



United States Department of Agriculture

Draft Revised Land Management Plan for the Inyo National Forest

Fresno, Inyo, Madera, Mono and Tulare Counties,
California; Esmeralda and Mineral Counties, Nevada



Forest
Service

Pacific Southwest
Region

Inyo National
Forest

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Cover: View looking west from the Baker Creek trail of the South Fork of Big Pine Creek.

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**Fresno, Inyo, Madera, Mono and
Tulare Counties, California;
Esmeralda and Mineral Counties, Nevada**

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Chapter 1. Introduction

Location

The Inyo National Forest is one of eighteen national forests in California. The Inyo covers parts of the eastern Sierra Nevada of California and the White Mountains of California and Nevada (Figure 1); spanning portions of Fresno, Inyo, Madera, Mono and Tulare Counties of eastern California, and Esmeralda and Mineral Counties of western Nevada.

The Inyo encompasses approximately two million acres, including managing 26,711 acres of the Sierra and Humboldt-Toiyabe National Forests. Mono Lake is within a designated national scenic area on the forest, and its waters cover approximately 37,277 acres. There are about 112,000 acres of lands of other ownership within the boundaries of the Inyo National Forest; these include state and private lands, and lands managed by the National Park Service, Bureau of Land Management, Los Angeles Department of Water and Power, and the Army Corps of Engineers.

The Inyo National Forest supervisor's office is centrally located in Bishop, California. The Inyo has four administrative ranger districts; the northern Mono Lake and Mammoth Ranger Districts are managed together as the North Zone; and the southern White Mountain and Mount Whitney Ranger Districts are managed together as the South Zone.

Distinctive Roles and Contributions of the Plan Area

The Inyo National Forest is characterized by large magnificent mountains that invite and inspire visitors locally, regionally, nationally, and internationally. This stunning landscape is home to well-known attractions such as Mt. Whitney, Mono Lake, the Ancient Bristlecone Pine Forest and the Mammoth Mountain lava dome complex. The Ancient Bristlecone Pine Forest, a congressionally designated area in the White Mountains (Figure 12), is set aside for visitor enjoyment and research that has contributed greatly to current science about climate change. These icons, along with the Inyo's proximity to other recreation attractions, make the Inyo a destination place for visitors. Travelers on routes and trails pass through contrasting landscapes. Year-round trail use provides the means to high quality recreation from hiking, mountain biking and equestrian use, to skiing, snowmobiling and other motorized uses. Conservation education and interpretation programs focus on developing a land ethic as part of the recreation experience.

The Inyo National Forest has diverse ecosystems including portions of the Great Basin, Mohave Desert, and Sierra Nevada Bioregions. Elevations range from 3,800 feet in Owens Valley to 14,495 feet at the peak of Mount Whitney, the highest point in the contiguous United States. The eastern Sierra Nevada is known for large expanses of undeveloped land. The Inyo includes Mono Basin National Forest Scenic Area and almost 1 million acres of designated wilderness. The Inyo shares boundaries with Sequoia, Kings Canyon, Yosemite and Death Valley National Parks, Devils Postpile National Monument, Bureau of Land Management, Los Angeles Department of Water and Power, private entities, and the Sequoia, Sierra, and Humboldt-Toiyabe National Forests. The communities within and adjacent to the Inyo National Forest are relatively small and discrete, so connectivity between the forest and similar ecosystems on adjacent lands is relatively intact with regard to development.

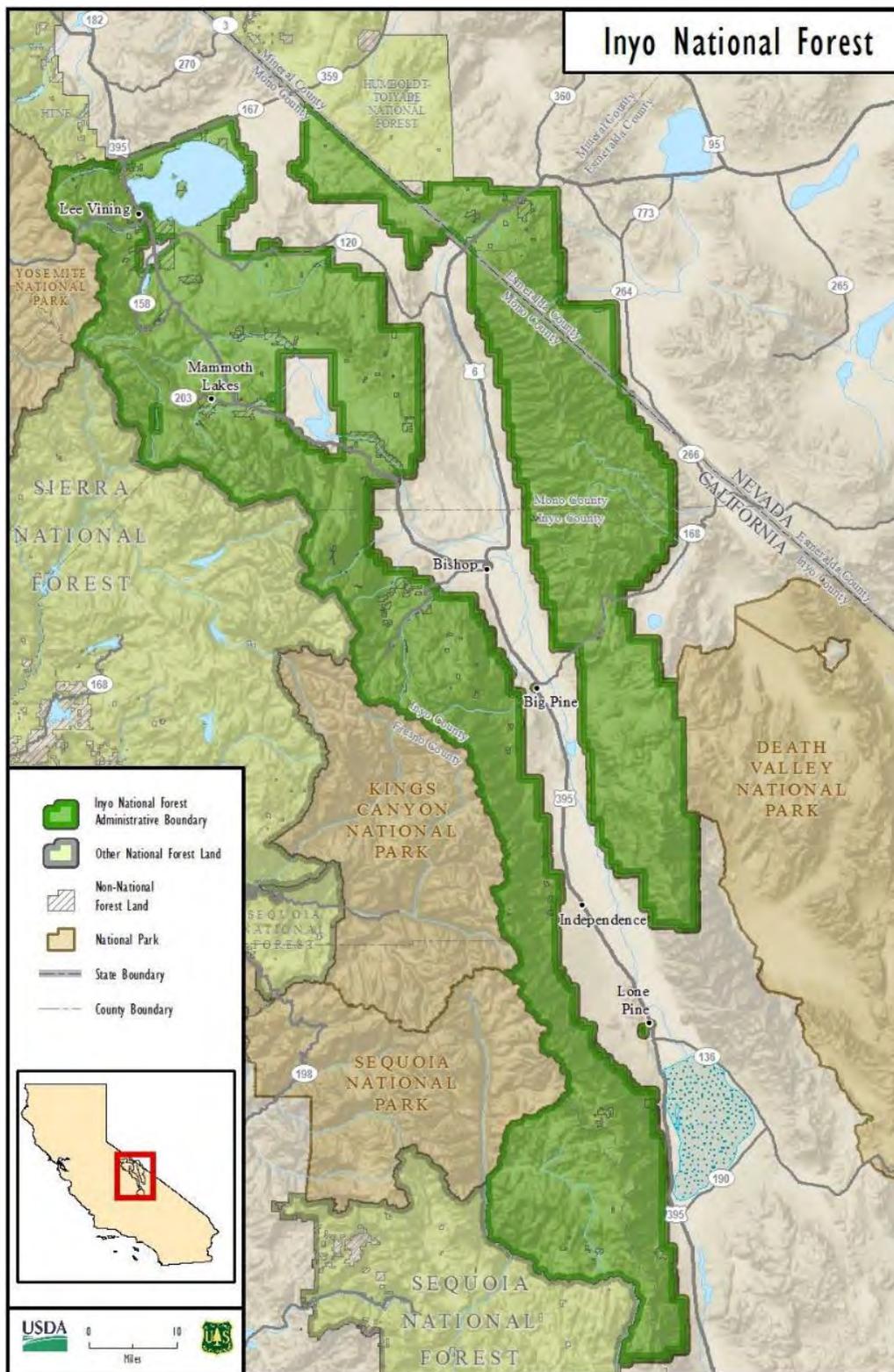


Figure 1. Vicinity map of the Inyo National Forest. Note that an administrative boundary change has occurred with the Humboldt-Toiyabe National Forest (approximately 3,450 acres), along the California-Nevada boundary in the northeast portion of the Inyo National Forest, that is not yet reflected in this map

The eastern Sierra Nevada offers many benefits both socially and economically, thus establishing a deep-rooted connection between this land and the people of the area. Native Americans have inhabited these areas for thousands of years and have deep cultural ties to the forest and surrounding lands. The forest lies in the traditional territories of eight federally recognized tribes and eight unacknowledged tribes, tribal groups and organizations. In the past, the presence of different fauna, including desert bighorn and pronghorn, shaped Native American use of this land. Cultural opportunities are still an important contribution of forest lands today. Tribal communities benefit socioeconomically through the use of forest resources for artisan and craft materials, medicines, fuel, and traditional foods, and by supporting heritage tourism and recreation. Lands and resources of the Inyo National Forest enhance the sustainability of tribal communities by providing opportunities for traditional ceremonies and religious practices that strengthen the communities' sense of place and self. Gathering activities on the forest contribute to Tribal social, economic, familial and religious well-being.

Geographically, the Inyo National Forest is split in two by Owens Valley and Long Valley Caldera (Figure 1). Toward the east, the Glass and White-Inyo Mountain Ranges fall within the Great Basin and Intermountain Desert Bioregions. These areas have a rich ecological and cultural history which differs from that of the Sierra Nevada. In particular, historic Euro-American use was more focused on livestock grazing and mineral prospecting than on timber. Mining practices in the surrounding mountains influenced the culture and changed the landscape. A large number of mine operations resulted in the development of a transportation network that brought humans into areas not frequently traveled. Logging of pinyon pine and Jeffrey pine was intensive in some areas as a fuel source for mining operations and growing urban centers.

Multiple uses on the Inyo National Forest are extremely important both socially and economically. The Inyo is within a four hour drive of nearly half of the 37 million people who live in California. This populous pool of potential visitors is one of the most ethnically diverse in the world, challenging the forest to look at nontraditional methods of providing service. Over two million users visit the Inyo yearly; with the majority of visitors coming from southern California. The forest also receives high visitor use from citizens from other countries. This is due to the opportunities the eastern Sierra Nevada provides with Death Valley National Park, Mt. Whitney, and Yosemite National Park all within a day's drive of each other. The Ansel Adams, John Muir, Owens River Headwaters, White Mountains, Boundary Peak, Golden Trout, and South Sierra Wildernesses also draw many visitors to the area.

The Inyo National Forest provides a contiguous backdrop for particular opportunities and activities. Developed recreation sites that are concentrated in scenic canyons and lake basins provide recreation opportunities and wilderness access. Scenic routes invite visitors to explore, enjoy the amenities provided by local communities, drive for pleasure, view scenery and wildlife, picnic and interpret the environs. There are opportunities for fishing, hunting, touring, dispersed camping, climbing and bouldering, hiking, backpacking, mountaineering, horseback riding and packing, and for seeking solitude.

Recreation uses of the forest have changed over the past couple decades. Historic recreation uses such as pack stock use, off highway vehicle driving, camping, fishing, hunting, backpacking and mountaineering continue today. Commercial pack stock use, although reduced, still allows for assisted access into wilderness areas in addition to the backcountry of Sequoia, Kings Canyon and Yosemite National Parks. Some types of recreation uses have expanded and include activities such as hiking, rock climbing and bouldering, off-highway vehicle use, day-use and winter activities including alpine, cross-country, and backcountry skiing. The breath-taking landscapes

also provide opportunities for photography and filming. All these activities provide for vital economic benefits and sustainability to local communities. This contribution occurs through visitor spending that supports jobs in local businesses, and also contributes to county sales tax revenues and transient occupancy taxes that local governments use to provide important public services in these communities.

Although recreation may be what draws the majority of visitors and their associated economic benefits to this area, other uses of the forest, such as livestock grazing, mining and renewable energy, maintain some of the historic uses of this area while also providing to the local society, culture and economy. Livestock grazing has occurred on the rangelands of the Inyo National Forest since the late 1800s, and continues to be one of a variety of multiple uses on the Inyo. Grazing contributes to the economic and social well-being of people by providing opportunities for economic diversity, promoting stability for communities that depend on range resources for their livelihood, and by meeting the public needs for interrelated resource uses by providing livestock forage, wildlife food and habitat, outdoor recreation, and other resource values dependent on range vegetation.

