United States Department of Agriculture

Draft Revised Forest Plan

Revised Land Management Plan for the Manti-La Sal National Forest

Forest Service Intermountain Region September 2020

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Draft Revised Forest Plan

Manti-La Sal National Forest

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ACRONYMS AND ABBREVIATIONS

BENM — Bears Ears National Monument

CCF — One hundred cubic feet

CFR — Code of Federal Regulations

CWD — Coarse woody debris

DBH — Diameter at breast height

DC — Desired condition

ESA — Endangered Species Act

FIRE — Fire management

FSH — Forest Service Handbook

FSM — Forest Service Manual

GA — Geographic area

GD — Guideline

GL — Goal

HUC — Hydrologic unit code

IRA — Inventoried Roadless Areas

MA — Management area

NEPA — National Environmental Policy Act

NRT — National Recreation Trail

NR— National Register Sites

OBJ — Objective

PAOT — People at one time

RMZ — Riparian management zone

RNA — Research Natural Area

ROS — Recreation opportunity spectrum

SCC — Species of conservation concern

SMS — Scenery Management System

ST — Standard

TE — Threatened and endangered species

USDA — U.S. Department of Agriculture

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1. INTRODUCTION

This document is the United States Department of Agriculture, Forest Service's proposal for revising the Manti-La Sal National Forest Land Management Plan. What follows is an initial proposal that provides a starting point for public feedback and engagement as we enter the first formal public comment period, often referred to as scoping, of our environmental analysis process.

1.1 About the Land Management Plan

This draft land management plan, hereafter referred to as Forest Pla, is a revision of the 1986 Manti-La Sal National Forest Land and Resource Management Plan. The revision is being completed under the legal framework of the National Forest Management Act and the National Forest System Land Management Planning regulations, commonly referred to as the 2012 Planning Rule.

The Forest Plan serves as a guide for management of the Manti-La Sal National Forest, also referred to as the Forest, for the next fifteen to twenty years. Forest plans are prescriptive documents that set desired conditions, objectives, standards, and guidelines for managing resources. This plan:

- Is strategic in nature. It does not include project or activity level decisions. Those decisions are made later, only after more detailed analysis and further public involvement.
- Is adaptive. New information and knowledge can be analyzed, and the Forest Plan amended, if necessary and appropriate, at any time.
- Honors the continuing validity of private, statutory, or preexisting rights.

The Forest Plan provides direction for working with tribal, federal, state, and county governments to coordinate an all-lands approach that considers the role of the Manti-La Sal National Forest within the broader landscape of southeastern Utah and southwestern Colorado.

1.1.1 Legal and Regulatory Framework

National Forest Management Act (NFMA)

Under the NFMA, Forest Plans should be revised at least every fifteen years. In addition, the law requires Forest Plans to "identify lands within the management area which are not suited for timber production," and to review such determinations at least every ten years.

2012 Planning Rule

The Forest Service's 2012 Planning Rule (36 Code of Federal Regulations [CFR] 219) provides the process and structure to create land management plans for National Forest System (NFS) lands across the nation. The rule establishes a three-phase process: assessment, plan development or revision, and monitoring. The intent of the planning framework is to create a responsive land management plan that informs integrated resource management and allows the Forest to adapt to changing conditions. The 2012 Planning Rule also strongly emphasizes partner and public participation though all three major phases of the planning process.

Other Laws

In addition to the National Forest Management Act, many other laws and regulations apply to management of the national forests including, but not limited to, the Clean Air Act, Clean Water Act, Endangered Species Act, Wilderness Act and National Historic Preservation Act. These laws are generally not repeated or referenced in a Forest Plan. Additional direction and policy for management of national

forests are also provided in executive orders, the Code of Federal Regulations, and the Forest Service directives system, the latter of which consists of Forest Service manuals and handbooks. Such direction is also not repeated in a Forest Plan.

References to these documents and agency best management practices may be included within the management approach section for each resource area and will be included in an appendix that is in progress.

1.1.2 Plan Structure

Chapter 1 provides an overview of the Manti-La Sal National Forest, its distinctive roles and contributions, and the legal framework and process that guide Forest Planning.

Chapters 2 and 3 provide management direction in the form of plan components. Plan components that apply forest-wide are in **Chapter 2**. Plan components that apply to specific parcels of land, such as management areas and designated areas, are consolidated under the respective areas they apply to in **Chapter 3**. Plan components include desired conditions, goals, objectives, standards, guidelines, and suitability of lands. See the next section for definitions of plan components.

Chapter 4 describes the plan monitoring program that forms the basis for continuous improvement and provides information for adaptive management of the plan area. The purpose of monitoring in an adaptive management framework is to facilitate learning to support decisions on necessary changes to the plan. The plan monitoring program consists of a set of monitoring questions and associated indicators to evaluate whether plan components are effective and appropriate, and whether management is effective in maintaining or achieving progress toward desired conditions and objectives for the plan area.

A **glossary** and **references** are included following the chapters.

The appendices include the following sections: **Appendix A**: Maps, **Appendix B**: Species of Conservation Concern, **Appendix C**: Wilderness Evaluation Report, **Appendix D:** Wild and Scenic Rivers Evaluation Report, and **Appendix E**: Priority Watersheds, **Appendix F**: Timber Suitability, and **Appendix G:** Preliminary Need for Change. These appendices are preliminary and will be further developed based on scoping comments.

Forest Plan Elements

Forest plan components provide a framework for managing the plan area, at either the forest-wide scale or the geographic, management, or designated area scale. Forest plan components include management approaches, desired conditions, objectives, standards, guidelines, and monitoring.

Desired Conditions

A desired condition describes the vision or aspirations of what the plan area, or a portion of the plan area, should look like in the future. Desired conditions drive the development of other plan components, including objectives, standards, guidelines, and monitoring, which provide guidance on how to achieve the desired conditions.

Objective

An objective describes an outcome designed to make progress toward a specific desired condition.

Standards and Guidelines

Standards and guidelines are plan components that can be used to put constraints on a project and activities when they are designed at the project level. A standard is different from a guideline in that it is a mandatory constraint, where a guideline allows variation if the result would be equally effective.

Management Approaches

Unlike the other plan components, management approaches are not required by the 2012 Planning Rule. Management approaches are used to describe principal strategies and program priorities that the responsible official intends to carry out through projects and activities developed under the plan. Management approaches can convey a sense of priority and focus among objectives and the likely management emphasis, as well as potential partnerships. They should relate to desired conditions and may indicate the future course of direction change, recognizing budget or program trends, and accomplishments.

Suitability

Suitability of uses identifies lands that are suitable or not suitable for various multiple uses or activities, based on the desired conditions applicable to those lands. Every plan must, however, identify lands that are not suitable for timber production (36 CFR 219.7(e)(1)(v)) and complete an evaluation of wilderness (36 CFR 219.7(c)(2)(v)) and wild and scenic rivers (36 CFR 219.7(c)(2)(vi)). Suitability identifications may be made after consideration of historic uses and of issues that have arisen in the planning process.

The Forest Plan contains a specific coding system to identify desired conditions, goals, objectives, standards, and guidelines and where they apply. It uses a pattern such as AA-BB-CCC. The series of letters before the first dash references the level of direction (for example, FW for forest-wide, DA for designated area, SA for special interest area, MA for management area, and GA for geographic area). The middle series of letters references the resource area, such as SOIL for soil resources. Reference plan components are the third series of letters. For example, GL for goal, DC for desired condition, OB for objective, ST for standard, and GD for guideline. Then a unique number for the specific component follows, using the numerical order starting with 01 for each resource area and component type.

For example, forest-wide direction for the first desired condition associated with wildlife would be identified as FW-WILDLIFE-DC-01. For designated areas, direction would be labeled by the abbreviation for the type of designated areas, followed by an abbreviation for the specific designated area name and then the component and numerical value abbreviation. For example, the first desired condition for Maple Canyon Geographic Area is identified as GA-MAPLE-DC-01.

Resource Area Acronyms

Table 1. Acronyms for each resource area alphabetized by acronym.

Component Acronym	Resource Area
AIR	Air Quality
ALPINE	Alpine
AQUATIC	Aquatic Ecosystems
BENM	Bears Ears National Monument
BYWAY	National Scenic Byway
CLIMATE	Climate Adaptation
CONIFER	Conifer
CULTURAL	Cultural/Heritage
DECIDUOUS	Deciduous

ELK	Elk Ridge Geographic Area
EWSR	Eligible Wild and Scenic River
FACILITY	Facilities
FIRE	Fire
FUELS	Fire Management and Fuels Mitigation Area
GBER	Great Basin Experimental Range
GBS	Great Basin Station
GEOLOGY	Geology and Paleontology
HERB	Herblands
HORN	Horn Mountain and Wildcat Knolls Management Area
INVASIVE	Noxious Weeds and Invasive Plant Species
IRA	Inventoried Roadless Areas
LAND	Lands
LEWIS	Mont E. Lewis Botanical Area
MAPLE	Maple Canyon Management Area
MINERALS	Minerals and Energy
MOAB	Moab Geographic Area
MWS	Municipal Watershed Management Area
NPM	Native Plant Materials
NR	National Register Sites
PINHOOK	Pinhook Battlefield
POLLINATOR	Pollinators
RANGE	Range
REC	Recreation
RWILD	Recommended Wilderness
RISK	At-Risk Animal Species
RISKPLANT	At-Risk Plant Species
RMZ	Riparian Management Zones
RNA	Research Natural Area
SCENERY	Scenery
SHRUB	Shrublands
SPARSE	Sparse or Non-vegetated
TIMBER	Timber
TRAIL	National Recreation Trails
TRANSITION	Transitional Ecosystems
TRANSPORT	Transportation
TRIBAL	Areas of Tribal Interest
VEGETATION	Vegetation Resources
WATER	Watershed Health
WATERSOURCE	Community Water Sources
WETLAND	Groundwater Dependent Ecosystems and Wetlands
WEEDS	Noxious Weeds and Invasive Plant Species
WILD	Wilderness
WILDLIFE	Wildlife
WOODLAND	Woodlands

1.1.3 What the Forest Plan Does Not Cover

The Forest Plan sets broad direction and direction for management of Forest resources but does not generally include site-specific direction for where future projects will occur or how many permits will be

issued. A revised Forest Plan provides updated management direction for the plan area, but it does not commit the Forest to any site-specific action, does not change boundaries set by legislation or rulemaking, and does not affect valid existing rights. Forest plans also do not affect any valid existing rights established by statute; therefore, this proposed Forest Plan does not include the following:

- **Direction about specific roads and trails.** Determinations about which roads and trails will be opened or closed to specific types of motorized and nonmotorized uses are not addressed at the Forest Plan level. However, the Forest Plan may provide context and guidance for future travel management decisions.
- **Authorization for oil and gas leases.** This proposed Forest Plan will not evaluate or make determinations about the suitability or availability of lands for future oil and gas leasing.
- **Designation of wilderness or wild and scenic rivers.** The formal designation of wilderness and wild and scenic rivers does not occur during plan revision because only Congress can perform these acts. The Forest Plan can result in the preliminary administrative recommendation of areas for wilderness designation or a determination of rivers or river segments that are eligible or suitable for wild and scenic river designation. Such Forest Plan recommendations or determinations do not guarantee either recommendation to Congress or formal designation by Congress, but they do influence Forest Plan guidance of how to manage the recommended areas in the interim.
- **Changes to designated inventoried roadless areas.** The boundaries of inventoried roadless areas defined by the 2001 Roadless Area Conservation Rule cannot be changed at the national forest level. The Roadless Rule can only be modified through a national rulemaking process or congressional action.
- **Numbers and types of permits.** Determining the number of livestock permitted to graze or the types and numbers of other types of permits is managed at the site-specific project level; however, the Forest Plan will establish desired conditions and other guidance in which permitted activities will need to be consistent.
- **Existing rights.** The National Forest Management Act does not authorize bypass flow or water right transfer requirements; rather, it directs the Forest Service to prepare management plans that provide for multiple uses and sustained yield of forest resources in accordance with the Multiple-Use Sustained-Yield Act of 1960. This act specifies that the national forests shall be managed for outdoor recreation, range, timber, watershed, and wildlife and fish purposes, and contains no grant of authority for bypass flow requirements to the Forest Service. The National Forest Management Act does not contain any other specific directives governing Forest Service management of water resources. The Forest Plan establishes desired conditions and other guidance for watershed management; however, it does not address administration of water rights.

1.2 Need to Change the Forest Plan

1.2.1 Based on the Legal and Regulatory Environment

There is a need to change the current Forest Plan to bring it into compliance with law, regulation, and policy. Some examples include:

- There is a need to revise the Forest Plan at least every 15 years (NFMA, 16 United States Code [USC] 1604(i)).
- There is a need to identify lands not suited to timber production (NFMA, 16 USC 1604(k))

- There is a need to inform the Forest Plan with the best available scientific information (2012 Planning Rule at Section 219.3).

1.2.2 Based on Resource Management Themes

There is a need to change the Forest Plan to address numerous resource management themes identified by monitoring, trends described in the assessment, and public, cooperating agency, and tribal comments. The Forest identified seven themes:

Recreation management

- There is a need for plan direction to guide the management of new and emerging technologies that may affect recreation opportunities and build enough flexibility in the Forest Plan that new technologies can be addressed.
- There is a need to account for increased recreation across the forest in both motorized and nonmotorized forms of recreation.
- There is a need to be responsive to changing trends in services, activities, and types of facilities desired by the public but to balance those with fiscal reality and impacts on natural resources.

Access and transportation infrastructure

- There is a need for new approaches for managing roads and trails, given the reality of limited maintenance funds, combined with the public's desire for access to the forest.

Watershed health

- There is a need to base plan components for water, soil, and aquatic ecosystems on specific watershed objectives.
- There is a need for the plan to be flexible under changing conditions, especially for impacts resulting from climate, wildfire, and insect and disease outbreaks.
- There is a need to develop standards and guidelines that improve watershed health by restoring vegetation cover and reducing erosion and sedimentation, for example, reclaiming temporary roads to their natural vegetation condition.

Forest vegetation management

- There is a need for the revised plan to provide direction for achieving sustainability and resiliency and for minimizing risks to vegetation and its composition and structure, including snags and downed woody material. This includes restoring natural disturbance cycles, such as those for fire and insects, where appropriate.
- There is a need to develop desired conditions regarding vegetation structure, composition, and function, as well as objectives, standards, guidelines, and management approaches that will promote ecological restoration, support resilience and sustainability, and minimize risks to ecosystem integrity.

Rangeland health

- There is a need for plan components to allow flexibility in rangeland management to react to changing conditions, such as drought and fire, and social and economic needs.

- There is a need for plan components that emphasize the restoration and conservation of native grass and forb species in ecological types consistent with the respective desired conditions.

Terrestrial and aquatic species habitat

- There is a need to incorporate multispecies and habitat-based plan components that are consistent with current science, for example, hiding cover and habitat security.
- There is a need to provide plan direction to manage diverse terrestrial, riparian, and aquatic habitat and population connectivity for species movement across the landscape.
- There is a need to allow for flexibility in wildlife habitat management components to consider natural disturbances, climate change, and changing management issues, both on and off Forest lands.

Energy and minerals management

- Minerals and energy management guidance is needed for locatable, hardrock, and placer minerals, leasable minerals such as conventional oil, gas and coalbed methane, as well as mineral material resources, and related transmission corridors.
- There is a need to review coal leasing unsuitability criteria and determine if any additional lands are unsuitable for leasing or if any previously identified suitable areas are now unsuitable. In addition, there is a need to incorporate estimates of remaining recoverable coal reserves, to review, clarify, and update coal stipulations, and to identify areas for withdrawal, as appropriate
- There is a need for desired conditions that address potential future proposals for transmission corridors and renewable energy generation, including wind, solar, biomass, and geothermal, while protecting natural resources, heritage and sacred sites, traditional tribal activities, and scenery.

1.2.3 Based on Social and Environmental Conditions

There is a need to change the Forest Plan to address social and environmental conditions that have the potential to affect the Forest. These are items that may not be under the agency's direct control but may influence its ability to effectively carry out its mission. The Forest identified six conditions:

- **Areas of tribal importance.** Maintain tribal partnerships to protect places, resources, and uses
- **Climate.** Monitor the effect of changing conditions on critical resources
- **Cultural and historic resources.** Reduce the effects of increased visitation and climate change on cultural resource condition through active management
- **Invasive species.** Mitigate establishment and spread through mapping, treatment, and monitoring
- **Wildfire.** Protect human health and safety while managing natural fire
- **Wildlife.** Avoid take of listed species and species of conservation concern while managing for multiple uses

1.3 Overview of the Forest

The 1.4 million-acre Manti-La Sal National Forest is in central and southeastern Utah and extreme western Colorado. The Forest lies within eight Utah counties: Carbon, Emery, Grand, Juab, San Juan, Sanpete, Sevier, and Utah, and two Colorado counties: Mesa and Montrose.

The Forest was set aside from public lands in three separate units: the Manti Forest Reserve created in 1903, the La Sal Mountains Forest Reserve created in 1906, and the Monticello Forest Reserve created in 1907. In 1908, the La Sal and Monticello Forests were combined and became known as the La Sal Forest. The Manti-La Sal National Forest was established in 1949 through the consolidation of the Manti and La Sal Forests.

The San Pitch Mountains, set aside in 1897 as part of the Uintah Forest Reserve which was the predecessor to the Ashley, Uinta, and Wasatch-Cache National Forests, were assigned to the Manti-La Sal National Forest for administration in 1974.

The Forest's geology and climate, past and present, shape the landscape. The San Pitch Mountains and Wasatch Plateau comprise the North Zone of the Forest, while the La Sal and Abajo Mountains, and surrounding NFS lands, comprise the South Zone. The climate varies from semiarid in the lower elevations to cool and semi-humid in the high elevations.

1.4 Distinctive Roles, Responsibilities, and Contributions

Nationally, the Manti-La Sal National Forest provides significant opportunities to see, learn from, and maintain traditional practices with outstanding landscape features and cultural resources. In addition, the Forest provides coal and other energy resources that make critical contributions to the total energy consumption in Utah and the western United States.

At a local level, the Forest encompasses ten counties within Utah and Colorado and contributes to local communities through economic returns to the counties, employment, public utility sites, wildfire protection, recreation and tourism opportunities, water resources, livestock grazing, and habitats important for native wildlife and plants. Counties also collect mineral lease royalties on their lands and receive allocated royalties indirectly from federal lands.

The description of the Forest's distinctive roles and contribution within the broader landscape reflects those things that are truly unique and distinctive (36 CFR 219.2(b)) about the plan area at the national, regional, and local scales. Understanding these roles and contributions will help illustrate realistic and achievable desired conditions for the Forest and set a focus for the plan when we look at where the Forest has been, where it is today, and future direction. Distinctive roles, responsibilities, and contributions are discussed in the Forest-wide resource direction below.

1.5 Management Philosophy

The Forest's management philosophy is to maintain or restore the structure, function, composition, connectivity, and productivity of natural ecosystems while providing for the social and economic needs of local communities and a larger public. The demand for sustainability and adaptability, and the social and economic needs of the user community, drive decisions and activities on the Forest.

We will best demonstrate the sustainable multiple-use management concept by managing for:

- The sustainability of healthy watersheds that occur within the national forest to promote the integrity of the Forest's ecosystems and associated plants and wildlife
- The social and economic components that are not separate from ecological systems when making land management decisions
- Being good neighbors who look for opportunities to work with various landowners and agencies adjacent to or near our boundaries

- The needs of our customers in fair, friendly, and open ways and to form partnerships to achieve shared goals
- The continuation of high professional and ethical standards using the best available scientific knowledge in making decisions while following laws, regulations, executive direction, and congressional intent

As we look to the future, we anticipate increasing population demands on forest resources, including forest ecosystems, water and watershed health, rangelands, infrastructure, and cultural, historic and tribal resources. We also anticipate an increase in wildfire occurrence and demand for a variety of resources, including water, recreation, and mineral and energy. The Forest will use an adaptive management strategy that will incorporate further integration of resource managers and the public to communicate, coordinate, and manage watersheds and landscapes to achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of people.

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2. FOREST-WIDE DIRECTION

2.1 Watershed and Aquatic Resources

See Also

Wildlife, At-Risk Animals, Soils, Vegetation Communities and Resources, Lands, Transportation, At0Risk Plants, Minerals and Energy Resources, Livestock Grazing and Range Management, Fire and Fuels Management, and Moab Geographic Area.

Description and Values

The emphasis on watershed management within the Forest Service began with the Organic Administration Act of 1897, which defined the key purposes of NFS lands to be forest health, timber, and for "securing favorable conditions of water flow." Today management of watersheds and aquatic resources, includes not only maintenance of water flow, but also water quality, and quantity for downstream communities, as well as maintenance of all the ecological components of a watershed including surface and subsurface water sources, soil, vegetation, and wildlife. Protection of water resources is recognized as a vital part of managing our national forests for ecological, economic and social sustainability.

Many of the communities surrounding the Forest rely, sometimes exclusively, on water contained within the many watersheds that are located partially or entirely on the Forest. Watersheds are managed to ensure that water quality meets or exceeds federal, Utah, and Colorado water quality standards. The Forest has 120 watersheds located completely on the forest and an additional 60 partially within the Forest boundary. Of the 120 that are entirely on the Forest, the majority are functioning properly and exhibiting high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. There are however some that are functioning at risk, due to moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. In addition to providing drinking water for local communities, these watersheds also provide water for agricultural and industrial purposes. To facilitate some of these purposes as well as recreational opportunities, numerous dams and canal systems are under permit to private, state, and other federal agencies.

The Forest contains aquatic ecosystems that consist of approximately 680 miles of streams and 1,765 acres of lakes and reservoirs. Streams on the Forest are headwater streams that carry water from the upper reaches of the watershed downstream to beyond the Forest boundary. Their ecological benefits include the maintenance of water quantity and quality, flood control, groundwater recharge, and habitat for plants and animals. Small streams, in their natural state, absorb a significant amount of rainwater and snowmelt, thus serving as flood controls. Some of this water recharges groundwater when water levels are high, such as during spring snowmelt. Streams also have economic value, such as providing water to the Huntington Power Plant. Fishing and other forms of water-based recreation also provide socioeconomic value.

Lakes and reservoirs are characterized by standing surface water that accumulates in landscape depressions that support aquatic flora and fauna. The lakes and reservoirs on the Forest contain fresh water and provide desirable functions, such as water supply and storage, flood regulation, ecosystem benefits, and recreation opportunities. While providing many benefits, reservoirs also adversely affect aquatic organism passage, because many stream reaches are now impounded and no longer function for passage. Both lakes and reservoirs are also susceptible to riparian vegetation loss, changes in water chemistry, and invasive species; these are all primarily due to their high recreational demand.

Goals (FW-WATER-GL)

01 Continue to work with private, state, and other federal agencies to permit a variety of water uses as appropriate to maintain the health of watersheds on the Forest.

02 Obtain and maintain water rights on federal lands in compliance with state and federal water laws.

03 Work with partners and cooperators, to manage aquatic ecosystems in order to support the water quantity and timing of flows, water quality, and geomorphic processes associated with these features.

04 Water flows and water diversion structures, where applicable, will be maintained to meet the needs of water users and support in-stream flows subject to existing water rights.

Desired Conditions (FW-WATER-DC)

01 Disturbance features reflect inherent watershed stability.

02 Watersheds support water quality and quantity, for both surface water and groundwater, at levels that preserve the biological, physical, and chemical integrity of the ecosystem in which they occur. The water sourced from watersheds benefits the survival, growth, and reproduction of aquatic species and produce high-quality water for downstream communities dependent on them. Surface and groundwater sustain native riparian and aquatic vegetation, and soil moisture characteristics.

03 Natural patterns of connectivity are prevalent within or between watersheds. Lateral, longitudinal, and vertical drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These networks provide unobstructed physical passage and nutrient transport for sustaining healthy populations of aquatic, riparian, and upland species of flora and fauna.

04 Streams are in equilibrium with their water and sediment supplies for their natural range of variation. Stream flow regimes maintain natural channel and floodplain dimensions. Floodplains are accessible, and sediment deposited from over-bank floods allow for floodplain development and the propagation of flood-dependent riparian plant species. Surface and groundwater flows provide late-season stream flows and cold-water temperatures and sustain the function of surface and subsurface aquatic ecosystems. The sediment regime for water bodies with regards to the timing, volume, rate, and character of input, storage, and transport are within the natural range of variation.

05 Water rights may be required for consumptive and non-consumptive water uses on NFS land. Water rights are obtained and maintained pursuant to state and federal law and policy. Third-party water use may require a use and occupancy authorization, such as a special use permit or a grazing permit, in order for privately held water rights to be put to beneficial use. Springs are managed to meet demands of water rights and users.

06 Water quality, including groundwater meets, exceeds, or is moving toward, state and federal standards, and fully supports designated and existing beneficial uses, where attainable. Aquifers possessing groundwater that provide designated beneficial uses maintain water quality at natural or background levels.

07 Ensure that management activities, permitted uses, and structural developments, including but not limited to livestock water gaps, pipelines, or other infrastructure occur at levels or scales that move toward desired conditions for water, soils, and vegetation.

08 Sediment, nutrient, and woody debris movement are present to support a sustainable and resilient system and associated species.

09 Water bodies on the Forest are resilient to human and natural disturbances and changing climatic conditions across the landscape.

10 Conservation pools and, as appropriate, recreation facilities are available to meet resource protection needs in projects for new reservoir construction or reconstruction of existing reservoirs.

11 Aquatic habitats are connected and support species migration, connectivity of fragmented populations, and genetic exchange except when barriers to movement are located to protect native species, such as fish, from nonnative species.

12 Invasive aquatic species and introduced pathogens are either absent or low enough in abundance that ecological processes, habitat quality, and the viability of native species remain undiminished.

13 Aquatic habitats are available to support and sustain plant and wildlife species, including at risk species.

14 The timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, except when precluded due to existing water rights, in intermittent and perennial streams and springs, to sustain a diversity of species, ecosystems, and uses.

15 Aquatic species habitat within stream channels is characterized by riffles, runs, and pools that occur at frequencies and with dimensions reflective of the climate, geology, and natural vegetation of the area.

16 Forest management supports in-stream flows, and creates and sustains riparian, aquatic, and wetland habitats with self-sustaining populations of native and nonnative fish and associated riparian plant and wildlife species.

17 The distribution and condition of watershed ecosystems provide migration, breeding, feeding and sheltering opportunities for a wide range of terrestrial, amphibian and avian wildlife and forage for sustainable livestock grazing.

Objectives (FW-WATER-OB)

01 Move a minimum of six Class 2 watersheds into Class 1 watershed condition over the life of the plan.

02 Collect baseline groundwater and surface water quantity and quality data in areas where impacts on these resources could occur to determine their natural range of variation within 1 year of site-specific project decision.

Guidelines (FW-WATER-GD)

01 In watersheds where 303(d) listed water bodies exist, management activities should assist in achieving water quality standards.

02 Ungulate trampling does not significantly increase bulk soil density between years nor change the structure of plant communities around lakes and natural ponds.

03 Management activities in and around waterbodies shall use decontamination procedures to prevent the spread of undesirable fungus, disease, and nonnative and/or invasive biota.

04 Aquatic invasive species are controlled, or eradicated when possible, and establishment of new populations is prevented. Developments or new infrastructure should not fragment aquatic habitat, or adversely impact hydrologic connectivity.

05 New or reconstructed water developments or impoundments should retain water at the source and allow some natural overland flow to maintain spring function; they should be designed to prevent animal entrapment and to facilitate animal escape.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Incorporate multiple resource values, including water, soil, aquatic, and riparian ecosystems while supporting continued use by wildlife, livestock, recreation, communities, and irrigation users.
- Prioritize minimizing the disturbance of streams by using techniques such as, buffering watercourses from management activities, increasing coarse woody debris in channels to capture sediment, and changing stream channel gradients to address sediment sources at stream crossings.
- Consider sediment impacts when authorizing all management activities and permitting activities
- Allow beaver activity along streams while managing potential impacts to existing infrastructure
- Prioritize vegetation and watershed management activities in riparian areas that face the most risk from large-scale, high-severity fire and past fire exclusion or accelerated flooding events
- Use the Watershed Condition Framework to identify watersheds at risk and prioritize those for restoration activities and projects.
- Use best available science to interpret data and develop better watershed management practices.
- Review and adapt management techniques as data about watershed conditions becomes available.
- Focus monitoring on understanding both ground and surface water connectivity, and the natural range of variability, of their flows and chemistry.

2.1.1 Community Water Sources

See Also

Municipal Watershed Management Area, and Moab Geographic Area.

Description and Values

This section applies to watersheds, sole source aquifer recharge areas, and Category 1 Watersheds, as identified by the Utah Department of Environmental Quality that directly supply water to adjacent municipalities, and communities. Many municipalities just outside the forest boundary rely upon water originating on the forest for their culinary, agricultural and industrial water needs. These community water source areas include watershed areas not specifically designated as municipal watersheds that provide untreated water from springs, streams, rivers, and lakes that are used to supply public drinking water. While no formal, written agreements exist between the Forest Service and municipalities, the Manti-La Sal recognizes that some acres on the forest are valuable to ensuring a high-quality water supply is maintained and available to surrounding communities.

Goals (FW-WATERSOURCE-GL)

01 Work with local communities whose watersheds originate on, or occur within, the plan area to identify opportunities to coordinate and implement watershed health monitoring and improvement projects.

02 Coordinate management of the municipal watershed with the State of Utah, and the appropriate municipality or community.

03 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.

04 Forest users and adjacent community members understand how their actions affect watershed functions and are knowledgeable of the importance of the municipal drinking water ecosystem service provided by the Forest.

05 Promote *leave no trace* principles in all educational or informational materials relating to community water sources.

Desired Conditions (FW-WATERSOURCE-DC)

01 Lands that contribute to community water sources are in a condition that contributes to consistent delivery of clean water, meets the supply need of users, and meets or exceeds State of Utah water quality standards.

02 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.

03 State of Utah 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 Utah 303(d) list, move toward fully supporting State-classified uses.

04 Long-term water supply is maintained through promotion of forest health and vegetation conditions reflective of the natural range of variability for the habitat type.

05 Forest structure does not support watershed scale high intensity, stand-replacing fires, and is resilient to potential forest insect and disease outbreaks, through maintenance of age, size class diversity, and species diversity.

06 To protect the water supply, the fire regime trends toward condition class one to reduce the potential for stand-replacing wildland fires.

Objectives (FW-WATERSOURCE-OB)

01 Annually meet with stakeholder communities whose water sources lie partially or fully within the Forest boundary.

02 Within five years of plan approval, identify municipal water sources at risk for degradation.

03 Over the life of the plan, trend at least 15 percent of at-risk community water sources toward improved watershed conditions, including their chemical, physical, and biological attributes, based upon the Watershed Condition Framework or other accepted protocols.

Guidelines (FW-WATERSOURCE-GD)

01 Management actions should not cause long-term degradation to community water resources and should be undertaken for the purpose of maintaining or enhancing the public water supply. Short-term effects from activities may be acceptable when those activities support long-term benefits to water quality.

02 Vegetation activities should be conducted to minimize the probability of large-scale disturbances, such as insect and disease outbreaks, and stand-replacing wildfire.

03 To reduce impacts to community water sources, temporary roads should not be built unless to meet community water source protection needs. Close, rehabilitate, and reclaim all roads after resource needs are met.

04 To protect the clean drinking water supply, new trail construction should not cross streams. If they must cross, mitigate for sediment and erosion introduction to the stream.

05 Timber production is not suitable but may be acceptable for protection or enhancement of the community water source desired conditions.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize producing water and protection of municipal and community water infrastructure.
- Prioritize watershed and water supply where and when resource management conflicts do occur.
- Promote land use activities that do not degrade the water quality or disrupt the water source area.
- Emphasize vegetation treatments that promote long-term development, and maintenance of multi-age stands.
- Promote actions to improve watershed conditions including rehabilitating areas to reduce erosion and sedimentation delivery to waterbodies, improving 303(d) listed streams, and other passive or active restoration efforts.

