patchiness	Yes

Canopy closure criteria was not included so that more open stands (fire-maintained open) would not be overlooked (Table 17, Table 18).

Table 17. Southwest ponderosa pine old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum DBH (inches)	18
Minimum number of trees per acre	10
Variation in tree diameter	Yes
Decadence – dead, broken or deformed tops and/or bole or root rot	Yes
Multiple tree canopy layers	No
Dead Trees	
Standing	
Minimum DBH (inches)	10
Number of trees per acre	2
Down	
Minimum pieces per acre	Some
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Quality Attributes	

Attribute	Definition
Above attributes in excess of minimums	Yes
Distinctive bark	Yes
Down dead trees	Yes
Distinctive crowns	Yes
Mosaic of age class patchiness	Yes

Table 18. Lodgepole old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum DBH (inches)	12
Minimum number of trees per acre	10
Variation in tree diameter	No
Decadence – dead, broken or deformed tops and/or bole or root rot	Yes
Multiple Tree Canopy Layers	No
Minimum total live canopy closure	60%
Dead Trees	
Standing	
Minimum DBH (inches)	8
Number of trees per acre	2
Down	
Minimum pieces per acre	Some
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Quality Attributes	
Above attributes in excess of minimums	Yes
Net growth near zero	Yes
Multiple tree canopy layers	Yes
Multiple tree species	Yes
Patchiness	Yes
Many stages of decomposition	Yes
Distinctive crowns in the upper canopy	Yes

Old growth lodgepole pine is a relatively short lived condition (as is aspen, Table 19) compared to other timber types. We need to consider this in designing management direction, to consider old growth lodgepole pine as dynamic and moving across the landscape.

Table 19. Aspen old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum DBH (inches)	14
Minimum number of trees per acre	20
Variation in tree diameter	No
Decadence – dead, broken or deformed tops and/or bole or root rot	Yes
Multiple tree canopy layers	No
Dead Trees	
Standing	
Minimum DBH (inches)	No
Number of trees per acre	No
Down	
Minimum pieces per acre	No
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Canopy closure greater than 50%	Yes
Quality Attributes	
Above attributes in excess of minimums	Yes
Multiple tree canopy layers	Yes
Standing dead trees 10” plus DBH	Yes
Down dead trees	Yes
Variation in tree diameters	Yes

Attributes such as live trees will need to be identified and score cards will need to be developed to differentiate quality old growth in rankings, i.e., differentiate on canopy closure as a quality attribute as later stages of aspen old growth (Table 20) can have less canopy closure than earlier stages.

Table 20. Spruce-fir-aspen old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum DBH (inches)	16
Minimum number of trees per acre	10
Aspen and conifer codominant in overstory	Yes
Variation in tree diameter	Yes

Attribute	Definition
Decadence – dead, broken or deformed tops and/or bole or root rot	Yes
Multiple tree canopy layers	Yes
Minimum total live canopy closure	60%
Dead Trees	
Standing	
Minimum DBH (inches)	10
Number of trees per acre	3
Down	
Minimum pieces per acre	Some
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Patchiness	Yes
Many stages of decomposition	Yes
Quality Attributes	
Above attributes in excess of minimums	Yes
Wide range of vigor	Yes

Table 21. Pinyon-juniper old growth definitions

Attribute	Definition
Standard Attributes	
Live Trees	
Upper canopy – older component	
Minimum diameter at root collar (DRC) (inches)	12
Minimum number of trees per acre	30
Variation in tree diameter	Yes
Decadence – dead, broken or deformed tops and/or bole or root rot	Yes
Multiple tree canopy layers	Yes
Dead Trees	
Standing	
Minimum DRC (inches)	10
Number of trees per acre	1
Down	
Minimum pieces per acre	2
Additional Attributes	
Trees in upper canopy are slow growing	Yes
Canopy closure greater than 35%	Yes

References Cited

Mehl, M. S. 1992. Old-growth descriptions for the major forest cover types in the Rocky Mountain Region. In: Old growth forests in the Southwest and Rocky Mountain Regions. Gen. Tech. Rep. RM-213. Fort Collins, CO: U.S. Department of Agriculture, Forest Service. Rocky Mountain Forest and Range Experiment Station.