The changing elevation across the forest, combined with the variability in aspect and slope, variety of geology and soils, and amount and timing of precipitation creates high diversity of ecosystems inhabited by at least 1,300 plant species, and approximately 300 terrestrial wildlife species. The forest's terrestrial and aquatic plant and animal species, and resulting biodiversity contribute to resilient and healthy forest ecosystems upon which all social and economic contributions depend.

While many visitors enjoy the opportunities the Inyo National Forest provides, there are many people that call the forest their home. Most private property is concentrated around small residential communities that have grown within and adjacent to the Inyo National Forest over time. There are also isolated private properties scattered throughout the forest that support ranching interests, isolated residences and second homes. Reducing fire hazards to adjacent lands and communities is a key contribution of the Inyo National Forest to local communities. Wildfires are actively suppressed when needed to protect key resources and to prevent intrusion of dangerous fires into communities. Tools used to reduce hazardous fuels and maintain fuel conditions include wildfires managed to meet resource objectives, prescribed burning and mechanical treatments.

At a regional level, water runoff from the forest flows into Mono Basin in the north, the Upper San Joaquin River to the west, Owens River in the east, and the Upper Kern River to the south. About 93 percent of the perennial streams on the forest are free flowing and stream flows are functioning within their range of natural variation. An average of 34 percent of the runoff produced into the Owens Lake and Mono Lake watersheds are exported to the City of Los Angeles, a critical component in supporting social and economic sustainability in that area. Water on the forest also is used for development of hydroelectricity that powers homes and businesses in the region. Water from the forest is also important to local communities, including providing drinking water, recreational amenities and economic and cultural opportunities.

The benefits from all forest contributions provide tremendous ecological, social and economic value. Some of these benefits from the forest are more easily recognized than other benefits. For example, forest recreation, cultural opportunities and a clean water supply are enjoyed directly by people and communities as a whole. Other vital forest ecosystem services provide benefits like biodiversity that are less apparent in our daily lives but are important because they support and regulate the ecosystems and social environments in which we live. The term "value" is used here

to represent something more inclusive than a monetary value, and to capture the idea that all contributions of the Inyo, even when they are not directly relatable to dollars that are spent or received, still contribute to improving the quality of our lives.

Purpose of the Forest Plan

Every national forest managed by the Forest Service is required to have a land management plan, or forest plan, that is consistent with the National Forest Management Act of 1976 (16 U.S.C. 1604) and other laws. The National Forest Management Act directs that these plans be amended as necessary and revised within 15 years. Forest plans are one of three levels of planning and decision-making that guide how we manage National Forest System lands.

The first and broadest level of planning occurs at the national level through the United States Department of Agriculture Forest Service Strategic Plan, a 5-year plan that allows public transparency of the agencies goals, objectives and accomplishments. The second level of planning occurs at the level of National Forest System administrative units through forest plans. The third level of planning includes development of on-the-ground projects and activities, which are designed to achieve the desired conditions and objectives of the forest plan. Projects and activities must be consistent with the forest plan.

Forest plans are intended to be strategic, meaning they identify long-term or overall desired conditions and provide general direction for achieving those desired conditions. Forest plans focus on outcomes, and are flexible to allow management to adapt to local conditions. Generally, forest plans are not tactical and do not specify particular methods that must always be used and do not require resources to be allocated. Forest plans emphasize strategic decisions: “why” and “what,” and to a lesser extent, “when” and “where.” The “how” decision is generally made at the tactical or project planning level, and includes a set of site specific details of time, place and circumstances of a particular project proposal.

Forest plans themselves do not compel any action, authorize projects or activities, or guarantee specific results. A project might be needed because of a discrepancy between current conditions and desired conditions. Projects may be proposed in response to demands by the public or to respond to forest plan objectives. When a project is proposed, it is first checked against the suitability of areas. If the project is an appropriate use, then relevant design criteria, standards and guidelines are used. The proposed action for the project is then analyzed using appropriate National Environmental Policy Act procedures. If the project is not consistent with the forest plan, the project may be redesigned or rejected, or a forest plan amendment may be considered. After the project is completed, it is evaluated against plan desired conditions and objectives.

A forest plan guides and constrains Forest Service personnel, not the public. Any constraint on the public needs to be imposed by law, regulation, or through the issuance of an order by the responsible official under 36 CFR part 261, Subpart B. In addition to forest plans, management of National Forest System lands is also guided and constrained by laws; regulations; and policies, practices, and procedures that are in the Forest Service Directive System. These are generally not repeated in forest plans. In addition, appendix G lists existing resource plans and agreements that also guide management of the Inyo National Forest along with the land management plan.

Adaptive Planning

Forest planning is a continuous process, which includes assessment, plan development, amendment, revision and monitoring. The intent of this forest planning framework is to create an

integrated approach to the management of resources and uses, incorporate the landscape-scale context for management, allow the Forest Service to adapt to changing conditions and improve management based on monitoring and new information.

An adaptive forest plan recognizes that there is always uncertainty about the future of natural systems and the timing and type of disturbances. Social conditions and human values regarding the management of national forests are also likely to change. Given that the setting for forest plan implementation will be changing over time, the forest plan incorporates an effective monitoring program, capable of detecting change, with an adaptive flexibility to respond to those detected changes. The forest plan monitoring program recognizes key management questions and identifies measurable indicators that can inform the questions. When conditions change beyond what was anticipated in the forest plan, a responsive process using narrow amendments can be used to adjust plans between revisions.

The planning framework creates a structure within which land managers and partners work together to understand what is happening on the land. It is intended to establish a flexible forest plan that allows the forest to adapt management to changing conditions and improve management based on new information and monitoring.

Plan Structure

In chapter 1 we have introduced the Inyo National Forest plan area, distinctive roles and contributions, and described the purpose and structure of a forest plan. Chapters 2, 3 and 4 provide the framework for integrated resource management and for guiding project and activity decision-making. Chapter 2 is the vision section that provides the foundation of the plan, the desired conditions. Desired conditions describe the aspirations or visions of what the plan area (or portions thereof) should look like in the future and drive the development of the other plan components. Desired conditions essentially set forth the desired landscape of the future and the other plan components give guidance on how to get there.

Chapter 3 is the management strategy section that builds upon the foundation of chapter 2 and guides subsequent tactical planning. This chapter first describes the expected and measurable outcomes and potential management approaches that apply to specific parcels of land, which can include management areas, geographic areas, designated areas, recommended designated areas, and priority watersheds. Chapter 3 also identifies the following: suitability of lands, which describes areas generally suitable or not suitable for various uses or activities; plan objectives, which describes objectives, or intermediate outcomes, that lead toward achievement of desired conditions; goals, which are used to describe outcomes that are not at the sole control of a national forest, such as the result of a partnership; and potential management approaches, which the Forest is inclined to use in order to be responsive to desired conditions and objectives.

Chapter 4, termed the design criteria chapter, supports the vision and management strategy and is designed to provide sideboards for projects or activities. It includes standards and guidelines that influence the design of projects and activities developed under this forest plan.

Chapter 5 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.

The appendix section includes the following: maps (appendix A), proposed and possible actions (appendix B), renewed partnership focus for the Inyo National Forest (appendix C), management strategies for resolving recreation resource conflicts (appendix D), timber suitability (appendix E), forestwide rangeland standards (appendix F), and existing resource plans (appendix G).

Plan Components

An integrated plan means that all plan components work together toward achieving or maintaining desired conditions and are internally consistent. The plan components work together as a whole to meet the requirements of the 2012 Planning Rule (36 CFR 219.8 through 219.11), but this does not mean that all uses must be provided for on all lands.

This plan includes five plan components that guide future project and activity decision making: desired conditions, objectives, standards, guidelines, and suitability of lands. These five plan components, along with other plan content, are organized according to chapters 2, 3, and 4 as described above. The five components are described as:

A **desired condition** is 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. A desired condition description is specific enough to allow progress toward achievement to be determined but does not include a completion date.

An **objective** is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives are based on reasonable foreseeable budgets.

The **suitability of lands** is determined for specific lands within the plan area. The lands are identified as suitable or not suitable for various uses or activities based on desired conditions applicable to those lands. The suitability of lands is not identified for every use or activity. If certain lands are identified as not suitable for a use, then that use or activity may not be authorized. Appendix E identifies lands that are not suitable for timber production.

A **standard** is a mandatory constraint on project and activity decision-making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

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

Plan components that apply forestwide or to land of specific character (e.g., vegetation types) are spread throughout the chapters of this document, especially in the vision (desired conditions), management strategy (suitability of lands and plan objectives), and design criteria (standards and guidelines) chapters. Plan components that apply to specific parcels of land, such as management areas, geographic areas, and designated areas, are consolidated under the respective areas they apply to in the management strategy chapter.

The forest plan uses a unique coding system to identify plan components and where they apply using the following pattern: AAA-BBB-CCC. The series of letters before the first dash references either a resource area (e.g., WTR for watershed conditions) or a type of spatial area (e.g., MA for management areas and GA for geographic areas). The middle series of letters reference where the plan components apply (e.g., FW for forestwide), land of specific character (e.g., RFIR for the red fir vegetation type), or mapped parcels of land (e.g., CWPZ for the community wildfire protection zone). The third series of letters references the type of plan components (e.g., DC for desired conditions). So the unique coding for air resources (AIR) forestwide (FW) desired conditions (DC) begins with AIR-FW-DC, followed by the specific code number; and the codes for the management area (MA) wildfire restoration zone (WRZ) guidelines (GDL) begins with MA-WRZ-GDL.

Chapter 2. Vision

Introduction

The visions or aspirations of what the plan area (or portions thereof) should look like in the future are expressed in terms of desired conditions. Desired conditions are developed within the context of the forest's distinctive roles and contributions, and include specific cultural, ecological, social, and economic characteristics of the plan area. Desired conditions essentially set forth the desired landscape of the future while the other plan components give guidance on how to get there.

Desired conditions are developed according to the geographic scale where they apply. The conditions that apply forestwide or to land of specific character (e.g., vegetation types) are presented here in chapter 2. Desired conditions and other plan components that apply to specific parcels of land, such as management areas and designated areas, can be found in chapter 3, the management strategy section of this document.

Desired Conditions

Air

Desired conditions and other plan components under this heading apply forestwide or to Class I airsheds, which have the highest standard of air quality. Class I airshed status applies to designated wilderness areas which were larger than 5,000 acres and in existence in 1977. The Ansel Adams, John Muir, and Hoover Wildernesses are Class I areas.

Forestwide (AIR-FW-DC)

- 01 The air quality value of visibility in a Class I airshed is maintained or improved to the natural background condition specified in the California Regional Haze State Implementation Plan.
- 02 Wildland fuel loadings resemble natural range of variation conditions, reducing the potential for harmful effects on air quality from high intensity wildfires.

Watershed Conditions

Plan components found in the watershed conditions (WTR) sections of this plan cover the broad area of soils and water throughout the Inyo National Forest at the watershed scale. Watersheds include riparian conservation areas and the riparian and aquatic environments contained within them, such as rivers, streams, meadows, springs and seeps. Figure 2 shows the relationship among watersheds, riparian conservation areas, and riparian and aquatic environments. Critical aquatic refuges are subwatersheds selected by a national forest to provide a refuge for at-risk species and have plan components similar to those of riparian conservation areas. The management area section in chapter 3 presents plan components specific to riparian conservation areas and critical aquatic refuges.

The Forest Service's national Watershed Condition Framework (WCF) is used to identify priority watersheds for restoration. Priority watersheds are where plan objectives for restoration would concentrate on maintaining or improving watershed condition. Under the framework, the Forest

Supervisor is responsible for identifying priority watersheds using an interdisciplinary team process.