2.1.2 Riparian Management Zones

See Also

Watershed and Aquatic Resources, Timber Management, Vegetation Communities and Resources, Fire and Fuels Management, Livestock Grazing and Range Management, and Recreation and Access.

Description and Values

Riparian areas are the richest habitat type in terms of species diversity and wildlife abundance in Utah. Riparian ecosystems are often characterized by unique and diverse vegetation communities and frequently occur along watercourses or water bodies in a variety of landscapes. They provide many functions for the greater ecosystem. These include floodwater retention and dispersal, sediment and chemical filtering, stream temperature and climate regulation, input of organic material including large wood and litter, nutrient cycling, and soil and streambank stabilization. Riparian vegetation is valued as critical wildlife habitat; therefore, the distribution of riparian ecosystems is important to watershed function and habitat connectivity on the Forest.

Resources directly associated with these habitats include aquatic macroinvertebrates, fish, amphibians, reptiles, and a variety of terrestrial species. These habitat components can be adversely affected by improper grazing by livestock or big game, roads, recreation, invasive plant species, water developments, and drought.

Goals (FW-RMZ-GL)

01 Work with federal, state and local cooperators to prioritize and restore riparian management zones.

02 Coordinate any relocation of beavers with the Utah Division of Water Resources by referring to the Beaver Restoration Assessment Tool model and selecting those sites where beavers would be a viable restoration tool.

Desired Conditions (FW-RMZ-DC)

01 Upland watershed, soil, and vegetation conditions contribute to healthy, resilient riparian areas, wetlands, and stream channels.

02 Riparian ecosystems and their associated plant community compositions provide key functions, including streambank stability, sediment retention, temperature regulation, floodplain function, as well as proper groundwater recharge, storage, delivery and water table maintenance.

03 Riparian ecosystems are resilient and withstand disturbance from natural and management activities, including flood, fire, drought, changes in timing and frequency of runoff, recreation, grazing, and in-stream developments.

04 Riparian areas meet the needs of resident aquatic species, terrestrial species, and migratory birds.

05 Plant communities along natural perennial waterbodies are stable healthy, vigorous, and self-perpetuating with a diverse composition of desired species that includes key herbaceous and woody plants. These areas are dominated by rocks and logs, or deep-rooted hydric species, that anchor the soil and limit excessive erosion. Dominance is when greater than or equal to 60 percent of greenline capability groups are functioning properly.

06 Invasive plant species are absent or in low abundance within riparian management zones.

07 Density and structure of riparian vegetation provides site-appropriate shade to regulate temperature in streams.

08 Moving water streams and springs, are in proper functioning condition with vegetation, landforms, or large woody debris present to dissipate stream energy associated with high water flows including but not limited to five to twenty-five year events.

09 Riparian management zones capture, store, and release water, sediment, coarse wood, and nutrients, and function as habitats that support diverse populations of native aquatic species.

Objectives (FW-RMZ-OB)

01 Over the planning period, restore at least 300 acres of riparian areas or associated wetlands.

02 Complete a minimum of 25 acres of aquatic habitat restoration every 5 years for the life of the plan to benefit aquatic habitat for At-Risk Plant and At-Risk Animal species.

03 Improve or restore a minimum of 50 stream-miles for aquatic species habitat every 5 years.

Guidelines (FW-RMZ-GD)

01 Default riparian management zones slope distance widths, around lakes, perennial and intermittent streams, and open water wetlands giving *special attention* to the land and vegetation in the closest 100 feet from perennial waterbodies should be as defined in Table 2. These widths may vary based on site-specific ecological or geomorphic factors or type of water body; and will apply unless replaced by a site-specific delineation of the riparian area. Deviation from default widths would require supporting documentation of the rationale. Buffers could change based on the results of baseline monitoring.

Table 2. Default slope distance, in feet, of riparian management zones by type of waterway.

Waterway Type	Slope distance in feet
Perennial streams, natural ponds, lakes, wetlands, seeps, springs, and reservoirs	150[a]
Intermittent seasonally flowing channels and waterbodies supporting riparian vegetation	100[a]
Ephemeral stream channels and waterbodies, unstable or potentially unstable areas	50

[a] or the outer edge of riparian vegetation, whichever is greater.

02 National Core best management practices and site-specific mitigation measures should be incorporated for management activities within the riparian management zones to ensure protection of water resources, geomorphic features, and vegetation characteristics.

03 Vegetation management, including but not limited to fuels reduction and wildlife habitat enhancement, should only occur to maintain or enhance the riparian management zone.

04 Pesticides and other toxic chemicals should only be applied in riparian management zones if needed to maintain, protect, or enhance aquatic and riparian resource values or to restore native riparian/aquatic species. Any exceptions would require consultation with Forest Service watershed or fisheries personnel. Use shall be consistent with label instructions and forest pesticide use plans.

05 Refueling activity, equipment maintenance, and storage of fuels and other toxic chemicals should be located outside of riparian management zones to minimize effects on aquatic resources. If refueling, equipment maintenance or storage sites are needed within riparian

management zones, the locations must be approved by the Forest Service and have an approved spill containment plan that includes appropriate containment provisions.

06 Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should not occur in mapped aerial retardant avoidance areas in order to protect terrestrial and aquatic resources associated with riparian management zones.

07 Management activities, including but not limited to grazing, motorized use, and dispersed camping, should only occur when they cause minimal streambank vegetation loss and canopy cover loss.

08 Sand and gravel extraction at new sites should not occur within riparian management zones to protect terrestrial and aquatic resources associated with these areas. Exceptions may occur for trail work.

09 Downed woody material in stream channels should be retained, to improve channel morphology, except where safety is a concern.

10 New, replacement, and reconstructed crossing sites, including but not limited to culverts, and bridges, of fish bearing streams should allow for aquatic organism passage unless a barrier is desired for native aquatic species management.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize management and monitoring in riparian areas that face the most risk from large-scale, high-severity fire, have experienced past fire exclusion, or are at risk from accelerated flood events associated with climate change, mass wasting, ungulate grazing, recreation, or other disturbances.
- Consider the following techniques to restore riparian management zone aquatic habitats: invasive species treatment, noxious weed treatment, increasing pool quantity, providing stream cover, and improving fish passage.

2.1.3 Groundwater-Dependent Ecosystems and Wetlands

See Also

At-Risk Animals, At-Risk Plants, Minerals and Energy Resources, Vegetation Communities and Resources, Fire and Fuels Management, Livestock Grazing and Range Management, Wildlife, Recreation and Access, and Soil Resources.

Description and Values

Groundwater-dependent ecosystems are communities of plants, animals and microorganisms that rely on the availability of groundwater to maintain their current structure and function. Wet meadows, fens, springs, and seeps are all examples of groundwater-dependent ecosystems occurring on the Forest.

A wetland is an ecosystem that depends on constant or recurrent shallow inundation or saturation at or near the surface of the substrate. Wetlands are landscape features that are often wet but not necessarily wet year-round. Wetlands are unique because of their hydrologic conditions and their role as

ecotones between terrestrial and aquatic systems. Three common diagnostic features of wetlands are hydric soils, hydrophytic vegetation, and the presence of water either permanently or seasonally. Types of wetlands that exist on the Forest include nontidal marshes, wet meadows, and fens.

Fens are a type of wetland where the water table is at or near the ground surface for most of the growing season on most years, which results in a substrate that is poorly aerated with inundation lasting long enough to encourage plants that exist in wet and often reducing conditions The long duration of anaerobic conditions limits the decomposition of plant material, and over time organic matter may accumulate to form peat soil (USDA 2019).

On the Forest, wetlands occur primarily in glaciated terrain and are frequently associated with glacial moraines, slide areas, and faults. The highest density of wetlands occurs within the fault valleys of the central Wasatch Plateau, followed by the southern Wasatch Plateau. Wetlands also frequently occur on the glacial moraines and slide areas of the La Sal Mountains and in the landslide terrain of the Abajo Mountains.

Goals (FW-WETLAND-GL)

01 Conduct spring restoration projects in partnership with interested tribes.

Desired Conditions (FW-WETLAND-DC)

01 Wetlands support unique plant and animal species that are characteristic of historical conditions and are not fragmented by new infrastructure and development.

02 Where possible, groundwater-dependent ecosystems, with perennial streams, contain a diversity of age classes of hardwood shrubs along the stream bank.

03 Groundcover species composition in wetlands represents healthy condition class, species richness, and diversity.

04 Groundwater-dependent ecosystems continue to provide important ecological functions. They persist in size and exhibit water table elevations within their natural range of variation.

05 Groundwater-dependent ecosystems and wetlands maintain the necessary soil, hydrologic and vegetative conditions to provide for the storage, purification and release of water, the storage of carbon, and they serve as suitable habitat for rare or uncommon, terrestrial and aquatic species.

06 Seeps and springs are healthy and functioning across the Forest. This includes supporting the water flow, recharge rates, and geochemistry necessary to maintain essential ecological functions.

07 Groundwater-dependent ecosystems and groundwater aquifers persist in size, seasonal and annual timing, and water table elevation within seasonal variability in order to maintain biodiversity of vegetation and wildlife.

08 Ensure fens have the necessary soil, hydrologic, water chemistry, and vegetation conditions to provide for continued fen development and resilience to changes in climate and other stressors.

Objectives (FW-WETLAND-OB)

01 Restore native vegetation and natural water flow patterns on at least five acres of wetlands every five years.

02 Field validate the Forest Fen report within ten years.

03 Restore or improve groundwater-dependent ecosystem hydrologic and ecological function on a minimum of one acre every five years to provide ecological conditions suitable for At-Risk Plant and At-Risk Animal species.

04 Improve at least one water resource feature every five years.

Standards (FW-WETLAND-ST)

01 To protect groundwater-dependent ecosystems and wetlands, new road and trail development shall not be authorized.

Guidelines (FW-WETLAND-GD)

01 Roads and trails should be rerouted or closed, where impacts to the groundwater-dependent ecosystems and wetlands cannot be mitigated, unless rerouting or closing them would create further impacts to this or other resources.

02 Ground-disturbing vegetation treatments in fens should only occur in order to restore or enhance aquatic and riparian associated resource conditions.

03 Projects should be designed to avoid affecting the function or ecological services of groundwater-dependent ecosystems, wetlands, and fens.

04 Chemical retardant, foam, or other fire chemicals and petroleum should not be applied aerially in mapped aerial retardant avoidance areas, to protect groundwater-dependent ecosystems and wetlands.

05 Tribes should be consulted with early in project development where management activities are proposed within groundwater-dependent ecosystems and wetlands.

2.2 Air Quality

Description and Values

There are two primary types of air quality effects concerning the Forest. First, the effects of regional air pollution on Forest natural resources and human health of the surrounding communities and second the effects of Forest emissions on Forest natural resources, human health, and regional air sheds.

Air pollution affects the natural quality of Forest lands and surface waters. It is often of concern in wilderness areas, where maintaining wilderness character is mandated by the Wilderness Act. High ozone concentrations can injure sensitive vegetation. Fossil fuel burning emits sulfur dioxide and nitrogen oxides into the atmosphere. Certain types of agricultural activities emit ammonia to the atmosphere. Such emissions can lead to atmospheric deposition of sulfuric acids, nitric acids, and ammonium to Forest ecosystems. Atmospheric deposition can cause lake body acidification, eutrophication, and hypoxia; soil nutrient changes; and vegetation impacts. Deposition of toxic metals, such as mercury and lead, can be harmful to both aquatic and terrestrial ecosystems. Visibility in the Forest can be obscured by anthropogenic haze of fine pollutant particles during certain times of the year. In addition, the Clean Air Act requires Forest Service operations and permitted operations, such as prescribed burning, fossil fuels development and production, and mining, to comply with the following: National Ambient Air Quality Standards for listed criteria pollutants, such as ozone and particulate matter, National Emission Standards for hazardous air pollutants; and protection of Air Quality Relative Values in nearby Class 1 wildernesses and national parks.

Goal (FW-AIR-GL)

01 Work with federal, state, and tribal partners to meet applicable air quality requirements.

02 Coordinate with local and regional partners to reduce cumulative air quality impacts prior to planned ignition activities, to avoid smoke impacts on public health and safety.

03 Coordinate with the States of Utah and Colorado on improving air quality conditions in designated nonattainment areas.

04 When Forest wildfire smoke has the potential to affect public health or safety, coordinate with federal, state, and tribal partners to monitor and communicate possible smoke impacts on public health, particularly for sensitive populations.

05 Continue monitoring of air quality through lichen collection and testing with federal agency and university partners.

Desired Conditions (FW-AIR-DC)

01 Ambient air quality on the Forest meets or surpasses federal and state standards.

02 Forest resources are protected from harmful impacts of air pollutants, such as ozone injury, excess fertilization and acidification from air pollutant deposition, and visibility reduction.

03 Good air quality supports human and ecosystem health and long-term quality of life. It enhances visibility and the aesthetics of the planning area over the long-term.

Guidelines (FW-AIR-GD)

01 Management activities should protect human health and meet state regional haze goals, while avoiding adverse impacts on identified Air Quality Relative Values at nearby Class I areas.

02 Critical loads should not be exceeded, unless best management practices and appropriate control technology can be implemented to reduce those pollutants.

03 Evaluation of whether Air Quality Relative Values exceedances have occurred or are forecasted to occur should be completed before implementation of management actions likely to affect air quality.

04 Dust abatement should occur during construction and road projects where dust is a potential effect.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on establishing strategies to ensure that management activities do not cause or contribute to violations of the standards in nonattainment areas.
- Prioritize working with federal, state, and tribal partners to monitor smoke impacts. This may include installing air quality monitoring equipment, as needed, to provide air quality information and messaging to the public and regulatory agencies.

2.3 Soil Resources

See Also

Watershed and Aquatic Resources, Timber Management, Minerals and Energy Resources, Vegetation Communities and Resources, Fire and Fuels Management, and Livestock Grazing and Range Management.

Description and Values

Soils are unconsolidated mineral and organic materials that support plants, making them the basis of terrestrial ecosystems. Soils contain nutrients, minerals, carbon, air, and water and are habitat for many organisms, including bacteria, fungi, algae, and multicellular plants and animals.

Soils help determine what plant communities can be supported and are important for maintaining healthy watersheds. Soils store, purify, and transmit water, as well as store and cycle both nutrients and carbon. Interactions between plants and soil are continual. Soils of high quality can support productive plant communities. Likewise, productive plant communities sustain soils by providing cover, root support, plant litter, coarse and, woody materials, and organic matter. Soil erosion is driven by inherent conditions and natural occurring events. Healthy soils support effective ground cover which in turn prevents or minimizes sheet, rill, and gully erosion. Physical, biological, and chemical properties of soils support nutrient cycling, maintain the role of carbon storage, and support soil microbial and biochemical processes.

Desired Conditions (FW-SOIL-DC)

01 Soil quality, condition, and productivity are stable, or improving, allowing soil resources to maintain key ecological functions.

02 Sensitive and highly erodible soils and land types with mass failure potential remain stable.

03 Biological crusts are healthy and present where natural site conditions allow, improving nutrient cycling and soil stabilization.

04 Accelerated soil erosion is minimal, short-term, or the result of the erosive properties of the parent material.

05 Enough protective ground cover, based on soil types and site potential, is present on desert shrub, upland, montane, subalpine, alpine, and other landscapes.

06 Coarse, woody debris, with a minimum diameter of 3 inches, is present to maintain soil conditions, wildlife habitat, and serve as a carbon sink.

Guidelines (FW-SOIL-GD)

01 Ground disturbing management activities on landslide-prone areas should be avoided unless site-specific analysis indicates an ability to maintain soil and slope stability.

02 During projects with planned ignitions, soil moisture levels should be adequate based upon best available science to help prevent adverse burn severity to soils and associated mycorrhizae.

03 To protect soil function, construction of linear features including but not limited to trails and roads should only occur where displacement and compaction can be avoided.

04 To protect well-developed biological soil crusts, in areas where site conditions are likely to support biological soil crusts, ground-disturbing activities should only occur after a site-specific soil analysis has determined well-developed soil crusts can be maintained.

05 Ground cover should be retained at appropriate levels based on the site-specific vegetation community, slope and soil textures.

2.4 Geologic and Paleontological Resources

Description and Values

The Manti-La Sal National Forest is home to diverse geologic resources including dramatic canyons, plateaus and cliffs as well as paleontological resources from dinosaur tracks and bones to mammoths. This rich geologic history and diversity attracts scientists and researchers as well as recreationists to the Forest. While many visitors come specifically seeking geologic resources, namely the paleontological ones, many visitors are drawn to the Forest for the vegetative, wildlife and cultural resources all of which are built on the geologic resource foundation, quite literally underlying them all. The cliffs and canyons of sandstone and sedimentary materials allowed human habitation, agriculture and wildlife to survive in many parts of the Forest. Likewise, the unique alpine talus and scree, as well as limestone and geomorphologic processes have produced seeps and springs that serve as habitat for At-Risk Plants and At-Risk Animals. The beauty of the La Sal Mountains rising as an igneous mountain range above the surrounding flat-topped mesas, and the vistas along the Skyline Trail with long views across and into surrounding valleys are valued recreational experiences and opportunities, all the result of the faulting, folding and geomorphologic activity in the area. The coal seams and deposits, as well as other minerals have served as the backbone of many local economies, all influencing how people experience and interact with the Forest. Without the geologic underpinnings of the Forest, other resources, ecological, social and cultural would not be possible.

Sedimentary rocks dominate the Forest, but inclusions of igneous intrusions are present. The North Zone's geology is primarily related to two plateaus, the Wasatch and Gunnison. In contrast, the South Zone's geology is primarily related to four distinct geographical features: high mountain areas, pediment slopes, mesas, and canyons.

Rock formations on the Wasatch Plateau, are predominantly sedimentary, ranging in age from the upper Cretaceous Period to lower Eocene Epoch. The stratigraphic units include the Mancos Shale through the Green River Formations. They consist mostly of sandstone and shale, but they also include beds of conglomerate, limestone, and siltstone, with a combined thickness in the plateau in excess of 10,000 feet. The rock strata generally tilt at low angles, with a few locations lying nearly flat. The eastern margin of the plateau is formed by an abrupt wall of barren cliffs and steep slopes, broken by large V-shaped canyons, creating the highland rim of the Colorado Plateau Region. This escarpment is formed entirely by erosion, except for a small area near the town of Emery, where faulting is evident. Rock layers of the western margin of the plateau warp downward less abruptly toward the Sanpete and Sevier Valleys, forming a monoclinal fold. The Gunnison Plateau is part of the eastern margin of the Great Basin geographic province, where rock units tend to be complexly folded. Faulting in the area is common, and most tend to be normal faults. Elevations range from approximately 5,600 feet in Sanpete Valley to 9,000 feet at the top of the plateau. Sedimentary strata exposed in the area range from the Jurassic to Tertiary Period in age.

The North Zone has the highest concentration of landslides on the Forest, including some of the largest naturally occurring landslides in the United States. Landslides on the Wasatch Plateau are typically triggered under conditions of high precipitation or percolation rates associated with record snowpack

and rapid melting, soil saturation which decreases effective porosity, and rapid spring runoff. When these factors occur simultaneously, the potential for large landslides increases, thereby increasing the risk to people, roads, and other facilities on the Forest.

On the South Zone, elevations range from approximately 6,000 feet to nearly 13,000 feet. Sedimentary strata exposed on the La Sal Division range from Pennsylvanian to Quaternary in age and overlie approximately 4,000 feet of unexposed Paleozoic sedimentary strata that rest on Precambrian crystalline rocks. The regional structure of the Moab District is controlled by the regional Uncompahgre Uplift 25 miles north of the La Sal Mountains. The regional structure of the Monticello Ranger District is mainly controlled by the Monument Upwarp, a broad low arch, and to a lesser degree by the Comb Monocline. The north ends of both structures are in the Elk Ridge area of the Monticello District. The geology of both districts is influenced by the igneous intrusive rocks that formed the La Sal and Abajo Mountains and deformation caused by the flowing of salt and gypsum deposits.

Fossils are found in nearly all of the sedimentary rock formations exposed on the Forest, including the unconsolidated Quaternary deposits, as evidenced by the discovery of mastodon bones in the sediments of an ancient natural pond. The Forest has contributed to important paleontological discoveries, with dinosaur, early mammal, and Pleistocene mammal assemblages. Most noteworthy is the Huntington mammoth, which lived about 10,500 years ago and is one of the most complete specimens ever found in North America; it is among the world's most replicated mammoth skeletons.

The North Zone's North Horn Formation is renowned for its unique and important fossil mammals, dinosaurs, and lizards from the Cretaceous through the Pleistocene Periods. The North American Land Mammal Age, known as the Dragonian, was originally described from fossil mammals found in the North Horn Formation. Recent discoveries indicate the potential for significant future studies in this formation. The known fossil-producing portions of the North Horn Formation are found only in the Forest.

The South Zone's Morrison and Chinle Formations are also known worldwide for their fossilized dinosaurs, reptiles, and plants. The La Sal District is renowned for its theropod tracks at the Bull Canyon Dinosaur Track interpretive site. Other formations on the Forest likely to contain significant paleontological resources are the Dakota, Price River, Green River, and Blackhawk Formations.

Goals (FW-GEOLOGY-GL)

01 Collaborate with nonfederal partners, the scientific community and the public on inventorying, monitoring, and preserving geologic and paleontological resources.

02 Work with qualified scientists and researchers to collect and curate scientifically important paleontological resources. The Forest will make paleontological resources available to these interested parties as appropriate.

Desired Conditions (FW-GEOLOGY-DC)

01 The Forest is available for geological research, and geological resources are available for study.

02 Preservation and research efforts for paleontological resources will be proactive, seeking collaboration with nonfederal partners, the scientific community, and the general public to identify, interpret, and study these resources.

03 Geological hazards, such as landslides, floods, and sinkholes, and the associated risks to public health and safety, facilities, and infrastructure are identified, mapped and mitigated.

Objectives (FW-GEOLOGY-OB)

01 The Forest will develop a paleontological guide to the Forest within the life of the plan.

02 Work with partners to update the Forest Landslide Risk Model annually.

Standards (FW-GEOLOGY-ST)

01 Ground-disturbing activities shall not be authorized in areas with known paleontological resources.

02 Identified geological hazards that pose a threat to public safety shall be mitigated within three years of identification.

03 Infrastructure, including facilities and roads, shall not be developed in areas of high potential geologic hazards or landslide prone areas.

Guidelines (FW-GEOLOGY-GD)

01 Information about and locations of paleontological resources and fossil sites should not be publicly disclosed or promoted, advertised as available for public use, or shown on maps, signs, or brochures unless measures are developed to manage recreational use and adequately protect the associated resources.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize use of and updates to the Forest Landslide Risk Model. This model identifies geologic hazards, such as landslides, floods, and sinkholes, and the associated risks to public health, safety, facilities, and infrastructure.

2.5 Climate Adaptation

Description and Values

Changes in precipitation and temperature regimes and their inherent variability in the Intermountain Region are a source of dramatic changes on the landscape. In the region, greenhouse gases, temperatures, and community water needs are projected to continue an upward trajectory (USDA 2016f). Climate projections indicate warming temperatures, throughout vast areas of the Intermountain Region (R4 IAP 2018). With warming temperatures, more precipitation is expected to fall as rain rather than snow, changing the amount and timing of water availability. The specific implications of changes in amount and timing of precipitation on the structure and function of ecosystems is not precisely understood. But there is an expectation that adjustments to prioritize management actions may be necessary to respond to these changes. Additionally, where actions are necessary to respond to vulnerabilities of resources and landscapes will also need to be considered to make management actions effective and responsive. Therefore, while many components in other resource areas complement current management strategies for climate adaptation responses, adjustments in the future may be necessary.

The Intermountain Adaptation Partnership identified climate change issues relevant to resource management on Federal lands in Nevada, Utah, southern Idaho, eastern California and western Wyoming, in the General Technical Report "Climate change vulnerability and adaptation in the Intermountain Region" (Halofsky et al. 2018). This vulnerability assessment includes strategies intended to help minimize the effects of climate change through adaptation strategies and approaches in key resource areas. This assessment also provides important information that may help the Manti-La Sal National Forest adapt to changing conditions. These conditions include climate change and improving resource management on the Forest.

Goals (FW-CLIMATE-GL)

01 The adaption strategies and approaches, described in Chapter 14 of the Intermountain Adaption Partnership vulnerability assessment "Climate change vulnerability and adaptation in the Intermountain Region," (Halofsky et al. 2018) are considered in the development and design of projects and activities for resource management on the Manti-La Sal National Forest.

02 Use the Global Observation Research Initiative in Alpine Environments or similar forest service national protocol to monitor and research alpine environments response to climate change.

Desired Conditions (FW-CLIMATE-DC)

01 Biological and genetic diversity exists across the forests, and within ecosystems, at levels that can sustain, resist or adapt to changing climate dynamics without total species or habitat loss.

02 Vegetation community structure, density, and composition is diverse enough to sustain, resist, or adapt to changing climate dynamics including but not limited to fire pattern and regime changes as well as droughts and floods.

Objectives (FW-CLIMATE-OB)

01 Within five years of plan decision, identify and establish alpine sites on the forest to contribute to nationwide research on alpine environment response to global climate change. Conduct baseline data collection at these sites and remeasure at the sites every five years for the life of the plan.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Consider the potential impact that a changing climate may have on ecosystems during project analysis.
- Prioritize increasing resilience and resistance in ecosystems that have been identified as having the highest sensitivity and the least adaptive capacity to climate change. These ecosystems are dry sagebrush types, tall and short forb communities, alpine, fen and low-elevation riparian areas and wetlands, and dwarf sagebrush.
- Promote landscape connectivity
- Prioritize creation of refugia across the forest ecosystems

2.6 Vegetation Communities and Resources

See Also

Wildlife, At-Risk Animals, At-Risk Plants, Fire and Fuels Management, Livestock Grazing and Range Management, Recreation and Access, and Soil Resources.

Description and Values

Vegetation resources on the Manti-La Sal include both forested and non-forested ecosystems and habitats as well as the vegetation community types associated with each of these broad ecosystems. These ecosystems support a variety of associated natural resources, recreation, and ecosystem services. Ecological conditions affecting habitat quality, distribution, and abundance contribute to self-sustaining populations of plants and animals, including At-Risk species, that are healthy, well distributed, genetically diverse, and connected, which enable species to adapt to changing environmental and climatic condition.

The Forest contains a diversity of important habitats for many fish, plant, and wildlife species, including federally listed species and species of conservation concern. There is a need to establish direction for achieving sustainability and resiliency within the vegetation communities that support these wildlife, fish, and plant species. Minimizing risks to vegetation composition, function, and structure, as well as restoring natural disturbance cycles, including those associated with fire, insects and diseases, should benefit not only the vegetation communities but also the wildlife species dependent them. Additionally, there is a need to incorporate multispecies and habitat-based plan components that allow for flexibility due to changing conditions. The Planning Rule requires the Forest to think beyond its boundaries and to support landscape-level connectivity, which provides conditions to maintain both plant and animal populations while managing for multiple uses.

Goals (FW-VEGETATION-GL)

01 Support and accommodate research by Federal, State, and private entities that improve native plant seed genetics as well as increase native and locally sourced plant material selection, production, and distribution for ecological restoration.

02 Support existing or future plant material industry, through purchasing available and desirable plant material products for ecological restoration.

03 Preserve or enhance the biological components of areas of tribal importance.

04 Work with partners such as the Utah Watershed Restoration Initiative to accomplish vegetation projects to address habitat and fuels management objectives.

Desired Conditions (FW-VEGETATION-DC)

01 Vegetation is a mosaic across the landscape as a result of natural processes and disturbances, including but not limited to mixed severity fires and patches of insect-induced mortality.

02 Vegetation composition, structure, distribution and management provide the life and natural history requirements, including breeding, nesting, foraging, seasonal movements, migration, dispersal, hiding cover, of native terrestrial and aquatic plant, and wildlife species.

03 Ground cover, including basal vegetation, litter, moss, lichen, and rock is maintained at levels that contribute to suitable hydrologic function, soil stability, and biotic integrity, while providing habitat, food, and cover for wildlife species including At-Risk Animals.

04 Vegetation communities with fire histories maintain resiliency and self-perpetuation. Fire disturbance regimes move toward their natural frequency and magnitude.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on creation and maintenance of conditions that promote native plants and animals, forage production, wood products, scenic quality, and ecosystem functionality
- Emphasize restoration and maintenance of a diversity of age classes in forested stands
- Reduce fire hazards and improve flexibility for appropriate fire management response
- Increase resilience to insects, diseases, and climate change
- Facilitate ecological adaptation of ecosystems to future threats to biodiversity
- Maintain and provide habitat components for wildlife, as well as for raptor breeding, nesting, and migration, particularly for golden eagles and northern goshawk across the larger landscape.
- Maintain resilient vegetation communities, including aspen stands, that produce quality forage, browse, and cover that support the needs of livestock and wildlife

2.6.1 Coniferous Forest

See Also

Timber Management, Fire and Fuels Management, Livestock Grazing and Range Management, Wildlife, Recreation and Access, and Soil Resources.

Description and Values

On the Manti-La Sal the coniferous forest communities are composed primarily of three groups of tree species: spruce and fir, mixed conifer, and ponderosa pine. These are the vegetation communities where the dominant tree species retain their foliage all year long. Coniferous vegetation communities provide both ecological benefits as well as economic benefits to the Forest and adjacent communities.

Ecologically, coniferous vegetation provides important habitat for many wildlife species, some of which include threatened, endangered, and regionally sensitive species. The diversity of vegetation composition, structure, and multilayered canopy all contribute to the important attributes for the many wildlife species that depend on this type, particularly late seral-dependent species.

Coniferous vegetation communities also provide both commercial and noncommercial materials available to support local industry. Most of the timber production on the Forest occurs within the coniferous vegetation communities.

During the late 1990s, the Wasatch Plateau suffered a widespread spruce beetle epidemic, which killed much of the spruce. By 2010, most of the damage from the beetle was over, yet the historically more diverse coniferous communities on the Forest, may be dominated by subalpine fir for many decades due to the significant reduction in spruce seed sources. Additionally, more than half of the mixed conifer acres are overly dense with high fuel loads, which can affect the health of the stands through susceptibility to wildfire and epidemics of both western spruce budworm and Douglas fir beetle. Ponderosa pine stands in the southeastern part of the Forest naturally have a frequent fire regime that has been affected by fire suppression, timber management, and grazing.

Desired Conditions (FW-CONIFER-DC)

01 A diversity of native tree species, generally within the natural range of variability is present. A full range of seral stages maintains ecosystem resilience to recover and adjust to disturbances without long-term, adverse effects to ecologic integrity. The desired stand compositions are described in Table 3.

Table 3. Desired tree composition for coniferous forest vegetation communities by type.

Vegetation Community	Dominant Species	Percent Presence
Ponderosa pine	Ponderosa pine	75
Mixed conifer	Douglas fir and white fir	75
Spruce and fir	Engelmann spruce	50

02 Insect and disease populations are steady, and tree mortality is low, about 10-50 trees.

03 Stand densities do not reach mortality limits and remain below 60 percent of maximum Stand Density Index.

04 Old growth is present, in the form of both individuals and clumps. Old growth stands are well distributed throughout the landscape and provide adequate habitat for dependent wildlife.

Objectives (FW-CONIFER-OB)

01 Plant a minimum of 30,000 acres of Engelmann spruce in the spruce and fir community over the life of the plan.

02 Reduce tree density on a minimum of 10,000 acres in the spruce and fir community every 5 years over the life of the plan.

03 Treat a minimum of 5,000 acres of ponderosa pine every 5 years over the life of the plan to maintain stand health and restore fire disturbance regime.

04 Treat a minimum of 5,000 acres of mixed conifer every 5 years over the life of the plan to maintain stand health and restore fire disturbance regime.

Guidelines

01 Coarse woody debris, with a midpoint diameter of at least 3 inches, should be retained onsite at between 5-7 tons per acres in ponderosa pine stands and between 10-15 tons per acre in other conifer stands, unless this quantity was not present before management action. This should ensure sufficient organic materials to maintain nutrient cycling and soil biology and to provide habitat structure for various terrestrial wildlife.