Appendix 7. Priority Watersheds

Background

The Forest Service uses the Watershed Condition Framework to assess and characterize the health and condition of subwatersheds (6th level or 12-digit hydrologic unit code). The Watershed Condition Framework employs a nationally consistent reconnaissance-level approach for classifying watershed condition, using a comprehensive set of 12 indicators that are surrogate variables representing the underlying ecological, hydrologic, and geomorphic functions and processes that affect watershed condition. Primary emphasis is on aquatic and terrestrial processes and conditions that Forest Service management activities can influence (USDA Forest Service 2011).

Watershed condition classification is the process of describing watershed condition in terms of discrete categories (or classes) that reflect the level of watershed health or integrity. The outcome of the classification process is to place each 6th level watershed into one of the classes described below:

- **Class 1:** Watersheds that are functioning properly exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- **Class 2:** Watersheds that are functioning at risk exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- **Class 3:** Watersheds that have impaired function exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

A discussion of watershed conditions and trends specific to the GMUG is contained in the *Watershed Resources* section of the environmental impact statement associated with this forest plan revision. Following classification, priority watersheds are selected and watershed restoration action plans are developed to focus efforts that treat whole watersheds with an integrated set of watershed-scale restoration activities.

Further information on the Watershed Condition Framework is available in Forest Service publication FS-977 (USDA Forest Service 2011). Additional information, maps, and documentation is available on the Forest Service Watershed webpage.

Priority Watersheds

The 2012 Planning Rule requires land management plans to:

i. Identify watershed(s) that are a priority for maintenance or restoration; (36 CFR 219.7(f)(1)).

Identification of priority watersheds is done to focus effort on the integrated restoration of watershed conditions in these areas. Priority watersheds are those watersheds where plan objectives for restoration would concentrate on maintaining or improving watershed condition. However, selection of priority watersheds does not preclude watershed restoration efforts in other areas. The identification of priority watersheds is intended to be helpful to Forest Service managers as they schedule work after plan approval, especially in circumstances of limited budgets and resources. Changes as to which watersheds in the plan are “priority” are made by administrative change (sec. 21.5 of FSH 1909.12) (USDA Forest Service 2012).

The GMUG has identified:

- Oh-be-Joyful Creek – Slate River (140200010205).

Additional information on watershed condition class ratings is also available in the GMUG Watershed, Water, and Soil Resources Revised Assessment, the Watershed Condition Class and Prioritization Information mapping tool, and in Appendix 7.

References Cited

USDA Forest Service. 2011. Watershed condition framework: A framework for assessing and tracking changes to watershed condition. FS-977. 34 pp. Accessed November 27, 2018, at https://www.fs.fed.us/sites/default/files/Watershed_Condition_Framework.pdf

USDA Forest Service. 2012. Forest Service Handbook 1909.12: Land Management Planning Handbook, chapter 20. 134 pp.

USDA Forest Service 2017. Watershed Condition Framework Interactive Map. Accessed November 27, 2018, at https://www.fs.fed.us/naturalresources/watershed/condition_framework.shtml

USDA Forest Service. 2018. Grand Mesa, Uncompahgre, and Gunnison National Forests revised draft Forest assessments: Watersheds, water, and soil resources. Accessed December 3, 2018, at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd573549.pdf

Appendix 8. Timber Suitability Analysis

Identification of Lands as Not Suitable and Suitable for Timber Production

The following details the process used to comply with FSH 1909.12 Chapter 60, Forest Vegetation Resource Management. During Forest Plan development and revision, identification of the suitability for lands for timber production is required by the National Forest Management Act of 1976 and by the 2012 planning rule. Lands identified as suitable for timber production have a regularly scheduled timber harvest program that contributes to forestwide desired conditions and multiple use goals, such as providing mosaics of habitats for wildlife species, managing fuels, and contributing to the economic sustainability of local communities.