The list of priority watersheds can be changed administratively without a forest plan amendment. Watershed Condition Framework priority watersheds are mapped online at the [USDA Forest Service's Watershed Condition and Prioritization Interactive map](#).

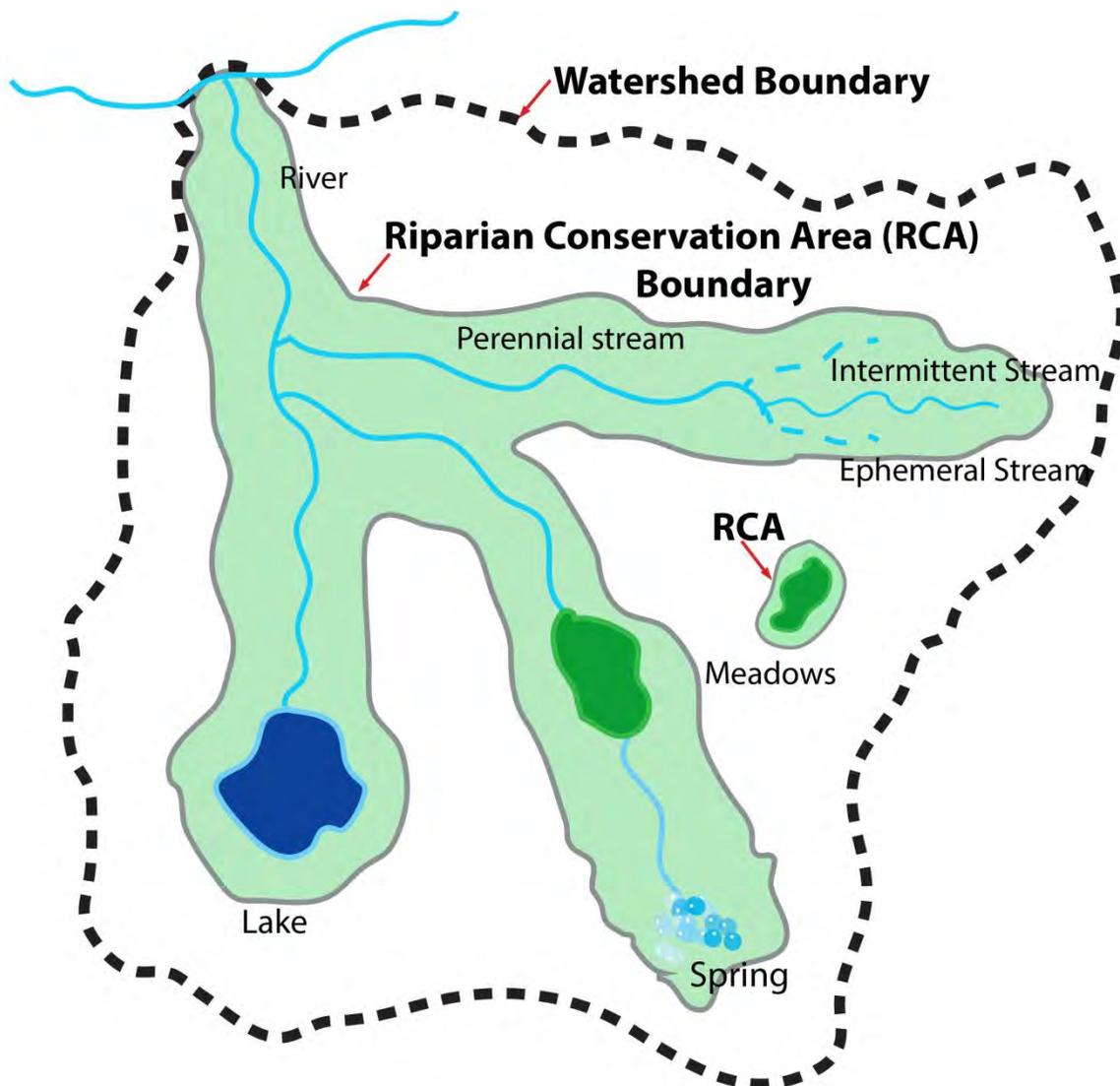


Figure 2. A schematic of the relationship of watersheds, riparian conservation areas, and riparian and aquatic environments

Forestwide (WTR-FW-DC)

- 01 Adequate quantity and timing of water flows support ecological structure and functions, including aquatic species diversity and native riparian vegetation. Watershed resilience to higher air temperatures, reduced snowpack, erratic runoff timing and other effects of climate change is maintained or restored.
- 02 Water quality is sustained at a level that retains the biological, physical and chemical integrity of aquatic systems and benefits the survival, growth, reproduction and migration of native aquatic and riparian species.
- 03 Watersheds have the following conditions: fully functioning or trending toward fully functioning and resilient; recover from natural and human disturbances at a rate appropriate with the capability of the site; and have a high degree of hydrologic connectivity laterally across the floodplain and valley bottom, and vertically between surface and subsurface flows. Physical (geomorphic, hydrologic) connectivity and associated processes (i.e., runoff, flooding, in-stream flow regime, erosion and sedimentation) are maintained and restored. Watersheds provide important ecosystem services: high quality water; recharge of streams and shallow groundwater; maintenance of riparian communities; and moderation of climate change and atmospheric deposition. Watersheds maintain long term soil productivity.
- 04 Soil and vegetation functions in upland and riparian areas are sustained and resilient. Healthy soils provide the base for resilient landscapes and nutritive forage for browsing and grazing animals, and support timber production. Healthy upland and riparian areas support healthy fish and wildlife populations, enhance recreation opportunities, and maintain water quality.
- 05 Water quality meets the needs of water users, providing suitable water for cold and warm water species, swimming, irrigation, groundwater recharge and drinking after normal treatment.
- 06 Identified beneficial uses for a water body are adequately protected.

Terrestrial Ecosystems

Terrestrial (land-based) ecosystems are diverse on the Inyo National Forest, where elevation and moisture changes from north to south and east to west. With elevations ranging from approximately 3,800 to 14,495 feet, this sets the stage for a wide variety of ecosystems. Three major biological provinces, the Sierra Nevada, the Great Basin, and the Mojave Desert converge in this unique area.

Across the different geographic areas, a variety of dominant vegetation types occur. At the lower elevations and drier areas, a mosaic of sagebrush, Pinyon-Juniper woodlands, and xeric shrubs and black brush occur. Where there is more precipitation, open stands of Jeffrey pine occur, either pure or with scattered Pinyon pine or fir. Red fir forests occur on the Kern Plateau and Mammoth Lakes areas, where more precipitation, especially in the form of snow dominates. Above that, covering at least one-third of the Inyo National Forest are subalpine forests and woodlands. Finally, an alpine area, without trees, covers the highest elevations.

Note that additional direction specific to management or geographic areas (e.g., strategic fire management zones, research natural areas, Ancient Bristlecone Pine Forest or Mono Basin) may

apply. Additional direction specific to management of sagebrush and vegetation within the range of the Bi-State distinct population segment of greater sage-grouse (hereafter sage-grouse) is described in the animal and plant species sections in chapters 2, 3, and 4. Where there is overlap, direction for sage-grouse takes precedence.

Desired conditions are described at different spatial scales, or extent of area. First, are landscape scale desired conditions, applying to areas greater than 10,000 acres. The intent is to provide conditions that cover multiple small or medium sized vegetation management projects, or single very large (greater than 100,000 acre) sized projects. The latter would be applied over multiple years, on a forest-wide basis. Ecological zones are broad and not exact, for monitoring at forest-wide and multi-forest scale. Second, are the mid-scale desired conditions, applying to areas in the hundreds to thousands of acres. These desired conditions are applicable to smaller areas, such as a large single patch of vegetation or mosaic of patches in an area or sub-watershed. Third are the fine-scale desired conditions that apply to the variation on the ground of smaller vegetation elements, such as understory shrubs, gaps or small openings, and litter cover. Patches are areas where there is similar dominant species and vegetation structure. They are similar to the term forest stand but encompass a broader range of ecological aspects. Patches may not be uniform but they are different from the surrounding areas. One may have a “salt and pepper” look from above of tree clumps and gaps and another may be a uniform sea of forest canopy. Some desired conditions include the term “within-patch”. This refers to changes at the fine-scale, like patches of shrubs or clumps of trees within patches.

Terrestrial ecosystem plan components do not apply to administrative or developed recreation sites. Areas covered by special use permits are subject to guidance in their operating plans.

Forestwide (TERR-FW-DC)

- 01 Each vegetation type contains a mosaic of vegetation conditions, densities and structures. This mosaic occurs at a variety of scales across landscapes and watersheds and reflects conditions that provide for ecosystem integrity and ecosystem diversity.
- 02 Vegetation conditions, particularly structure and composition, are resilient to climate change and to the frequency, extent and severity of ecological processes, which include fire in fire-adapted systems, drought, and flooding in riparian systems. Functioning ecosystems retain their essential components, processes and functions. Native insect and disease populations are generally at endemic levels with occasional outbreaks. Vegetation structural diversity usually restricts the scale of insect and disease outbreaks to local levels.
- 03 Ecological conditions contribute to the recovery of threatened and endangered species, conserve proposed and candidate species and support the persistence of species of conservation concern.
- 04 The landscape contains a mosaic of vegetation types and structures that provide habitat, movement and connectivity for a variety of species including wide-ranging generalists such as bear, mountain lion, and deer; more localized, semi-specialists such as ground-nesting, shrub-nesting, and cavity-nesting birds and various bats; and specialists such as old forest and sagebrush-associated species.
- 05 The carbon carrying capacity for a given ecosystem is stable or improving, given trends in climate change, fire and drought.

- 06 Fire occurs as a key ecological process in fire-adapted ecosystems where it does not pose an unacceptable risk to life and property. Fire occurs within an ecological appropriate regime of frequency, extent, and severity, and enhances ecosystem heterogeneity and habitat and species diversity.
- 07 Composition, density, structure and condition of vegetation help reduce the threat of undesirable wildfires to local communities, ecosystems and scenic character.
- 08 Landscape sustainably provides a variety of benefits that improve peoples' economic, social and physical wellbeing: clean water; forest products; livestock forage; carbon sequestration and storage stability; energy generation; recreational opportunities; landscapes with scenic character and scenic integrity; cultural uses; and biodiversity. Vegetation provides sustainable amounts of forest products that include wood fiber; biomass; forage; firewood; edible and medicinal plants; and boughs, bark, berries and cones for commercial, tribal, personal, educational and scientific uses. These products are provided while sustaining soil and water quality and productivity. Vegetation conditions support the long-term sustainability of these benefits to people by reducing the risk of undesirable fire effects, disease and mortality.
- 09 Vegetation types and vegetation conditions support continued use by tribes for traditional, ceremonial and medicinal purposes. Plants known to be used by tribes that traditionally use the forest are thriving.
- 10 Ecological conditions in relatively pristine landscapes (e.g., wilderness and recommended wilderness areas) are primarily the result of natural ecological processes, which occur with little direct human influence across the larger landscape.

Sagebrush (TERR-SAGE-DC)

- 01 The sagebrush type has a diversity of age classes, stand structure, cover classes and understory composition.
- 02 Sagebrush ecosystems are resilient to fire and other disturbances including grazing, recreation, invasive species (including cheatgrass) and climate change.
- 03 Grazed areas have or are trending toward satisfactory soils condition, functional hydrology and biotic integrity. Sagebrush ecosystems contain all key elements and conditions, including sagebrush regeneration and recruitment, ecosystem productivity, perennial grass cover, biological soil crusts and symbiotic fungal associations.
- 04 Open sagebrush habitat with no overstory trees, such as pinyon pine, juniper or Jeffrey pine, provides habitat connectivity. Fire occurs within the natural range of variation, or in small extents, as a natural process, limiting encroaching conifer trees.