02 Snags, that are at least 30 feet tall and 18 inches in diameter, should be retained at a minimum of 2 per acre in ponderosa pine stands and a minimum of 3 per acres in other conifer stands, unless this quantity was not present before management action. This should ensure long-term wildlife habitat and ecosystem processes are sustained.

03 Downed logs, that are at least 8 feet long with a midpoint diameter of 12 inches, should be retained at a minimum of 3 per acre in ponderosa pine stands and a minimum of 5 per acres in other conifer stands, unless this quantity was not present before management action. This should ensure long-term wildlife habitat and ecosystem processes are sustained.

04 Canopy cover when managing conifer vegetation within known northern goshawk nest areas should be retained at a minimum of 50 percent.

05 Canopy cover when managing ponderosa pine stands within known northern goshawk home ranges should be retained at a minimum of 40 percent regardless of stand age.

06 Canopy cover when managing mixed conifer stands should be retained at a minimum of 40 percent in mid-aged forest, 50 percent in mature forest, and 60 percent in old growth forest.

07 Canopy cover when managing spruce and fir stands should be retained at a minimum of 40 percent in mid-aged forest, 60 percent in mature forest and old growth forest.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus silvicultural treatments, vegetation manipulation, and wildfire on maintaining and restoring the appropriate fire regime group and enhancing all vegetation-dependent resources, including wildlife habitat for species associated with fire-adapted systems.
- Capitalize on both naturally occurring and management driven disturbance events, including fire, insects and disease, and mechanical treatments, to restore and maintain mosaic habitat structure, vegetation composition, and natural processes.
- Use the most up-to-date version of the Forest's Properly Functioning Condition document to establish desired stand structure.
- Retain old growth across the landscape, recognizing that the location of old growth may shift across the landscape over time as a result of succession and disturbance.
- Focus on designing projects to increase coarse woody debris if stands do not currently meet desired levels.
- Prioritize vegetation management projects that maintain or improve Ponderosa Pine old growth characteristics.
- Follow the Fire Regime Condition Class table and map when designing projects.

2.6.2 Deciduous Forest

See Also

Timber Management, Fire and Fuels Management, Livestock Grazing and Range Management, Wildlife, Recreation and Access, and Soil Resources.

Description and Values

On the Manti-La Sal the only present deciduous community is aspen. Aspen forests support a more diverse array of plant and animal species than any other upland forest type in the West. Stable aspen clones, ranging in age from 60 to 150 years, are valued for their beauty, habitat diversity, importance to wildlife, and hydrologic benefits. However, disease outbreaks, conifer encroachment, disease, fire suppression, improper grazing, and drought are affecting aspen stands throughout central and southern Utah. These trends, along with aspen die-back associated with a changing climate, may continue to affect this important forest type.

The Forest provides regionally important habitat for quaking aspen (*Populus tremuloides*), one of the few hardwood trees that thrive in the arid West. Aspen forest currently grows on approximately 17 percent of the Forest and is widely distributed across the Forest. Approximately 239,657 acres of aspen are present on the Forest, 88,825 acres of which are intermixed with conifer stands on the Forest. Eighty percent of seral and stable quaking aspen stands are currently classified as mature or old growth, with an age range of 80 to 150 years.

Desired Conditions (FW-DECIDUOUS-DC)

01 Aspen should be successfully regenerating and broadly resilient to disturbances of varying frequency, extent, and severity.

02 Aspen dominates the overstory in all stages of succession, and regeneration and recruitment are generally continuous or pulsed but may also be episodic.

03 Conifers are either absent, or if present, numbers are consistently low so that they have only minimal impacts on both aspen and associated understory species.

04 Aspen stand sizes and distribution range from small, isolated stands to large, continuous stands.

05 The canopy cover and spatial distribution of aspen clones supports habitat connectivity and corridors to ensure wildlife have hiding and thermal cover as well as calving and fawning habitat.

06 The composition, structure, and function of vegetative conditions are resilient to the frequency, extent and severity of disturbances, such as insects, diseases, and fire, and climate variability. Fires are typically frequent, at least every 25 years, and are low-severity, although mixed-severity occur. Seral stage proportions are applied at the landscape scale as shown in Table 4, where low overall departure from reference proportions is a positive indicator of ecosystem condition.

Table 4. Desired seral-stage proportions for aspen stands.

Seral Stage	Dominate vegetation description	Percent proportion
Very Early	Grass, forbs, aspen saplings	20
Early	Aspen saplings and young stands	25
Mid	Mid-aged stands	20
Mid to Late	Mature stands	20
Late	Old stands	15

Objectives (FW- DECIDUOUS-OB)

01 Treat at least 5,000 acres of conifers in aspen stands every 10 years.

Guidelines (FW- DECIDUOUS-GD)

01 Coarse woody debris, with a midpoint diameter of at least 3 inches, should be retained onsite at between 3-5 tons per acres unless this quantity was not present before management action. This should ensure sufficient organic materials to maintain nutrient cycling and soil biology and to provide habitat structure for various terrestrial wildlife.

02 Snags, that are at least 15 feet tall and 8 inches in diameter, should be retained at a minimum of 2 per acre unless this quantity was not present before management action. This should ensure long-term wildlife habitat and ecosystem processes are sustained.

03 Downed logs, that are at least 8 feet long with a midpoint diameter of 6 inches, should be retained at a minimum of 5 per acre unless this quantity was not present before management action. This should ensure long-term wildlife habitat and ecosystem processes are sustained.

04 Canopy cover when managing deciduous vegetation within known northern goshawk nest areas should be retained at a minimum of 50 percent.

05 Canopy cover when managing deciduous vegetation should be retained at a minimum of 60 percent in both mid-aged forest and mature forest, and a minimum of 50 percent in old growth forest.

06 Crown cover of aspen sprouts is 40 percent or greater at 5 years post-disturbance.

07 Management actions should only be permitted if aspen less than 6 feet in height can be retained at a minimum of 1,000 stems per acres.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus management on ensuring the structure, function, and distribution of aspen are within the natural range of variation. Additionally, manage to achieve a wide age and size distribution of aspen.
- Acknowledge and manage aspen stands to provide not only productive understories but also wood fiber.
- Consider using fire to reset successional processes in upland aspen mixed with conifer stands to create complex vegetation mosaics of aspen and conifers.
- Focus management of aspen on increasing suckering and reducing seedling consumption by wildlife and livestock.
- Consider low levels of regeneration, especially for older stands where canopy cover is less than 40 percent, as potential indications that stands are not self-replacing.
- Focus not only on abundant regeneration but also on evidence of adequate recruitment, when determining if a stand is self-replacing and healthy.
- Prioritize restoration activities with a landscape-scale goal of creating conditions that support a balance of species and successional stages to create broader resilience to a variety of potential disturbances.
- Recognize that aspen clones may successfully regenerate by either catastrophic, continual, episodic, or fine-scale gap phase regeneration modes (Kurzel and others 2007). Aspen stands, both seral and persistent community types, regenerate sufficiently to maintain long-term sustainability, especially following disturbance events. New aspen sprouting occurs at least equal to, but may extend beyond, the pre-disturbance perimeter of the regenerating clone. Crown cover of aspen sprouts is 40 percent or greater at 5 years post-disturbance.
- Follow the Fire Regime Condition Class table and map when designing projects.

2.6.3 Woodlands

See Also

Timber Management, Fire and Fuels Management, Livestock Grazing and Range Management, Wildlife, Recreation and Access, and Soil Resources.

Description and Values

The Woodland vegetation community on the Manti-La Sal is composed of two dominant types, the pinyon-juniper and the Gambel oak intermixed with mountain shrublands.

Pinyon-juniper woodlands are characterized by the presence of at least one or more species of drought-resistant pinyon pine or juniper. In south and central Utah, these are often two-needle pinyon and Utah juniper trees. Pinyon-juniper woodlands are associated with a wide variety of substrates and topographic settings but are often found on rugged uplands with shallow, coarse-textured, and often rocky soils that support relatively sparse herbaceous cover. Site conditions primarily soils and climate, as well as disturbance regimes, most notably infrequent fire, are inherently favorable for tree growth. Pinyon-juniper woodlands are typically found between conifer forest and sagebrush vegetation communities. Woodland structure and composition are highly variable by site and disturbance history with native forbs, grasses, and shrubs associated with pinyon and juniper dominate the understory. Pinyon-juniper woodlands cover 23 percent of the Forest, approximately 325,770 acres.

Pinyon-juniper is highly valued as wildlife habitat, for its diverse vegetation, and for wildlife migration corridors. It has also been used extensively by people for nut gathering and charcoal production, and as posts and poles.

Expansion of pinyon and juniper stands and expansion of pinyon and juniper into former grasslands and shrublands during the past 150 years have been well documented in many parts of the western United States. Many studies have shown that old trees were usually scattered in low densities through these stands with no evidence that pre-1860 stands were as dense as they are today. Increased stand density may reduce understory plant cover, plant diversity, and water release.

The Gambel oak and mountain shrubland mixed woodland community covers approximately 14 percent or 197,346 acres of the Forest. It is a mountain brush community, generally dominated by Gambel oak with a mix of curl-leaf mountain mahogany, serviceberry, and other shrub species. This community is rich in diversity of forbs and associated grasses. Most of this community on the Forest is in intermediate and late structural stages, which reflect the lack of recent natural disturbance, specifically fire.

The Gambel oak and mountain shrubland mixed woodland community is important as transitional and summer ranges for big game. Elk also use some areas as winter range. In years when there are abundant acorns, mature stands of Gambel oak provide a valuable food source for many species of wildlife, including big game such as deer and elk, black bears, wild turkeys, and assorted birds and small animals.

Desired Conditions (FW-WOODLAND-DC)

01 Woodlands are resilient and withstand disturbance from natural and management activities, including insect and disease infestations, wildfire, recreation, and grazing.

02 Insect and disease populations are steady, and less than 40 percent of the woodland is infected.

03 Mature acorn producing trees and stands are present to adequately meet the needs of wildlife.

04 Shrubs, forbs, and grasses, that provide habitat and food for native pollinators, wildlife, and grazing livestock, are healthy and well distributed across the vegetation community.

05 Persistent pinyon-juniper is available for wildlife habitat, cover, and migration needs.

06 Adequate large and contiguous patches of Gambel oak are present to meet the needs of wildlife.

07 Sites with old-growth characteristics such as older trees, shallow or rocky soils, are maintained to provide valuable wildlife habitat and migration cover, or to protect stands with cultural or historical values.

08 Communities are diverse and dominated by plants of moderate to high resource value, which means 60 percent or greater in relative cover. Invasive plant species might be present, but these do not disrupt ecological processes nor diminish community resilience. Total ground cover is equal to or greater than 85 percent of potential. Numerous successional or structural stages are represented within the vegetation type

09 The composition, structure, and function of vegetative conditions are resilient to the frequency, extent and severity of disturbances, such as insects, diseases, and fire, and climate variability. Fires are typically mixed-severity and occur every 100 years in pinyon-juniper and between 35 and 200 years in Gambel oak and mountain shrub woodlands. Seral stage proportions are applied at the landscape scale as shown in Table 5 and Table 6, where low overall departure from reference proportions is a positive indicator of ecosystem condition.

Table 5. Desired seral-stage proportions for pinyon-juniper woodlands.

Seral Stage	Dominate vegetation description	Percent proportion
Early	Grass, forbs, seedlings, saplings and small canopy trees	20
Early to Mid	Young stands	20
Mid	Mid-aged stands	20
Late	Mature stands	20
Very Late	Old stands	20

Table 6. Desired seral-stage proportions for Gambel oak and mountain shrub woodlands.

Seral Stage	Dominate vegetation description	Percent proportion
Early	Shrubs and herbaceous species with small Gambel oak	20
Mid to Late	Shrubs and herbaceous species	20
Mid	Shrubs and herbaceous species	20
Late	Shrubs and herbaceous species	20
Very Late	Shrubs and herbaceous species	20

Objectives (FW-WOODLAND-OB)

01 Treat a minimum of 50 acres of pinyon-juniper woodlands every 10 years to maintain herbaceous and shrub plant communities.

02 Treat a minimum of 500 acres of Gambel oak and mountain shrub woodlands every 10 years.

Guidelines (FW-WOODLAND-GD)

01 Herbicides should be used in targeted applications to remove nonnative plants that pose a severe risk of invasion during all management actions.

02 Prescribed fire should not be used unless mitigation measures can ensure cheatgrass will not colonize the site.

03 Projects should be designed to mimic natural conditions for opening patch size and spatial distribution.

04 Post-disturbance seeding should occur in areas where perennials are depleted, and soil moisture temperature regimes are favorable for invasive species.

05 Design of management activities should include insurance that adequate levels of residual perennial herbs on the site and ecological site characteristics including soil texture, depth, and moisture and temperature regimes can be maintained.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize reducing stand density to increase vegetation species diversity and reduce competition for nutrients.
- Focus treatment in highly productive areas with valuable habitat and forage, and important watershed characteristics.
- Emphasize pinyon and juniper tree removal to break up large, contiguous stands, potentially reducing the size of wildfires.
- Prioritize treatments that retain a component of mature seed-producing shrubs especially in the Gambel oak and mountain shrubland mixed community. Also focus on stimulating sprouting with fire or mechanical cutting.
- Actively manage and prioritize funding for degraded pinyon and juniper stands. These degraded characteristics include relatively low productivity compared to their historic state, depleted perennial herbaceous layer, increased bare ground, and invasive species vegetation codominance or dominance.
- Use the latest research including imagery, state and transition models, tree dominance indices, to develop and prioritize pinyon-juniper management projects and to determine best methods for treatments and post disturbance recovery.
- Consider making material resulting from vegetation management actions available to provide a source of fuel and post material to local communities including tribal members.
- Prioritize treatment and monitoring for those areas that are ecologically at risk and where probability of success and benefits can be maximized given existing budgets and workloads.
- Follow the Fire Regime Condition Class table and map when designing projects.

2.6.4 Shrublands

See Also

At-Risk Plants, and At-Risk Animals.

Description and Values

The shrubland community is comprised of sagebrush, desert shrub, and mountain brush with diverse native grass and forb understories. This community is found on approximately 180,645 acres of the Forest. It is used by livestock in the spring, summer, and fall. Big game such as deer and elk, and greater sage-grouse populations in Utah use sagebrush communities extensively for winter and summer range. However, there are numerous threats to the shrubland community. Utah junipers are increasingly present within the historic shrubland range, displacing sagebrush and, in some instances, mountain shrub communities. Additionally, increasing uncharacteristic wildfires are occurring due to the presence of invasive grass species which outcompete the native species. These challenges pose threats to not only the diverse array of native plant and animal species that depend on shrublands, but also the ecosystem services they provide.

Goals (FW-SHRUB-GL)

01 Work with partners to model predictive habitat distribution models for At-Risk Plant and At-Risk Animal species in shrubland ecosystems.

Desired Conditions (FW-SHRUB-DC)

01 Tree canopy cover is less than 10 percent.

02 Contiguous shrub patches that meet the needs of a variety of wildlife species are distributed throughout shrubland communities.

03 Shrublands are maintained and sustained in a healthy composition with few to no of conifers.

04 The composition, structure, and function of vegetative conditions are resilient to the frequency, extent and severity of disturbances, such as insects, diseases, and fire, and climate variability. Fires are typically infrequent high-severity and occur every 100 years. Seral stage proportions are applied at the landscape scale as shown in Table 7, where low overall departure from reference proportions is a positive indicator of ecosystem condition.

Table 7. Desired seral-stage proportions for shrublands.

Seral Stage	Dominate vegetation description	Percent proportion
Early to Mid	Shrub canopy with herbaceous understory	60
Mid to Late	Shrub canopy with herbaceous understory	30
Late	Shrub canopy with herbaceous understory	10

Objectives (FW-SHRUB-OB)

01 Restore vegetation, and ground cover composition, and structure on a minimum of 5,000 acres of impaired sagebrush shrubland communities every 10 years.

Guidelines (FW-SHRUB-GD)

01 Management actions should promote a productive, vigorous shrubland component to meet big game habitat needs.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely

management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on retention and enhancement of a vigorous understory community of native grasses and forbs.
- Prioritize management actions in historical shrubland communities and areas being converted to pinyon/juniper due to fire suppression.
- Avoid management actions that may create monocultures of cheatgrass, medusahead, or other annual grasses. Focus restoration efforts on areas where these species have already created monocultures.
- Consider management actions to support wildlife habitat and forage production for livestock.
- Follow the Fire Regime Condition Class table and map when designing projects.

2.6.5 Herblands

Description and Values

Herbland communities consisting of perennial forbs and grasslands vegetation occupy approximately 8 percent of the Forest and cover approximately 110,358 acres. Perennial forb and grassland ecotypes provide forage for livestock, habitat for wildlife, soil stability, recreational sites, water infiltration/aquifer recharge, water quality within watersheds, and landscape diversity.

Desired Conditions (FW-HERB-DC)

01 Herbland communities are diverse with a species composition dominated by native forbs and grasses. Less than 10 percent of the area is composed of shrubs or trees.

Objectives (FW-HERB-OB)

01 Restore vegetation, and ground cover composition, and structure on a minimum of 100 acres of impaired herbland communities every 10 years.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus restoration of degraded herbland on improving vegetation cover, diversity, and forage production for wildlife and livestock, while minimizing the threat of noxious and invasive plants.
- Restoration techniques should use best available science including appropriate seed mixes.
- Focus herbland management on supporting forage production for wildlife and livestock.
- Follow the Fire Regime Condition Class table and map when designing projects.

2.6.6 Alpine Communities

See Also

At-Risk Animals, At-Risk Plants, Research Natural Areas, and Recreation and Access.

Description and Values

Alpine communities occur above the tree line and are dominated by herbaceous or shrubby vegetation. Alpine ecosystems are strongly influenced by position in the topography, wind, and snow deposition, and the short growing season. The alpine community above 11,000 feet, in the La Sal Mountains represents about 0.6 percent, or about 793 acres, of the Forest plant communities. The plants found in the alpine communities are often unique to that harsh environment and include an endemic La Sal Mountain species, the La Sal daisy (*Erigeron mancus*), and several other species of interest.

Goals (FW-ALPINE-DC)

01 Work with state and other partners to monitor alpine vegetation condition and trends to inform management decisions for projects proposed in alpine habitat.

02 Support healthy alpine habitat by managing new and future recreational impacts as well as reclaiming currently impacted sites.

Desired Conditions (FW-ALPINE-DC)

01 Trampling, treading, wallowing, and browsing by native and nonnative ungulate species are at levels that do not result in population declines of native plant species, including At-Risk Plants.

02 Alpine ecosystems are resilient to natural and human-caused impacts and provide refugia for alpine-dependent plant and wildlife species, including At-Risk Plants and At-Risk Animals.

Objectives (FW-ALPINE-OB)

01 Establish a minimum of twenty repeat photography study sites to monitor recreation and wildlife impacts on alpine soil and vegetation within five years of the plan approval.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Promote retention of healthy alpine habitat through recreation management, reclamation, and other management activities.

2.6.7 Sparse or Non-Vegetated

See Also

At-Risk Animals, and At-Risk Plants.

Description and Values

The non-vegetated or sparse community covers approximately 33,244 acres and is comprised of barren rock outcrops, ledges, and talus slopes. These communities have very little to no vegetation present. Barren rock communities are interspersed with all other vegetation communities.

Desired Conditions (FW-SPARSE-DC)

01 Habitat elements such as rocky outcrops, cliffs, undeveloped springs, and alcoves, provide high-quality habitat for associated wildlife and plant species.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus management on those related to human impacts, including recreation.
- Emphasize mitigation measures and project designs that protect soil health as well as wildlife and plants who depend on these bare and sparse areas.

2.6.8 Native Plant Materials

See Also

Noxious Weeds and Invasive Species, Pollinators, At-Risk Plants, At-Risk Animals, Livestock Grazing and Range Management, Wildlife, and Livestock Grazing and Range Management.

Description and Values

Native plant materials are those plants, seeds and other materials that promote continued presence of as well as reestablishment of native species within ecosystems. Native plant materials are key to ecosystem health, resiliency, and productivity. Retention of existing native plant communities across the forest id desirable as the ideal way to retain a healthy functioning ecosystem, but in some areas, the native plant communities are missing or severely impacted. Promoting the use of native plant materials for the revegetation, restoration, and rehabilitation of native plant communities is one way to provide for the conservation of ecosystem diversity and maintain healthy ecosystem functions. Disturbances on the landscape allow for the establishment of noxious and invasive plant species to enter the ecosystem and establish more readily than most native plant species can. Therefore, our ability to repair damaged lands and stem the loss of cultural and economic benefits to society largely depends upon the availability of genetically appropriate native seed and native plant stock to reduce the spread of invasive and noxious plant species**.**

Goals (FW-NPM-GL)

01 Cooperate and coordinate within the Forest Service and with other federal agencies, tribes, state, organizations, and private industry in the development of native plant materials and supplies.

02 Partner with other agencies and public groups to improve native seed supplies for restoring healthy and productive native plant communities.

Desired Conditions (FW-NPM-DC)

01 Native plant materials are available and routinely used in revegetation, rehabilitation, and restoration of both aquatic and terrestrial ecosystems. Seed mixes will be determined based on ecological site, availability, and economic feasibility.

Guidelines (FW-NPM-GD)

01 To ensure the re-establishment of desirable vegetation and limit the spread of invasive plants following timber, road, or other management activities which disturb or expose soil, reseeding with native plants should occur promptly, ideally within the same growing season.

02 Seeding should occur during optimal seeding windows for germination and survival and should utilize certified seed and weed-free native seed.

03 Seed mixes should be approved by a botanist and should include plants that have proven capability to compete with invasive plants.

04 Genetically appropriate native plant materials should be given primary consideration during revegetation. Revegetation techniques which promote establishment of native species should be incorporated into revegetation planning.

05 Native plant materials and seed mixes should be used in all restoration, revegetation, rehabilitation projects unless a site-specific condition indicates use of a non-native but desirable plant material or seed to address desired conditions for that location. Nonnative plant species should only be used when consistent with national policy and direction.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Anticipate plant material needs for emergency and planned revegetation. Develop core plant lists, menu-based seed mixes by community type, planting guidelines, plant material sources and seed caches and seed storage facilities.
- Identify seed needs and ensure the reliable availability of genetically appropriate seed including advancing the availability and use of sage grouse and pollinator-friendly seed mixes in land management, restoration, and rehabilitation actions.
- Identify and support research needs that seek to provide genetically appropriate seed and to improve technology for native seed production and ecosystem restoration.
- Develop tools that enable managers to make timely, informed seeding decisions for burned area recovery and ecological restoration.

2.6.9 Noxious Weeds and Invasive Species

See Also

Watershed and Aquatic Resources, At-Risk Plants, Native Plant Materials, Livestock Grazing and Range Management, Wilderness, Research Natural Areas, Scenic Byways, and Recreation and Access.

Description and Values

Noxious and invasive plants impact many habitats, especially in the lower elevation and boundary areas in the La Sal Mountain borderlands, Mancos Shale lowlands, Abajo Mountain alluvial plains, and Sevier-Sanpete Valleys. In some lower elevation pinyon juniper and sagebrush habitats, cheatgrass has invaded in areas that have experienced a disturbance which reduced the amount of desirable perennial species and thus created conditions that were more favorable to cheatgrass invasion. Trace amounts of cheatgrass (less than 5 percent cover) generally do not impact the natural plant community, however higher amounts can increase fire frequency and size by providing continuous fine fuels (2013 U of W and CSU). Other common noxious and invasive plants such as musk thistle, Canada thistle and knapweed reduce the production and availability of desirable forage for wildlife, including mule deer, greater sage-grouse and Brewer's sparrows. Based on the most current Forest data, there are 22,000 acres, about

15,900 is within the Forest and about 6,300 outside the Forest, that are infested by invasive species, which represents less than 2 percent of the Forest.

Most of the weeds inventoried are near highways or main roads. Weeds tend to establish in disturbed areas such as road shoulders and ditches. Roads and motorized trails are known to be effective vectors for transporting invasive plant seeds. Since the 2006 inventory, new species have been located on the Forest, which indicates that invasive species are continuing to grow and spread.

Natural and human-caused disturbances, such as fire, landslides, logging, and road building, alter resource availability in forests by opening canopies, reducing above- and below-ground competition, exposing mineral soil, or by directly increasing resources available to invasive species (Kerns and Guo 2012). Most invasive species reach new regions by purposeful or accidental human-aided transport, and tourism and commerce are likely to be altered by future climate change (Hellman et al. 2008).

Goals (FW-WEEDS-GL)

06 Coordinate management, treatment and strategies for noxious weed and invasive species control across not only resource programs but also with county, state, regional, tribal and other federal managers, as well as academic research institutions, and private landowners.

Desired Conditions (FW-WEEDS-DC)

01 Invasive species and noxious weeds are either nonexistent or in low abundance, and do not disrupt ecological processes nor diminish ecological integrity and resilience of vegetation groups.

02 Desired nonnative species are used, when appropriate, to enhance or sustain ecological integrity and support healthy, functioning ecosystems. These species do not invade into and displace neighboring resilient native communities.

Objectives (FW-WEEDS-OB)

01 Map, treat, control, and monitor noxious weeds on a minimum of 500 acres annually.

02 Treat and control noxious weeds on at least 15 miles of streambank in riparian management zones every five years.

Standards (FW-WEED-ST)

01 Weed-free materials, including but not limited to hay, straw, mulch and gravel, or borrow materials shall be used during all management activities.

Guidelines (FW-WEEDS-GD)

01 Incorporate weed prevention and control into project layout, design, and project decisions. Actively apply Best Management Practices and include them in permit and contract clauses. Include a weed prevention and control provision in all new special-use authorizations such as, permits, easements or leases involving ground-disturbing activities when authorized activities present a high risk for weed infestation or the location of the activity is vulnerable to weed introduction or spread.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely

management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Eliminate the establishment or spread of noxious weed species and emphasize prevention, treatment, and rehabilitation of high-priority ecosystems for at-risk species.
- Focus management on protecting infestation free areas from invasive species. Emphasize prevention and early detection and rapid response with appropriate eradication tools on new infestations, with repeat site visits annually.
- Use all tools available for the prevention and treatment of noxious and invasive weed infestation including but not limited to herbicide, manual, mechanical, targeted grazing and biological.
- Focus on creating an integrated forest management approach, for strategy, funding, and implementation, across resources and with partners outside the agency. This approach should enhance awareness and education, pool resources, streamline treatment strategies, expand surveys, inventories, and monitoring, and implement new and adaptive treatment methods.
- The Forest will reference the States of Utah's and Colorado's Noxious Weed classification lists as guidance on preventing the spread of and decreasing infestations of listed noxious weeds and other priority invasive species on forest lands.

2.6.10 Pollinators

Description and Values

Pollination by animals is a valuable ecosystem service provided to society by honeybees, native bees, other insect pollinators, birds, and bats. Pollinators serve a crucial role in the US economy, food security, and environmental health. Simultaneous declines in native and managed pollinator populations globally, with highly visible decreases in honeybees, bumble bees, and monarch butterflies, have brought into focus the importance of pollinator conservation. The National Academy of Sciences noted that declines in many pollinator groups are associated with habitat loss, fragmentation, and deterioration; invasive species, and new and emerging diseases and pathogens; and improper use of pesticides.

Goals (FW-POLLINATOR-GL)

01 Work with partners to identify and foster opportunities to assess current pollinator and wildflower populations, and potential drivers of change in these populations.

Desired Conditions (FW-POLLINATOR-DC)

01 Vegetation communities include forbs and flowering shrubs to support diverse and sustainable native pollinator populations.

02 Native pollinator populations can absorb disturbance events, without species elimination.

Guidelines (FW-POLLINATOR-GD)

01 Restoration activities should include use of pollinator friendly seed mixes and best management practices.

02 Pollinator friendly best management practices and seed mixes should be used when maintaining or constructing federal facilities.

03 To maintain pollinator function in the ecosystem, application of pesticides should prevent population-level impacts to pollinators.

04 Special use permits for apiaries should not be issued for placement of hives within five miles of known bee and insect pollinated, At-Risk Plant species locations.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize projects that maintain or improve pollinator habitat
- Consider using local pollinator-friendly species mixes when selecting project seed mixes
- Consider including creation or maintenance of pollinator habitat in the project rationale
- When using insecticide, consider and mitigate impacts on pollinating insects to the greatest extent possible
- Capitalize on disturbance events, including but not limited to fires, and right-of-way maintenance, to support pollinator species by using, when and where feasible, native seed mixes that include forb species

2.6.11 At-Risk Plants

See Also

Watershed and Aquatic Resources, Alpine, At-Risk Animal Species, Noxious Weeds and Invasive Plant Species.

Description and Values

The Forest provides quality habitat for 33 At-Risk Plant species: 32 plant species of conservation concern and 1 listed threatened plant species, *Astragalus montii*. See Appendix B: SCC List for all plant species and forest occurrence locations.

Goals (FW-RISKPLANT-GL)

01 Develop partnerships to collect baseline population data for all At-Risk Plant species.

Desired Conditions (FW-RISKPLANT-DC)

01 Ecological processes create vegetation conditions and patterns across the Forest that are consistent with properly functioning condition.

02 Areas of exposed bedrock, outcroppings and rims are available to support and maintain At-Risk Plant species.

03 High elevation At-Risk Plant species have enough talus, scree and colluvium to provide for their persistence.

04 Hanging gardens support distinctive plant species and communities that contribute to local and regional biodiversity, including At-Risk Plant species.

Objectives (FW-RISKPLANT-OB)

01 Establish an inventory and monitoring plan for At-Risk Plant populations within five years of the plan approval.

Standards (FW-RISKPLANT-ST)

01 Design features, mitigation, and project timing considerations shall be incorporated into ground-disturbing projects that may affect occupied habitat for At-Risk Plant species.

Guidelines (FW-RISKPLANT-GD)

01 Talus, scree, cliffs and colluvium habitat elements that provide refugia for high-elevation At-Risk Plant species should be avoided when proposing ground-disturbing activities.

02 Disturbance is minimized in exposed rock outcroppings and bedrock, and rims where At-Risk Plant species occur.

03 Trail construction and maintenance should avoid At-Risk Plants and disturbance their habitat features such as cliffs, talus toe slopes, and seasonally wet areas that the species depend on.

04 Vegetation community restoration and reclamation projects should avoid disturbing sites where At-Risk Plant species occur.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize monitoring of, identified At-Risk Plant species, locations and population trends, and documentation of the species' range, status, and threats.

2.7 Wildlife

See Also

At-Risk Animal Species, Pollinators, Areas of Tribal Importance, Watershed and Aquatic Resources, Horn Mountain and Wildcat Knolls Geographic Area, Elk Ridge Geographic Area, Vegetation Communities and Resources, and Recreation and Access.

Description and Values

The Forest contributes a range of ecological conditions that support the long-term persistence of wildlife, fish, and plants. Within the range of landscape capability, forested and non-forested vegetation, including wetland and riparian vegetation, comprise a variety of structural conditions and characteristics that support species requirements. Ecosystems across the Forest provide the necessary habitat and ecological conditions that contribute to the sustainability of species, including At-Risk Animals. Habitat conditions, including the amount, distribution, and characteristics of vegetation, contribute to meeting the specific needs for a wide array of terrestrial and aquatic species. The integrity and connectivity of wildlife and fishery habitats are important for species to move freely within habitats through linkages, corridors for movement, and secure areas. These habitats have multiple occurrences across the landscape, providing alternative habitat areas for wildlife following disturbance events and are secure and undisturbed during crucial times of the year. Big game and other species of socioeconomic interest need habitats with enough cover, forage, and security allowing animals to prosper for harvestable populations.

The Forest contains important habitats for a variety of fish and wildlife species; however, in some cases, habitat quality has been modified as a result of road construction, timber harvest, wildfire, recreation, and grazing. An important aspect to maintaining quality wildlife habitat is large blocks of diverse, healthy vegetation communities, as well as high water quality and good stream channel and riparian conditions. Part of the Forest Service's mission is to manage habitat for the benefit of wildlife species and to ensure that all its management activities are designed to avoid or minimize adverse impacts on wildlife individuals and populations. The public consistently identifies habitat conservation as an extremely high management priority for Forest lands.