Step 1: Lands Not Suited for Timber Production Based on Legal and Technical Factors (61.1)

First, the analysis identifies lands that *may* be suited for timber production by removal of areas not suited using the criteria in the Land Management Planning Handbook FSH 1909.12 Chapter 60. These areas and associated acreage were determined by starting with the total area of the Grand Mesa, Uncompahgre, and Gunnison National Forests and removing areas that are not suited for timber production, listed below:

- In-holdings
- (61.11) Lands not suited for timber production because timber production is prohibited or the lands are withdrawn from timber production:
  - Wilderness areas
  - CO Roadless areas
  - Research Natural Areas (Escalante Creek and Gothic)
  - Other areas where timber production is prohibited (Congressionally designated Roubideau, Tabeguache, and Fossil Ridge Recreation Management Area
- (61.12) Lands on which technology to harvest timber is not currently available without causing irreversible damage:
  - Areas labelled as active earthflow, active mudflow, or active landslide *and* with a slope >= 30%
- (61.13) Lands on which there is no reasonable assurance that lands can be adequately restocked within 5 years of final regeneration harvest:
  - Areas with heavy rock
- (61.14) Land that is not Forest Land (Nonforest).

- All roads with an operational maintenance level of 2-5[11]. Roads corridors were determined to approximate the area of the road, with the suitable timber area extending to the edge of the road. Road removals included:
  - Level 2 roads – 25-foot-wide corridor
  - Level 3 roads – 40-foot-wide corridor
  - Level 4 and 5 roads – 50-foot-wide corridor
  - State highways and interstates – 50-foot-wide corridor
  - All other roads – 25-foot-wide corridor
- Powerlines, assuming a 150 ft wide corridor for the largest lines (WAPA and Tri-State) and a 50-foot-wide corridor for all others
- Administrative sites including ranger stations, townsites, and guard stations
- Non-forested areas. Areas removed met each of the following criterion:
  - tree cover less than 10%
  - habitat structural stage of natural meadow (1M) or natural shrubland (2S)
  - at least 5 acres in size, and
  - not in the suitable timber layer in 1991 or in 2007
- Nonindustrial species/cover types that were not in the suitable timber layer in 1991 or in 2007, including pinyon, juniper, cottonwood, oak, water, barren, rock, and riparian areas dominated by grass, forbs, or cottonwood.
- Slivers of land less than 1 acre not adjacent to larger blocks of may be suitable timber.

The final area considered *may be suitable* for timber production is 986,500 acres. This classification will not vary by Forest Plan action alternative. These lands are not immediately available for timber production but must first be considered in Step 2 of the suitability analysis, which is detailed below.

Sustained Yield Limit Calculations

The sustained yield limit (SYL) is the amount of timber that could be produced on all lands that *may be suitable* for timber production, assuming all of these lands were managed to produce timber without considering other multiple uses or fiscal or organizational capability. (FSH 1909 Chapter 64.31). The SYL was calculated, in part, using yield information from the GMUG's earlier planning efforts. This yield information was based on output from the Forest Vegetation Simulator and is documented in an internal report - *Grand Mesa, Uncompahgre, and Gunnison*

[11] The Forest Service, an agency of the U.S. Department of Agriculture, classifies maintenance of National Forest System roads by five levels: 1, 2, 3, 4, and 5. Maintenance level 1 roads are closed to motor vehicle use. Maintenance level 2 roads are maintained for high-clearance vehicles. Maintenance level 3, 4, and 5 roads are maintained for passage by standard passenger cars during the normal season of use. More information is available in "Guidelines for Road Maintenance Levels" at https://www.fs.fed.us/t-d/pubs/pdf/11771811.pdf.