Pinyon-Juniper (TERR-PINY-DC)

- 01 Pinyon-juniper types have a mosaic of trees and open areas that provide wildlife habitat, contribute to functional soils, and are resilient to disturbances such as fire, invasive species and climate change.
- 02 Fire frequency and severity is within the natural range of variation.

- 03 Plant litter and coarse woody debris are present in sufficient quantity to resist accelerated soil erosion and promote nutrient cycling, water retention and the microclimate conditions necessary for pinyon seed germination. Biological soil crusts are present to improve nutrient cycling and stabilize soils, especially in sandier soils.
- 04 Pinyon pine regeneration and recruitment ensures persistence of this vegetation type.
- 05 Mature pinyon pines provide opportunities for traditional collecting of pinyon nuts.

Xeric Shrub/Blackbrush (TERR-XER-DC)

- 01 Desert shrub vegetation is a mosaic of diverse ecological types with native shrubs and grasses, commonly blackbrush, sagebrush, saltbush, goldenbush and horsebrush in various age classes and patch sizes.
- 02 Vegetation conditions are resilient to natural and human disturbances, such as grazing, flooding, fire, invasive species and climate change.
- 03 Fires are within the natural range of variation and very rare.
- 04 Flooding event frequency and severity is within the natural range of variation, resulting in a mosaic of soil erosion and deposition that supports diverse native plant species and biological soil crusts.

Black Oak/Canyon Live Oak (TERR-OAK-DC)

- 01 Vigorous oak trees, snags, and down logs provide habitat for a variety of wildlife species. Black oak snags greater than 20 inches in diameter, and live oak trees with dead limbs, hollow boles and cavities, provide shelter, resting and nesting habitat. Acorns are plentiful and provide food for wildlife and are collected for traditional cultural uses.

Dry Mixed Conifer (TERR-DMC-DC)

- 01 At the landscape scale, the dry mixed conifer vegetation type has a mosaic of patches of trees of varied sizes and ages. It is dominated by Jeffrey pine trees, with varying amounts of ponderosa pine, white fir, red fir, or incense cedar (Figure 3).
- 02 Fire occurs as a key ecological process in fire-adapted ecosystems where it does not pose an unacceptable risk to life and property. Fire as an ecological process creates, restores, and maintains ecosystem resilience and increases understory plant vigor, heterogeneity, and habitat diversity.
- 03 At the landscape scale, areas dominated by medium and large diameter trees comprise more than 60 percent of the landscape. Overstory tree canopy cover is generally 30 percent but ranges widely from 10 to 60 percent at a fine-scale. Trees are denser in some locations, such as north-facing slopes and canyon bottoms, but in small patches, in limited areas (less than 20 percent of the area). Vigorous shrubs cover 10 percent or more of the area, with density varying by aspect, slope, and soil type.
- 04 At the mid- to fine- scale, vegetation between patches is highly variable. Trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest. Individual trees are variably spaced with some denser groups. Tree stocking (basal area) is highly variable, ranging from 20 to 200 square feet per acre, with most areas having fewer than 150 square feet per acre. Numbers of seedlings and saplings are sufficient to

replace old trees over time, but since Jeffrey pine is shade-intolerant, they are very patchy in distribution with regeneration occurring when gaps and openings of sufficient size are created.

- 05 At the mid- to fine- scale, small irregularly shaped openings with less than 10 percent tree cover make up from 10 to 50 percent of the area, and contain a mix of grasses, herbaceous plants and shrubs.
- 06 At the mid- to fine-scale, snags greater than 20 inches in diameter are at densities between two to twenty snags per 10 acres, and are well distributed, but highly irregular in spacing providing for future downed logs. Coarse woody debris, including large downed logs in varying states of decay, is irregularly distributed and ranges from 1 to 5 tons per acre. Litter and surface fuel is patchy with fewer than 5 to 10 tons per acre in fuel loading on average over 30 to 70 percent of the area. There are some small areas of up to 30 tons per acre and others with fewer than 5 tons per acre.



Figure 3. Dry mixed conifer forest

Montane Jeffrey Pine (TERR-MJF-DC)

- 01 At the landscape scale, the Jeffrey pine type is part of a heterogeneous mosaic of shrublands, grasslands or other forest types. Forests are dominated by Jeffrey pine trees and are generally open. Open-canopied stands dominate the landscape, with generally less than 10 percent of the area with more than 40 percent canopy cover. Open canopies allow shade-intolerant Jeffrey pine tree regeneration (Figure 4).

- 02 At the landscape-scale, fire is a key ecological process, creating a diversity of vegetation types, lower surface fuels and diverse understory vegetation in these areas. Fires occur frequently, on average every 5 to 15 years, with mostly low and moderate severity, with most patches of very high severity (greater than 90 percent basal area mortality) rarely greater than 200 acres, and the proportion of areas burned with high severity is generally less than 15 percent. Due to existing high levels of fuels and weather variability, greater proportions of areas burned at high severity, up to 25 percent with some patches of high severity up to 500 acres, may be unavoidable during large landscape prescribed fires or wildland fire managed primarily to meet resource objectives.
- 03 At the mid-scale, Jeffrey pine forests are primarily composed of mostly open canopies, with variable patches of trees and scattered individual trees.
- 04 At the mid-scale, Jeffrey pine forest is composed predominantly of vigorous trees, but declining trees are an important component, providing wildlife nesting and denning habitat and for future production of snags, down logs and other coarse woody debris.
- 05 At the mid-scale, insects and pathogens like dwarf mistletoe, *Annosus* and *Armillaria* root diseases, Jeffrey pine beetle, occur at endemic levels and are restricted to individual stands. Witches' brooms provide habitat for wildlife species.
- 06 At the fine-scale, size and age class diversity is high within Jeffrey pine stands. Individual large trees or tree groups provide nesting and denning habitat for wildlife.
- 07 At the fine-scale, openings of various shapes surround and are intermixed with the trees. These gaps make up from 10 to 70 percent of the area, are typically less than 0.1 to 0.5 acre in size, and contain herbaceous plants, shrubs and tree regeneration.



Figure 4. Jeffrey pine patch

Table 1. Amount of seral stage patches (>10 acre) by vegetation type at the landscape scale (tens of thousands of acres)

Vegetation Type/Zone	Early Seral ¹	Small Tree ²	Open Mature Forest ³	Intermediate Mature Forest ⁴	Dense Mature Forest ⁵
Jeffrey Pine	5–20%	1–10%	60–90%	10–20%	<10%
Red Fir	5–20%	2–15%	20–70%	20–70%	10–40%
Wet Lodgepole Pine	5–20%	2–15%	5–20%	20–70%	20–70%
Dry Lodgepole Pine	5–20%	2–15%	50–80%	10–30%	0–30%

¹Shrub, grass/herb, tree seedlings and saplings.

²California wildlife habitat relationship (CWHR) system, vegetation classification 2 & 3.

³CWHR 4 & 5; 10–40% tree cover.

⁴CWHR 4 & 5; 40–60% tree cover.

⁵CWHR 4, 5, & 6; >60% tree cover.

All Upper Montane Vegetation Types (TERR-UPPR-DC)

The upper montane zone occurs at higher elevations and receives a high percentage of precipitation that falls as snow. This zone is primarily comprised of red fir forests, open Jeffrey pine woodlands, wet and dry lodgepole pine forests, meadows and riparian areas, and montane chaparral. These vegetation types occur in a patchy mosaic across the upper montane landscape, depending on changes in elevation, topography, soils, climate, and prior disturbance history. Fire is an especially important ecological process in the upper montane zone, influencing forest structure and composition patterns, such as canopy patch and gap dynamics. As with lower montane forests, decades of fire exclusion, past timber harvest, and patterns of increasing high severity fire have resulted in increasing degrees of structural homogenization in upper montane forests at a landscape scale. Desired conditions for upper montane Jeffrey pine are the same as those described for Jeffrey pine in the montane section above.

- 01 At the landscape scale, the upper montane landscape is a heterogeneous mosaic of patches of red fir forests, lodgepole pine patches, Jeffrey pine woodlands, meadows and montane chaparral. Upper montane vegetation occurs in a complex mosaic of different densities, sizes, and species mix across large landscapes that vary with topography, soils and snow accumulation. The composition, structure, and function of vegetation make them resilient to fire, drought, insects and pathogens, and climate change. The mix of seral stage patches, and open versus closed canopied areas, varies by forest type as described in Table 1. Large and old trees are common in most seral stages throughout the landscape and in varying densities (see old forest section below).
- 02 At the landscape scale, fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur irregularly, generally every 15 to 100 years, averaging about 40 years. Fires in this vegetation type burn with low, moderate or mixed severity with patches of very high severity (greater than 90 percent basal area mortality) minimal, rarely greater than 300 acres in size. The proportion of areas burned at high severity within a fire is generally less than 10 to 15 percent. Due to existing high levels of fuels and weather variability, greater proportions of areas burned at high severity, up to 40 percent, may be unavoidable during large landscape prescribed fires or wildfires managed to meet resource objectives. Some patches of high severity burn reach 1,000 acres in size.

- 03 At the landscape scale, white pines (sugar pine, western white pine, whitebark pine and foxtail pine) are healthy and vigorous with a low incidence of white pine blister rust. Individual trees and the stands they occur in are resilient to moisture stress, drought and bark beetles. White pine blister rust-resistant trees are regenerating and populations are sustained.

Red Fir (TERR-RFIR-DC)

- 01 At the landscape scale, the red fir forest type is part of a heterogeneous mosaic of tree species and vegetation structures (e.g., tree density, size, age and shrub cover), with patches of Jeffrey pine, meadows and montane chaparral. It is dominated by red fir trees, with varying amounts of white fir, Jeffrey pine, western white pine, lodgepole pine and mountain hemlock.
- 02 Fire occurs as a key ecological process in fire-adapted ecosystems where it does not pose an unacceptable risk to life and property. Fire as an ecological process creates, restores, and maintains ecosystem resilience and increases understory plant vigor, heterogeneity, and habitat diversity.
- 03 At the landscape scale, areas dominated by medium and large diameter trees and moderate canopy cover (between 40 and 60 percent) comprise most of the landscape (Table 1). Trees are denser in some locations such as north-facing slopes and canyon bottoms, near meadows or where snow accumulates. Areas with closed canopy cover exceeding 60 percent occur on 20 percent of the landscape, but can range from 10 to 40 percent depending on the distribution of deeper soils and available soil water. Early seral vegetation, shrubs, grasses, herbaceous plants, tree seedlings or saplings, mostly occur in very small areas, intermixed within forest stands or patches.
- 04 At the landscape scale, shrubs, grasses and young trees grow in patches of high tree mortality with abundant snags and large logs, providing complex early seral habitat.
- 05 At the mid- to fine-scale, trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest (Figure 5). Individual trees are variably spaced with some tight groups. Tree stocking (basal area) is highly variable, ranging from 50 to 300 square feet per acre with most areas having fewer than 200 square feet per acre (Table 2). Numbers of seedlings and saplings are sufficient to replace old trees as they die, but are very patchy in distribution.
- 06 At the mid- to fine-scale, small openings are intermixed within stands of trees. They make up 5 to 20 percent of the area within tree stands, have less than 10 percent tree cover, are irregularly shaped, and often contain herbaceous plants, shrubs, and tree seedlings and saplings. Vigorous shrub cover is highly variable (Table 2), covering 5 to 70 percent of the area, though some soil types do not support shrubs. Higher shrub cover is common after fire. Some openings and the understory of some red fir patches have little to no understory plants but instead have a high diversity of mushrooms and other fungi.
- 07 At the mid- to fine-scale, snags greater than 20 inches in diameter are patchily distributed. An average of 5 to 40 snags per 10 acres (Table 3) provide for future downed logs. Coarse woody debris, including large downed logs in varying states of decay, is patchily distributed and ranges from 1 to 10 tons per acre. Litter and surface fuel is

patchy with fewer than 5 to 20 tons per acre in fuel loading on average. There may be areas with no fuels and pockets of high fuel accumulation scattered irregularly.