With climate change, natural disturbances, and changing management issues on and off Forest lands, habitat management components will need to be adaptable. Components will need to be consistent with current science, for example, hiding cover and habitat security.

While many species of wildlife who depend on the Forest for habitat, monitoring will be done on a smaller subset of the total species. These species are focal species, who are selected not to make inferences about other wildlife species, but because they are believed to respond to ecological conditions in a way that can inform future decisions. Forest Service handbook direction (FSH 1909.12 chapter 30 § 32.13c) for focal species further specifies that every plan monitoring program must identify one or more focal species and one or more monitoring questions and associated indicators addressing the status of the focal species. The Manti-La Sal has selected the following three focal species: Abert's squirrel, golden eagle, and northern goshawk. These species have been monitored across the Forest for more than ten years, resulting in a wealth of baseline data and knowledge of the species. Continued monitoring will provide information on the condition and suitability of forested ecosystems as well as cliff and canyon habitats on the Forest.

Goals (FW-WILDLIFE-GL)

01 Collaborate with other agencies and local partners to improve and enhance existing fish and wildlife habitat to contribute to the social and economic well-being of local communities and Forest visitors.

02 Coordinate with other federal, state, tribal and local land management agencies to monitor species identified in their management plans. This may include, but is not limited to, species identified in their wildlife action plans, big game management plans, and US Fish and Wildlife Service recovery plans.

Desired Conditions (FW-WILDLIFE-DC)

01 Landscape patterns provide habitat connectivity for native species, particularly wide-ranging species such as mule deer and Rocky Mountain elk. Resulting habitat connectivity promotes daily and seasonal movement of animals to facilitate maintenance of genetic diversity.

02 Suitable habitats for resident and migratory birds provide key life history requirements such as nesting, foraging, and wintering.

03 Caves, mines, cracks, and other underground habitats provide undisturbed suitable roosting, maternity, and hibernating habitats for native bat species and populations.

04 Habitat conditions provide the quality and spatial arrangement of forage, security, and cover for Rocky Mountain elk and mule deer on mapped winter and summer range.

05 Healthy, resilient habitats and related enhancements such as habitat treatments and range improvements, support native and desirable nonnative fish and wildlife species.

06 Nest, den sites and other birthing and rearing areas for birds are undisturbed during the period they are active in those sites or areas.

07 Nonindigenous or introduced wildlife species are only present where they can be supported by healthy, functioning ecosystems.

Standards (FW-WILDLIFE-ST)

01 All open-top vertical pipes with an inside diameter of greater than one inch, including but not limited to those used for fences, survey markers, building plumbing vents, or signs, shall be equipped or guarded with caps or mesh wire, to prevent animal entrapments.

02 Raptor surveys shall be conducted prior to ground disturbing activities within habitat determined to be suitable. Suitable habitat determination, survey type, and survey intensity are at the discretion of the wildlife biologist assigned to the project.

Guidelines (FW-WILDLIFE-GD)

01 Management actions should avoid disturbance to roosting, hibernating, or breeding bats in caves, mines, and other habitats known to be used by bats.

02 Abandoned mines should be monitored or surveyed prior to reclamation to identify bat use. If bats are present, bat gates should be installed unless human safety is At-Risk.

03 New fence installation or reconstruction should be sited and designed to minimize hazards to wildlife and barriers to wildlife movement.

04 Management actions should avoid disturbance at known active raptor nests and fledging areas. Timing restrictions, distance buffers, or other means of avoiding disturbance should be based on the best available information, as well as on site-specific factors.

05 Ground-disturbing or vegetation management activities should follow seasonal restrictions based on USFWS Birds of Conservation Concern information, taken from iPAC official species lists, to protect migratory bird breeding and nesting sites.

06 Introduced wildlife species should not be supported where their presence conflicts with management direction for that area, or habitat type, or may damage resources on Forest lands.

07 Habitat management timing and activities should account for key life history requirements for resident and migratory birds, including identifying and minimizing incidental take.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize maintenance and enhancement of existing quality wildlife habitat that is diverse and healthy.
- Promote habitat and population connectivity for species movement across the landscape.
- Emphasize providing habitat and sustainable ecological conditions to maintain diversity of animal communities and support persistence of native species across the Forest.
- Promote projects and opportunities to improve fishing, hunting, subsistence use, and wildlife viewing opportunities, while retaining ecosystem integrity.

- Consider what habitat types will be affected when determining what species surveys to conduct.
- Consider the contribution of desirable nonnative fish and wildlife species to the social and economic benefit of local and adjacent communities by providing recreation opportunities, including wildlife viewing, fishing, and hunting when assessing retention or elimination of species.

2.7.1 At-Risk Animals

See Also

Watershed and Aquatic Resources, At-Risk Plant Species, and Vegetation Communities and Resources.

Description and Values

At-Risk Animal species consist of federally listed threatened, endangered, proposed, and candidate species and Species of Conservation Concern within a plan area. Species of conservation concern are wildlife or plants, other than federally listed species, that are known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area. Appendix B: SCC List, includes all of the species of conservation concern and Table 8 list all 16 At-Risk Animal species.

For many At-Risk Animal species, specific vegetation community plan components, like those in the vegetation section, are adequate to ensure essential ecological conditions are met for the species and that the species persists. However, for other At-Risk Animals, species-specific plan components, including but not limited to timing restrictions, nest buffers, and spring development protections, maybe required to ensure persistence. Those components are found here in addition to those listed in the broader wildlife components.

At risk animal species can change throughout the life of the Forest Plan without an amendment. The Forest is developing a critical habitat elements table for At-Risk Animal species by habitat or community type which identifies habitat characteristics for each At-Risk Animal species and how they are linked to habitat plan components. During the planning process, the Forest identified species of conservation concern, and all federally threatened, endangered, and proposed and candidate species. Table 8 lists the sixteen species that comprise the At-Risk Animal species list.

Table 8. Species categorized by concern that comprise the At-Risk Animal species list.

Concern Category	Species
Non-plant species of conservation concern[1]	black rosy-finch, greater sage-grouse, Townsend's big eared bat, fringed myotis, American pika, boreal toad, bluehead sucker, southern leatherside chub, Bonneville cutthroat trout, Colorado river cutthroat trout, Utah sallfly
Threatened species	Mexican spotted owl, yellow-billed cuckoo, Canada lynx, and greenback cutthroat trout
Endangered species	Southwestern willow flycatcher

[1] Further information about the species of conservation concern can be found in Appendix B.

Goals (FW-RISKANIMAL-GL)

01 When available, management of At-Risk Animal species will follow current conservation strategies and agreements with other agencies and partners.

02 Partner with other land management agencies to manage At-Risk Animal species habitats and to monitor these species.

Desired Conditions (FW-RISKANIMAL-DC)

01 Habitats for At-Risk Animal species support self-sustaining populations and contribute to the survival, stability, recovery, and delisting of federally listed species known to occur in the plan area.

02 Cliffs, and talus provide undisturbed habitat suitable for high elevation At-Risk Animal species.

03 The Forest monitors identified At-Risk Animal species locations and population trends and documents the species' range, status, and threats.

04 Habitat with heterogeneity and varying structure in patches with interlocking trees crowns, including a high percentage of canopy cover, and mature forest components such as large trees, snags, and down woody debris is available within suitable Mexican spotted owl habitat to support persistence of the species.

05 Habitats of species of conservation concern are restored, sustained and enhanced to improve the biological and genetic diversity of natural ecosystems.

Objectives (FW-RISKANIMAL-OB)

01 Review species of conservation concern list within one year of plan decision and continue to review it every three years thereafter for the life of the plan.

Standards (FW-RISKANIMAL-ST)

01 Projects in occupied At-Risk Animal species habitat shall assess whether design features or mitigations, and project timing considerations are appropriate and include them if they are.

02 Ground-disturbing activities shall not occur in identified Boreal toad breeding sites, unless they improve the habitat.

03 Restrict forest management and permitted activities in designated Mexican spotted owl territories during the breeding season, March 1 to August 30.

04 Management of At-Risk Animal species shall follow current conservation strategies and agreements, when available.

05 Management activities and special uses occurring within federally listed species habitat shall integrate habitat management objectives and species protection measures from the most recent approved US Fish and Wildlife Service recovery plan.

06 Activities shall not disturb or destroy talus habitats occupied by American pika, unless the disturbance can be mitigated.

Guidelines (FW-RISKANIMAL-GD)

01 Talus, scree, cliffs and colluvium habitat elements that provide refugia for high-elevation At-Risk Animal species should be avoided when proposing ground-disturbing activities.

02 A five-inch or greater stubble height of herbaceous species should be present within riparian management zones where aquatic At-Risk Animal species are known to occur, except where site potential is acceptable to meet desired conditions for the aquatic At-Risk Animal species.

03 Mexican-spotted owl surveys based on US Fish and Wildlife Service approved protocols should be completed prior to activities in Mexican-spotted owl modeled designated critical habitat.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Support forage production for wildlife and livestock, and vegetation treatments that enhance or maintain At-Risk Animal species habitats.
- Prioritize treating non-native, invasive species and reseeding using appropriate seed mixes in At-Risk Animal species habitats.
- Riparian health is an important factor for maintaining viability of aquatic At-Risk Animal species. Adaptive management, using the results of multiple-indicator monitoring, should be used to determine the appropriate criteria for bank alteration.
- Emphasize management actions that provide habitat for the recovery of At-Risk Animal species, as well as maintenance of viable populations of species of conservation concern.
- Focus on At-Risk Animal species protections early in the environmental planning process to protect their habitat and populations.
- Where the Forest Service has entered into a signed Conservation Agreement that provides guidance on activities or actions to be carried out by the forest, those activities or actions should be undertaken consistent with the guidance found within the Conservation Agreement.

2.8 Cultural and Heritage Resources

See Also

Areas of Tribal Interest, Recreation and Access, Scenery Management, Great Basin Station Historic District, Pinhook Battleground National Register Site, and Elk Ridge Geographic Area.

Description and Values

Cultural resources on the Manti-La Sal National Forest include a wide variety of resources important to Federally recognized tribes, rural historic communities and Forest visitors. Many of them fall into the category of resources defined and managed through federal regulations, such as the National Historic Preservation Act, or Forest Service Manual Direction. They include such places as archaeological sites or traditional cultural properties that are either eligible or ineligible for listing on the National Register of Historic Places. Also included are museum collections and unevaluated for National Historic Preservation Act or unidentified archaeological sites. Other cultural resources are managed through executive order or Forest Service guidance including sacred sites, sacred landforms, sacred landscapes, and plant communities and minerals used in traditional and ceremonial activities.

These cultural resources are of unique importance on the Forest because of their abundance and their connections to living communities. Taken together, they tell compelling human stories from over 12,000 years of settlement and use them to connect the worlds of ancient and modern people. In addition, the Forest contains relatively intact cultural landscapes including sites, landforms, and natural resources. The collective importance of all these individual resources is greater because they are part of high value cultural and sacred landscapes. The Elk Ridge Management Area is just such a case on the Monticello portion of Forest. This management area acknowledges the particularly dense and unique cultural and

sacred landscapes it encompasses. It is the overarching cultural landscapes that the Manti-La Sal National Forest seeks to protect and enhance into the future for the benefit of tribal communities, rural historic communities, and visitors.

Ancient American Indian cultural and sacred landscapes consist of interconnected ancient villages, farmsteads, campsites, agricultural features, lookout structures, ceramic kilns, and resource extraction locales. Historic period landscapes are made up of networks of historic mines, homesteads, roads, ditches, livestock herders' camps, Forest Service facilities. Other historic period features include Civilian Conservation Camps and historic period conflict sites. Modern cultural and sacred landscapes are places where American Indians still carry out traditional and ceremonial activities that are critical to cultural identity and well-being, where rural historic communities continue traditional ways of life, and where visitors come to learn about other cultures and experience these sacred landscapes.

Goals (FW-CULTURAL-GL)

01 Appropriate treatment actions and management activities are designed in consultation with tribes, rural historic communities, and the State Historic Preservation Office. Data recovery or other mitigation measures are considered only when such disturbances cannot be halted, and only after appropriate consultation with tribes and the State Historic Preservation Office.

02 Interpretation of and education about cultural resources is done in collaboration with tribes and rural historic communities.

03 Volunteers and partnerships make a substantial contribution to cultural resource protection by participating in site identification, documentation, and monitoring.

Desired Conditions (FW-CULTURAL-DC)

01 Cultural resource condition for known or documented sites is stable, and changes to site conditions are identified through monitoring and updating of documentation.

02 Cultural resource condition for sites that have yet to be documented is assessed through identification and documentation of new resources.

03 Cultural resources are managed to protect their current condition and the characteristics that make them valuable to tribes, other rural historic communities, and visitors.

04 Heritage-based recreation is available and contributes to local economies at levels that are sustainable and respectful of tribal concerns about site degradation. Site visitation management protects the condition of sites and cultural landscapes and other values of importance to tribes and rural historic communities.

Objectives (FW-CULTURAL-OB)

01 Conduct at least two volunteer projects each year, that help identify new sites or update condition information on known sites.

02 Monitor the condition of at least 20 sites per year.

03 Complete surveys on a minimum of 100 acres of land each year to identify new sites or to update information on known sites.

04 Update documentation on three sites per year for which current documentation is inadequate or outdated, in order to establish the current condition of those sites.

05 Conduct five public presentations or cultural resource studies each year.

06 Develop and maintain a database with maps for fire sensitive cultural resources and make it available for the fire management and fuel reduction planning and for resource protection during fire management activities within three years of plan decision.

Standards (FW-CULTURAL-ST)

01 Maintain and manage cultural resources, including archaeological sites, historic sites, cultural landscapes, districts, and traditional cultural properties that are managed according to National Historic Preservation Act regulations, in a manner that preserves their National Register of Historic Places characteristics and integrity of location, design, setting, materials, workmanship, feeling, or association.

Guidelines (FW-CULTURAL-GD)

01 Cultural resources, including sacred sites, plant populations and communities, and sacred landscapes that are managed according to executive orders, should be managed in a manner that preserves or enhances their ecological condition, setting for solitude, privacy, quiet, and scenic character.

02 Wildfire protection activities and fuels management project designs should consider techniques and outcomes to benefit cultural resource preservation and resiliency to fire management activities.

03 Measures to protect cultural resources from deterioration due to natural forces, visitation, or from agency authorized and unauthorized use should be developed collaboratively with tribes and should be sensitive to tribal values.

04 On the ground interpretation of cultural information should occur primarily in Rural, Roaded Natural, and Semi-Primitive Motorized recreation opportunity spectrum classes. On the ground interpretation should be discouraged in Semi-Primitive Nonmotorized and Primitive recreation opportunity spectrum classes unless for the purpose of site protection or in response to a tribal request. On the ground interpretation should generally be done away from archeological sites in order to protect them from increased visitation.

05 The effects of natural disturbance, such as wildfire, erosion, and freeze-thaw cycles, that might be accelerated by climate change, should be proactively managed, to protect cultural resources.

06 Decisions to stabilize ancient American Indian sites with standing architecture should be done with respect to the tribal value that these sites complete their natural life cycles. As a result, tribal values are generally given first consideration, followed by safety, archaeological and interpretive values.

07 Stabilization should only be considered for sites in Rural, Roaded Natural, and Semi-Primitive Motorized recreation opportunity spectrum classes, and only when it will help protect other site values.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on protecting or enhancing the current condition of the full range of cultural resources on the Forest.
- Follow regulations and direction outlined in the National Historic Preservation Act or Forest Service guidance in Forest Service Manual 2300.
- Consider the following options as strategies and techniques to protect cultural resources: signing, fencing, administrative closure, law enforcement, visitor contacts, permits for visitation to sensitive cultural landscapes, fuel reduction around vulnerable sites, vegetation restoration, and visitor education.
- Align cultural resource management with appropriate recreation opportunity spectrum classes and scenic integrity objectives, to better manage visitor impacts.
- Emphasize site, resource, and landscape protection and respect for tribal values. Historic period sites are likewise managed with respect for the values of rural historic communities and focuses on resource protection.
- Potential protective measures to maintain or enhance cultural resources may include vegetation treatment, with appropriate protection measures in place in, next to site boundaries, signing, fencing, administrative closure, patrols, and interpretive signs.
- Education emphasizes the sacred and fragile nature of cultural resources and how to visit sites with respect. It includes what we are learning about the history of human activity on the Forest based on information from tribal and rural historic communities and research. Sharing this information enhances the experience of visitors, highlights local connections, and deepens tribal relationships with the Forest.
- Consider techniques to proactively manage for cultural resource protection. These may include activities such as using fuel reduction, erosion control, and soil stabilization around sites.
- Focus on maintaining cultural landscapes in good condition, which should help contribute to the quality of visitor experiences on the forest.
- Consider using programs such as Passport in Time or Wilderness Volunteer projects to not only accomplish work but also to educate and increase awareness about the values and diversity of cultural resources.
- Emphasize and consider that mitigation measures are subject to Section 106 consultation.

2.9 Areas of Tribal Interest

“Tribal sovereignty was not granted to tribes by the United States government. Sovereignty is how tribes have always governed themselves; it has always existed. And the land is the foundation of that sovereignty.” Betsy Chapoose, Ute Indian Tribe of the Uintah and Ouray Reservation

The Manti-La Sal National Forest respectfully acknowledges and recognizes that these forest lands are the ancestral and traditional lands of the American Indians. We are but tenants and managers of these sacred tribal landscapes.

See Also

Cultural and Heritage Resources, Recreation and Access, Scenery Management, and Elk Ridge Geographic Area.

Description and Values

Important groupings of ancestral sites, landscapes, and natural resources of interest and value to Federally recognized tribes are present on the Manti-La Sal National Forest. These are part of larger landscapes of ancestral homes, plants, animals, and sacred geography that are all interrelated and

linked to tribal history. These places represent the footprints of cultural identity and connect people to their cultural roots and where tribal members continue traditional practices.

Goals (FW-TRIBAL-GL)

01 Develop new working relationships with tribes who have living connections with the lands that make up the Manti-La Sal National Forest.

02 Establish meaningful government-to-government relationships with tribes so that tribal perspectives become integral components of Forest management actions and decisions.

03 Partner with tribes to identify resource management projects or settings that provide educational opportunities for tribal youth.

04 Develop, in collaboration with tribes, a plan that addresses the identification and protection of places of importance to tribes.

05 Partner with tribes to identify sacred sites, traditional cultural properties, plant communities, springs, and other areas of tribal interest and cooperatively develop appropriate management strategies to maintain or improve their values.

06 Collaborate with tribal representatives to create opportunities to educate Forest employees about cultural sensitivity protocols, Tribal legal rights, treaty obligations, and the unique standing of Native Nations.

07 Facilitate tribes telling of their own stories and assist in developing interpretive messages and educational materials that include tribes telling of their own stories.

08 Partner with tribal representatives by inviting them to identify cultural resources on the forest that might only be recognized by those who know traditional practices.

Desired Conditions (FW-TRIBAL-DC)

01 Forest resources important for cultural and traditional needs, as well as for subsistence practices and economic support of tribal communities, such as fuel and ceremonial wood products, minerals, medicinal and food plants, and objects of cultural patrimony are available and sustainable.

02 Cultural practices associated with tribal use of forest resources are protected and authorized activities are designed to protect the ability of tribes to conduct those practices.

Objectives (FW-TRIBAL-OB)

01 Within 5 years of plan approval, work with tribes to identify which springs are considered culturally significant resources, the criteria by which to protect them, and how to partner and collaborate with tribes to maintain and restore these resources.

02 Within 2 years of plan approval, identify and designate a location on the Monticello Ranger District where temporary public closure could occur to facilitate use by tribes for gatherings.

03 Meet semiannually with tribes to collaborate, partner and ensure that important resources or places are available for tribal use and are protected from other authorized and unauthorized uses.

Standards (FW-TRIBAL-ST)

01 All sensitive cultural information will remain confidential and safeguarded from public release. This includes locations of cultural resource sites, traditional beliefs, Light Detection and Ranging or LiDAR data, and cultural and traditional activities.

02 Ethnographic or other sensitive information will be kept in a locked filing cabinet; tribes will identify which Forest staff members have access to that information. Only tribes shall approve release of that information to anyone else.

03 The Forest shall consult with tribes early in the project planning process to provide enough time for meaningful consultation.

04 Reburial locations shall be identified in consultation with tribes and are available for their use when requested.

Guidelines (FW-TRIBAL-GD)

01 Tribes or tribal representatives can request and should be granted temporary area closures in order to conduct ceremonial activities in private.

02 Large, easy to read signs should be placed along Forest roads at entrance locations that tell people that they are entering a traditional sacred area and to show respect. These signs should identify the actions that show respect and include a phone number to call to report looting or vandalism.

03 Tribal level permits for collecting and gathering of forest resources for cultural and traditional ceremonies and practices should be available.

04 Free tribal and personal use permits for collecting and gathering forest resources should be administered collaboratively with tribal governments.

05 Plant populations and communities of tribal value should be protected during fuels reduction activities.

06 Collaborate with tribal representatives to identify ways to protect traditional practice cultural resources from adverse impacts due to visitation or specific project proposals.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize expanding the Forest's acknowledgement of and respect for tribal sovereignty.
- Recognizes and respect that tribal interests extend beyond narrowly defined cultural resources and include other resources such as wildlife, fisheries, plant communities, landforms and springs. Taken together, these make up the landscapes to which tribal beliefs are anchored, and the land is the foundation of tribal sovereignty.
- Recognize and respect that there are types of cultural resources that can only be recognized by tribal representatives who know traditional cultural practices.
- Promote cultural continuity and, ultimately, tribal wellness by preserving and restoring land, wildlife, and natural resources as a sanctuary for spiritual and cultural renewal.

2.10 Recreation and Access

See Also

Scenery Management, Moab Geographic Area, and Elk Ridge Geographic Area.

Description and Values

The Manti-La Sal National Forest covers a diverse landscape and serves diverse communities across its North and South Zones. Emphasis is on dispersed recreation, allowing visitors to escape the routine of life and enjoy a less structured natural environment. Management is motivated by both resource protection and visitor freedom.

The Forest delivers natural settings with opportunities for high-quality recreation and for solitude and an escape from everyday life. Recreation includes camping, cross-country/backcountry skiing, birdwatching and wildlife viewing, fishing and big game hunting, hiking, rock climbing, horseback riding, motorized and nonmotorized trail experiences, mountain biking, open-water activities, kite boarding, snowboarding, and winter over snow vehicle activities.

The North Zone (Ferron/Price and Sanpete Ranger Districts) is characterized by the open rolling terrain of the San Pitch Mountains and Wasatch Plateau, all within 1 or 2 hours of a million people on the Wasatch Front. Urban residents are afforded an escape from their environment, while residents in the small communities in Sanpete and Castle Valleys enjoy their proximity and connection to the Forest.

Recreation use on the North Zone is primarily motorized, with over 100 miles of motorized trails, including the Arapeen OHV Trail System, and renowned winter snowmobile opportunities. World-class climbing destinations found in Maple Canyon and Joes Valley and the unique snow-kiting experience found at Big Drift are just three examples of the nonmotorized gems found on the North Zone.

The South Zone consists of three distinct landscapes, one of which is the La Sal Mountains, which serve as the backdrop to Arches and Canyonlands National Parks and the backyard for the recreation destination community of Moab, Utah. The La Sal Mountains provide, a respite from the surrounding desert heat, and important recreation opportunities for both locals and tourists from around the world. Mountain biking is a popular activity on this portion of the Forest, as well as the more traditional recreation activities: hunting, hiking, and camping. Winter recreation is a growing use in the La Sal Mountains, with Nordic and backcountry skiing in the Geyser Pass area and over-snow vehicle use on the east side of the range. A variety of authorized outfitter and guides and recreation events use the range, which is a direct economic benefit to the local community.

The Abajo Mountains and Elk Ridge area make up the rest of the South Zone. This area contains high mountains, plateaus, and canyons. The Abajo Mountains are an important recreation resource for the adjacent communities of Monticello and Blanding and provide popular dispersed camping, as well as both motorized and nonmotorized trail opportunities. The Elk Ridge area contains a portion of Bears Ears National Monument and provides outstanding opportunities for backpacking and visiting cultural resources in a backcountry setting. The area also provides for high value big game hunting.

Additionally, the Forest offers opportunities for heritage tourism through the interpretation of the many people in the past and present whose lives were intertwined with the lands that now make up the national forest. These include ancient and historic American Indian hunters and farmers; historic European American loggers; coal, uranium, and gold miners; livestock grazers; and water users who built extensive reservoir and canal systems on the Forest.

Developed recreation opportunities range from small campgrounds with 10 to 12 units to larger, more consistently occupied campgrounds, such as those at Joes Valley, Warner Lake, Devil's Canyon, and Lake Canyon. Group sites accommodating 30 to 50 people are available at most campgrounds, providing desirable settings for summertime larger family gatherings. Seven former guard stations have been added to the cabin rental program, and each has become increasingly popular. A connected system of vista corridors offers a diversity of spectacular views and interpretation of ancient landscapes at various places across the forest.

Dispersed camping next to vista corridors and along many other forest roads has been occurring for generations. Many of these campsites have expanded over time to become launch points for creation of non-system routes. Dispersed site designation and containment to protect surrounding natural resources has proven successful along Huntington Canyon, 12-Mile Canyon, and the Miller Flat Road, and should continue as a management tool.

Data from campground reservations, trail and road use, and commercial recreation permits across the Forest indicate a significant upward trend in recreation uses. The agency's National Visitor Use Monitoring data reported that there are now more than 1 million people living within 50 miles of the Forest, which is a 30 percent increase since 2000 (English et al. 2015).

Goals (FW-REC-GL)

01 Develop and maintain volunteer programs, partnerships, and conservation education opportunities to engage the public in stewardship of natural and cultural resources.

02 Coordinate with local communities and local, state, and tribal tourism organizations to promote an integrated recreation experience for visitors as well as to better respond to local and regional recreational demands, diversity and interests.

Desired Conditions (FW-REC-DC)

01 Recreation opportunities reflect the unified Manti-La Sal's recreation niche, to be a forest rich in family tradition, that provides a well-connected system of Byways, Backways and trails with spectacular views, interpretation of ancient landscapes, and dispersed recreation opportunities for visitors to escape the routine of life and enjoy their Forest in a less structured setting.

02 Existing and new recreation sites, facilities, and trails minimize environmental impacts, are accessible, enduring, low maintenance, complement the natural setting, and are adaptable to new recreation demands.

03 Dispersed recreation sites are available in desirable locations, managed to reduce the risk of social and environmental impacts, and compatible with the recreation opportunity spectrum setting and current travel management plans.

04 High-quality motorized winter recreation opportunities are provided, including winter use parking in high-use areas. Nonmotorized winter recreation areas provide for quiet winter recreation opportunities where designated.

05 Healthy forest vegetation in developed recreation sites complement recreational activities, scenery, and safety.

Objectives (FW-REC-OB)

01 Complete a condition assessment for each developed recreation site every five years.

02 Complete a hazard tree evaluation and remove identified hazard trees in all developed sites annually.

03 Develop corridor management plans for South Skyline Drive, Ephraim/Orangeville Road, La Sal Mountain Loop Road, and Harts Draw Road within ten years of plan approval.

04 Coordinate with state, county, and municipal governments as well as volunteer groups to plow winter trailheads and provide trail grooming annually.

05 Install at least one informational kiosk, or interpretive sign, discussing the recreational impacts to alpine communities, at a trailhead that accesses alpine areas within ten years of plan approval.

06 Designate motorized winter recreation opportunities across the Forest and develop a corresponding over-snow vehicle use map within the life of the plan.

Standards (FW-REC-ST)

01 Camping shall be prohibited in dispersed sites within one-quarter mile of developed fee sites.

02 All new or rehabilitated recreation facilities, sites, and programs comply with applicable federal and Forest Service accessibility guidelines and standards.

03 Ensure the built environment and resource conditions at developed recreation sites are consistent with applicable Scenic Integrity Objectives, the Forest Service Built Environment Image Guide, and applicable land management and vegetation management plans.

04 Recreation facilities and trails shall be consistent with the recreation opportunity spectrum class designations and specialized plans, including but not limited to wilderness, scenic byway, and trail management plans.

Guidelines (FW-REC-GD)

01 Developed sites where fee revenues do not sustain operational costs should be managed at reduced service levels unless resource benefits, or safety indicate a need to continue to manage at a higher service level.

02 Culinary water systems should not be provided at developed recreation sites unless human health and safety make them necessary. If they are deemed necessary, provide a minimal level of service, such as a well with hand pump or limited service connection distribution system.

03 Vegetation management and treatment activities should be scheduled to minimize conflicts with recreation use.

04 Developed recreation sites should be fenced where possible to exclude livestock grazing. If fencing is not possible, livestock grazing should be timed to minimize conflict with recreation use of the site.

05 Dispersed camping and associated vehicle access near lakes, streams, springs, and wetlands should be managed to protect riparian and aquatic ecosystems and to maintain the quality of the recreation experience.

06 New utility corridors should be located outside of developed recreation sites and high use dispersed sites.

07 Dispersed sites, areas, and travel routes should be closed, either permanently or seasonally, when a high risk of damage to cultural, aquatic or wildlife resources occurs, or user conflicts, or health and safety are compromised.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on how to remain flexible enough to meet increased demand for recreation opportunities without experiencing unacceptable impacts on resources.
- Emphasize effective management solutions that consider existing changes in technology, emerging new technology, rapid population growth, and changing demographics with different demands, diversity, and interests.
- Prioritize necessary public services and settings that provide the basis for recreation opportunities and experiences.
- Recognize that not all new uses may be appropriate on the Forest and emphasize facilitating opportunities for those that are appropriate.
- Emphasize recreation opportunities that are responsive to the rapidly growing population of the Wasatch Front and increasing visitor use in the Moab area.
- Focus future priorities on data collected via National Visitor Use Monitoring surveys conducted every 5 years. This data includes indicators on activity participation, demographics, visit duration, visitor satisfaction, and trip spending across the forest.

2.10.1 Recreation Opportunity Spectrum

Description and Values

The ROS offers a framework for understanding the relationships and interactions between the different types of recreation on the Forest. The spectrum consists of six major classes for Forest Service use: urban, rural, roaded natural, semi-primitive nonmotorized, semi-primitive motorized, and primitive. Maintaining a broad spectrum of these classes is very important to provide people with recreational activity choices. Maps of the recreation opportunity spectrum are displayed in Appendix A.

While there are six recreation opportunity spectrum classes, the Manti-La Sal does not possess any urban class areas. Generally, the Manti-La Sal provides three general settings, two of which combine two of the remaining five classes. The following descriptions provide examples of the three lumped settings on the Forest.

Rural and Roaded Natural Classes

These two classes are where the most developed recreational sites on the forest are found. Vehicle accessible developed campgrounds, day-use sites, reservoir fishing sites, and dispersed campsites that have been used by local families and regional visitors for generations are all categorized in one of these two classes. Opportunities for vehicle-based sight-seeing including interpretive sites that highlight the cultural and scenic resources of the Forest are present. Corridors of these classes surround the Huntington and Eccles Canyons National Scenic Byway, and the six Scenic Backways: Chicken Creek Road, Skyline Drive, Ferron-Mayfield Road, La Sal Mountain Loop Road, Elk Ridge, and Abajo Loop Road. All of these provide extraordinary panoramas of mountains and canyons, accented with lakes, red rock spires, wildflowers, fall colors, and pastoral settings. The Manti-La Sal has small areas of Rural class, at

the mostly highly developed campgrounds on the forest, such as Joes Valley and Devil's Canyon. The bulk of this lumped category is Roaded Natural.

Semi-primitive Motorized Class

This class is often found adjacent to and accessed from Rural and Roaded Natural road corridors. Activities in this class are often family-based dispersed camping and motorized use. While motorized use is emphasized in this class, there are inclusions of nonmotorized areas. Vehicle-based sight-seeing, dispersed camping, hunting, fishing, and winter snowmobiling are popular activities with areas classified as Semi-primitive Motorized. Key areas include the Arapeen and Abajo trail systems, as well as favorite roads such as Skyline Drive, Geyser Pass, and La Sal Pass.