National Forests, Summary of Yield Table Development for Forest Plan Revision (Keyser 2005). SYL was calculated by the following timber strata:

- Spruce-fir
- Spruce-fir-aspen
- Aspen
- Lodgepole pine
- Mixed conifer
- Ponderosa pine

Additional areas that did not fit within these main strata were put into "other" categories, including other forest types and natural meadows and shrublands.[12]

The management system, rotation age/entry interval, and associated harvest volume (cubic feet/acre) that were used to determine the SYL are listed in Table 22.

Table 22. Assumptions used for the sustained yield limit calculation

Strata	Management System	Rotation Age/Entry Interval (years)	Acres of May be Suitable Lands[13]	Harvest Volume at Rotation Age/Entry Interval (cubic feet/acre) (from Keyser 2005)[14]	Harvest Volume at Rotation Age/Entry Interval (with adjustments for insects, disease, and defect) (cubic feet/acre)[15]
Spruce-fir	Uneven-aged – Group Selection	30	192,600	440	380
Lodgepole pine	Even-aged - Clearcut	140	145,900	2590	2340
Aspen	Even-aged - Clearcut	120	214,700	4250	2980
Mixed conifer	Uneven-aged – Individual Tree Selection	40	28,200	270	230
Ponderosa pine	Uneven-aged – Individual Tree Selection	40	84,100	460	400
Spruce-fir-aspen	Uneven-aged – Group Selection	30	191,200	540	410

[12] Examples of these include areas of nonindustrial species/cover, non-forested areas, and grassland and shrubland areas with at least 10% tree cover.

[13] Values rounded to nearest 100.

[14] Values rounded to nearest 10.

[15] Values rounded to nearest 10.

Strata	Management System	Rotation Age/Entry Interval (years)	Acres of May be Suitable Lands[13]	Harvest Volume at Rotation Age/Entry Interval (cubic feet/acre) (from Keyser 2005)[14]	Harvest Volume at Rotation Age/Entry Interval (with adjustments for insects, disease, and defect) (cubic feet/acre)[15]
Other – forested areas (HSS 1T, 2T, 3, 4)		200	35,700	500	400
Other – meadows and shrublands (HSS 1M, 2S)		200	94,100	0	0

Numerous adjustments were made in the initial FVS yield table work (Keyser 2005) to determine the theoretically appropriate harvest volume. These adjustments included factoring in defect, using local merchantability specifications, adjusting the stand density maximum values, and capping tree size based on observed tree sizes. In addition, contemporary reductions for this planning effort were made to the modeled yield values to factor in additional defect (as the original defect amounts were deemed too low) and general background mortality due to insects and disease (10% reduction).

Merchantable volume specifications used in the FVS yield table work assumed a minimum diameter of 5 inches and a minimum top diameter (inside bark) of 4 inches and are described more fully in the associated internal report (Keyser 2005).

The estimated SYL is 13,869,762 cubic feet/year or 138,688 hundred cubic feet (CCF)/year.

It is important to note that the SYL is based on the acres that *may be suitable* for timber production (986,500 acres), and it "is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity" (1909.12, 60.5). Since it is based on the *may be suitable* for timber production area, which as detailed above does not vary by action alternative, the SYL will also not vary by action alternative.

Step 2. Lands Suited and Not Suited For Timber Production Based on Compatibility with Desired Conditions and Objectives– Working Draft Plan (61.2)

Starting with the *may be suitable* timber area, the following areas were removed because timber production is not compatible with the desired conditions and objectives for these Working Draft Forest Plan Management Areas and overlays:

- Wilderness to be analyzed/Recommended wilderness (Management Area 1.2), per FSH 1909.12 Ch. 20 Sec 24.41
- Special interest areas (SIAs) (Management Area 2.1)

- Research natural areas (RNAs) (Management Area 2.2)[16]
- (Working draft) eligible wild rivers (using wild and scenic river (WSR) overlay), per FSH 1909.12 Ch. 20 Sec 24.42

  Note: At the time of the release of the Working Draft Plan, the eligibility process is still under development. Working draft eligible wild rivers have been removed from the suitable timber area at this stage of planning for purposes of understanding the scale of potential impact to suitable timber. As public comments on the draft eligibility report are incorporated into a revised report, any corresponding updates to the suite of eligible segments will be incorporated here.
- Mountain resort areas (Management Area 4.1)

After these removals, the area considered suitable for timber production in the Working Draft Plan is approximately 971,000 acres. Because management area allocations will likely differ between draft alternatives analyzed in the forthcoming environmental impact statement (EIS), the final number of acres suitable for timber production across the whole forest will vary by draft alternative.