Table 2. Structure within forested patches (10s to 100s of acre areas with similar forest)

Vegetation Type/Zone	Basal Area (square feet per acre)	Tree Canopy Cover (percent cover overhead)	Shrubs
Jeffrey Pine	20–200; mostly <150	10–40; may exceed 40% in small patches	0–70% cover; variable, mixed ages
Red Fir	50–300; mostly < 200	20–75; highly variable; median 30 to 40	0–70% cover; variable; mixed ages
Wet Lodgepole Pine	50–280; mostly < 150	20–70; generally 50	0–70% cover; variable; mixed ages
Dry Lodgepole Pine	20–200, mostly around 120	10–40; may exceed 40 in small patches	0–70% cover; variable, mixed ages

Table 3. Snags and large logs at landscape scale in low to moderate severity burn patches

Vegetation Type/Zone	Snags > 20 inches diameter per 10 acres	Snags > 30 inches diameter per 10 acres	Logs (>15" diameter and >8 feet long) tons per acre	Litter or Understory dead wood (tons per acre)
Jeffrey Pine	2–40	--	1–10, all decay classes	3–10; patchy
Red Fir	5–40	1–10	1–10, all decay classes	5–20; patchy
Wet Lodgepole Pine	5–40	--	1–20, all decay classes	5–30; patchy
Dry Lodgepole Pine	2–25	--	1–10, all decay classes	2–10; patchy



Figure 5. Three photos displaying red fir forest heterogeneity

Lodgepole Pine (TERR-LDGP-DC)

This vegetation type is further divided into dry versus wet lodgepole pine. Dry lodgepole pine dominates on upper montane dry sites generally above 8500 feet elevation, often located on benches, upper topographic positions, and moderate slopes. Stands are typically in broken terrain and shallow, drier, and nutrient-poor soils. Western white pine may be present, but mesic tree species (e.g., red fir, mountain hemlock) are generally absent or infrequent. Understory herbaceous plant cover is generally less than 30 percent and bare ground and rock cover is generally more than 30 percent. Either wet or dry lodgepole may border some meadow ecosystems, depending upon the ecological setting.

Wet lodgepole pine dominates on upper montane wet sites generally above 7500 feet elevation, often located on gently rolling lower slopes and drainage bottoms. Stands are located on relatively productive, moister, and deeper soils in the upper montane zone. Red fir or mountain hemlock may be present in wet lodgepole pine stands. Understory herbaceous plant cover is generally more than 30 percent and bare ground and rock cover is generally less than 30 percent. Either wet or dry lodgepole may border some meadow ecosystems, depending upon the ecological setting.

- 01 Lodgepole pine forests are highly variable throughout the landscape, occurring as open forests on dry sites at higher elevations, and as denser stands in pockets around meadows, lakes or where cold air accumulates. The lodgepole pine type is part of a heterogeneous

mosaic of tree species with diverse structural conditions. It is dominated by lodgepole pine, with varying amounts of red fir, white fir, aspen and sometimes white pines.

- 02 Shrubs, grasses, forbs, and young trees grow in patches of high tree mortality where the site potential supports those growth forms, and with sufficient snags and large logs, providing complex early seral habitat.
- 03 Fire occurs as a key ecological process in fire-adapted ecosystems where it does not pose an unacceptable risk to life and property. Fire as an ecological process creates, restores, and maintains ecosystem resilience and increases understory plant vigor, heterogeneity, and habitat diversity.
- 04 The distribution and structure of wet lodgepole pine forests are variable, ranging from small patches of even-aged trees, with both closed and open canopies, to uneven-aged, irregular patches. Size and age class diversity is high within wet lodgepole pine stands. Individual trees are variably spaced with some tight groups. Irregularly shaped groups of large and intermediate trees are variably sized, with some overlapping tree crowns. Smaller trees are randomly distributed.
- 05 In wet lodgepole pine forests areas dominated by medium and large diameter trees comprise more than 45 percent of the landscape (Table 1). Tree stocking (basal area) is highly variable, ranging from 50 to 280 square feet per acre, with most below 150 square feet per acre (Table 2). Canopy cover ranges from 20 to 70 percent but is generally 50 percent. Small openings with less than 10 percent tree cover are irregular in shape and make up from 5 to 20 percent of the area and contain a mix of grasses, herbaceous plants and shrubs. On wet sites next to meadows, lakes, streams or springs, shrub, grass and herbaceous plant cover may exceed 80 percent. Sufficient tree regeneration in openings provides for stand replacement.
- 06 In wet lodgepole pine forests, large snag densities are between 5 and 40 snags per 10 acres (Table 3), and are well distributed, but highly irregular in spacing, providing for future downed logs. Coarse woody debris, including large downed logs in varying states of decay, is well distributed but irregular in spacing and ranges from 1 to 20 tons per acre. Surface fuel loads are highly variable and patchy. Most are between 5 to 15 tons per acre and are patchy, covering 30 to 70 percent of the area. Some small areas contain very high fuel loading of up to 30 tons per acre and other areas have fewer than 5 tons per acre.
- 07 The distribution and structure of dry lodgepole pine forests are variable but typically open, with irregular patches of trees of variable ages, and generally few overlapping tree crowns. Smaller trees are randomly distributed. Tree groups may contain other tree species such as western white pine. Sufficient tree regeneration in suitable but irregularly distributed sites provides for stand replacement.
- 08 In dry lodgepole pine forests, areas dominated by medium and large diameter trees comprise more than 60 percent of the landscape (Table 1). Canopy cover is generally 10 to 40 percent but may exceed 40 percent in small patches and moist microsites (Table 2).
- 09 Within dry lodgepole pine patches, individual trees are variably and often widely spaced. Tree stocking (basal area) is highly variable with most stands having around 120 square feet per acre but ranging from 20 to 200 square feet per acre. Small openings with less

than 10 percent tree cover are irregular in shape and make up from 10 to 50 percent of the area and contain a mix of bare ground, rock, grasses, herbaceous plants and shrubs.

- 10 The understory of dry lodgepole pine stands is highly variable. Most areas contain between 0 to 40 percent shrub cover; on very dry, cold rocky sites there may be no shrubs.
- 11 In dry lodgepole pine forests, large snag densities are between 2 to 25 snags per 10 acres (Table 3), and are well distributed, but highly irregular in spacing, providing for future downed logs. Coarse woody debris, including large downed logs in varying states of decay is well distributed but highly irregular in spacing, ranging from 1 to 10 tons per acre. Surface fuel loads are highly variable and patchy. Nearly all are between 2 to 10 tons per acre and are very patchy, covering 20 to 70 percent of the area. Some small areas contain higher fuel loading of up to 15 tons per acre and most areas have fewer than 8 tons per acre.

Mountain Mahogany (TERR-MOMA-DC)

- 01 Mountain mahogany is comprised of native shrub and understory species that reflect the natural range of variation for the site. This vegetation type is composed of varying age classes and densities that protect against accelerated erosion, with 1 to 10 percent of the type in early seral grass and herbaceous cover, 5 to 20 percent in native herbs and early seral shrubs and 70 to 95 percent dominated by mountain mahogany cover.
- 02 The fire return interval is appropriate to allow the soil seed bank of native species to be maintained over the short and long term. Invasive non-native plants do not dominate between fires.

Subalpine and Alpine (TERR-ALPN-DC)

- 01 Subalpine woodlands are highly variable in structure and composition. Diverse patch types vary from open woodlands with scattered trees to small, dense groves.
- 02 Fires occur infrequently, are mostly very small and with mixed severity. Fire intensity is highly variable, but crown fires are usually limited in size.
- 03 Subalpine woodlands and alpine ecosystems are resilient to insects, diseases, fire, wind and climate change. High-elevation white pines (e.g., whitebark pine and foxtail pine) are healthy and vigorous, with a low incidence of white pine blister rust, and resilient to moisture stress and drought. White pine blister rust-resistant trees are regenerating and populations of high elevation white pines have the potential to expand above the tree line.
- 04 Mature cone-bearing whitebark pine trees are spatially well distributed to produce and protect natural regeneration and conserve genetic diversity.

Old Forest (TERR-OLD-DC)

Old forests are characterized by the presence of large and old trees for a given species and site productivity. Old forests vary widely based on forest type, soil condition, topography, and fire history. For ponderosa pine or mixed conifer forests, trees greater than 20, 30 or 40 inches in diameter contribute to old forest structure (Table 4). In contrast, at the highest reaches of trees near the Sierra Nevada crest, whitebark pine trees that are 10 inches in diameter may be several centuries or older. Very large trees that are greater than 50 inches in diameter are also part of the

desired condition, their densities are not included in Table 4 because they were heavily harvested in the late 1800s and the earlier 1900s and information is lacking on their historic densities. Desired densities of trees greater than 20 inches in diameter are included for oaks and upper montane forests. These trees are often old and at the high end of their potential size. The old forest management direction below focuses on old forests in the montane and upper montane ecological zones where most vegetation management has occurred in the past and continues to occur.

Old forests often contain large snags and logs in addition to large live trees. The density of these old forest components vary widely. Old forests within montane mixed conifer and pine vegetation types are currently more uniformly dense than they were in the past, resulting in increased rates of old growth tree mortality from competition with younger trees, climate change, insect-related mortality, and increased high intensity fire.

- 01 The composition, structure, and functions of old forests and surrounding landscapes are resilient to fire, drought, insects, pathogens, and climate change. Fire occurs as a key ecological process in forest types that are adapted to fire, creating, restoring and maintaining ecosystem resilience and fire-related composition and structure.
- 02 The landscape contains a mosaic of vegetation types and structures that provide foraging and breeding habitat, movement and connectivity for a variety of old forest-associated species.
- 03 Between 40 and 80 percent of the forested landscape contains old forest areas. Old forest areas are clumps and patches of old forests components such as old trees, snags and large downed logs. These areas are irregularly distributed across the landscape and interspersed with stands of younger trees, shrubs, meadows, other herbaceous vegetation and non-vegetated patches.
- 04 The number and density of old trees vary by topographic position and soil moisture. In general, more large and old trees are found on moister sites; on lower slopes, bottoms, and north and east aspects, especially where soils are deeper. Large trees are well distributed but are often clumpy. The densities vary by forest type as shown in Table 4. Trees greater than 40 inches in diameter, generally over 150 years old, represent the oldest trees, and comprise a significant proportion of large and old trees. In many areas of high soil productivity, trees grow to large sizes (e.g., around 30 inches in diameter) in fewer than 100 years. On low and very low soil productivity sites, the oldest trees may be smaller in diameter. Sufficient numbers of younger trees are present to provide for recruitment of old trees over time.
- 05 Old forests are composed of both vigorous trees and decadent trees. Decadent trees with broken tops, multiple tops, cavities, and deformities provide wildlife nesting and denning habitat and contribute to the future production of snags, downed logs and other coarse woody debris. Older trees with larger branches and those showing signs of decadence provide the best potential to create cavities. Clumps of large trees, snags, large logs and decadent older trees are maintained on the landscape in sufficient numbers to benefit wildlife and are distributed throughout the planning area pre and post-disturbance.
- 06 Large snags are scattered across the landscape, generally occurring in clumps rather than uniformly and evenly distributed, meeting the needs of species that use snags and providing for future downed logs. The desired number and distribution of snags varies by

major vegetation type, but old forests tend to have higher numbers of large snags than younger forests and can vary from single large snags to clusters of up to 20 snags per 10 acres in some areas.