Semi-primitive Nonmotorized and Primitive Classes

These classes account for the largest amount of nonmotorized recreation opportunities, such as hiking, horseback riding, mountain biking, fishing, hunting, and climbing on the Manti-La Sal. This setting emphasizes nonmotorized use, but it may have some motorized inclusions. Opportunities for solitude and challenge are emphasized in these classes. Primitive dispersed camping is common, and the scenery generally appears intact and unaltered by human activity. Ecological processes such as fire, insects, and disease are the primary factors affecting landscape patterns. Sounds of motorized use are generally not heard in the core of these areas. These classes include the Dark Canyon Wilderness Nelson Mountain Wilderness and areas such as Hammond and Arch Canyons, Fish Creek, and Candland Mountain.

Desired Conditions (FW-ROS-DC)

01 Recreation opportunities are available across a variety of settings that foster quality year-round developed and dispersed experiences, as well as motorized and nonmotorized opportunities as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values in a sustainable manner with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.

02 The type and level of infrastructure, visitor services, and information are sustainable and consistent with the desired recreation opportunity spectrum settings.

03 Developed sites are within the Roaded Natural setting. These sites not only attract visitors but meet the applicable maintenance standards and are fiscally sustainable.

04 Campsites along Roaded Natural corridors that exhibit high resource impacts are identified and mitigation actions implemented.

05 Motorized route density in the Semi-Primitive Motorized classes averages 1.7 miles per square mile or less to provide for wildlife security.

06 Dead-end roads extending into Semi-Primitive Nonmotorized areas are consistent with this desired recreation opportunity spectrum setting.

Objectives (FW-ROS-OB)

01 Inventory all dispersed sites along Roaded Natural recreation opportunity spectrum corridors over the life of the plan. When high impact sites are identified, action to address impacts shall be taken within five years.

02 Designate dispersed camping sites along the following Roaded Natural corridors: La Sal Loop Road, Harts Draw Road, Johnson/North Indian Creek Road, Lake Fork Canyon Road, and Cottonwood Canyon Road within five years following plan approval.

Standards (FW-ROS-ST)

01 New roads and motorized trails shall not be located within the Semi Primitive Nonmotorized and Primitive classes. Existing roads and motorized trails in these classes shall be considered for closure in Travel Planning.

02 New motorized roads and trails shall be located within the Roaded Natural and Semi-primitive Motorized classes.

Guidelines (FW-ROS-GD)

01 Recreation management activities at developed and dispersed recreation sites should be consistent with desired recreation opportunity spectrum development levels.

02 Interpretive signage should be located along Roaded Natural road corridors unless required elsewhere to mitigate damage from recreational use.

03 Resource management activities, including but not limited to timber harvests, livestock grazing, wildlife habitat improvements, vegetation treatments, mineral exploration and developments, and special uses should only occur in Semi-Primitive Nonmotorized class areas if they both meet the location's scenery integrity objective and maintain a high-quality nonmotorized recreation opportunity.

04 Dispersed camping along Roaded Natural corridors, where high-impact sites are identified should be designated.

2.10.2 Recreation Special Use Permits

Description and Values

Recreation special use permits are issued for individuals or other entities to conduct activities on National Forest System land beyond normal day-to-day uses of the forest. Recreation special use permits are issued for recreation events, outfitting and guiding, and commercial filming.

The diversity of landscapes and terrain available on the Manti-La Sal, offers an equally diverse spectrum of recreation opportunities. Some of these opportunities require specialized skills and knowledge to ensure a safe and enjoyable experience. Time constraints combined with increased desire to learn have made outfitting and guiding services ever more appealing to current forest visitors who seek a richer yet time constrained experience. Public demand for guided recreation activities and interest in new business opportunities to boost economies around the Manti-La Sal are increasing the number of outfitting and guiding proposals received by the Forest from both new proponents and existing permittees.

The Manti-La Sal National Forest has one of the largest recreation special use programs in Region 4, focused primarily on the high level of tourism in the greater Moab area. These permits cover a wide range of uses including; large commercial bike and foot races, shuttle companies, hunting guides, climbing, ski huts, ATV tours, backpacking, and mountain biking. These businesses and events add to the local economies and provide opportunities that would not otherwise be available to sections of the

public. Permitted outfitter and guides, and recreation event organizers are seen as partners in achieving management goals on the forest.

Goals (FW-RECSUP-GL)

01 The Forest views permittees as partners who educate and inform their clientele about applicable regulations and policies as well as how to care for a value the resources of the Forest.

Desired Conditions (FW-RECSUP-DC)

01 Recreation special use permits are administered to standard and are issued consistent with the Forest's current Special Use Permitting Process and Needs Assessment documents.

Objectives (FW-RECSUP-OB)

01 Twenty percent of permits will be inspected annually.

Standards (FW-RECSUP-ST)

01 Permits for outfitting and guiding in alpine areas shall not permit overnight use or building of campfires.

02 Permits for permitted outfitting and guiding in alpine areas shall include stipulations to pack out all solid human waste, urinate on rocks and not on vegetation, and travel on trails or bare rocks.

Guidelines (FW-RECSUP-GD)

01 Restrictions on all recreation permitted special uses should be applied where user conflicts are identified.

02 Permits for special recreation events should not be issued on the opening of the primary hunting seasons, such as general deer and elk, and during summer holiday weekends, including but not limited to Memorial Day, July 4th, Pioneer Day, on July 24th, and Labor Day.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- The Forest prioritizes providing special use permits that are responsive to public needs, provide unique opportunities, services, and experiences for the public, and contribute to meeting resource management objectives.

2.10.3 Access

Description and Values

Access to the Manti-La Sal is facilitated by a transportation system that includes both roads, as well as motorized and nonmotorized trails. The road and trail systems include not only the travel way tread, but all other associated constructed features such as bridges, ditches, culverts, signs, and retaining walls, that support the user and minimize the effects to other resources and values. The transportation system is important not only for recreational access, but for a broad suite of resource needs, such as livestock grazing, mineral extraction, timber harvests, vegetation management, access to water infrastructure, and fire suppression. For many Forest visitors, the road system is the primary way they experience the

Forest and for an even greater number the road and trail systems are the only way the interact with the Forest.

While the transportation system has many benefits to management of and access to the Forest, there can be undesirable impacts on other resources, including but not limited to increased erosion, habitat connectivity impacts sediment accumulation in waterways and reduction in areas of quiet and solitude. There are about 2,300 miles of Forest roads that are open at least part of the year to motorized vehicles, which allow visitors to drive to portions of the Forest and operate over-snow vehicles in the winter months. There are about 1,100 miles of authorized trails accessible for motorized and nonmotorized recreation as well as quiet winter access.

Motorized trail opportunities include a mix of single track, 50 inches or less, and 66 inches or less routes. Demand for additional motorized trails persists, including for trails that can accommodate wider vehicles as well as over the snow opportunities. Demand for nonmotorized opportunities to accommodate an evolving suite of technologies and activities is also present as population and public diversity also increases. Nonmotorized trails include those designed for hikers, equestrians, mountain bikers and Nordic skiers.

Travel management on National Forest Service lands is directed by the 2005 Travel Management Rule. The rule requires designation of roads trails and areas that are open to motor vehicle use and prohibits motorized use off the designated system. Travel management planning, though separate from Forest Planning, identifies the transportation system that provides appropriate access to public land needed for multiple-use, resource management, public recreation, administrative, and special use of NFS lands. Forest roads connect to local, state, and interstate transportation systems. They provide vital conduits for economy, while ensuring that biodiversity, wildlife habitat condition, a diverse range of recreation opportunities, and overall landscape condition and function are maintained or improved.

Road and trail maintenance funding has been decreasing on the Forest for the past 15 years. At the same time, local populations have grown and demands for access to the Forest have increased. Over time, routine maintenance has been reduced, maintenance cycles extended, and selective repairs made. Serious public safety and resource damage concerns are a possibility as a result of the increased demand and decreased funding.

Goal (FW-ACCESS-GL)

01 Expand partnerships and agreements with local governments, partners, and volunteers for shared maintenance and monitoring of roads and trails.

02 When planning, evaluating, and managing the Manti-La Sal trail system, consider linking routes into cohesive and connected trail networks through collaboration with local, state, federal, and tribal governments.

03 New motorized and nonmotorized trails are developed and maintained with municipalities, counties, states, and other federal agencies and partners to allow for shared maintenance and connectivity.

Desired Conditions (FW-ACCESS-DC)

01 The road system serves land management and public needs and purposes. It is interconnected with federal, state, and local public roads to provide access to lands, infrastructure, other land ownerships, and inholdings where appropriate.

02 The system of roads and trails are well marked, protect natural and cultural resources, promote safety, and minimize conflict among various user groups while accommodating appropriate access to the Forest.

03 The system is financially, ecologically, and socially sustainable for the Forest, while contributing to the social, cultural and economic needs of local communities.

04 The designated system of trails provides both motorized and nonmotorized opportunities for summer and winter recreation with minimal conflict between modes of travel.

05 Easements necessary to provide for public and administrative access are acquired and maintained.

06 Road and motorized trail use do not impact wildlife winter range and quiet winter recreation opportunities.

07 A mix of motorized single-track, 50-inch, and 66-inch wide trail opportunities provide for a diversity of users and vehicle types, as well as different levels of challenge in a variety of terrain and conditions.

08 Roads and trails are not generally used when covered with snow or saturated soils to prevent damage to the travel way, associated features and other resources.

Objectives (FW-ACCESS-OB)

01 Maintain 50 percent of our passenger car system, level 3-5 roads, annually, to maintain to federal highway standards.

02 Identify where easements are needed to maintain public access and prioritize acquisition of easements within ten years of plan approval.

03 Update Motor Vehicle Use Maps, also knowns as MVUMs, annually to identify all motorized use routes open to visitors.

04 Inventory and replace if needed at least ten percent of motorized route markers annually and replaced to ensure that signage is functional and consistent with the Motor Vehicle Use Map.

05 Maintain to standard a minimum of 100 miles of nonmotorized trail and 80 miles of motorized trail annually.

06 Assess and monitor visitor use and satisfaction on the Whole Enchilada trail system and other emerging high use trails every five years to address other non-motorized trail use conflict. Implement management alternatives, if needed, within an additional five years of identification.

07 Plan and coordinate, maintenance and monitoring of roads and trails with local governments, partners and volunteers annually.

Standards (FW-ACCESS-ST)

01 Exceptions to motorized travel for administrative activities shall be authorized by permit when needed.

02 Administrative level 1 roads shall not be used by the general public, except where they are dual designated as motorized trails.

03 Gates or other barriers shall be installed to manage use of administrative level 1 roads.

Guidelines (FW-ACCESS-GD)

01 Road and trail construction, reconstruction, and maintenance activities, including for temporary roads and skid trails, should prevent concentrated water from directly entering streams, by hydrologically disconnecting the roads or trails from delivering water, sediment, and pollutants to water bodies, except at designated stream crossings.

02 New roads and trails should be located outside of riparian areas and only cross them in sustainable locations.

03 During project design, the travel management decisions should be based on the most current transportation analysis plan and public input.

04 Road maintenance and new road construction should minimize adverse effects to aquatic and wildlife species, including impacts to their movement and habitat.

05 Drainage features and crossings including but not limited to bridges, culverts, and low water crossings should maintain wetland or riparian zone function and characteristic to protect water quality and stream stability.

06 Road and trail closure devices should be maintained to remain effective.

07 Open roads and trails should be maintained and signed to standards.

08 Roads and trails not on the system should be closed to motorized use, unless motorized use is authorized under permit.

09 Motorized trails should be built no wider than 66 inches, unless necessary to mitigate other resource impacts or user safety.

10 Seasonal motorized use area closures should be used to protect wildlife winter range and opportunities for quiet winter recreation.

11 Appropriate mitigation measures for existing roads and trails in riparian management zones that are negatively impacting aquatic resources, should be applied including hardening, rerouting, or closing.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize maintaining an appropriate and sustainable balance between demand for motorized trails of 50 inches or less and motorized trails of 66 inches or less in future travel management planning.
- Emphasize developing the trail system as described in the National Strategy for a Sustainable Trail System.
- Base project designs and National Environmental Policy Act decisions affecting the transportation system on the most current Transportation Analysis Report and public input.
- Amend the Transportation Analysis Plan based on not only the most current Transportation Analysis Report and public input, but also transportation system decisions that have been evaluated during National Environmental Policy Act analyses.

- Prioritize maintenance to mitigate resource damage and promote public safety on roads and trails.
- Prioritize repairing roads and associated features in priority watersheds, especially where chronic sediment sources exist.
- Repairs for locations where roads are impacting riparian management zones, should include but are not limited to addressing culvert configuration, reducing sediment delivery to waterways from roads, or realigning stream constraining road segments. Use the travel analysis process road crossing conditions as a guide.

2.11 Scenery Management

See Also

Recreation and Access, Facilities Management, and Land Ownership and Special Uses.

Description and Values

Most visitors to the Manti-La Sal value and enjoy and value the cultural landscapes and scenic character the Forest provides. Whether a visitor is recreating or working, the view of the surrounding landscape is often an important part of their experience. The scenery of the Manti-La Sal is a regional driver for tourism, recreation, and the economy, as well as the growth of communities. Scenery is enhanced or maintained to have resilience to changing conditions, while supporting ecological, social, and economic sustainability on the Forest and surrounding landscapes.

The La Sal and Abajo Mountains, which are unique high elevation island ecosystems surrounded by vast desert landscapes, serve as a highly valued scenic backdrop for Arches and Canyonlands National Parks. The La Sal Mountains also provide stunning views of the surrounding red rocks of Moab and Castle Valley, Utah. Impressive scenes from the Abajo Mountains include views of Monument Valley, Canyonlands National Park, and mountain ranges in the surrounding states of Colorado, New Mexico, and Arizona, as well as north to the La Sal Mountains. Dark Canyon Wilderness is characterized by deep sandstone canyons with spectacular vertical walls and soaring sandstone cliffs. In addition to this stunning natural scenery, Dark Canyon Wilderness is one of only a few designated wilderness areas with significant visible American Indian archaeology.

The Wasatch Plateau and San Pitch Mountains frame the Sanpete Valley to the east and west, while in the Castle Valley area extending from Price to Emery, the Wasatch Plateau creates what Edward Geary called the “proper edge of the sky”, in his book of the same name. Views from the plateau are particularly expansive on clear days, when views of Mt Nebo and Mt Timpanogas to the northwest and the La Sal Mountains to the southeast are stunning. Steep canyons are incised into the flanks of the plateau, dropping precipitously to the Sanpete Valley and more gradually to the Castle Valley 4000 feet below.

Although a variety of landscapes may be visually pleasing, the Scenery Management System sets a comprehensive science-based framework to determine and describe scenic character, as well as manage to maintain it. Scenic character descriptions not only describe the physical and biological features of the landscape but also the cultural features and natural disturbances like fire on a landscape.

Scenic integrity objectives along with scenic character descriptions, are developed following the Scenery Management System handbook direction. Scenic integrity objectives are a measure of the degree to which a landscape is visually perceived to be complete when compared to the scenic character of an area. Scenic integrity objectives have been assigned to all Manti-La Sal lands to guide the design and implementation of land management activities to meet desired thresholds of allowable visual

dominance from landscape modifications. Projects are designed to meet the scenic integrity objectives of high, moderate, low, or very low, as viewed in the foreground, middleground, and background from identified critical viewing platforms such as travelways and viewpoints. The one exception to this is where a scenic integrity objective of very high has been assigned, in these areas a project should be designed to meet very high viewed from anywhere, including from the air. Projects that are not visible from any identified critical viewing platforms, due to topography obstructing views, do not need design measures to meet the areas' assigned scenic integrity objectives. Appendix A includes the scenic integrity objective maps.

Goals (FW-SCENERY-GL)

01 Collaborate with adjacent federal, state and local public land agencies when planning and implementing projects where the viewshed includes these adjacent lands.

02 Partner with other entities, such as the Utah Department of Transportation, tribal and local governments, and commercial and private entities to protect scenic integrity on and adjacent to the national forest, including along scenic byways.

03 Work with partners, permittees, owners and developers where non-Federal projects occur on Federal lands, to achieve scenic integrity objectives for the area.

04 Provide scenery management inventory information to local adjacent and neighboring land management agencies for integration into projects and plans.

Desired Conditions (FW-SCENERY-DC)

01 The Manti-La Sal's scenery reflects the natural and cultural range of variability within the landscape's varied ecological regions in relation to viewing contexts and expectations for highly valued viewsheds. This is reflected in the scenic character descriptions.

02 The scenic character of the Manti-La Sal is characterized by a predominately natural-appearing landscape of high plateaus, island mountain ranges, broad sandstone canyons and multiple overlapping cultural landscapes, which reflect the Forest's sense of place as well as recreation niche.

03 High-quality scenery and scenic attractiveness are protected in areas the public values highly for scenery, such as scenic byways, major roads and trails, designated wilderness areas, inventoried roadless areas, developed recreation sites and geographic areas with scenic values.

04 The scenic integrity of landscapes is restored, maintained, or enhanced across the Forest.

05 The Manti-La Sal's scenery, as described by the scenic integrity objectives positively contributes to the quality of life of local communities and visitors while reflecting a range of allowable alterations that balances social and economic values, ecosystem health, landscape dynamics, resilient landscapes, and sustainability.

06 The La Sal, Abajo, and Elk Ridge landscapes continue to be valued as scenic backdrops to the surrounding National Parks and Monuments in addition to being valued from nearer viewing contexts.

07 High-quality dark skies are present and valued across the Forest.

08 Built environment elements across the Forest reflect the architectural character of the area and blend with natural settings to remain an integrated part of the cultural and scenic landscape.

Standards (FW-SCENERY-ST)

01 Scenery management, scenic character evaluation, and scenery integrity objective analysis shall be integrated into the design, planning, and implementation of all resource management decisions.

Guidelines (FW-SCENERY-GD)

01 Constructed features, and management activities should closely follow the form, line, color, texture, and pattern described in the desired scenic character to remain visually subordinate to the surrounding landscape, except where the size or design of a structure is such that it would dominate the landscape. For those exceptions, the structures should complement the desired scenic character.

02 Management activities should be consistent with scenic integrity objectives for the area and visibility of the activities should diminish over time.

03 Management activities that result in short-term impacts inconsistent with assigned scenic integrity objectives should achieve the scenic integrity objectives over the long-term. Short- and long-term timeframes should be defined during site-specific project planning. Projects should include mitigation measures to address impacts to scenic resources.

04 Vegetation management activities should be designed to reflect natural disturbance regimes and processes to meet or exceed the scenic integrity objectives and maintain the desired scenic character.

05 Construction or reconstruction of facilities including but not limited to those for recreation and administration, as well as any special use permitted facilities, should be consistent with both the assigned scenic integrity objectives and the Built Environment Image Guide, to ensure consistency with the desired scenic character of the Forest and with the cultural landscapes of the area.

06 Dark sky best management practices should be incorporated into the design of all new facilities.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize incorporating scenery guidance and design features into all projects as recognition that a benefit to the scenery resource often benefits other resources, since the primary sense Forest users and visitors rely upon to determine their value and experience of the Forest is based on what they see.
- Prioritize projects that may move areas not currently meeting their scenic integrity objectives towards meeting or exceeding their scenic integrity objectives.
- Focus management of the scenery resource on direction provided in the Scenery Management System handbook.
- Assess and incorporate viewshed analysis from viewing platforms beyond the forest boundary, especially where the forest is adjacent to other public land ownerships where the forest serves as the dominate background view.

- Integrate ways to improve scenic integrity, where existing scenic conditions are not consistent with desired scenic integrity objectives, into other resource projects, such as including project activities to remove unwanted or unneeded facilities, recontour topography, or revegetate bare ground.

2.12 Facilities Management

See Also

Cultural and Heritage Resources.

Description and Values

Manti-La Sal personnel manage a variety of facilities, both buildings and non-transportation system structures. This classification includes administrative facilities such as offices, warehouses, employee housing, and fire facilities, repeater sites, and communication towers. These facilities serve a variety of purposes and enable the Forest Service to fulfill its mission. There are 27 Forest-owned facilities, specifically 7 guard stations, 6 non-office buildings, 4 district offices, and 10 repeater and communication sites.

Desired Conditions (FW-FACILITY-DC)

01 All facilities are safe, clean, and structurally sound, energy and cost efficient, accessible to persons with disabilities, and meet the needs of Forest personnel.

02 Facilities eligible for the National Register of Historic Places are available for Forest administration, public recreation, and interpretation, and other uses where possible and appropriate.

03 Facilities are managed to the current Facility Master Plan and facilities are repurposed or decommissioned when the Forest's needs change.

Standards (FW-FACILITY-ST)

01 Facilities that are listed on or are eligible for the National Register of Historic Places shall be managed in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Guidelines (FW-FACILITY-GD)

01 Facilities no longer used as intended should be repurposed to accommodate a new use or be decommissioned to minimize maintenance backlog and infrastructure deterioration, and to protect public safety and health.

02 Facility design, maintenance, and renovation should incorporate emerging technologies and sustainable concepts to improve energy efficiency, reduce costs, conserve natural resources, improve functionality, improve accessibility, and ensure consistency with both the built environment image guide and the site's scenic character.

03 Modifications or additions to facilities should avoid wetlands, seeps, springs, riparian areas, stream bottoms, and areas of cultural significance.

04 New administrative facilities should be built using the smallest feasible environmental footprint, located in areas to best meet Forest management needs, and meet the built environment image guide and scenic character of their location.

05 Facilities should be maintained to a standard that protects the inhabitant and integrity of the asset.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on maintaining and managing facilities in a manner that meets the needs of the intended purpose and provides long-term sustainability of the structure.
- Prioritize new facilities to provide employee housing to meet the Forest's workforce needs, if funding becomes available.

2.13 Land Ownership and Special Uses

See Also

Scenery Management, and Recreation and Access.

Description and Values

The three primary functions of the Forest lands program are land survey and boundary management, land adjustments, and non-recreation special uses. Management of National Forest System lands on Manti La-Sal National Forest is important to retain in public ownership all lands currently under its administration that meet the long term vision and value of maintaining the integrity of contiguous natural ecosystems, riparian areas and wetland ecosystems, recreation and scenery opportunities, clean air and water, and habitat for plant and animal populations. Through the methods available to the agency, the Manti-La Sal National Forest values acquisition, conveyance and exchange of lands or mineral estates to enhance this vision. Lands or mineral estates that do not meet the envisioned needs could be considered for disposal. In all cases, the primary guiding principle would be in the public benefit.

Surveying National Forest boundaries, maintaining posted property lines, and defending public lands from trespass or encroachment are activities that maintain the integrity of the National Forest System. The Manti La-Sal National Forest has some instances of both inholdings, that are surrounded by Forest lands, and near inholdings, partially surrounded by Forest lands, found within the confines of the Forest boundary.

Desired Conditions (FW-LAND-DC)

01 Private land ownership within the administrative boundary of the Manti-La Sal National Forest is consolidated to improve management of National Forest System lands, reduces wildlife-human conflicts, provides for ecological connectivity, and improves access to public lands.

02 Easements or rights-of-way provide adequate access to both private property and Forest lands.

Standards (FW-LAND-ST)

01 To provide public and administrative access to National Forest System lands, land adjustment proposals shall consider reciprocal right-of-way acquisitions when feasible.

02 Land ownership adjustments shall only be considered if they improve management of National Forest System lands by either consolidating land ownership, providing public access to public lands, or protecting and enhancing resources.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize land adjustment proposals that improve ownership patterns within the National Forest System that enhance manageability or provide access to the National Forest System lands.
- Identify and evaluate the need to acquire lands outside of the Forest Service administrative boundary that would prove beneficial in current or future management objectives.
- Focus on acquiring easements to provide access to National Forest System lands and for roads or trails that cross other lands that are not covered under a legal right-of-way.
- Prioritize surveying and posting property lines on boundaries with private landowners over those with other Federal and state lands.

2.13.1 Lands Special Uses

See Also

Minerals and Energy Resources.

Description and Values

Special use permits authorize the occupancy and use of National Forest System lands by private individuals, organizations, or companies for a wide variety of uses. Such uses include roads, dams, water systems, utility corridors, communication sites, and other private or commercial uses that cannot be accommodated on private lands and that conform to management direction for the area.

Requests for occupancy and use of National Forest System lands must be submitted as a proposal, which is a request to use National Forest System lands. The proposal must pass a two-level screening process to determine if the proposed use is consistent with Forest Service policy before it can be accepted as a formal application.

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

Goals (FW-LANDSUP-GL)

01 Work with private landowners to create user associations to facilitate the Forests ability to issue one authorization for multiple inholdings rather than individual authorizations for the same area’s access.

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

Desired Conditions (FW-LANDSUP-DC)

01 Opportunities are available for a wide variety of non-recreation lands special uses. These uses include but are not limited to roads, dams, water systems, utilities, energy transmission rights-of-way, and other public or private services on lands that are suitable for these activities and that cannot be accommodated on other land.

02 Utility corridors and communication sites meet safety standards and permittee needs as well as resource considerations.

03 Service roads accessing permitted infrastructure are gated to reduce likelihood of vandalism and reduce unauthorized routes on National Forest System Lands.

04 Unauthorized private improvements are not present on the Forest.

05 Obsolete and unused permitted infrastructure and no longer authorized infrastructure are not present on the landscape.

Objectives (FW-LANDSUP-OB)

01 Complete permit inspections on 20 percent of existing authorizations annually.

02 Map all issued authorizations and make them available electronically within 5 years of plan approval.

03 Create a digitized special use authorization filing system within 10 years of plan approval.

04 Eliminate backlog of expired authorizations within 5 years of plan approval.

05 A master communication site plan for the Forest shall be completed over the life of the plan.

Standards (FW-LANDSUP-ST)

01 Private easements or rights-of-way are granted only when no other reasonable access to private property exists. Only one access route shall be authorized to each private property inholding regardless of the number of property owners. No new access points to private property will be authorized when a parcel is subdivided.

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

03 Utility corridors and communication sites shall use existing facilities, sites, and corridors unless new sites can provide better social, economic, and ecological benefits.

04 Authorizations shall be renewed before they expire.

05 Proposals for isolated private cabins shall not be authorized.

06 Proposals for development on new summer home tracts and existing vacant lots shall not be authorized.

07 All communication sites shall have an approved communication site plan.

08 Authorizations for new infrastructure shall include bonding.

09 Proposals for new infrastructure should be constrained to existing sites. New sites should be avoided.

10 Infrastructure abandonment in place shall not be authorized, except for buried improvements, that do not have negative impacts to other resources.

Guidelines (FW-LANDSUP-GD)

01 To reduce long-term surface disturbance and impacts to scenic resources, new distribution lines and communication lines should be located underground. They should be co-located within or adjacent to existing road corridors. Exceptions may be made where it is not technically feasible or where installing the line overhead would reduce resource impacts.

02 Operation and maintenance plans that address health, safety, resource protection, and operating procedures should be included in all authorizations.

03 Authorization for new infrastructure and renewal of existing infrastructure should only occur if a location off Forest lands cannot be identified that can adequately meet the needs of the proposed activity.

Management Approaches

- Prioritize renewing authorizations and completing permitting of already accepted proposals before accepting new proposals.
- Emphasize future needs and emerging technologies when evaluating communication sites.

2.14 Minerals and Energy Resources

See Also

Land Ownership and Special Uses.

Description and Values

The energy resources found on the Forest, including coal and natural gas, provide energy sources for Utah and the nation. Approximately 80 to 85 percent of the total annual coal production in Utah is from federal and state coal leases on the Forest, and production has exceeded 19 million tons yearly since 1994 with an annual return to the federal treasury of over $30 million. Coal is shipped throughout the nation, with the majority fueling coal-fired power plants, which generate electric power for the western US. Historically, coal mining shaped the economy and demographic makeup of Carbon County and provided economic diversity to Emery and Sevier Counties. Coal mining continues to provide substantial contributions to the economies of those three counties.

Most mineral exploration on the Forest is for nonrenewable energy and minerals, such as underground coal, oil, and natural gas. Lesser exploration occurs for locatable minerals, such as gypsum and uranium. Commodity prices, which are dependent on both regional and global geopolitical issues, as well as supply and demand, are the principle factors that drive mineral exploration efforts.

Coal bed methane exploration is mostly outside the Forest boundary in topographical lows within the stratigraphically older Mancos Shale. Coal exploration on the northern portion of the Forest is primarily associated with known coal reserves that are located on or in close proximity to existing coal leases. Potash, a nonrenewable mineral, has been identified on the South Zone, in the southern end of the La Sal District.

Salable minerals are generally low value deposits and sources of sand, gravel, and stone suitable for building and construction materials, and road surfacing. There are numerous sources of sand, gravel, boulders, and sandstone on the North and South Zones. There are sites developed for the purpose of being mineral sources on both zones, as well as numerous undeveloped sites scattered across the Forest.

Locatable minerals found on the Forest have previously included gypsum and birdseye marble on the North Zone and gold, copper, uranium, and vanadium on the South Zone range. The last conventional uranium mill still operating in the US is located just outside Blanding, near the south end of the Forest, but very little active uranium mining continues on the forest today. However, past uranium and vanadium mining booms in Grand and San Juan Counties transformed southeastern Utah, expanding its cash poor farming economy and creating substantial benefits to household income, transportation, and communication. Dozens of small mines were established on the forest in the past, particularly during the 1950's era Cold War mining boom.

Numerous abandoned mine sites are located on the South Zone in both the Abajo and La Sal Mountains. These sites are comprised primarily of underground mines and prospects exploring uranium/vanadium deposits hosted in sedimentary rock formations. Many of the uranium mine and prospect adits remain open and accessible; consequently, they may pose a danger to the general public. Others have collapsed naturally or been permanently closed by state and federal agencies. Residual radioactivity associated with abandoned ore stockpiles and/or mine waste rock dumps also may pose a health risk to the general public.

Desired Conditions (FW-MINERALS-DC)

01 Promote the development of energy resources in an environmentally sound manner to meet societal needs and national security and to contribute to the local economy.

02 Abandoned mines are reclaimed in a safe, secure, and ecologically sound manner.

03 Domestic energy resource needs are supported without compromising the long-term health and diversity of resources on the Forest.

Objectives (FW-MINERALS-OB)

01 Evaluate a minimum of three abandoned mine land hazards that pose a risk to public health and safety annually.

Standards (FW-MINERALS-ST)

01 Groundwater and surface water flow shall not be diminished due to mineral and energy operations, including mining induced subsidence.

02 Mineral and energy operations shall not be sited in unstable areas.

03 Mineral and energy leases shall contain use and occupancy stipulations to minimize impacts on surface resources.

04 Consent to Bureau of Land Management coal resource leasing shall include stipulations to mitigate unacceptable surface impacts on Forest lands and surface resources.

05 Abandoned mine lands and mine sites shall be reclaimed to meet assigned scenic integrity objectives, as well as to eliminate hazards, to create stable site conditions, and ensure the long-term health of the Forest resources.

06 Minerals shall not be developed on segregated or withdrawn lands where removal is prohibited by statute or order.

07 Cultural resource and wildlife surveys shall be conducted prior to mine closures.

Guidelines (FW-MINERALS-GD)

01 Areas impacted by mining and energy development activities should be returned to pre-activity conditions and provide comparable form and function based on site potential.

02 Bat population enhancement and protection measures should be used when mines are opened or closed.

03 Mineral and energy operations should not release sediment and pollutants to the adjacent environment and aquatic systems. If avoidance cannot be achieved, the level of release should be minimized.

04 Operational proposals for locatable minerals, actions for requests on mineral leasing, prospecting permits, exploration licenses, and associated operating plans should be responded to within established legal and regulatory time frames whenever possible.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize site stabilization, hazard elimination, and ensuring long term health of the Forest resources.
- Opportunities for developing alternative energy sources such as wind and biomass are available.
- Consider proposals to develop mineral materials in accordance with agency or external needs.
- Emphasize using bat protection measures including seasonal closures, public education, and wildlife-friendly closures.