See Appendix 1 for a map of the areas that are suitable for timber production in the Working Draft Plan.

Operable Areas During the Planning Period

Unlike the 1982 Planning Rule, in which economic feasibility was factored into the identification of lands suitable for timber production, the 2012 Planning Rule process does not include this factor. Under the 1982 Planning Rule and the associated directives, areas identified as suitable for timber production in the 1991 Forest Plan, as amended, excluded areas that were the least cost-efficient during Step 2 of the suitability analysis process (FSH 2409.13-91-1, superseded). The current suitability analysis process does not exclude such areas. Therefore, areas identified as suitable for timber production in the Working Draft Plan may not be economically feasible for timber production during the planning period due to limited markets and operational constraints. Though the following areas are included in the area identified as suitable for timber production, the following are unlikely to be operable during the planning period: area with slopes > 40%, spruce-fir and spruce-fir aspen areas with heavy mortality from the spruce beetle epidemic that are no longer merchantable, areas previously harvested that are now regenerating, areas that are un-economical to harvest due to low volume per acre or long haul distance, and areas that are isolated or far from the existing road system.

Given current economic feasibility, working analysis indicates that the operable area during the planning period would be approximately 650,000 acres.

[16] Due to slight boundary corrections for the Research Natural Areas in the Preliminary Draft Forest Plan, Step 2 again confirmed these areas were removed from production.

Definitions

Lands that may be suitable for timber production (FSH 1909.12 CH 60.5) – A working classification in the process of determining lands that are suited for timber production. This working classification excludes National Forest System lands that are not suitable for timber production based on the factors identified in 36 CFR 219.11(a)(1)(i), (ii), (iv), (v), and (vi), and is made prior to the consideration of the factor at 36 CCFR 219.11(a)(iii), which identifies suitability based on objectives and desired conditions established by the plan for those lands.

Lands suitable for timber production – Area that defines where timber harvest for the purpose of timber production may occur, subject to subsequent project-level, site-specific data and analysis. Timber harvest for purposes other than timber production may also occur here. Scheduled timber harvests occur on these lands, among other active management activities, to contribute to forestwide desired conditions and multiple use goals.

Sustained Yield Limit – SYL (FSH 1909.12 CH 60.5) -- The amount of timber, meeting applicable utilization standards, "which can be removed from a forest annually in perpetuity on a sustained-yield basis." It is the volume that could be produced in perpetuity on lands that *may be suitable* for timber production. Calculation of the limit includes volume form lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the SYL is not limited by land management plan desired conditions, other plan components, or the planning unit's fiscal capability or organizational capacity. The SYL is not a target but is a limitation on harvest, except when the plan allows for a departure.

Timber harvest (FSH 1909.12 CH 60.5) - The removal of trees for wood fiber use and other multiple-use purposes.

Timber production (FSH 1909.12 CH 60.5) - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.

References Cited

Keyser, Chad. December 2005. Grand Mesa, Uncompahgre, and Gunnison National Forests, Summary of yield table development for forest plan revision. Internal report, available in the project record.

Forthcoming – Appendices 9, 10, and 11

Appendix 9 - Regional Forester's List of Species of Conservation Concern

Appendix 10 – Coal Unsuitability Assessment (per 43 CFR 3461)

Appendix 11 – Revised Wild and Scenic Rivers Eligibility Report

United States Department of Agriculture
Forest Service

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