- 07 Coarse woody debris, including large downed logs in varying states of decay, provides important wildlife habitat and can occur as single large down logs, or in clusters, depending on the source of tree mortality. Coarse wood debris is patchily distributed and the density of large downed logs varies by vegetation type. Surface dead wood levels are sufficient to provide for legacy soil microbial populations.

Table 4. Large and/or old trees at landscape scale, except where high severity fires have occurred (>90 percent basal area mortality)

Vegetation Type/Zone	>20" diameter trees per acre	>30" diameter trees per acre	>40" diameter trees per acre	Proportion of the landscape with large and/or old trees
Dry Mixed Conifer	4–32	2–16	2–7 median 4	40–80%
Jeffrey Pine	2–16	1–8	1–4	40–80%
Red Fir	4–40	4–20	4–12	40–80%
Wet Lodgepole Pine	4–12	4–12	--	40–80%
Dry Lodgepole Pine	2–6	2–6	--	40–80%

Complex Early Seral Habitats (TERR-CES-DC)

Complex early seral habitat is the stage of forest development that follows a significant mortality event in a mature forest, where the loss is greater than 75 percent basal area. Major disturbance events include high intensity fire and wide-scale insect outbreaks. The death of overstory trees creates openings that allow other plants and tree seedlings to reoccupy the site. The complex early seral habitat is often characterized by high densities of snags, the development of shrub cover and other native vegetation, downed wood and natural conifer regeneration.

- 01 Complex early seral habitat created as a result of a disturbance event contains dense patches of snags and other habitat elements characteristic of natural succession that are important to early seral forest-associated species. Large areas of shrubs are managed in locations where they represent the potential natural vegetation considering fire risks over time to adjacent vegetation and resources. Aspen and oak sprouts are well distributed in areas where they occur.
- 02 Snags, logs and live trees are widely distributed in large patches (greater than 100 acres when available) of very high vegetation burn severity (greater than 90 percent mortality) to provide habitat while also considering the need for other resource objectives such as hazard and other tree removal (e.g., salvage); reforestation to contribute to future forested conditions and carbon carrying capacity; and strategic fuel treatment, including management of fuels in and adjacent to the community wildfire protection zone.
- 03 Snags that support cavity nesting birds and mammals are sufficiently abundant and well distributed, especially large diameter snags.

Aspen (TERR-ASPEN-DC)

- 01 The structure, function and distribution of aspen are within the natural range of variation; there is a wide age and size distribution of aspen and it is contributing to habitat and biodiversity. Aspen is successfully regenerating and growing into larger sized trees.
- 02 Fire or other silvicultural activity reduces conifer encroachment and competition. Aspen stands are periodically regenerated through stand-replacing events such as wildfires, allowing for potential expansion.
- 03 Aspen groves contribute to social and economic sustainability by supporting recreational, cultural and economic opportunities. Aspen groves add visual interest, variety and contrasts in the landscape, providing spiritual respite and enjoyment.

Special Habitats (TERR-SH-DC)

Special habitats are generally small scale habitat or vegetation types that may support unique assemblages of plants and animals, especially at-risk species. Special habitats typically include uncommon rock types, harsh soils or rock outcrops. Examples include dry sandy and gravelly soils, limestone or serpentine soils, alkali or acidic soils, metamorphic, volcanic or granitic rocky soils or rock outcrops, caves, and alpine talus or fell fields. Many at-risk plant and animal species are found in rocky or gravelly habitats; the plan area has an abundance of exposed granitic rock, but only some areas are habitat for at-risk species. Aquatic and riparian special habitat examples include fens, seeps and springs. Given the localized nature of these special habitats, they are challenging to address comprehensively at the forest scale since they may be uniquely affected by different activities or trends in ecological conditions. For example, restoring the composition and structure of a red fir forest where outcrops are present would not automatically restore desired ecological conditions on the outcrops.

- 01 The integrity of special habitats is maintained or improved. Composition, diversity and structure are maintained in all areas, including those with multiple use activities).
- 02 Microclimate or smaller scale habitat elements provide habitat and refugia for species with a specific geographic or other restricted distribution.

Animal and Plant Species

This and subsequent sections under this heading include plan direction designed to maintain the diversity of plant and animal communities and support the persistence of native species within the plan area, subject to the extent of Forest Service authority and the inherent capability of the plan area. This includes plan components that address the needs of at-risk species within the plan area. At-risk species include (1) federally listed threatened, endangered, proposed, or candidate species under the federal Endangered Species Act, and (2) species of conservation concern (SCC)¹. This section also includes direction that provides for the sustainable use and enjoyment of fish, wildlife, and plants.

For each species or group of species, the forest plan considers the extent that plan components provide for ecosystem integrity and diversity to meet the ecological conditions necessary for

¹ The Regional Forester's species of conservation list is dynamic and may be periodically updated. The current Regional Forester's species of conservation concern list for the Inyo National Forest can be found on the Pacific Southwest Region's [website](#).

those species within their range. Species-specific plan components are added as needed. Additional direction is provided for special habitats under the “Terrestrial Ecosystems” section to address unique habitats of some at-risk species.

Forestwide (SPEC-FW-DC)

- 01 Sustainable populations of native and desirable non-native, plant and animal species are supported by healthy ecosystems, essential ecological processes and land stewardship activities, and reflect the diversity, quantity, quality and capability of natural habitats on the forest. These ecosystems are also resilient to uncharacteristic fire, climate change, and other stressors in order to support the long-term sustainability of plant and animal communities.
- 02 Habitats for at-risk species support self-sustaining populations within the inherent capabilities of the plan area. Ecological conditions provide habitat conditions that: contribute to the survival, recovery, and delisting of species under the Endangered Species Act; preclude the need for listing new species; improve conditions for species of conservation concern; and sustain both common and uncommon native species.
- 03 The structure and function of the vegetation, aquatic and riparian system, and associated microclimate and smaller scale elements (e.g., special features such as carbonate rock outcrops, fens, or pumice flats) exist in adequate quantities within the capability of the plan area to provide habitat and refugia for at-risk species with restricted distributions.
- 04 The forest provides for high quality hunting and fishing opportunities. Habitat for non-native fish and game species is managed in locations and ways that do not pose substantial risk to native species, while still contributing to economies of local communities.
- 05 Residents and visitors have ample opportunities to experience, appreciate and learn about the forest’s wildlife, fish and plant resources.

Sage-grouse Habitat (SPEC-SG-DC)

- 01 Suitable sage-grouse habitat includes breeding, brood-rearing and wintering habitats that are distributed to allow for dispersal and genetic flow.
- 02 High quality nesting cover, conditions that support high levels of quality pre-laying hen habitat and dietary protein intake needs, and habitat supporting chick-rearing nutritional needs occur throughout breeding habitat in each population management unit.
- 03 Sage-grouse brood-rearing habitat occurs in the Bodie, South Mono, and White Mountains population management units and includes a range of shrub cover, perennial grass cover, forb density and meadows.
- 04 Sage-grouse habitat is maintained or enhanced within and between population management units corridors and allows for population movement, seasonal movements, and genetic flow.
- 05 Sage-grouse habitats do not include overstory trees, such as pinyon pine, juniper, or Jeffrey pine.

- 06 The extent and dominance of non-native annual grass species, such as cheatgrass and other noxious weeds, is limited and does not lead toward reduction in the suitability of sage-grouse habitat.
- 07 Unwanted fire (i.e., more frequent, severe or larger than the natural range of variation) in sage-grouse priority habitat is limited or prevented.
- 08 At the stand/site scale (10 to 100 acres), sagebrush and understory cover occur in a mosaic across the site, with 1-acre patches meeting the desired conditions for nest sites and brood-rearing areas (table 5 and table 6), in areas that are consistent with the site and the sagebrush species potential.
- 09 Meadows within sage-grouse range provide suitable habitat for sage-grouse, including desirable foraging species (insects and plants), have suitable sagebrush cover around the meadows edge, are hydrologically fully functional and vegetation is within mid-seral conditions. Within livestock allotments in sage-grouse range, meadow condition is trending towards or rated at fully functional based on forest-wide range utilization standards.

Table 5. Desired conditions for sage grouse nest sites by vegetation component

Vegetation Component	Amount of Occurrence in the Habitat
Sagebrush canopy cover	> 20 percent
Non-sagebrush canopy cover	> 20 percent
Total shrub canopy cover	> 40 percent
Sagebrush height	> 30 cm (12 in)
Perennial grass cover	No less than 5 percent but 0 percent if total shrub cover < 25 percent
Annual grass cover	<5 percent

Table 6. Desired conditions for sage grouse brood-rearing sites by vegetation component

Vegetation Component	Amount of Occurrence in the Habitat
Sagebrush canopy cover	10 to 25 percent
Total shrub canopy cover	15 to 25 percent
Sagebrush height	> 30 cm (12 in)
Perennial grass cover	> 7 percent
Perennial forb diversity	> 5 species present
Forb cover	> 7 percent
Grass/forb height	> 18 cm (7 in)
Meadow edge (ratio perimeter to area)	> 0.015
Species richness	> 5 species

Bighorn Sheep (SPEC-SHP-DC)

- 01 Habitat supports populations of bighorn sheep with productive plant communities with a variety of species for food and cover. Non-forested openings of various sizes and shapes provide forage, access to big game winter range, escape terrain and access to migration routes. The risk of disease transmission from domestic sheep or goats to bighorn sheep is low.

Sierra Marten (SPEC-SM-DC)

- 01 Risk of large high intensity fire is reduced in marten core habitat areas.
- 02 Within marten core habitat, vegetation is trending toward desired conditions for terrestrial and riparian vegetation.
- 03 Marten habitat is well distributed throughout the marten’s range, providing for foraging, denning and resting habitat and movement across large landscapes.

Invasive Species

Desired conditions and other plan components under this heading address reducing populations of invasive species and minimizing their impacts on native species and ecosystems. Invasive species on the Inyo National Forest comprise all life forms including plants, animals, invertebrates and fungi.

Forestwide (INV-FW-DC)

- 01 Terrestrial and aquatic invasive species are controlled, or eradicated when possible, and establishment of new populations is prevented.

- 02 The area affected by invasive species and introduction of new invasive species is minimized.

Fire

Desired conditions and other plan components under this heading apply to forestwide fire management, including reducing damages and enhancing benefits from wildland fire. Other plan direction related to fire management is in chapter 3, under management areas, subsection strategic fire management zones.

Forestwide (FIRE-FW-DC)

- 01 Fire management activities minimize the risk of loss of life and damage to property or ecosystem function. Firefighter and public safety is the first priority in every fire management activity.
- 02 Fire management activities reduce fuel buildup, help maintain and protect habitat for a variety of species, reduce smoke from larger fires, provide added protection for communities, and restore fire on the landscape. These actions are also an integral part of achieving sustainable recreation, particularly in maintaining scenic attractiveness, integrity and character.
- 03 Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a healthy and sustainable manner. Wildland fire is a necessary process, integral to the sustainability of fire-adapted ecosystems.
- 04 Fire management uses an all lands risk-based approach in planning and decision making, responsive to the latest fire and social sciences, and is adaptable to rapidly changing conditions, including climate change. Wildfire management is coordinated with relevant state agencies and adjacent federal agencies. The net gains to the benefit are an important component of the decision-making process.
- 05 The forest contributes to increased awareness and understanding about wildfire risk among community leaders, service providers, homeowners, permittees and tribes who are invested in or adjacent to the forest. This includes an understanding about the need to adapt communities, properties and structures to wildfire, while also recognizing that wildland fire is a needed ecological process.
- 06 Wildfire threat is reduced through management actions in areas where fuel conditions currently pose the highest threat to communities and community assets, such as power lines, communication towers and developed recreation sites.
- 07 Education and enforcement have reduced the likelihood of human ignited wildfire.