2.15 Fire and Fuels Management

See Also

Coniferous Forest, Deciduous Forest, Woodlands, and Timber Management.

Description and Values

Fire is a primary ecological process that has shaped and maintains forest and non-forest ecosystems, which in turn sustain native plant communities and wildlife species. Wildland fire on the landscape occurs due to unplanned and planned ignitions. This section provides guidance for the management of both types of wildland fire as well as for fuels treatment activities to meet various desired conditions and objectives for fire and other resources. Fire management strives to balance the natural role of fire while minimizing the adverse impacts on watershed health, wildlife habitat, high-valued resource assets, and air quality. The Manti-La Sal is a diverse forest with multiple vegetation types which require different fire regimes to successfully retain a healthy composition and structure. Therefore, multiple fire regimes are desirable across the forest, each based on the vegetation type of the area.

Treatment of vegetation for fuels mitigation is typically to control fire behavior, especially around high-valued resource assets and for firefighter and public safety. Fuels mitigation as well as fire risk crosses management boundaries, and therefore a cohesive strategy for all lands must be considered as an integral part of managing the fire resource. In some areas of the forest where there is a higher concentration of high-valued resource assets, fuels reduction activities should protect social, economic, and ecological values at risk from high-severity fire effects.

Goals (FW-FIRE-GL)

01 Implement a coordinated risk management approach with adjacent land managers to promote landscapes that are resilient to fire-related disturbances and to prepare and execute a safe, effective, and efficient response to fire.

02 The Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the Forest to provide education about wildfire risk, and wildland fire as an essential ecological process.

03 Work with communities and stakeholders to develop or update community wildfire protection plans, assessments, and management plans that identify and prioritize areas for treatment.

04 Provide education and resources to cooperators to mitigate negative impacts of wildfire.

05 Engage and work with communities, tribes, and stakeholders to identify factors that can reduce wildland fire risk, create fire-adapted communities, and fire-resilient landscapes that are less reliant on aggressive wildfire suppression.

06 Promote collaboration with private industry and outside interests to increase the percentage of fire-resilient landscapes across the forest but emphasized in wildland urban interfaces and areas with dense high-values at risk.

07 Management of wildland fires reflects an understanding that fire-adapted ecosystems span jurisdictional boundaries. Opportunities to achieve mutual objectives are identified and accomplished through collaborative planning. Wildland fires are managed to achieve Forest Service desired conditions and where possible, also help achieve objectives relevant to adjacent land managers.

08 Fire management engages internal and external groups to define wildland fire as a necessary ecological process essential to the sustainability of the Forest's fire-adapted ecosystems, so that there is support for fire management activities.

Desired Conditions (FW-FIRE-DC)

01 Wildland fire occurs with minimal risk to loss of life, damage to property, and ecosystem function.

02 Wildland fire is an integral part of achieving ecological healthy and resilience while incorporating economic and social considerations.

03 Fuels are at levels that maintain natural fire regimes, support ecological resilience, and minimize uncharacteristic wildfire.

04 Wildland fires exhibit the appropriate range of severity and frequency that are representative of historical fire disturbance regimes.

05 Where permanent infrastructure, communities, and other high-value resources exist on the landscape, fuel accumulations promote safe, effective wildland fire management opportunities.

Objectives (FW-FIRE-OB)

01 Improve of maintained desired fire regimes as appropriate for the specific forest vegetation type, on a minimum of 8,000 acres every year for the life of the plan. Base treatments on historical disturbance regimes.

02 Manage natural, unplanned ignitions to meet resource objectives associated with vegetation types desired fire regimes on at least 10 percent of the ignitions over a 10-year average.

03 Provide education and outreach opportunities annually to local communities and the visiting public about fire prevention, the role of fire, and its short-term impacts through a minimum of 10 public events per fire season.

04 Treat a minimum of 5,000 acres every 5 years over the life of the plan in areas with high-values at risk.

05 Remove or naturalize debris basins and other structures constructed to mitigate post-wildfire flooding when no longer needed or within 10 years of fire, whichever is first.

Standards (FW-FIRE-ST)

01 Firefighter and public safety shall be prioritized in every fire management activity.

02 Launching or landing of unmanned aircraft, such as drones, shall be prohibited during fire activities.

Guidelines (FW-FIRE-GD)

01 To minimize natural resource damage, minimum impact suppression tactics should be utilized in sensitive areas, such as designated wilderness, recommended wilderness, research natural areas, riparian management zones, sensitive habitats of At-Risk Plant and At-Risk Animal species, cultural and historic sites. Exceptions to this guideline may occur when a more direct attack is needed to protect life or adjacent property or mitigate risks to responders.

02 To prevent the use of motorized vehicles off existing travel corridors, fire lines should be reclaimed to the greatest extent possible after the fire is extinguished.

03 When responding to unplanned ignitions managers should use wildland fire to achieve management objectives for other resources where and when conditions permit, keeping risk within acceptable limits, in order to take advantage of the opportunity to use wildland fire to improve ecological conditions and make progress toward other desired conditions.

04 To support ecosystem maintenance and enhancement, design fuels treatments to promote wildland fire severity consistent with the vegetation type where the prescription will be applied.

05 To avoid expansion of invasive species and noxious weeds, mitigation measures should be developed in areas where there is a moderate and high risk of invasion. If adequate mitigations are not available, or if they are cost-prohibitive, objectives to minimize the burned area should be developed.

06 Where wildfire has the potential to affect non-NFS lands, multiagency wildfire management decisions should include incident response planning that involves effective, efficient, risk-based

wildfire management decisions and includes or considers input from communities and multiple stakeholders.

07 Air quality should be monitored during all fire events.

08 Information about smoke and possible impacts to human health and welfare should be provided to the public during all fire events.

09 If assurances can be made for public safety, managers should consider using unplanned ignition fire to achieve management objectives, especially around areas of dense high-value resources.

10 Where firefighters are likely to work in close proximity to structures, administration sites, permitted infrastructure, and along primary travel corridors, hazard trees should be mitigated to maximize firefighter safety and minimize the likelihood of spotting.

11 In areas where critical values are directly at risk of wildfire, fuel treatments should result in low flame lengths based on 90 percentile weather conditions in order to provide protection of highly valued resources and assets, and firefighter and public safety. Project level analysis may refine the treatments through analysis of tradeoffs, risks and benefits.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus treatment on restoring and maintaining natural fire regimes and reducing the negative impacts of wildfires. Use the following table, Table 9, to inform decisions about treatments.

Table 9. Vegetation Types and Desired Fire Regimes

Vegetation Type	Dominant Fire Regime Group	Forest Acres	Fire Frequency Interval in Years	Range of Potential Acres Managed per Decade
Ponderosa Pine	1	95,466	15	38,335-101,479
Spruce-fir	5	102,424	212	3,414-5,121
Conifer Mixed	1, 3	118,433	15	16,200-94,220
Deciduous	1	239,657	30	37,828-90,220
Alpine	5	793	232	34-34
Herbland	2	110,358	32	18,393-55,179
Shrubland	3, 4, 5	180,647	60	17,251-69,741
Pinyon-Juniper	3	325,770	100	16,121-21,824
Woodland	3	197,346	40	12,722-37,999
Riparian	1, 3	9,124	40	691-2,287

Source: Based on Utah Fire Groups, LANDFIRE BpS/MFRI, and Manti-La Sal Terrestrial Condition Report.

- Prioritize a coordinated approach to reduce the threat of wildfire in the wildland urban interface and allow for cost-efficient fuel reduction strategies across lands.
- In wildfire urban interface areas and other areas with high concentrations of high-values at risk, wildfire is suppressed under most conditions due to the potential economic loss and public safety concerns posed by a wildfire.

- In wildfire urban interface areas and other areas with high concentrations of high-values at risk, planned ignitions may also be used if assurances can be made for firefighter and public safety, and protection of resources within the area.
- In wildfire urban interface areas and other areas with high concentrations of high-values at risk, consider managing vegetation toward a condition that is not within that vegetation type's natural fire regime to reduce the risk of social, and economic loss and to improve public safety.
- When wildland fires occur, the Forest will develop response strategies based on the risk considerations of life, safety, and potential resource impacts and with the participation of other responsible agencies, authorities, and jurisdictions as appropriate. The wildland fire decision support process will define and document wildfire and prescribed fire management decisions.
- In areas not highly departed from desired conditions, 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.
- Wildland fires should be used to achieve management objectives for multiple resource benefits, including wildlife habitat and watershed health, when conditions permit and are within acceptable risk limits. Emphasize ensuring firefighter and public safety, and protection of resources within the area when determining acceptable risk limits.
- Focus treatments on reducing fuel loads that may deviate from other resource requirements to meet the desired fire behavior characteristics in areas of dense high-value resources at risk.
- If there is conflict between the need to mitigate hazardous fuels to protect critical values, particularly human improvements, and other natural resource concerns the favor will be to protection of those values.
- A Hazard Risk Assessment and other fuels and fire behavior analytical processes, models and tools are used to determine potential risk to values, prioritize treatments and evaluate the positive and negative benefits from fire management activities.
- Treatments for fuel reduction may include planned and unplanned ignitions as well as non-fire techniques including but not limited to mechanical thinning.

2.16 Livestock Grazing and Range Management

See Also

Vegetation Communities and Resources, Wildlife, Watershed and Aquatic Resources, and National Scenic Byways.

Description and Values

Livestock grazing has been an important part of the local culture and economy of communities surrounding the Forest for over a century. Recent economic reports how domestic livestock grazing on Forest and adjacent lands contribute to the stability of the agricultural sector of the surrounding economies through direct output, jobs and tax benefits (2017 USU). Livestock grazing is recognized for its ecological contributions and economic benefits including food, fiber, fine fuels reduction, improved water distribution for wildlife and maintenance of open space. Livestock grazing occurs on designated allotments of the Forest from early summer to late fall. Livestock grazing systems and practices are designed to support terrestrial vegetation, riparian, soils, socioeconomics and other resource plan components. Livestock management incorporates science and ecological conditions to inform decisions

and react to changing conditions such as drought, fire, variability of forage and other ecological, social and economic needs.

Goals (FW-RANGE-GL)

01 Work continually with permittees to adjust the timing, intensity, and frequency of livestock grazing to respond to changing resource conditions and livestock needs of the grazing permittees. Collaborate with permittees about management changes following major disturbances, such as floods and fires.

02 Work with other federal, state, county, and local government entities, nongovernmental organizations, and tribes to maintain or improve rangeland conditions.

03 Encourage development of new partnerships with stakeholders to increase maintenance and construction efforts.

Desired Conditions (FW-RANGE-DC)

01 Livestock grazing and associated management activities are compatible with ecological functions and processes and support sustainable levels of livestock grazing that contribute to the agricultural economy, local employment, and support of traditional lifestyles.

02 Range infrastructure and improvements function to maintain or improve livestock grazing and the condition of forest ecological and cultural resources, while minimizing conflicts.

Objectives (FW-RANGE-OB)

01 Revise or update at least nine allotment management plans with project level grazing analysis within the life of the plan.

02 Treat a minimum of 1,000 acres of non-forested rangeland communities to maintain or enhance the herbaceous understory for livestock and wildlife forage, every 5 years.

03 Reconstruct or redesign at least ten existing livestock water developments, such as ponds, stream diversions, and spring developments, annually.

Standards (FW-RANGE-ST)

01 New livestock corrals shall be located outside riparian management zones.

02 Livestock management activities shall not adversely impact At-Risk Plant species and At-Risk Animal habitats.

03 New, reconstructed, or replaced livestock water developments shall be designed to be wildlife friendly and to facilitate animal escape for all types of wildlife.

04 In contour trenched or furrowed areas, no new livestock water developments shall be allowed and where feasible, existing water developments shall be removed. Additionally, no salt or supplemental nutrients and no sheep bedding shall be placed.

Guidelines (FW-RANGE-GD)

01 Utilization of key forage species should be no greater than 50 percent of current year’s growth, except where long-term monitoring demonstrates a different allowable use level that will meet desired conditions for soils and terrestrial vegetation.

02 A four-inch or greater stubble height of herbaceous species should be present within riparian management zones at the end of the grazing season, except where long-term monitoring demonstrates a different stubble height is acceptable to meet desired conditions for other resource needs.

03 Livestock grazing systems related to timing, duration and intensity should be designed to maintain or improve species diversity, effective ground cover, plant reproduction and productivity.

04 Livestock grazing practices and management of grazing allotments following a major disturbance, including but not limited to fire or flood, should occur on a case-by-case basis after consideration of site-specific resource conditions, to sustain livestock grazing. Areas should be evaluated to determine if rest from livestock grazing is necessary for recovery of desired vegetation conditions and related biophysical resources.

05 New or modified range improvements should be designed to promote healthy soil and water conditions, livestock and wildlife interactions, wildlife movement, protect plants and springs of importance to tribes and minimize recreation user conflicts.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize ecological resilience and watershed health to contribute to the direct and indirect sustainability of grazing on the Forest.
- Focus restoration of priority habitat and landscapes on increasing resilience to disturbance and enhancing resistance to invasive species by maintaining perennial herbaceous species.
- Management practices should use science and ecological conditions to make informed decisions and respond to changes in the environment, to promote successful grazing operations.
- Management strategies are informed by regular monitoring and working closely with partners and permittees. Grazing systems and management techniques are monitored for effectiveness toward achieving resource desired conditions, meeting multiple use objectives and resolving conflicts with other resources.
- Focus on range infrastructure maintenance and reconstruction to protect resources and improve livestock distribution as funds and resources allow.
- Prioritize funding to address range structures or projects that are not meeting standards and are having negative impacts on valuable resources. Range funding will also be prioritized for infrastructure damage during fire, floods or other natural disasters.
- Assess and update allotment management plans to ensure that sustainable stocking levels, forage utilization guidelines, mitigation measures, and appropriate grazing systems are used and that the lands are still suitable for livestock grazing.
- Consider implementing or modifying techniques such as livestock trailing, bedding, watering, salting, loading, and other handling or management efforts to reduce or eliminate impacts to at-risk plants and animals.
- Consider trail designs that avoid stock tanks, incorporation of self-closing gates, use of all-terrain vehicle cattle guards, or gates around cattle guards for horseback riders in areas where known livestock and recreation user conflicts exist.

2.17 Timber Management

See Also

Vegetation Communities and Resources, Wildlife, and Fire and Fuels Management.

Description and Values

Softwood saw timber, poles and posts, fuel wood, and a variety of special forest products are harvested from the Forest. These products contribute to the economic activity in counties surrounding the Forest and provide local communities with forest products such as fuelwood, Christmas trees, and food and seeds. Households may use wood for home heating for both cultural and economic reasons. When natural gas prices are high, wood offers an affordable fuel source.

Desired Conditions (FW-TIMBER-DC)

01 Lands identified as suitable for timber production, as shown in Table 10, have a regularly scheduled timber harvest program that contributes jobs, income, and raw materials to the local and regional economy while achieving ecosystem resilience and sustainability by meeting management direction and desired conditions.

Table 10. Timber Suitability Analysis

Land Classification Category	**Acres**
Total National Forest System lands in the plan area	1,340,620
Lands not suited for timber production due to legal or technical reasons (Available)	764,753
Lands that ***may* be suited** for timber production	575,867
Total lands **suited** for timber production because timber production is compatible with the desired conditions and objectives established by the plan	To be determined
Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan	To be determined
Total lands **not suited** for timber production	To be determined

Note: The final three lines will be calculated based on alternatives during the analysis phase of the Forest Plan revision process.

02 A variety of forest products of social or economic value such as fuelwood, posts, poles, and logs, Christmas trees, native seed, and ornamentals are available. Availability of forest products contributes to the livelihoods and traditions of the communities near the forest as well as fostering a connection to the land.

03 On lands suitable for timber production, dead or dying trees, due to fire, insects, or disease, are salvaged to recover as much of the economic value of the wood as possible. This is done while achieving desired conditions and management direction for other resources.

Objectives (FW-TIMBER-OB)

01 Annually offer timber, meeting timber product utilization standards, for sale at an average projected timber sale quantity of between 3 and 6 million cubic feet or 15 and 35 million board feet, measured on a decadal basis.

02 Annually offer wood products, including fuelwood, biomass, and other volumes that do not meet timber product utilization standards, for sale at an average annual projected wood sale

quantity of between 3 and 6 million cubic feet or 15 and 35 million board feet, measured on a decadal basis.

Standards (FW-TIMBER-ST)

01 The quantity of timber that may be sold per decade shall not exceed 10 times the annual sustained yield limit. The annual sustained yield limit is calculated at 68 million cubic feet or 389 million board feet. This includes timber sold from both lands suitable for timber production and lands not suitable for timber production. Cutting of trees that have been killed or severely damaged by fire, windthrow, or other disturbances are not subject to this limitation. Trees cut to manage insect infestations and disease spread are also not subject to this limitation. Tree cutting for salvage or sanitation may be harvested above the annual sustained yield limit, where such harvest is consistent with desired conditions for other resources.

02 Timber harvest activities shall only be used when there is reasonable assurance of restocking at least 70 percent of the area, within five years after final regeneration harvest. Minimum adequate stocking levels is provided in Table 11. A certified silviculturist may prescribe different minimum stocking requirements, which are more appropriate for site-specific conditions, stand management objectives, or due to fire or salvage conditions; otherwise, the minimum stocking standards outlined in this table shall be used.

Table 11. Minimum trees per acre within five years of planting based on forest cover type and site productivity ranges.

Site Productivity	Aspen	Spruce and Fir	Mixed Conifer	Ponderosa Pine
20-49	300	150	150	150
50-84	300	195	180	180
85 and greater	300	195	180	180

03 Timber harvest solely for the purposes of timber production shall not occur on lands not suited for timber production.

04 Timber harvest shall not occur where soil, slope, or watershed conditions would be irreversibly damaged.

05 Silvicultural treatments shall be selected based on their ability to meet desired conditions and not be selected based solely on their ability to provide the greatest dollar return or output of timber.

06 Clearcutting, shall be used only where one of the following situations exist:

- Where conducting harvest in a stand of aspen.
- Where most or all overstory trees are infected by insect or disease.
- Where project specific findings determine that clearcutting is the optimum method to achieve desired conditions and project purpose and need.

07 Other types of even-aged harvest shall be used only where determined to be appropriate. Determinations shall be based on an interdisciplinary team review of site-specific conditions and the desired conditions for vegetation, wildlife habitat, scenery, and other resources.

08 Even-aged stands shall generally reach a minimum of 95 percent of culmination of mean annual increment as measured by cubic volume prior to regeneration harvest unless at least one of the following conditions have been identified during project development:

- When such harvesting would modify fire behavior to protect identified resource, social, or economic values.
- When harvesting of stands will trend landscapes toward vegetation desired conditions.
- When harvest uses uneven-aged silvicultural systems, thinning, or other intermediate stand treatments that do not regenerate even-aged or two-aged stands.
- When harvest is for sanitation or salvage of timber stands that have been substantially damaged by fire, windthrow, or other disturbance or are in imminent danger from insect or disease attack.
- When harvest is on lands not suited for timber production, and the type and frequency of harvest are due to the need to protect or restore multiple use values other than timber production.
- To enhance tribally important areas.

09 Vegetation management projects shall be shaped and blended to the natural terrain to the extent practicable to meet the scenic integrity objectives.

10 Openings created by clearcutting, seed-tree cutting, shelterwood seed cutting, or other cuts designed to regenerate an even-aged stand of timber in one harvest operation shall not exceed 40 acres. This standard applies to new, individual harvest proposals on forest lands only and need not consider existing openings on forest land, adjacent private, or other agency lands.

11 Vegetation management activities using conventional ground-based equipment shall only operate on sustained slopes less than 40 percent, to avoid detrimental soil disturbance. High flotation ground-based equipment may be used on sustained slopes less than 60 percent. Aerial systems may be used on all slopes. Increased percent slope exceptions for equipment use may only be considered when site-specific analysis indicates soil function can be maintained.

Guidelines (FW-TIMBER-GD)

01 Timber should be harvested only where protection is provided for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water.

02 Timber should be harvested only when consistent with protection measures for soil, fish, wildlife, recreation opportunities, and scenery.

03 Timber harvest on lands identified as not suitable for timber production, but where timber harvesting is allowed for other multiple-use benefits may occur for purposes such as:

- salvage of dead or dying trees
- hazardous fuels reduction
- forest insect or disease mitigation
- to trend conditions toward desired stand or landscape vegetation composition, structure, and patterns
- maintenance or enhancement of wildlife habitat
- to perform research or administrative studies
- to address issues of public safety and health
- for recreation and scenic-resource management purposes, consistent with other management direction

- to enhance tribally important areas

04 If snags are felled, for safety concerns, during vegetation management activities, they should be left on site to provide coarse woody debris. The purpose of this guideline is to maintain snags or standing dead trees over the long term for wildlife habitat and ecosystem processes. Exceptions may occur where there is elevated concern with public safety or fire risk, such as, in developed sites and areas adjacent to infrastructure.

05 Site preparation should be used as an appropriate practice to achieve desired stocking levels in all vegetation communities except aspen. In aspen it is acceptable but should only be undertaken when site specific requirements or other resource desired conditions indicate it.

06 When undertaking reforestation activities, regeneration protection measures, including but not limited to shade tube use and fencing, may be used in all vegetation communities based on site specific conditions and resource desired conditions to achieve desired stocking levels.

07 Natural reforestation should be considered as an appropriate practice to achieve desired stocking levels in all vegetation communities.

08 To achieve reforestation desired conditions and stocking levels, planting and seeding should be used in all vegetation types except for aspen. In aspen stands, reforestation should only occur through natural regeneration.

09 Planting densities should be within the ranges shown in Table 12, to achieve minimum restocking densities, as shown in Table 11.

Table 12. Planting densities based on coniferous forest type and site productivity.

Site Productivity	Spruce and Fir	Mixed Conifer	Ponderosa Pine
20-49	300-360	300-360	300-360
50-84	360-540	435-550	435-550
85 and greater	360-680	435-680	435-680

Aspen is not included in this list because planting of aspen is not the desired method for restocking.

10 To achieve desired stocking levels and fuels conditions, thinning of live material and salvage of dead material is appropriate in all vegetation communities except aspen.

11 Rotation for all conifer types should be between 80 and 140 years. Rotation for aspen should be between 80 to 120 years.

12 Silvicultural systems and harvest methods should follow Table 13, for each vegetation community. Site specific and environmental conditions may allow other methods and systems to be used.

Table 13. Appropriate harvest methods to achieve desired age-class compositions by each *vegetation community.*

Age	Spruce and Fir	Ponderosa Pine	Douglas Fir	White Fire	Aspen
Even	Shelterwood	Shelterwood and Seed-tree	Shelterwood and Seed-tree	Shelterwood	Clearcut
Uneven	Group selection and single-tree	Group selection and single-tree selection	Group selection	Group selection	Patch cut and single tree

13 When developing a silvicultural prescription and vegetation analysis in conifer stands, Table 14 should be followed for stand density considerations.

Table 14. Stand density index levels for stands greater than 5-inch diameter at breast height, by vegetation community.

Stand Density Level	Spruce and Fir	Ponderosa Pine	Douglas Fir	White Fire
Maximum	670	830	600	830
Upper[1]	302	291	240	374
Lower[2]	134	127	149	205

[1] Lower management level stand density index is start of root or crown competition.

[2] Upper management level stand density index is start of imminent mortality zone.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Recognize and respond to industry capacity and market demand for forest products, when determining project priorities, future program levels and the attainability of desired conditions.
- Prioritize timber activities that focus on landscapes at high risk for developing insect or disease infestation, where disturbances have resulted in large areas of mortality, and landscapes with altered fire regimes.
- Emphasize treatments that will focus on stands where vegetation management could most effectively move species composition and stand structure closer to desired conditions and where wood processing facilities can most economically use forest products.
- Consider multiple strategies to meet forest products demand, including integration of timber and fuels programs, salvage of insect and disease killed trees, use of small diameter and biomass markets, and selling a wide variety of size and species to maintain the forest products industry.

3. SPECIFIC AREA DIRECTION

3.1 Designated Areas

The Manti-La Sal has areas that contain special, exceptional, or unique values that provide important ecosystem services. Many of these areas meet the criteria to be considered special places and are awarded specially designated status. Designation identifies and establishes management focused on maintaining or enhancing the unique special character or purpose for which the area was designated. This status can be on a national, regional, or local scale. There are two primary categories of designated areas; those designated by statute and those established administratively. Once established, the designation continues until a subsequent decision by the appropriate authority removes the designation. Examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, inventoried roadless areas. Management direction for each of the designated areas is in the sections that follow. Designated areas on the Manti-La Sal include wilderness

areas, national scenic trails, national heritage areas, research natural areas, scenic byways, botanical areas, inventoried roadless areas, experimental ranges, historic districts and historic battlegrounds.

3.1.1 Wilderness Areas

Description and Values

Currently the Forest manages two designated wilderness areas: the approximately 7,000 acre Nelson Mountain Wilderness designated in 2019 and the approximately 47,000 acre Dark Canyon Wilderness designated in 1984. Both designated wilderness areas are shown on Maps in Appendix A. Management activities, other than the special provisions in the Wilderness Act, are limited to those deemed necessary to maintaining or enhancing the wilderness character of the area. These areas contribute significantly to ecosystem and species diversity and sustainability, serve as habitat for fauna and flora, and offer wildlife corridors, reference areas, primitive recreation opportunities, self-reliance, and places for people seeking natural scenery and solitude. Fire management is used to allow a more natural role in maintaining the ecosystem. In Dark Canyon, the abundant heritage resources are important to the unique character of the wilderness but are not generally interpreted on-site unless necessary for resource protection.

Desired Conditions (DA-WILD-DC)

01 Management activities within designated wilderness areas shall preserve and protect wilderness character as required by the Wilderness Act.

02 Natural ecological processes and disturbances such as succession, wildfire, avalanches, insects, and disease, are the primary forces affecting the composition, structure, and pattern of vegetation. Wilderness areas provide opportunities for visitors to experience natural ecological processes and disturbances with a limited amount of human influence.

03 These areas contribute significantly to ecosystem and species diversity and sustainability, serve as habitat for fauna and flora, and offer wildlife corridors, reference areas, primitive recreation opportunities, self-reliance, and places for people seeking natural scenery and solitude.

04 Fire plays its natural role in the ecosystem, consistent with safety of persons, property, and other resources. Fire maintains a wide variety of plant communities and perpetuates the natural ecosystem and wilderness character.

05 Overnight use does not affect water quality, wildlife, vegetation, cultural resources, or wilderness character.

06 There is little contact with individuals or groups when traveling cross-country. When on trails, encounters with large groups are infrequent, with some encounters with small groups or individuals.

07 Water quality and quantity of seeps, springs, or riparian areas meet or are trending toward meeting desired conditions for these resources in wilderness areas.

08 Outfitter and guides model appropriate wilderness practices and incorporate awareness for wilderness values in their interaction with clients and others.

09 Wilderness areas are free of noxious weeds.

10 Use within the Peavine Corridor in Dark Canyon Wilderness has a minimal effect on adjacent wilderness resources.

Objectives (DA-WILD-OB)

01 Manage all wildernesses to standard based on the agency's performance accountability measure for wilderness within 10 years of plan approval.

02 All wilderness campsites are inventoried at least once every 5 years, and the campsite inventory data are used to make management decisions.

03 A capacity study, needs assessment, and extent necessary determination for commercial use in Dark Canyon Wilderness is conducted within 10 years plan approval.

04 Treat noxious weeds in wilderness areas annually.

05 Prepare a solitude monitoring plan for both wildernesses within 5 years of plan approval.

Standards (DA-WILD-ST)

01 Management activities shall be limited to those deemed necessary to maintain or enhance the wilderness character of the area and evaluated through a minimum requirement analysis.

02 Interpretive facilities shall not be developed at cultural, historic, or paleontological sites, unless required to mitigate damage to wilderness character or these resources.

03 A Wilderness Resource Advisor or other resource specialist with knowledge of wilderness management shall be consulted or assigned to all wilderness fires.

04 If fire management actions are required within wilderness, the Forest Service shall apply minimum impact strategies and tactics to manage wildland fire that protect wilderness character, unless more direct attack is needed to protect life or adjacent property or mitigate risks to responders.

05 Operating plans for all permitted outfitters shall include wilderness-specific conditions.

06 Overnight use permits for outfitting and guiding shall specify where camping may occur.

07 Group sizes shall be limited to 15 people.

08 Campsites with unacceptable impacts shall be closed and rehabilitated.

09 The *Wilderness Grazing Checklist* shall be used when managing livestock grazing in the wilderness areas.

Guidelines (DA-WILD-GD)

01 Trail markers should only be present at trail intersections. These markers should indicate routes but not destinations or distances.

02 Management actions along the motorized Peavine Corridor should minimize user conflict and reduce impacts on soil, watershed, vegetation, and other resources.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize and analyze all components of wilderness character: the qualities of untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and other features of value, such as ecological, geological, scientific, scenic, or historic value unique to each specific wilderness area.
- Routinely monitor the Peavine Corridor in Dark Canyon Wilderness to determine if use is affecting adjacent wilderness character, causing user conflicts, or affecting resources within the corridor. When unacceptable impacts are occurring, and cannot be addressed, consider closing or restricting use.

3.1.2 Bear's Ears National Monument

Description and Values

The Bears Ears National Monument was established by Presidential Proclamation 9558 on December 28, 2016. On December 4, 2017, Presidential Proclamation 9681 clarified and modified the boundaries of the Bears Ears National Monument. The revised Bears Ears National Monument boundary includes two separate units known as the Shash Jáa and Indian Creek Units that are reserved for the proper care and management of the objects of historic and scientific interest within their boundaries. The portion of these units on the Forest is shown in Appendix A.

Prior to the completion of the *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jáa Units*, the Federal lands within the Shash Jáa Unit were managed by the Bureau of Land Management and the U.S. Forest Service under the 2008 *Bureau of Land Management Monticello Field Office Record of Decision and Approved Resource Management Plan*, as amended, and the 1986 *Land and Resource Management Plan: Manti-La Sal National Forest*, as amended. The Bureau of Land Management and the U.S. Forest Service prepared the *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jáa Units* pursuant to the Bureau of Land Management land use planning regulations in 43 Code of Federal Regulations 1600, the U.S. Forest Service land use planning regulations in 36 Code of Federal Regulations 219, and the National Environmental Policy Act of 1969.

The *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jáa Units* replaces the 2008 *Bureau of Land Management Monticello Field Office Record of Decision and Approved Resource Management Plan*, as amended, and is an amendment to the amended 1986 *Land and Resource Management Plan: Manti-La Sal National Forest*. The *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jaa Units* is now the base land use plan for public lands administered by the Bureau of Land Management, Monticello Field Office, and amends U.S. Forest Service existing management of the Manti-La Sal National Forest within the boundaries of the Shash Jáa Unit of the Bears Ears National Monument. The *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jaa Units* adopts the management described in the Proposed Plan and Management Common to All Alternatives section presented in the joint 2019 Bureau of Land Management and U.S. Forest Service *Proposed Bears Ears National Monument Management Plan/Final Environmental Impact Assessment* with adjustments as described in the *Modifications and Clarifications* section of the Record of Decision, signed February 6, 2020.

The Shash Jáa Unit contains 97,393 acres of Bureau of Land Management administered lands and 32,587 acres of U.S. Forest Service administered lands in San Juan County, Utah. The northern end of the Shash Jáa Unit is approximately ten miles west of Blanding, Utah, and is accessed via Utah State Route 95. The southern end is located approximately three and a half miles west of Bluff, Utah, and is accessed from U.S. Highway 163 and U.S. Highway 191. The Shash Jáa Unit is generally bounded by the Butler Wash cliff rim just east of the Butler Wash Road, also known as Road B262, the San Juan River to the south,

the Wilderness Study Areas of Cedar Mesa to the west, Bears Ears Buttes to the northwest, and South Elks Road to the north. The major geographic features in the area are the Bears Ears Buttes and Comb Ridge. Arch Canyon, located in the northern end of the Shash Jáa Unit, is a perennial source of water, as are the lower ends of Mule Canyon and Fish Canyon. Comb Ridge is situated between Comb and Butler Washes, and all three features run north to south along the length of the Shash Jáa Unit. The Shash Jáa Unit also includes two archaeological sites that are not contiguous to the main part of the Shash Jáa Unit. The Doll House is located on U.S. Forest Service administered lands to the northwest of the main Shash Jáa Unit, and the Moon House is located on Bureau of Land Management administered lands to the west of the main Shash Jáa Unit.