Local Communities

Desired conditions and other plan components under this heading include forest management and communication with local communities and other organizations interested in the management of the plan area and forest resources.

Forestwide (LOC-FW-DC)

- 01 Forest personnel communicate with interested local agency leadership, business owners, non-profit organizations, community members, and other local organizations on a regular basis to develop mutual understanding regarding forest management.
- 02 The Inyo manages the land in a spirit of shared stewardship with local people. Local knowledge and input is an important part of the process when developing and implementing projects.
- 03 Forest uses such as recreation, forest products, mining and grazing are provided in an ecologically sustainable way that also contributes to economic and social sustainability in local communities.
- 04 Ecological restoration supports the long-term sustainability of forest resource use and appreciation by communities by reducing the risk of high intensity fires, drought, insects and disease, which may impact forest use opportunities.
- 05 The Inyo provides interpretation and education opportunities related to culture, history and land stewardship, and provides ample opportunities to connect people, including youth, with nature.
- 06 Management of the Inyo supports community needs by providing employment and training opportunities.
- 07 The Inyo is managed in an economically efficient and cost-effective manner, while responding to the economic and social needs of the public and local communities.

Volunteers, Interpretation, Partnerships and Stewardship

Desired conditions and other plan components for interacting and partnering to work together on shared interests with people, organizations, agencies (e.g., local, state, and federal), non-profits, businesses and communities are included under this heading.

Forestwide (VIPS-FW-DC)

- 01 The Inyo has a network of dependable partners and volunteers who provide additional capacity to effectively and efficiently meet plan desired conditions and deliver services to the public.
- 02 The Inyo uses partnerships to build local capacity for providing information and content using the best available methods, including, but not limited to, advances in technology.
- 03 Interpretation and conservation education materials and activities convey up-to-date and clear messages about natural and cultural resources, climate change, land stewardship, responsible recreation use and etiquette, and Native American heritage and culture.
- 04 The diverse backgrounds and needs of visitors are considered in the design of communication and interpretive messages.
- 05 Forest Service projects and management actions, as well as the importance of ecosystem services, are communicated to the public in an understandable fashion to increase public awareness of nature and ecosystems.

- 06 There is little human litter as a result of effective interpretation and education, enforcement, patrols and use of refuse and recycling facilities.
- 07 Nationally registered historic sites and culturally important properties retain their historic and cultural significance when public use and education opportunities are provided.

Timber

Desired conditions and other plan components under this heading cover timber management. Forest management on the Inyo National Forest consists of restoration and fuels reduction treatments designed to achieve desired conditions for the associated terrestrial vegetation type on suitable timber lands. The two million acres of the Inyo National Forest includes approximately 84,795 acres that are suitable for timber production, with the majority in the northwest corner the forest (Figure 16 in appendix E). On lands not suited for timber production, timber harvest may occur to protect multiple use values other than timber production, and for salvage, sanitation, or public health.

Forestwide (TIMB-FW-DC)

- 01 Predictable and sustainable forest product yields contribute to maintaining and improving local and regional industry infrastructure and are sufficient to meet the needs of the desired pace and scale of ecological restoration over the next several decades.
- 02 Production of timber contributes to ecological, social and economic sustainability and associated desired conditions. A sustainable mix of forest products is offered under a variety of harvest and contract methods in response to market demand and restoration needs.
- 03 Salvage of dead and dying trees captures as much of the economic value and carbon storage capacity of the wood as possible while retaining key features in quantities that provide for wildlife habitat, soil productivity and ecosystem functions.

Range

Desired conditions and other plan components under this heading apply to rangeland management, which includes the authorized use and management of National Forest System lands for the purpose of livestock production and utilization of forage resources by livestock.

Forestwide (RANG-FW-DC)

- 01 Rangelands, along with grazable forestlands and woodlands, provide large areas of contiguous space supporting native vegetation that has the potential to be grazed. These ranges sustain biological diversity and ecological processes and help to preserve the rural landscape and cultural heritage of the central, southern and eastern Sierra Nevada.
- 02 Domestic livestock grazing maintains the desired vegetation represented by diverse plant functional groups, species richness and diversity, and structure and condition of plant communities.
- 03 Forage, browse, and cover meet the needs of wildlife and authorized livestock are managed in balance with available forage. Areas that are grazed have or are trending toward having satisfactory soils, functional hydrology and biotic integrity.

- 04 Rangelands provide a sustained yield of forage and are in satisfactory condition. Grazing capacity is increased on suitable range, while other resource values are maintained or improved.

Sustainable Recreation

The Inyo National Forest receives over 2 million annual visits by local and state residents and by people from all over the world. The Inyo seeks to provide a quality, sustainable recreation program by assessing recreation settings, opportunities, access and scenic character (addressed in the next section). The Inyo uses various tools to describe and assess these categories.

A niche statement is what the Forest uses to describe what it has to offer in terms of special places, opportunities and potential experiences, overlapped with what people desire and expect in terms of outdoor recreation from public lands. The Inyo's niche is termed "Inspiring Destinations", and is described as follows:

The Inyo National Forest is characterized by large magnificent mountains that invite and inspire visitors locally, regionally, nationally, and internationally. The word Inyo is Paiute for "Dwelling place of a great spirit." This stunning landscape is home to well-known attractions such as Mt. Whitney, Mono Lake, the Ancient Bristlecone Pine Forest and the Mammoth Mountain. These icons, along with the forest's proximity to other recreation attractions, make the Inyo a destination place for visitors who typically drive at least 4 hours to experience this amazing national forest. Travelers on routes and trails pass through contrasting landscapes that intrigue them to learn more. Year-round trail use provides the means to high quality recreation, from hiking, mountain biking, and equestrian use, to skiing, snowmobiling, and other motorized uses (sport utility vehicles, 4wd, all-terrain vehicles, motorcycles, etc.). Conservation education and interpretation focus on developing a land ethic as part of the recreation experience. Staffed visitor centers and Forest Service employees at renowned attractions help people learn about and connect with this special place.

The Inyo manages for outdoor recreation activities that are consistent with these settings and recreation opportunities using the recreation opportunity spectrum classification, or framework, to define and categorize recreation settings into six distinct opportunity classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural and urban. A map of the Inyo's recreation opportunity spectrum classes is provided in Figure 14, appendix A.

Desired conditions and other plan components under this heading apply to forestwide recreation settings and accompanying recreation opportunities. The Inyo National Forest has also described place-based management areas that provide a contiguous backdrop for particular opportunities and activities. Plan components specific to these place-based areas are located in chapter 3, under management areas, subsection recreation places.

Forestwide (REC-FW-DC)

- 01 The diverse landscapes of the forest offer a variety of year-round recreation settings for a broad range of nature-based recreation opportunities, derived from assigned recreation opportunity spectrum classes and recreation places management areas. Management focuses on settings that enhance the forest recreation program niche.
- 02 The condition and function of recreation facilities reflect the diversity of cultures and activities in our community.

- 03 Recreation opportunities on land, water and in the air provide a high level of visitor satisfaction and safety. Recreation activities are ecologically, socially and economically sustainable. Agency resources focus on supporting the forest recreation program niche.
- 04 Visitors can connect with nature, culture and history through a full range of inclusive and sustainable outdoor recreation opportunities.
- 05 Conflicts between different recreation uses are infrequent.
- 06 National Forest access is ecologically, socially and economically sustainable and properly sized to provide public enjoyment focusing on the forest recreation program niche. National Forest System roads and trails provide recreation opportunities and access to recreation settings and places the public highly values. The management and operation of facilities and capacity is place based, integrated, and responsive to changes that might limit or alter access. The agency provides access to the distinctive landscapes of the forest in a manner that supports the safety of forest staff and the public.
- 07 Trail opportunities are available in a variety of settings that provide differing levels of challenge and types of experiences.
- 08 Developed recreation sites and infrastructure provide for the planned use, are managed for public safety, and are maintained for ecological, social and economic sustainability.
- 09 New developed recreation infrastructure is located in resilient landscapes and designed to respond to future impacts of climate change, while being financially sustainable and sensitive to changing public demand.
- 10 Dispersed recreation occurs in areas outside of high visitation, developed facilities or communities, and does not impact natural or cultural resources.
- 11 Permitted recreation uses, such as recreation special events or guided activities, are consistent with recreation settings, protect natural and cultural resources, and support community goals.
- 12 Developed recreation facilities sites are in areas resilient to large, high-intensity wildfires.
- 13 Forest recreation information is up-to-date, connecting people to the forest through various means including social media, radio ads, public information bulletins, and print media sources, to reach diverse communities.
- 14 Recreation settings provide a range of opportunities as described by the recreation opportunity spectrum. The desired distribution of recreation opportunity spectrum settings are shown in Table 7, and displayed in Figure 14, appendix A.
- 15 The trail system provides a variety of motorized and non-motorized recreational opportunities during summer and winter and distributed across the forest. Trails access destinations provide for loop opportunities that also connect to a larger trail system, provide linkage from local communities to the forest, and are compatible with other resources.

- 16 Forest system trails are sustainably designed and managed to provide a variety of high quality motorized and non-motorized summer and winter access that connects people to nature. Trails are maintained in accordance with trail management objectives.

Table 7. Desired recreation opportunity spectrum classes

Class	Acres	Percentage
Primitive	1,089,745	55
Semi-primitive non-motorized	218,817	11
Semi-primitive motorized	364,328	18
Roaded Natural	239,287	12
Roaded Modified	47,645	2
Rural	19,300	1
Urban	0	0

Scenery

Desired conditions and other plan components under this heading apply to the Inyo’s management of scenery. Ecosystems provide the environmental context for a scenery management system, a framework that considers scenic character and aesthetic values, geologic features and viewsheds. Scenic character is 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.

In some situations, providing a high level of scenic integrity may have to be achieved through establishing an ‘ecological aesthetic’ over time through knowledge and appreciation of how a healthy ecosystem functions. For example, preferred scenic conditions that include the absence of downed woody debris from timber harvest may run counter to the need for woody debris to provide for wildlife food and cover, nutrient recycling, etc.

Forestwide (SCEN-FW-DC)

- 01 The forest provides a variety of ecologically sound, resilient and visually appealing forest landscapes that sustain scenic character, supporting the forest recreation program niche in ways that contribute to visitors’ sense of place and connection with nature.
- 02 Scenic character is maintained and/or adapted to changing conditions to support ecological, social and economic sustainability on the forest and in surrounding communities.
- 03 Scenic integrity is maintained in places people visit and view.
- 04 The Forest’s scenic resources compliment the recreation settings and experiences, as described by the range of scenery integrity objectives, while reflecting healthy and sustainable ecosystem conditions. The desired distribution of scenic integrity objectives is displayed in Figure 15, appendix A

Tribal Relations and Uses

Desired conditions and other plan components under this heading apply to the Inyo National Forest's recognition that lands and people surrounding the forest have an important influence on forest management. The forest lies in the traditional territories of eight federally recognized Native American tribes, as well as eight unacknowledged tribes, tribal groups and organizations. Tribal communities are contacted and consulted, and are important partners in forest management activities.