The primary existing land uses in the Shash Jáa Unit are recreation, paleontological and archaeological exploration and study, religious uses for members of American Indian Tribes, and livestock grazing. Popular recreation activities include hiking, backpacking, off-highway vehicle riding, scenic driving, and dispersed camping. Cultural tourism has increased in popularity as visitors are drawn to prehistoric and historic cultural resources such as rock writings, cliff dwellings, and the Hole-in-the-Rock Trail. The Shash Jáa Unit contains a portion of the San Juan River Area of Critical Environmental Concern, the Shash Jáa Special Recreation Management Area, the McLoyd Canyon-Moon House, San Juan Hill , Trail of the Ancients, South Elks and Bears Ears, Arch Canyon, Arch Canyon Backcountry, The Points, and Doll House Recreation Management Zones, the Mule Canyon Wilderness Study Area and portions of the Fish Creek Canyon Wilderness Study Area, State Route 95, also known as the Bicentennial-Trail of the Ancients Scenic Byway, a small portion of the Dark Canyon Wilderness, the Arch Canyon Inventoried Roadless Area, Elk Ridge Road Scenic Backway and a part of the Hole-in-the-Rock Trail.

Desired Conditions (DA-BENM-DC)

01 The objects of antiquity and the objects of historic or scientific interest, as identified by Presidential Proclamation 9558, as modified by Presidential Proclamation 9681, are protected.

Standards (DA-BENM-ST)

01 Bears Ears National Monument shall be managed under the approved *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jáa Units*, signed February 6, 2020.

02 The *Bears Ears National Monument-Monument Management Plans for the Indian Creek and Shash Jáa Units* direction shall take precedence over other direction in the Forest Plan, unless Forest Plan direction provides more protection and proper care and management of the objects of antiquity and the objects of historic or scientific interest identified in Presidential Proclamation 9558, as modified by Presidential Proclamation 9681.

3.1.3 Research Natural Areas

See Also

Alpine, Wilderness Areas, Watershed and Aquatic Resources, Cultural and Heritage Resources, and Livestock Grazing and Range Management.

Description and Values

The Forest has six designated research natural areas, which are listed in Table 15. Research natural areas preserve representative areas that typify important forest, shrubland, grassland, alpine, other natural environments, or areas that have special or unique characteristics of scientific importance. Research natural areas are part of a national network of areas designated, in perpetuity, for research and

education to the preserve and maintain key elements of biological diversity. These locations are used as baseline areas for measuring ecological changes, and as control areas for evaluation and monitoring through non-manipulative research, observation, and study.

Each research natural area has its own establishment record that contains detailed location maps, information on distinguishing features, and the purpose for which the research natural area was established. The research natural areas are managed in coordination with the Rocky Mountain Research Station.

Table 15. Research natural areas on the Manti-La Sal National Forest.

Research Natural Area	Ranger District	Key Features	Acres
Mount Peale	Moab	Subalpine fir and Engelmann spruce forest and krummholz; cirque basins, rock glaciers and talus; alpine turf and boulder-field communities; rare plant	2,380
Mill Creek Gorge	Moab	Deep gorge containing the steep-gradient Mill Creek; south exposures support pinyon-juniper woodlands; north exposures support mesic mountain brush communities with Gambel oak, Utah serviceberry and birchleaf mountain mahogany; Douglas-fir is associated with moist microsites; and riparian areas.	680
Nelson Mountain	Ferron	Unique vegetation communities with curl-leaf mountain mahogany, white fir.	490
Hideout Mesa	Moab	Two-needle pinyon and Utah juniper woodlands at upper elevational limits, burned by wildfire in 2002; patches of mountain brush and grassland; limited areas of ponderosa pine and big sagebrush.	360
Cliff Dwellers Pasture	Monticello	Water birch and Gambel oak-bigtooth maple bottomland communities; pinyon-juniper woodlands; Navajo sandstone cliffs; sandstone arch; packrat middens; rare plants	264
Elk Knoll	Sanpete	Relatively level bench supporting subalpine tall forb vegetation; forests on adjacent slopes of subalpine fir and Engelmann spruce	40

Source: Establishment records for each Research Natural Area.

Goals (DA-RNA-GL)

01 The Forest Service will continue to coordinate and consult with Rocky Mountain Research Station to protect and manage the ecological features and values for which each research natural area was established in accordance with the establishment records.

Desired Conditions (DA-RNA-DC)

01 Research natural areas maintain and protect the natural conditions and values for which they were designated, as shown in Table 15.

02 Research natural areas serve as a baseline, unaltered and intact, where scientific research, monitoring, observation, and education by the agency, academia, and public interests can be conducted.

03 Recreation use occurs at levels that do not interfere with or impact the objectives and purposes for which the research natural area was designated.

04 In the Mount Peale research natural area, the alpine turf communities and other vegetated areas exhibit minimal impacts from human use and introduced ungulate populations.

05 All research natural areas have comprehensive management plans.

Objectives (DA-RNA-OB)

01 Inspect, repair, and maintain the fences annually at Elk Knoll, Mount Peale, and Cliff Dwellers Pasture.

02 Reconstruct the Elk Knoll research natural area fence within five years of plan approval.

03 Monitor vegetation and ground cover at the base of climbing routes in the Mill Creek research natural area every 3 years.

Standards (DA-RNA-ST)

01 Recreational use shall be restricted or prohibited through special order (36 CFR 261.53) if such use is not compatible with the values and objectives for which the research natural area was designated.

02 Development of new facilities and infrastructure including but not limited to roads, water impoundment structures, and both recreational and administrative facilities, shall not be authorized.

03 Timber harvests, fuelwood gathering, and forest product harvests, including Christmas tree cutting, shall be prohibited, unless for limited personal use requested by the tribes.

04 New special use permits shall only be issued for research opportunities and tribal activities. Existing permits may continue to be reissued for the existing purposes.

05 Recreation event permits shall not be issued.

06 Recreational special use permits for overnight use within the Mount Peale research natural area shall not be issued.

07 Existing recreational special use permits within the Mount Peale research natural area shall include a stipulation to supply clients with and educate clients about the proper use and disposal of, human waste containment bags.

08 No more than three outfitter and guide permits shall be issued for use within the Mount Peale Research Natural Area between May and November.

09 Mineral or energy-related geophysical activity shall not be authorized.

10 Consent to introduction of nonindigenous species into research natural areas shall not occur.

11 Overnight of Cliff Dwellers shall not occur to protect cultural sites and landscapes.

Guidelines (DA-RNA-GD)

01 Visitor access and use should not impair the research values of the area.

02 Following fires or other disturbance events, natural processes should be allowed to occur unless otherwise needed to maintain the integrity of the research natural area and its values. Seeding or other restoration management activities should not occur.

03 Fire should be managed to simulate natural fire processes and be compatible with ongoing research.

04 Trails should only be built for research or study purposes, or to mitigate recreation impacts.

05 To the extent possible, research and monitoring should not alter the scenic character, or archeological values of the research natural area.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Emphasize management activities that promote research and development, study, observation, monitoring, and those educational activities that do not modify the conditions for which the research natural area was established.
- Recognize that continuing baseline studies may be occasionally visible in terms of equipment, instruments, and related activities.

3.1.4 National Scenic Byways

Description and Values

The Forest contains the Energy Loop: Huntington and Eccles Canyons National Scenic Byway located within the heart of Utah's energy producing country. The scenic byway includes views of high-elevation lakes, diverse vegetation, spectacular fall colors, and vertical cliffs and escarpments. Approximately 36 miles of the byway are located on NFS lands while the other 46 miles cross Bureau of Land Management, county, and private jurisdictions.

Desired Conditions (DA-BYWAY-DC)

01 The Energy Loop: Huntington and Eccles Canyons National Scenic Byway maintains the qualities for which it was designated including, those related to historical and current coal mining operations and towns.

02 The scenic recreational setting of the rich history associated along the scenic byway is apparent and accessible to those driving on and stopping along the roadway.

Objectives (DA-BYWAY-OB)

01 Hazardous and unsightly dead trees are removed, noxious weed infestations are controlled, and the fisheries resource in Huntington Creek is restored within ten years of plan approval.

Standard (DA-BYWAY-ST)

01 The Energy Loop: Huntington and Eccles Canyons National Scenic Byway shall be managed in accordance with the Energy Loop Corridor Management Plan.

Guidelines (DA-BYWAY-GD)

01 Scenic integrity objectives within the scenic byway corridor should be met or exceeded. Projects should be designed to meet or exceed the scenic integrity objectives and the scenic character description.

02 User and livestock safety along the scenic byway in lower Huntington Canyon should be evaluated and considered when determining livestock grazing annual plans of operation for this area.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Balance the management and conservation of the byway's intrinsic qualities with the public's use and enjoyment of those qualities.
- Prioritize restoring the Huntington Canyon portion of the scenic byway to the sense of place it possessed prior to the 2012 Seely and 2018 Trail Mountain wildfires.
- Emphasize enhancing recreation opportunities and tourism that supports the local communities along the scenic byway.

3.1.5 National Recreation Trails

Description and Values

Two National Recreation Trails, Fish Creek and Left Fork of Huntington Creek, were designated on September 14, 1979.

The Fish Creek National Recreation Trail, located on the Ferron-Price Ranger District, generally parallels Fish Creek. Approximately 10 miles in length, the trail climbs 1,100 feet from the trailhead at Fish Creek Campground at 7,780 feet to Skyline Drive at 8,880 feet. The vegetation ranges from willows and grass, along the stream course, to a mix of sagebrush and grass on the southern exposures of the canyon. Aspen and mixed conifer stands occur as the elevation increases. The trail is 12 to 18 inches wide, and the tread condition ranges from packed mineral soil to very rocky. The level of difficulty varies from easy to moderate.

The Left Fork of Huntington Creek National Recreation Trail, located along the Left Fork of Huntington Creek, is 6 miles in length and climbs 900 feet from the trailhead at the Forks of Huntington Campground at 7,500 feet to Millers Flat Reservoir at 8,400 feet. This trail is located on the Ferron-Price Ranger District. One of the most popular day hikes on the District, this trail was originally constructed to access the Millers Flat area for fire suppression activities and livestock grazing. Numerous waterfalls and pools occur along the creek, providing opportunities for photographers and anglers. The Left Fork of Huntington Creek is a Blue-Ribbon Fishery where anglers enjoy catching brown, cutthroat, and rainbow trout.

Both trails afford access to desirable hunting and fishing opportunities. Each National Recreation Trail connects with other Forest trails that cross private property, making it difficult to access the National Recreation Trails from some locations or to complete trail loops.

Goal (DA-TRAIL-GL)

01 Develop partnerships with private landowners along Mill Canyon Trail number 5063, and Gooseberry Creek Trail number 5354, to improve National Recreation Trail connectivity and access.

Desired Conditions (DA-TRAIL-DC)

01 The values for which the trails were designated as well as the ecological features comprising the surrounding landscape preserve the sense of place, solitude and aesthetic settings of each National Recreation Trail.

02 The trails are outstanding nonmotorized trail opportunities for residents from local communities and the region to enjoy.

Objectives (DA-TRAIL-OB)

01 Conduct a minimum of one volunteer trail maintenance project on each trail, every other year.

02 Update and install new informational or interpretive signage on each trail within five years of plan approval.

03 Construct alternate routes within two years of temporary closures due to natural events such as flooding or landslides.

Standards (DA-TRAIL-ST)

01 Mineral or energy-related geophysical activity shall not occur within a half-mile corridor surrounding each trail.

02 The trails shall be administered consistent with Forest Service Manual 2353.3.

Guidelines (DA-TRAIL-GD)

01 Scenic integrity objectives within the scenic byway corridor should be met or exceeded. Projects should be designed to meet or exceed the scenic integrity objectives and the scenic character description.

02 Clear route marking and identification of each trails should be provided along the trails and at trailheads.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize managing Fish Creek National Recreation Trail for foot, horse, and mountain bike experiences and Left Fork of Huntington Creek National Recreation Trail for foot and horse experiences.

3.1.6 Mont E. Lewis Botanical Area

Description and Values

The Botanical Area is named for Mont E. Lewis, who was a forest officer and eminent botanist, ecologist, and teacher of the intermountain west. According to the 1995 Establishment Record, the Botanical Area, located in Scad Valley, includes a wet meadow complex at the toe of Seeley Mountain, overlooking the extended Joes Valley graben. The botanical area is unique due to the variety of wetland species that occur in the area. Lewis identified *five major meadow plant communities* in what is now his namesake botanical area. This high concentration of communities and species in a small area, sets it apart from other areas of the forest. The wetland species are strongly segregated by water temperature or soil moisture giving rise to the ecological interest the area presents. It supports a number of unique plant species which do not occur elsewhere on the Manti-La Sal National Forest, and which are uncommon in Utah.

The Botanical Area is exceptionally rich in vascular plant species. Some species found in this wet meadow are quite rare and attract botanists to study them and other nearby plant communities. In addition to the wetland plant community types, several willows, *Salix* species, as well as about twenty species of sedge, including *Carex, Eleocharis,* and *Kobresia,* occur here. Learning more about the noteworthy species is one of the main attractions of the Botanical Area.

Goals (DA-LEWIS-GL)

01 The Forest will encourage partnerships and education programs to protect the diverse plant species composition while enhancing the occupied habitat of the more unique plant species found during the 1995 assessment.

Desired Conditions (DA-LEWIS-DC)

01 Plant communities within the Botanical Area are healthy, vigorous, and self-perpetuating with a diverse composition of desired species that includes key herbaceous and woody plants.

02 Riparian or wetland areas are dominated by deep-rooted hydric species that protect banks and dissipate energy during high flows

03 Upland watershed, soil, and vegetation conditions contribute to healthy, resilient riparian areas and wetlands associated with the Botanical Area and do not contribute to degradation.

04 Riparian and wetland communities dominate this area. Willows, *Salix* species, dominate the upper tree and shrub canopy while native obligate wetland grasses and forbs dominate the understory.

Objectives (DA-LEWIS-OB)

01 Evaluate current plant composition and compare with data collected from the 1995 designation and 2000 assessment. Evaluate every 5 years.

Standards (DA-LEWIS-ST)

01 Motorized use shall not occur within the Botanical Area.

02 Livestock grazing and associated management practices will avoid the Botanical Area to the extent practicable. No new structures, salting, trailing, or bedding will occur within or adjacent to the area. Permittees shall not move livestock into the area; any use that occurs would be incidental.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus on maintenance and improvement of the current natural features and unique vegetation of the area.
- Emphasize maintaining the ecological process and functionality of this area's wetland and vegetation system.
- Passive management should be emphasized, unless more active management is necessary to maintain the integrity of the site.
- Protection, research, study, observation, monitoring, and interpretation of land and resources within the botanical area should continue.
- Perpetuate the lack of administrative structures, utility corridors, roads, trails and other improvements that would deter from or otherwise impair the designated Botanical Area.

3.1.7 Great Basin Experimental Range

The Great Basin Experimental Range was set-aside in 1912 under the name the Utah Experiment Station in response to severe flooding in the late 1800s and early 1900s. It was established in Ephraim Canyon on the Sanpete Ranger District to study mountain watersheds and rangelands to develop management actions that maintain and improve healthy watersheds. It is considered a pioneering study site for understanding the discipline of range management. Since 1912 it has undergone four name changes: Great Basin Experiment Station in 1918, Great Basin Branch Experiment Station in 1930, Great Basin Research Center in 1947, and now Great Basin Experimental Range, a name it has held since 1970.

This about 4,608-acre rangeland lies on the west face of the Wasatch Plateau. Encompassing about a ten mile stretch of Ephraim Canyon, the elevations vary from about 4,500 feet to 7,000 feet and nine life zones. These zones are so close together and easily accessed that they provide a convenient and efficient way to study a great diversity of plant species, soils, and climate. This diversity further allows a wide variety of ecologically oriented problems of watershed management to be studied and researched in a single location. Nearly 200 publications have resulted from research on this range to date, and its scientists have made significant and lasting contributions to the development of the sciences of watershed and range management. This has benefited land management and local economies throughout the world. About 100 years of detailed vegetation, soil, and climate data from past research studies are still available for use in future trend-based research and reference.

In addition to a few ongoing research projects, the experimental range provides for other multiple uses, including activities such as livestock grazing, fuels management, recreation, and water collection and conveyance.

Goal (DA-GBER-GL)

01 The Rocky Mountain Research Station is an active partner in the management of this area.

02 Interpretation for the public to learn about the experimental range's history and significance will be available.

Desired Conditions (DA-GBER-DC)

01 The experimental range maintains it research integrity and availability for research and reference as specified by the Rocky Mountain Research Station.

02 Provide for forest multiple uses that are consistent with the purpose, direction and research of the experimental range.

Standards (DA-GBER-ST)

01 All management activities are authorized and approved by the station director or their designee.

Guidelines (DA-GBER-GD)

01 Activities proposed within the experimental range are consistent with ongoing and planned future research in the area.

02 Notify and consult immediately with the station director or their designee if a wildfire is affecting or may affect the experimental range.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- The Great Basin Experimental Range is uniquely suited for future watershed and range research and is protected from Forest activities that would degrade its value for research.
- Interpretive opportunities should include at least signs along the Ephraim Canyon Road, the Museum at the Great Basin Research Station Historic District, and the preservation of selected historic buildings and features.
- Consult with station director on future management activities within the experimental range including but not limited to vegetation treatment projects, road construction, timber harvest, and proposed conversions of livestock grazing permits from sheep to cattle.

3.1.8 Grove of Aspen Giants

Description and Values

The Grove of Aspen Giants is an area set aside due to the unique biological components of this large aspen grove. The estimated date of establishment is 1950 although the precise date is not known. Today the features associated with the area are no longer present and it is therefore recommended that the area be removed from designation.

3.1.9 Inventoried Roadless Areas

See Also

Recreation and Access, Wilderness Areas, and Recommended Wilderness Management Areas.

Description and Values

Areas managed under these specific components, are those identified as Inventoried Roadless Areas through the Forest Service Roadless Area Review process. All Inventoried Roadless Areas are managed consistent with the 2001 Roadless Rule except a portion of the Roc Creek Inventoried Roadless Area

within the State of Colorado which is managed as an Upper Tier area under the Colorado Roadless Rule. There are 40 separate mapped areas that vary greatly in size, elevation, and habitat. The size of the Inventoried Roadless Areas ranges from about 4,500 to 60,000 acres. In total, the Inventoried Roadless Areas comprise approximately 686,780 acres across the Manti-La Sal with an average size of approximately 18,000 acres.

Inventoried Roadless Areas provide clean drinking water and function as biological strongholds for populations of threatened and endangered species. They provide large, relatively undisturbed landscapes with high scenic quality. These areas also provide biological diversity which is important for wildlife habitat and the long-term survival of many at-risk species. Inventoried roadless areas provide opportunities for dispersed outdoor recreation, opportunities that diminish as open space and natural settings are developed elsewhere. They serve as buffers against the spread of nonnative invasive plant species and provide reference areas for study and research.

Table 16. Current inventoried roadless areas on the Manti-La Sal and the acres within them.

Inventoried Roadless Area	Location	Acres
Dark-Woodenshoe Canyon	South Zone	59,392
Muddy Creek-Nelson Mountain	North Zone	59,113
East Mountain	North Zone	34,012
Sanpitch	North Zone	30,940
Dairy Fork	North Zone	30,494
White Mountain	North Zone	29,620
Big Bear Creek	North Zone	28,424
Price River	North Zone	25,532
Levan Peak	North Zone	23,383
Boulger-Black Canyon	North Zone	23,267
Cedar Knoll	North Zone	22,483
Horse Mountain-Manns Peak	South Zone	22,394
Blue Mountain	South Zone	21,364
Oak Creek	North Zone	19,341
Biddlecome-Rock Canyon	North Zone	18,728
Big Horseshoe	North Zone	17,542
Hammond-Notch Canyon	South Zone	16,559
South Mountain	South Zone	14,970
Allen Canyon-Dry Wash	South Zone	13,988
White Knoll	North Zone	13,766
Shay Mountain	South Zone	13,025
Roc Creek	South Zone	12,809
Arch Canyon	South Zone	12,773
Nuck Woodward	North Zone	12,168
Musinia Peak	North Zone	11,994
Bennion Creek	North Zone	11,572
Twelve Mile Creek	North Zone	10,227
Mt. Peale	South Zone	9,620
North Horn	North Zone	8,300
Ruin Canyon	South Zone	8,232
Birch Creek	North Zone	7,998
Rolfson-Staker	North Zone	7,317
Gentry Mountain	North Zone	6,436

Black Mountain	North Zone	6,385
Coal Hollow	North Zone	6,352
Straight Canyon	North Zone	6,012
Wildcat Knolls	North Zone	5,726
Heliotrope	North Zone	4,522
TOTAL	**Forestwide**	**686,780**

Source: Manti-La Sal GIS data.

Desired Conditions (DA-IRA-DC)

01 Roadless Areas maintain the roadless characteristics as described in the 2001 Roadless Rule or the Colorado Roadless Rule.

02 These areas provide recreational opportunities for nonmotorized users all year long. This is reflected in recreation opportunity spectrum classes Primitive and Semi-primitive Nonmotorized.

03 These areas contribute habitats for wide ranging species and connectivity for movement of wildlife. These areas also provide foraging, security, denning, and nesting habitat for wildlife.

Objectives (DA-IRA-OB)

01 Prioritize identification and rehabilitation of non-system routes over the life of the plan.

Standards (DA-IRA-ST)

01 Management activities shall be consistent with the 2001 Roadless Rule, except for the portion of the Roc Creek Inventoried Roadless Area within the State of Colorado.

02 Management activities in the Colorado portion of the Roc Creek Inventoried Roadless Area shall be managed as an *Upper Tier* area under the Colorado Roadless Rule.

03 All actions proposed within the Inventoried Roadless Areas shall be analyzed to determine their potential impacts on roadless character and are coordinated with the appropriate line officers.

3.2 National Register Sites

3.2.1 Great Basin Station Historic District

See Also

Cultural and Heritage Resources.

The Great Basin Research Station Historic District, built in 1912–16 and 1933–36, is in Ephraim Canyon on the Sanpete Ranger District. It was listed on the National Register of Historic Places in 1996. The historic district consists of the nine buildings at the experimental station headquarters and another three buildings, called the Alpine Cabin complex, located on experimental watersheds about three miles east of the headquarters complex near the head of Ephraim Canyon. The national register district includes about 72 acres enclosing the headquarters complex and 18 acres enclosing the Alpine Cabin complex. The Station's buildings provided living and laboratory space for the scientists, their families, and the station's research technicians. It was one of the world's first watershed research centers, and its staff helped to develop the science of range management. The Station's history is on display in a small museum, which is open to visitors and event participants.

Goals (NR-GBS-GL)

01 The facility is available for permitted use by educational or community institutions.

02 Permit holders use the facility in ways that contribute to the economic and social well-being of local communities.

03 Partner with permitted organizations to conduct maintenance activities at the station.

Desired Conditions (NR-GBS-DC)

01 The Great Basin Station is managed to retain its status as a listed National Register property.

02 The Great Basin Station sustainably contributes to the educational mission of groups or organizations who use the facility.

03 The Great Basin Station is in good condition and available for public use.

04 The Great Basin Station is a place where visitors can learn about the station's role in local history and its contribution to the development of watershed science.

Standards (NR-GBS-ST)

01 The historic integrity of its buildings and landscapes is protected and maintained through adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68).

3.2.2 Pinhook Battleground National Register Site

See Also

Cultural and Heritage Resources.

Description and Values

The Pinhook Battleground National Register site is in Pinhook Draw on the Moab Ranger District and is an 8-acre area designated in 1981. The site is the location of the last battle in a running fight between about 100 Ute and Paiute men, women, and children, and about 34 European American stockmen on June 15–16, 1881. The site includes a small walled cemetery containing the remains of eight European Americans killed in the battle who are commemorated on a single headstone. The burial locations of American Indian casualties are unknown. The basic outline of the significance of the location, is provided through an interpretive sign describing the events leading up to and including the final battle, created in partnership with the Grand County Historic Preservation Commission in 2010.

Goals (NR-PINHOOK-GL)

01 Partners such as local historical societies help to maintain the cemetery in good condition and interpret the historic battle.

Desired Conditions (NR-PINHOOK-DC)

01 The setting of and structures associated with the Pinhook Battleground are maintained, protected against both human and natural damage. The surrounding landscape, which may contain the graves of Ute and Paiute fighters, is also protected against disturbance.

02 The sense of solitude and exposure, created by the unaltered visual and auditory setting, provides visitors an opportunity to visualize the battle that occurred in this location and to ponder its meaning to tribes and local communities.

Objectives (NR-PINHOOK-OB)

01 Monitor the condition of the walled cemetery and interpretive panel every other year for the life of the plan.

Guidelines (NR-PINHOOK-GD)

01 Maintenance work should be done in partnership with local community groups using techniques that meet the Secretary of the Interior's Standards for the Treatment of Historic Properties as described in 36 Code of Federal Regulations 68.

02 Future on-site interpretation should be developed in consultation with both tribes and local historical societies.

3.3 Management Areas

The Manti-La Sal has several areas where a specific resource emphasis requires different management that cannot be met through the more general forest-wide plan components. These areas are identified as management areas. A management area represents a suite of desired conditions and management components to more adequately manage the resources in an area or several similar areas on the landscape. Forest-wide plan components are applied, unless there is management direction for a specific management area that differs from the forest-wide direction. In this case, the management area direction takes precedence. Management direction for each management area is in the sections that follow.

3.3.1 Recommended Wilderness Management Area

Description and Values

There are no existing recommended wilderness areas on the Manti-La Sal National Forest. Through this plan, areas may be identified as recommended wilderness. Any areas recommended for wilderness by this plan will be managed to protect and maintain their wilderness characteristics to ensure the lands remain suitable for inclusion in the National Wilderness Preservation System. Recommendation of wilderness through this Forest Plan revision is a preliminary administrative determination and will receive further review and possible modification by the Chief of the Forest Service, the Secretary of Agriculture, and the President of the United States. Congress reserves the authority to make final decisions on wilderness designation. The Forest Service preserves the opportunity for recommended wilderness areas to be included in the National Wilderness Preservation System by protecting and maintaining the ecological and social characteristics that provide the basis for their suitability for wilderness designation.

Refer to the Wilderness Evaluation Report in Appendix C, for information on the Wilderness Evaluation process and for information on units that will be analyzed for possible recommendation by this plan.

Desired Conditions (MA-RECWILD-DC)

01 The opportunity for inclusion in the National Wilderness Preservation System is preserved.

02 The ecological and social characteristics that provide the basis for wilderness recommendation are maintained and protected.

03 Ecological processes such as natural succession, wildfire, avalanches, insects, and disease function with a limited amount of human influence are present and dominant.

04 Recommended wilderness areas provide opportunities for solitude or a primitive and unconfined type of recreation. Impacts from visitor use do not detract from the natural setting.

Standards (MA-RECWILD-ST)

01 Commercial filming shall be prohibited in these areas.

02 Launching or landing of unmanned aircraft, such as drones, shall be prohibited in these areas.

03 Mineral or energy-related geophysical activity shall not occur in recommended these areas.

04 Recreation opportunities shall be consistent with the recreation opportunity spectrum classification of Primitive.

05 Commercial timber harvest shall not occur.

06 Motorized use shall not occur, at any time during the year, within these areas.

Guidelines (MA-RECWILD-GD)

01 New motorized or mechanized trails, and roads should not be constructed.

02 Scenery management should be consistent with the scenic integrity objective of High or Very High.

03 If fire management actions are required within recommended wilderness, the Forest Service shall apply minimum impact strategies and tactics to manage wildland fire that protect wilderness characteristics, unless more direct attack is needed to protect life or adjacent property or mitigate risks to responders.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Manage areas as not suitable for timber production.

3.3.2 Eligible Wild and Scenic Rivers Management Area

The Forest Service Wild and Scenic Rivers eligibility study, found in Appendix D identified one river segment for inclusion as part of the Wild and Scenic Rivers System under the authority granted by the Wild and Scenic Rivers Act of 1968, as amended. This river will be managed to protect the river-related outstandingly remarkable values identified for the river and protect the free-flowing nature and quality of the water until either a determination that the river segment is not suitable, or a decision is made, through an act of Congress, to designate the river as a Wild and Scenic River. The river will be managed to maintain its preliminary classification of wild until a determination of suitability is made as well. Any new development or water resource projects will be evaluated in the context of protecting the river's values. 36 CFR 219.10 provides for interim management of Forest Service-identified eligible rivers or segments. Interim protective measures for eligible segments are identified in FSH 1909.12, Chapter 80, Section 84. The responsible official may authorize site-specific projects and activities only where the

project and activities are consistent with the free-flowing character and the identified outstandingly remarkable values.

Refer to the Wild and Scenic River Report, in Appendix D, and Maps in Appendix A for information on the Wild and Scenic River Eligibility process and for information on river segments that were found ineligible for recommendation by this plan.

Table 17. Eligible Wild and Scenic River and the preliminary outstandingly remarkable value, and classification for it.

River Segment	Preliminary Outstandingly Remarkable Value	Preliminary Classification
Duck Fork Creek	Fish	Wild

Source: Wild and Scenic Rivers Eligibility Study and Report, 2017.

See the glossary for definitions of the wild and scenic river classifications.

Desired Conditions (MA-EWSR-DC)

01 Suitable wild, scenic, and recreational rivers retain their free-flowing condition, preliminary classification, and the outstandingly remarkable values that provide the basis for their inclusion in the system.

Standards (MA-EWSR-ST)

01 Do not authorize or construct roads outside of the corridor that would adversely affect the wild classification of the river.

Guidelines (MA-EWSR-GD)

01 Management activities should maintain a scenic integrity objective consistent with the river's outstandingly remarkable values.

02 New road, trail, and airfield construction should be designed to maintain the outstandingly remarkable values, free-flowing character, and water quality of the river.

03 Construction of minor habitat structures and vegetation management to protect and enhance wildlife and fish habitat are allowed. They should be designed to protect the outstanding remarkable values.

3.3.3 Municipal Watershed Management Area

See Also

Municipal Water Sources, Recreation and Access, and Livestock Grazing and Range Management.

Description and Values

This management area applies to the discrete acres to the west of the cities of Blanding and Monticello. These forest acres provide most of the water supply for the two cities. This area includes some select watershed areas, some springs and other water sources dedicated to the production of municipal water. The Utah Department of Environmental Quality rates this area as a Category 1 watershed, indicating it should be managed to maintain both a pristine state of ecological function and the ability to supply water to municipalities. While no formal, written agreements exist between the Forest Service and municipalities, this management area is recognized by the Forest as a distinct resource location where the focus should be on providing high quality water, at an adequate quantity, to surrounding communities.

Goals (MA-MWS-DC)

01 The Forest Service cooperates with the city of Blanding and the city of Monticello in sustainable land management of the management area and its municipal watersheds.

Desired Conditions (MA-MWS-DC)

01 A long-term clean water supply for the communities of Blanding and Monticello is provided.

02 The Category 1 watershed supplying the communities of Blanding and Monticello is maintained in a high functioning condition that ensures no interruption of water supply to the communities.

03 The management area is resilient to potential large-scale disturbance events, including but not limited to outbreaks of insect and disease, or stand-replacing wildfire.

Objectives (MA-MWS-OB)

01 Within five years of plan approval, design and implement a minimum of one educational or interpretational tool focused on the importance of the Forest to the communities' water supply.

02 Annually complete a minimum of one educational outreach program focused on municipal watersheds.

03 Within five years of plan approval, identify acres where opportunities exist for forest health restoration or resiliency improvements. Within ten years, implement a restoration and resilience plan to improve or maintain the watershed function and protect the water supply on these impaired acres.

Standards (MA-MWS-ST)

01 To reduce possible contamination of the water supply, overnight use within the management area boundary shall not occur.

02 To retain a high-quality water supply, special use permits shall not be authorized unless they include mitigations for maintenance of water quality and quantity within the management area boundary.

Guidelines (MA-MWS-GD)

01 To avoid long-term impairments to the water supply, vegetation management activities should demonstrate a long-term benefit to the water quality or quantity. A short-term impact to the water quality or other natural resources may occur only if a long-term benefit is expected.

02 Vegetation management activities should be undertaken to minimize the probability of large-scale disturbances, including but not limited to insect and disease outbreaks, and stand-replacing wildfires, that could impact the water supply.

03 To reduce water quality contamination, grazing should not occur within the management area.

04 Timber production is not suitable but may be acceptable for protection or enhancement of the community water source desired conditions.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely

management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize protecting the watershed and water supply when and where resource management conflicts occur.
- Emphasize maximizing herbaceous ground cover and minimizing surface disturbing activities.
- Provide for limited land uses and activities that do not degrade the water quality or disrupt the watershed or source areas.

3.4 Geographic Areas

The Manti-La Sal has several larger areas requiring different management that cannot be met through the more general forest-wide plan components. These areas are identified as geographic areas. A geographic area represents an area where the location is unique and distinct and therefore requires distinct desired conditions and management components across a range of resources. Forest-wide plan components are applied, unless there is management direction for a specific geographic area that differs from the forest-wide direction. In this case, the geographic area direction takes precedence. Management direction for each geographic area is in the sections that follow.

3.4.1 Elk Ridge Geographic Area

See Also

Cultural and Heritage Resources, Areas of Tribal Importance, Wildlife, Recreation and Access, Scenery Management, and Livestock Grazing and Range Management.

Description and Values

The Elk Ridge Geographic Area was established as a result of the multiple, overlapping resource values in the area that do not occur in other areas of the Manti-La Sal. A map of this geographic area can be found in Appendix A. The Elk Ridge plateau and deep canyons that characterize the geographic area invite a different set of management strategies for cultural resources, recreation, vegetation, and wildlife that differ from the management described by Forest-wide components. This area is not only unique due to the intersection of these multiple resources, it is also the density of high value resources that is overlapping that makes this area unique. Chief among these resources are complex, overlapping cultural landscapes that reflect different periods and cultures, including the living landscape of active tribal use. Overlapping cultural landscapes in the geographic area are characterized by thousands of years of human history and are identified using tribal input, historical information, archaeological data and ethnographic information. These landscapes may include Archaic, Puebloan, Ute, Paiute, Navajo, and Euro-American affiliations. These cultural landscapes are recognized as significant at the national level, playing a distinctive role through their living connection to tribes and area residents. They are also of tremendous interest to increasing numbers of visitors, who are drawn to the unique experiences this landscape and its cultural values present. These overlapping cultural landscapes and all the associated resources that create them need to be managed at a landscape scale in order to preserve their natural, archaeological, local historical, and tribal values, while also responding to the higher levels of public visitation and tribal use that are now occurring.

Managing for the overlapping cultural landscapes does not only include managing for the archeological, historical and tribal values, but also for all the natural resources which contribute to both the historical reasons cultures used this area, but also to current uses and values of the area. Therefore, components

in this geographic area guidance focus on a broader set of resources all of which contribute to creating the unique landscape; it's ecologic, cultural, recreational and scenic composition.

The geographic area contains several different designated areas, including the Dark Canyon Wilderness, a portion of Bears Ears National Monument, the Cliff Dwellers Pasture research natural area, and several large inventoried roadless areas. This concentration of large areas without roads, provides the highest number of opportunities for backcountry recreation in single discrete area on the forest. This diversity of land designations as well as the desire of visitors for a breath of different recreational opportunities, makes recreation management in the geographic area challenging. The area is an important dispersed camping area for both residents and visitors. In recent years visitation has risen, not only from local residents but from regional and increasingly national and international visitors as well. As a result, the number of new and heavily impacted dispersed campsites is increasing and affecting previously undisturbed areas. These visitors primarily concentrate in Dark Canyon Wilderness and other nearby canyons. With increasing numbers, increasing diversity of activities are also occurring as visitors bring their preferred methods of recreation with them. In addition to the more common historically backpacking and equestrian use, rock-climbing, motorized trail use and archaeological site visits are all increasing.

Goals (GA-ELK-GL)

01 Work with tribes and rural historic communities to identify cultural landscapes, and associated historical, ethnographic, and archeological information about cultural landscapes.

02 Continue to provide and increase opportunities for volunteers to partner with the Heritage program. Maximize these opportunities to identify, study, protect, and monitor sites. This includes developing and maintaining opportunities for tribes, universities, and volunteer organizations.

03 Collaborate with tribes to manage cultural resources and areas of importance. This includes identifying treatment measures of cultural resources, traditional cultural properties, or cultural landscapes that are being damaged by visitation or by other human or natural forces.

04 Collaborate with tribes when rehabilitating or developing springs.

Desired Conditions (GA-ELK-DC)

01 Cultural landscapes and their component parts are managed in ways that preserve their condition and value to tribes, local communities, and visitors, as well as for their outstanding ability to contribute to regional archaeology and history.

02 Both cultural resource sites and cultural landscapes are managed for their outstanding ability to contribute to tribal well-being, understanding local and regional archaeology, and the local economy through heritage tourism and participatory programs.

03 Recreation management in the geographic area will recognize and focus backcountry and cultural tourism opportunities, in ways that respect tribal values. It will be balanced with preservation of the cultural landscapes that attract visitors in the first place. The primarily undeveloped character of the area which provides the setting for these opportunities remains intact and undeveloped.

04 Forested stands retain the tree age and diameter classes that mimic the historical range of variability created by naturally occurring frequent low-severity fires. Structural stages reflect uneven aged management, with older trees typically being retained to create open, park-like

stands, particularly in ponderosa pine forest types. Spatial composition is an arrangement of individual trees, small clumps, and groups of trees, interspersed with variably sized openings of grass or forb vegetation.

05 There is a continuous presence of snags, large logs, and down woody debris, especially snags that are 18 inches in diameter and in various stages of decay throughout the landscape.

06 Old growth structural features occur throughout the landscape as tree groups or single trees in uneven-aged patches or as small even-aged patches. Old growth features include old trees, snags, large logs, and structural variability. Old growth climax ponderosa pine forests are defined as having a minimum of seven trees per acre that are greater than 16 inches in diameter and over 200 years old and have a minimum of at least one standing snag per acre greater than 15 inches in diameter. Old growth seral ponderosa pine forests are defined as having a minimum of fourteen trees per acre that are greater than 20 inches in diameter and over 200 years old, have a minimum of two standing snags per acre greater than 15 inches in diameter, and have a minimum of two downed pieces per acre greater than 15 inches in diameter and at least 15 feet in length.

07 The area is managed to retain and promote mid-aged, mature, and old ponderosa pine trees in groups with interlocking crowns, with a minimum 22 patches per hectare of over five interlocking canopy trees. The density of mature trees should be greater than 20 trees per hectare, with a basal area over 35 square meters per hectare.

08 Healthy, regenerating aspen stands are maintained or increased across the landscape.

09 All temporally, culturally or spatially distinct cultural landscapes within the geographic area are identified and mapped.

10 Secure wildlife habitat and cultural resources are protected from expanding motorized access opportunities.

Objectives (GA-ELK-OB)

01 Assign temporal and functional categories to all previously documented cultural sites within five years of plan approval.

02 Identify both the known sites associated with specific cultural landscapes as well as the data and management needs for each cultural landscape within ten years of plan approval.

03 Define, document and nominate a South Cottonwood Wash archaeological district or multiple property listing for listing on the National Register of Historic Places over the life of the plan.

04 Update Dry Wash Caves interpretive signs and add the existing trail to the Forest trail system within ten years of plan approval.

05 Designate and harden dispersed camping sites in the geographic area within ten years.

06 Develop with tribal input, stipulations about respectful, and low-to-no impact ways to visit cultural sites and add the stipulations to all outfitter and guide permits with operations in this geographic area, within three years of plan approval.

07 In consultation with tribes, develop guidelines to determine when and where to issue recreational special use permits within three years of plan approval.

08 Within 5 years of plan approval, identify and map forest stands with old growth forest characteristics or those developing old growth forest characteristics.

09 Inventory and identify necessary restoration activities for thirty springs, wetlands, and riparian site conditions within five years of plan approval.

10 Monitor campsites in culturally sensitive areas, at least every five years for the life of the plan.

11 Designate and harden dispersed camping sites in the Roaded Natural and Semi Primitive ROS classes in the geographic area within ten years.

Standards (GA-ELK-ST)

01 Ropes and climbing aids shall not be used to access cultural sites, including archaeological resources, unless used for scientific purposes with a permit, for tribal and Forest administrative access, or for emergencies.

02 Camping shall not occur within historic and prehistoric structures or alcoves that contain cultural resources.

03 Campfires shall not occur within archeological sites.

04 Hand based fuels reduction shall occur ahead of all prescribed burning projects, in fire vulnerable cultural sites and areas of tribal interest.

05 Mitigation measures or other protective measures shall be implemented if adverse effects from visitation, social trails or unauthorized activities develop at cultural resource sites or tribally sensitive areas.

06 Road density shall be maintained or decreased.

07 Road corridor dispersed camping shall occur in designated sites only. Designated sites shall be located away from important wildlife corridors and cultural resources.

08 Game cameras shall not be used unless authorized for management or research.

09 Mexican spotted owl canyon nesting and roosting habitat, based on the most recent habitat models, shall be protected from disturbance during the breeding season, March 1 to August 30.

10 Camping and overnight use associated with commercial outfitter and guide permits shall be prohibited in designated Mexican spotted owl territories during the breeding season, March 1 to August 30.

11 Management activities shall leave a minimum of 2 snags greater, in size, than 18 inches, diameter at breast height, per acre when these components exist on the landscape before treatment.

12 Salt or other edible attractants to livestock and wildlife shall not be placed on cultural sites or within a quarter of a mile of any water source.

13 Firewood cutting areas shall be designated to protect wildlife habitat and cultural resources.

14 Launching or landing of unmanned aircraft, such as drones, shall be prohibited, unless for the purpose of protecting resources and authorized for this purpose.

15 Permits for commercial filming, unless stipulated and authorized in an outfitting and guiding permit, shall not be issued.

16 Roads and motorized trails shall be rerouted or closed when impacts on cultural resources are identified and cannot be minimized.

17 New roads or motorized trails shall only be designated if they do not create direct or indirect impacts on cultural resources.

Guidelines (GA-ELK-GD)

01 Within archaeological sites fuel reduction treatments should be limited to hand treatments, and fuels should be scattered or burned off-site.

02 Fire suppression, including use of mechanical equipment to build fire lines, in cultural landscapes should minimize ground-disturbance, while ensuring firefighter safety.

03 Post-fire cultural resource surveys should be conducted to identify potential protective actions and to collect site information in known and suspected high site density or culturally important areas.

04 Mitigation measures or other protective measures should be implemented if adverse effects from livestock grazing and concentrated livestock use develop cultural resource sites or tribally sensitive areas.

05 Mitigation measures or other protective measures should be implemented if impacts to Mexican spotted owl breeding and roosting canyon habitat, from recreation use develops.

06 During vegetation management projects, stands of mature, acorn producing Gambel oak, at least six inches diameter at breast height, in association with ponderosa pine should be retained at levels to provide for wildlife habitat.

07 Fuel reduction treatments should maintain mosaicked compositions across the landscape to avoid drawing attention to cultural sites and to provide wildlife habitat.

08 Fuels reduction treatments should use prescribed fire and wildfire rather than mechanical means in areas with dense concentrations of cultural sites.

09 Recreational opportunities and developments should be designed to meet the Primitive or Semi-primitive Nonmotorized recreation opportunity class.

10 Slash piles and log decks should be avoided in ponderosa pine habitat. If they are necessary, they should be removed within two years to discourage habitat for Abert's squirrel competitors and predators.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize preservation of cultural resource values including preservation of all cultural landscapes associated with the area. These landscapes should include Archaic, Puebloan, Ute, Paiute, Navajo, Euro-American affiliations.

- Emphasize evaluation of the potential effects of management actions and visitation on the condition of the whole cultural landscape of plant and animal communities, geographic features, cultural sites, traditional cultural properties, and sacred sites; including effects to the visual, auditory and aesthetic condition of these landscapes.
- Focus management on different, but interconnected scales in order to establish resource protection zones that address the needs of sensitive resources, while providing for broader management across the entire landscape.
- Emphasize projects and activities that maintain or enhance plant communities and wildlife habitat.
- Proactively manage for unplanned wildfires by prioritizing designing and implementing projects that protect cultural sites and maintain plant and animal habitat susceptibility to fire.
- Emphasize improving and maintaining habitat for wildlife species of interest including but not limited to mule deer, elk, turkey, Mexican spotted owl, and Abert's squirrel.
- Use the Utah Wildlife Action Plan and focus management on habitat maintenance for the species listed in it, such as great plains toad, northern leopard frog, many-lined skink, and band-tailed pigeon.
- Consider a variety of tools and techniques to address habitat and vegetation conditions. These may include techniques like timing and rotating livestock grazing, prescribed fire and mechanical thinning to target reduction in specific vegetation species.
- Recognize and prioritize management actions that provide habitat to sustain important wildlife species that are not present elsewhere on the Forest.
- Prioritize making different kinds of recreation and protection of sites of value to tribes compatible with one another as well as with the overall scenic and cultural value of the landscape.
- Not all activities are appropriate across all of the geographic area. Assess the entire area in decisions and planning but identification of appropriateness for each category of activity for each acre of land will be determined in site specific analysis and project development.
- Focus on offering a variety of recreation opportunities, including motorized trails, hiking, backpacking, horse-packing, visiting cultural resources, and hunting.
- Consider protective measures including a permit system, designated camping system, or site closures when unacceptable impacts to cultural sites and sensitive resource is determined.
- Incorporate use of volunteers in post-fire cultural resource survey collection as a way to efficiently accomplish work in a short period of time.
- Consider protective measures including a designated camp system, closures, or a permit system in canyons with breeding and roosting Mexican spotted owls, or in sensitive, high visibility archeological sites, such as cliff dwellings, when unacceptable visitor impacts are found or carrying capacity limits are reached.

3.4.2 Horn Mountain and Wildcat Knolls Geographic Area

See Also

Wildlife, and At-Risk Animals.

Description and Values

This geographic area, shown in Appendix A, is located on the Manti Division of the Forest along the southeastern boundary. This corner of the Forest provides a habitat that supports a unique assemblage and concentration of wildlife. The immediate areas in and around North and South Horn Mountains as

well as the Wildcat Knolls and Pines areas to the south, are home to the only known populations of greater sage grouse on the Forest. These non-migratory populations are some of the most unique in Utah, utilizing sagebrush habitats over 8,000 feet in elevation throughout the year. The large stands of curl-leaf mahogany serve as a valuable cover and forage species for both Rocky Mountain elk and mule deer, sustaining the largest concentrations of wintering elk and deer found on the forest. This area will be managed with a primary emphasis on wildlife and the associated ecological conditions necessary to support this unique wildlife habitat.

In addition to the unique wildlife habitat within this geographic area, there are several popular recreation sites and activities. Joe's Valley Reservoir and Straight Canyon provide popular fishing, camping, motorized recreation, and hiking opportunities. Joe's Valley bouldering area, within Straight Canyon, has become nationally renowned for the specialized type of rock climbing it provides. The Joe's Valley Dam and Reservoir was the principal component in the Emery County Reclamation Project constructed by the U.S. Bureau of Reclamation, covering over 1,100 acres and is a high-quality tiger musky and splake fishery. Ferron Canyon to the south also winds through this geographic area and is a gateway to popular fisheries; Ferron Reservoir and Duck Fork Reservoir. Popular OHV trails within this area include Big Ridge, Hole Trail, Rock Canyon, Lords Trail, and Reeder Canyon Trail.

Emery County has communication towers located in two different areas within this geographic area; at Long Ridge and East Rim. Shared maintenance access on these towers requires consideration within direction for this geographic area.

Goals (GA-HORN-DC)

01 Forest users understand the multiple use mission of the forest service and how management activities including but not limited to livestock grazing, and fuels reduction, are part of the mission.

02 Continue to work with partners; Emery County, Utah Watershed Restoration Initiative, Southern Utah Fuel Company, Utah Division of Wildlife Resources, Rocky Mountain Elk Foundation, and Utah State University, to protect, restore, and enhance habitat for greater sage grouse and big game.

03 Greater sage grouse management will be directed by the September 2015 Sage Grouse Management Plan Record of Decision, or the most recent interagency sage-grouse management plan and coordinated with the appropriate interagency partners.

Desired Conditions (GA-HORN-DC)

01 Greater sage grouse are managed to meet or exceed the desired conditions stated in the September 2015 Sage Grouse Management Plan Record of Decision, or the most recent interagency sage-grouse management plan.

02 Big game wintering animals and key winter range habitat are not disturbed by motorized travel.

03 Habitat conditions provide the quality and spatial arrangement of forage, security, and cover for wintering Rocky Mountain elk and mule deer within key winter range.

04 Quality water sources within this geographic area meet all seasonal use period requirements for both greater sage grouse and big game.

05 Woodland vegetation types, including curl-leaf mountain mahogany, serviceberry, and Gambel oak support a balanced range of structural stages, sizes, and ages to promote healthy big game winter ranges.

Objectives (GA-HORN-OB)

01 Objectives described within the September 2015 Sage Grouse Management Plan Record of Decision or the most recent interagency sage-grouse management plan are implemented within the timeframes articulated in that document.

02 Treat a minimum of 100 acres of woodlands or shrubland vegetation groups every 10 years within the geographic area.

03 Treat a minimum of 50 acres of curl-leaf mountain mahogany and serviceberry woodland every 10 years.

Standards (GA-HORN-ST)

01 The geographic area shall be managed per the standards and guidelines described in the September 2015 Sage Grouse Management Plan Record of Decision or the most recent interagency sage-grouse management plan. This direction shall take precedence over other conflicting Forest Plan direction that may also apply to the geographic area.

Guidelines (GA-HORN-GD)

01 Management activities should avoid disturbance to big game on winter range during the winter closure period of January 1 through April 15, except for routes identified on a motor vehicle use map as open to motor vehicle use. If management activities must occur during the winter closure period, activities should be concentrated in time and space to reduce impacts on big game.

02 Projects should avoid altering the canopy cover components within the curl-leaf mountain mahogany, serviceberry, and Gambel oak woodlands unless to enhance a balanced range of structural stages, sizes, and ages to improve or maintain big game key winter range.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize the protection of greater sage grouse, wintering big game, and their associated habitats.
- Emphasize vegetation treatments that restore big game winter range and greater sage grouse habitat, by reducing pinyon-juniper expansion and managing the curl-leaf mahogany and serviceberry assemblage for a diverse age class. Tools and techniques to accomplish these treatments could include mechanical, chemical, and prescribed fire. All vegetation treatments should prioritize and emphasize the ecological needs of greater sage grouse and big game.
- Consider one of two treatment types when using vegetation treatments to restore habitat. Shrubland and Woodland treatments are targeted toward improving habitat for sage-grouse and other sagebrush obligate species. Woodlands treatments outside of sage grouse seasonal habitat, will be focused on phase I and II wooded shrubland expansion, or the

expansion or encroachment of this vegetation type into the shrubland vegetation type, and should emphasize a diversity in age class and structure to support the needs of big game. Other vegetation types including but not limited to persistent woodlands, should not be emphasized or treated within this geographic area.

- When considering timing restrictions for winter big game closure periods, consider best available information, as well as site-specific factors including but not limited to topography and available habitat.

3.4.3 Maple Canyon Geographic Area

See Also

Recreation and Access.

Description and Values

This geographic area is unique due to the overlapping resources of both world-class sport climbing as well as golden eagle occupied breeding territory. Located just west of Moroni, Utah, in the San Pitch Mountains, Maple Canyon provides hundreds of rock-climbing opportunities, accessed from a small, consistently occupied 20-unit Forest Service campground. Day-use parking and overnight camping are limited by the narrow canyon topography, and demand is often not met; this results in traffic congestion, parking along the road, and camping on private property below the Forest boundary.

A breeding pair of golden eagles occupies a breeding territory within the canyon and maintains at least two alternate nests near recreational areas. Forest Service and volunteer nest surveys have confirmed successful fledging of chicks at one of these nests in previous years, and voluntary avoidance of nearby crags has been observed by the climbing community.

The Maple Canyon Management Area is displayed in Appendix A.

Goals (GA-MAPLE-GL)

- The Forest Service, Hawkwatch, and Salt Lake Climbers Alliance and other interested partners communicate and develop public outreach strategies to promote avoidance of areas occupied by breeding eagles.
- Stewardship is shared with the climbing community to facilitate maintenance and monitoring of concentrated use areas, climbing access trails, and fixed anchors.

Desired Conditions (GA-MAPLE-DC)

01 Maple Canyon continues to provide world class sport-climbing opportunities while also preserving golden eagle habitat.

02 Moderate development scale camping and parking with simple amenities are provided for small group camping and day-use.

03 The physical environment, scenic composition, and ecological values reflect a naturally functioning system where quiet, reflective and focused experiences dominate.

04 Golden eagle breeding and fledging continues to occur within the canyon.

Objectives (GA-MAPLE-OB)

01 Develop additional camping and parking capacity above and below Maple Canyon Campground within ten years of plan approval.

02 User-created trails to climbing areas are identified annually, and then closed and rehabilitated, or incorporated into the designated trail system once sustainable location and design are established.

03 Update existing interpretive signage and provide additional education and information opportunities to climbers and other visitors within five years of plan approval.

Standards (GA-MAPLE-ST)

01 Only one recreation event special use permit shall be issued per year.

Guidelines (GA-MAPLE-GD)

01 Climbers should avoid climbing on the walls within 400 meters and within view of nest sites during the month of March. If surveys confirm that nests are in use, an avoidance area around the nest should continue until surveys confirm that the nestling has fledged and left.

02 Outfitter and guide climbing permits should only be issued during fall, winter and spring, between September 15 and May 15 to avoid conflict with public use.

03 Signs should be placed at climbing access points and the walls themselves when nests are active.

04 Campsites within view of active nests should be closed until the nest is no longer occupied.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Focus future management on the social and resource concerns related to the high demand for camping and recreation to ensure sustainable use.

3.4.4 Moab Geographic Area

See Also

Community Water Sources, Recreation and Access, Riparian Management Zones, Livestock Grazing and Range Management, and Scenery Management.

Description and Values

This geographic area, as shown on a map in Appendix A, is a unique location on the forest, where a sky-island ecosystem is adjacent to a highly visited tourist destination. The towns of Moab and Castle Valley are dependent on the La Sal Mountains, within this geographic area, for recharge of their sole-source aquifers and municipal water. Sustainable recreation and protection of scenery are additional management considerations for this area, due to the world class recreation opportunities, distinct scenic composition, and the economic value of these assets to the tourism-oriented economy of the Moab area. The highest use nonmotorized trails on the forest are located within this area, including the popular Whole Enchilada trail. Mount Peale, the highest peak in the La Sals also lies within this geographic area. It and the other peaks of the La Sal Mountains provide alpine habitat, above tree line, where multiple rare species occur as do distinct high elevation recreation opportunities. The combination of these unique values and their sensitivity to potential impacts, makes specific direction to manage this location different from forest wide direction necessary.

Goals (GA-MOAB-GL)

01 Forest users understand the multiple use mission of the forest service and how management activities including but not limited to livestock grazing, and fuels reduction, are part of the mission.

02 Educational and interpretive information about the impacts, hazards, and associated mitigations of human and pet waste disposal within municipal water supply areas are provided to forest users.

03 Work with Castle Valley and Moab municipal watershed stakeholders to evaluate and maintain the sole-source aquifer.

04 Continue to work with existing recreation partners and develop new partners to develop and promote sustainable recreation opportunities.

Desired Conditions (GA-MOAB-DC)

01 The sole-source aquifers and recharge of them are maintained as a healthy functioning watershed to provide surrounding communities with a clean water source.

02 A diversity of recreational opportunities, including dispersed camping, is available without impacting the sole-source aquifers.

03 The scenic integrity of the west-slope La Sal mountains, continues to serve not only as a on Forest value, but also as a strong background scenic element, to complement adjacent federal and state land scenic compositions as well as supports local economies.

Objectives (GA-MOAB-OB)

01 Close all unauthorized motorized routes within the geographic area when they are found, on an annual basis.

02 Designate and harden dispersed camping sites in the geographic area within ten years.

03 Travel plan is updated to remove motorized access 150 feet off authorized roads after official designation of dispersed campsites occurs.

04 Develop a visitor education plan for the geographic area within five years of plan approval,

05 Monitor and report on soil conditions, effective ground cover and detrimental soil disturbance in alpine communities to determine potential impacts on the watershed, within five years of plan decision.

06 Assess all existing trail stream crossings within the geographic area within five years of plan approval to determine if they are contributing sediment to streams. If they are contributing unacceptable amounts of sediment to streams, trails will be rerouted or mitigated within five years of identification.

Standards (GA-MOAB-ST)

01 Maintain in-basin water balances by not allowing new trans-basin diversions of water from one watershed to another in headwaters of single-source aquifer recharge areas.

02 Timber production is not suitable but may be acceptable for protection or enhancement of the geographic area desired conditions.

03 Dispersed camping shall occur only at officially designated sites within roaded natural and semi-primitive motorized recreation opportunity spectrum areas.

04 Camping sites shall not be officially designated within 100 feet of open water unless the site can be hardened or otherwise mitigated.

05 Chaining shall not occur within the geographic area boundary.

06 Applications for special-use permits associated with the development of an issued water right shall not be granted, unless specifically for purposes of enhancing or improving characteristics that provide for water quality or quantity sole-source aquifer wide.

07 Only one recreation event special use permit shall be issued per year on the Whole Enchilada Trail Corridor.

Guidelines (GA-MOAB-GD)

01 Vegetation treatments should only occur to promote watershed health, build resistance and resilience to disturbance, or promote aspen recruitment.

02 Middle and background, off-forest viewsheds onto the forest, as well as foreground on forest viewsheds, should be analyzed for meeting or exceeding scenic integrity objectives.

03 All new trails should be designed to avoid stream crossings or to include mitigation if crossing cannot be avoided.

Management Approaches

Management approaches are not required by the 2012 Planning Rule. They are articulated here to describe principal strategies, program priorities, focus for projects and objectives, as well as likely management emphasis that the responsible official intends to carry out through projects and activities developed under the plan.

- Prioritize protection of the single-source aquifer when considering management activities.
- Consider views from Arches National Park, Canyonlands National Park, Dead Horse Point State Park and the cities of Castle Valley and Moab during scenery analysis.
- Consider techniques such as feathering the edges of treatment units and leaving a mosaic of vegetation on the landscape to mimic natural scenic landscape composition including canopy openings and density variation.

4. MONITORING PROGRAM

Information is being assembled and verified

REFERENCES

Information is being assembled and verified

GLOSSARY

A

Access

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

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.

Aerial system

A timber harvesting yarding system that employs aerial means, such as helicopters, balloons, high lead cable lines and skyline yarding.

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 or proportionate representation of different age classes in a forest.

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.

Animal

A living organism within the Animalia kingdom including many-celled organisms and often many of the single-celled ones (such as protozoans) that typically differ from plants in having cells without cellulose walls, in lacking chlorophyll and the capacity for photosynthesis, in requiring more complex food materials (such as proteins), in being organized to a greater degree of complexity, and in having the capacity for spontaneous movement and rapid motor responses to stimulation.

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, or 4.5 feet above ground. 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

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.

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 or clearcutting

A stand in which essentially all trees have been removed in one operation to produce an even-aged 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.

Conventional ground-based equipment

Timber harvesting equipment that typically includes a combination of chainsaw, cable skidder, and trailer-mounted loader for harvesting timber. A small or medium-sized bulldozer is also often found on site to construct the landing as well as skid roads.

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, or the 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, traditional cultural properties, sacred sites, and landscape features. Cultural resources include the entire spectrum of resources 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.

Dispersion

The slowing and distribution of water runoff over an area.

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.

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. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 Code of Federal Regulations 219.19).

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 time period. 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. Examples include springs, seeps, fens and wetlands.

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 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(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.

H

Habitat

The natural environment of a plant or animal. In wildlife management, the major components of habitat are 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.

High flotation ground-based equipment

Timber harvesting equipment that decreases ground pressure by either dual tire or high-flotation tires on wheeled equipment, or wider tracks on tracked equipment.

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.

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 or 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 can 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 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 most trees are mature or over-mature.

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 hard rock 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 time period 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.

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 imposed by humans 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.

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 integrity 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 consider 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 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.

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, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets.

Old growth

- The overstory is dominated by late seral or climax species of a certain age and size, and has other characteristics such as dead trees, 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.

Overstory

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

P

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.

Persistent woodlands

These are long-lived pinyon-juniper woodlands that typically have sparse understories and occur on poor substrates in the plan area. On the Colorado Plateau this type can occur on more productive sites as well, and result in stands with large, dense trees; much of the literature comes from these woodlands.

Pinyon-Juniper Woodland expansion into Shrublands Phases

These are areas with variable tree densities and a successional dynamic between shrublands and trees. They occur on substrates that favor shrubs and tend to be on sites with less available moisture for trees. Tausch et al. (2009) have classified the stages of increase in tree density in three phases:

Phase I — the area is dominated by shrubs

Phase II — trees and shrubs are co-dominant

Phase III — trees are dominant, and typically the understory is very limited or nonexistent

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

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.

Projected timber sale quantity

The portion of the projected wood sale quantity that meets applicable timber utilization standards. In accordance with the National Forest Management Act and Planning Rule regulations, the quantity of timber that may be sold must be less than or equal to the sustained yield limit.

Projected wood sale quantity

The estimated output of timber and all other wood products, such as fuelwood, firewood, or biomass, expected to be sold during the plan period for any purpose on all lands in the plan area. This amount excludes output generated from salvage harvest, sanitation harvest, removal of trees to improve stand health, or removal to reduce an actual or anticipated spread of insects and disease.

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.

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, sprouting, or suckering from existing 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 or 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

A 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.

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.

Rotation

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

Rural historic community

A nontribal community located in central and southeastern Utah or western Colorado whose members and their families have strong historical ties to lands now managed by the Manti-La Sal National Forest.

S

Salvage or 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 or sanitation harvest

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

Savanna

Low to moderate pinyon-juniper densities with a near continuous grass layer where shrubs play a minor role. This type of savanna is currently most common outside the assessment area in the southwest with summer monsoon precipitation patterns. Age structures in current pinyon-juniper woodlands within the assessment area suggest this type of structure during the pre-settlement period, in western juniper in the northern part of the assessment area. From Romme et al.

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 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.

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 or sapling

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

Seedtree or seedtree harvest

The cutting of all trees except for a small number of widely dispersed trees retained for seed production and to produce a new age class in a fully exposed microenvironment.

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.

Shelterwood or shelterwood harvest

The cutting of most trees, leaving those needed to produce sufficient shade to provide a new age class in a moderated microenvironment.

Shrub

A forest successional stage in which shrubs 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. From: 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.

Site preparation

Hand or mechanized manipulation of a site, designed to enhance the success of regeneration by modifying the soil, litter, or vegetation and creating microclimate conditions conducive to the establishment and growth of desired species. Methods include burning, chemical spraying, chopping, dicking, drainage, raking, and scarifying.

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

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

Stand Density Index

A measure of the stocking of a stand of trees based on the number of trees per unit area and diameter at breast height of the tree of average basal area.

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

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

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. (FSH 1909.12 CH 60.5) -

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 specific 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.

Waterbody

A body of water forming a physiographical feature, for example a lake, reservoir or pond.

Watershed

A region or land area drained by a single stream, river, or drainage network. It includes the interactions of surface and subsurface water systems as well as soil, vegetation, and wildlife.

Wetlands

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration to, under normal circumstances 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 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 the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management.

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