Forestwide (TRIB-FW-DC)

- 01 The forest recognizes Native American needs and viewpoints and fosters a robust relationship with federally and non-federally recognized tribes and related groups with which it consults. Forest personnel, including but not limited to line officers, departmental staff, archaeologists, historians, and tribal liaisons, consult and communicate with tribal leadership, tribal historic preservation officers, traditional religious practitioners, traditional gatherers, tribal members and other tribal organizations.
- 02 The forest coordinates with tribes in managing traditional cultural properties, resources and sacred sites where historic preservation laws alone may not adequately protect the resources or values.
- 03 Native Americans have access to areas that provide them an opportunity to practice traditional, cultural and religious lifeways, such as plant gathering, fishing, hunting and ceremonial activities that are essential in maintaining their cultural identity and the continuity of their culture.
- 04 Traditional ecological knowledge is a valued part of the process when developing and implementing restoration projects and other forest programs.
- 05 The forest provides a setting for the education of tribal youth in culture, history and land stewardship and for the exchange of information between tribal elders and youth.

Cultural Resources

The cultural and historic resources on the forest are a vast array of distinct resources that enrich communities, both large and small, through their use, preservation and interpretation. Programmatic management strategies allow selective use of various cultural resource types, for the greatest public benefit, while minimizing overall impacts and leaving a rich cultural heritage for the future. A myriad of federal laws, regulations, and policies direct the documentation and management of cultural resources.

Cultural resources include prehistoric and historic archaeological sites and districts; historic buildings and structures; ethnographic landscapes; traditional cultural properties; and Native American contemporary use areas. Contemporary use areas include places where traditional forest products are harvested. Products harvested annually include but are not limited to teas, medicines, basketry materials, cedar bark, and foods such as pinyon seeds, berries, roots, etc. Most contemporary use areas are rooted in past cultural traditions that may have shifted location due to environmental change and forest development.

Cultural resources also include a substantial record of oral histories, photographs, maps, reports, and archaeological artifacts. The documentary record of the people and historic landscapes that

are illustrated in these old stories, maps and photographs contribute greatly to the understanding of cultural resources in the forest.

All cultural resources are not amendable to all potential uses, and vary individually and collectively on what they can offer. Preservation and interpretation of these fragile non-renewable resources educate people of all ages, races, and walks of life about the cultural connections between people and the forest.

Forestwide (CULT-FW-DC)

- 01 Cultural resources (buildings, sites, districts, structures and objects) having scientific, cultural or social values are preserved and protected for their cultural importance. Site integrity and stability is protected and maintained on sites that are susceptible to imminent risks or threats, or where the values are rare or unique. Priority heritage assets are stable and their significant values protected; vandalism, looting, theft and human-caused damage to heritage resources are rare. Site significance and integrity are maintained through conservation and preservation efforts.
- 02 Cultural resources, traditional cultural properties and sacred sites are protected through project design and consultation with Indian tribes, tribal cultural leaders and consulting parties.
- 03 Cultural resources provide educational opportunities that connect people to the land and its history. Through interpretive sites, historic standing structures and other materials, the forest provides opportunities for an appreciation for the region's history and an awareness of preservation efforts. In some cases, historic routes (e.g., railroad grades) are used for recreation trails with interpretation of their history and historic features. Heritage-based recreation opportunities are connected, where practical, with other recreation opportunities such as trails.
- 04 Public enjoyment is enhanced by opportunities to visit interpretive cultural resource sites. Archaeological site etiquette information is readily available to national forest visitors. Interpretation of the human history of the forest promotes greater public understanding of the communities that have depended on this landscape for their livelihood, recreation and spiritual wellbeing.
- 05 Opportunities exist for volunteers to participate in cultural resource conservation activities such as research, site stabilization, protection, conservation and interpretation. Cultural resource programs, interpretive presentations or publications are available to provide the public with opportunities to learn about, understand and experience the forest's past.
- 06 Practical opportunities for the rehabilitation and reuse of historic structures to enhance recreation experiences are promoted.

Geology and Minerals

Uses on National Forest System lands include the extraction and potential development of mineral resources, which are managed in a manner that protects natural resources, public health and safety, and are consistent with National Forest System land and resource management plans. Mineral extraction and development is limited on the forest, although historically mining played an important role in the area. Geothermal development is limited on the forest; facilities are

present in the area. All authorized uses to occupy and use National Forest System lands are evaluated and determined to be in the public interest. Determinations include consultation with other interested parties including federal, state, and county agencies and non-governmental interests.

Forestwide (GEO-FW-DC)

- 01 Mineral resources on National Forest System lands provide for public benefit, while minimizing adverse environmental effects on other forest resources from mineral exploration, development, and extraction.

Energy

Uses on National Forest System lands include the extraction and potential development of geothermal and other energy sources, which are managed in a manner that protects natural resources, public health and safety, and are consistent with National Forest System land and resource management plans. Wind and solar development is limited on the forest; geothermal facilities are located on the forest and serve local communities. All authorized uses to occupy and use National Forest System lands are evaluated and determined to be in the public interest. Determinations include consultation with other interested parties including federal, state, and county agencies and non-governmental interests.

Forestwide (NRG-FW-DC)

- 01 Energy resources of National Forest System lands provide for the maximum public benefit that is compatible with protecting ecosystem integrity.

Infrastructure

Infrastructure on National Forest System lands includes the built property created to support the Forest's use and mission. The five major categories of infrastructure are transportation, recreation facilities, administrative facilities, public utilities and private uses. Other infrastructure includes range related facilities, and historic facilities.

Transportation refers to the vehicular movement of goods and services for the use of the national forest. Roads managed by public road agencies such as states, counties and municipalities that help provide access to National Forest System lands, are also part of the transportation system. A recreation facility is a discrete area on a forest that provides recreation opportunities, receives recreational use, and requires a management investment to operate and maintain to standard. Administrative facilities are typically buildings and their appurtenances necessary to support the employees, equipment and activities necessary for management of national forests. Public utility infrastructure is associated with Federal Energy Commission licensed hydroelectric systems, but also includes cable TV, telephone and internet service, and municipal sewer service. Private infrastructure refers to facilities developed in private ownership used in conjunction with special use authorizations. Such facilities include buildings and other kinds of structures and improvements representing a broad range of permitted recreation and land use activities. These activities can serve single purpose use by individuals or families, as well as offer benefits to the public.

Management direction for infrastructure is to provide safe, energy-efficient, accessible, functional, efficient, aesthetically pleasing, and cost effective administrative buildings and related facilities, while reducing fixed cost through: consolidation and decommissioning of obsolete or

underutilized buildings; construction of new facilities where and when required; and by conducting proper routine maintenance of existing facilities.

Forestwide (INFR-FW-DC)

- 01 A minimum and efficient forest transportation system, administrative sites and other infrastructure and facilities are in place and maintained at least to the minimum standards appropriate for planned uses and the protection of resources.
- 02 Management operations on the Inyo National Forest are energy-efficient.

Lands

Statutory authorities govern land acquisition and disposal, and authorization and administration of special uses. Special uses are managed in a manner which protects natural resources, public health and safety and are consistent with National Forest System land and resource management plans. Special uses are administered based on sound resource management objectives and sound business principles. All authorized uses to occupy and use National Forest System lands are evaluated and determined to be in the public interest. Determinations include consultation with other interested parties including federal, state, and county agencies and non-governmental interests.

Forestwide (LAND-FW-DC)

- 01 Land ownership and access management support authorized activities and uses on National Forest System lands. Lands exchanges promote improved management of National Forest System lands.
- 02 Coordination of land and resource planning efforts with other federal, state, tribal, county and local governments, and adjacent private landowners, promotes compatible relationships between activities and uses on National Forest System lands and adjacent lands of other ownership.

Chapter 3. Management Strategy

Management Areas

Strategic Fire Management Zones

Strategic fire management zones were developed based on a southern Sierra Nevada wildfire risk assessment, which used a wildfire risk assessment framework for land and resource management to spatially model and assess contemporary wildfire risk². The purpose of assigning strategic fire management zones is to support decision makers before an ignition occurs, by pre-assessing areas for wildland fire (i.e., wildfire and prescribed fire) risk and benefits. Four strategic fire management zones were developed: 1) community wildfire protection zone, 2) general wildfire protection zone, 3) wildfire restoration zone, and 4) wildfire maintenance zone. The Inyo National Forest's fire management specialists finalized the mapping of each zone (Figure 6, appendix A). Forest plan guidance organized into these zones aid wildland fire management decisions to meet the full range of forest plan objectives. Active management through thinning and prescribed fire within all the zones reduces fuels and associated fire hazard and mitigates safety hazards for firefighters working close to structures.

Community Wildfire Protection Zone

The community wildfire protection zone encompasses locations where hazardous fuel conditions currently put communities, community assets and private land at a very high risk of damage from wildfire. Wildfires that start in this zone contribute more to potential loss to community assets than any other strategic fire management zone. Under most conditions, wildfire mitigation, fuel reduction treatments and fire protection is needed in the community wildfire protection zone to prevent direct threats to life or property. Wildfire is suppressed under most conditions due to the very significant risk, potential economic loss and public safety concerns posed by a wildfire occurring within this zone.

Within this zone, community buffer areas are identified and used to strategically mitigate vegetation directly adjacent to structures and allow for safer conditions for firefighters. Although some wildfires that burn in this zone can potentially benefit natural resources and help decrease fuels and threats from future wildfires, these potential benefits are less likely under most weather, fuel moisture, and other environmental conditions due to the very high risk to community assets during the fire season. The long term focus is to create fire-adapted communities that are less reliant on aggressive wildfire protection.

Desired Conditions (MA-CWPZ-DC)

- 01 Areas adjacent to communities with current high fire risk have low fuel loadings, designed to result in less intense fire behavior and to facilitate safe wildland fire operations.

² Scott, Joe H.; Thompson, Matthew P.; Calkin, David E. 2013. A wildfire risk assessment framework for land and resource management. Gen. Tech. Rep. RMRS-GTR-315. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 83 p.

- 02 Over time, risk to communities is reduced sufficiently in the community wildfire protection zone (CWPZ) to allow some areas to be placed in a lower risk zone including the general wildfire protection or wildfire restoration zones.

Guidelines (MA-CWPZ-GDL)

- 01 When planning and implementing projects around communities, manage vegetation in community buffers to meet the following conditions:
 - a. Community buffers are measured from the structures in the community. Maximum width is based on potential fire behavior in adjacent areas under extreme fire weather conditions (i.e., 97th percentile weather, probable average momentary wind gusts). The maximum width is sufficient to provide low radiant heat from areas of untreated fuels (i.e., four times the potential maximum flame length in adjacent areas on slopes less than 40 percent and six times the potential maximum flame length in adjacent areas on slopes greater than 40 percent).
 - b. Within the community buffer, treated areas have a modeled average potential flame length of four feet or less, and where possible meet terrestrial ecosystem desired conditions.
 - c. Snags and logs are absent or their densities are very low to minimize the likelihood of spotting or ember ignitions, maximize fireline production rates, and reduce firefighter safety hazards.
 - i. No snags should exist within two and a half tree lengths of structures. In the rest of the community buffer, snag density should be less than 1 snag per 10 acres.
 - ii. Less than 1 large log per acre should exist within two and a half tree lengths of structures. In the rest of the community buffer, log density should be less than 2 large logs per acre.
 - d. In riparian areas within community buffers, native hardwood shrubs and trees should be retained over conifers where fuel reduction is necessary to meet fire behavior objectives. These treatments take precedent over general riparian conservation area guidelines. On a site specific basis, higher levels of large logs may be retained in some areas.
- 02 Locate restoration treatments along ridges, roads, or other natural or man-made features and in areas that pose the greatest fire threat to communities so that there are more tactical opportunities to manage wildfires and reduce the spread rate and intensity of wildfires. Treatments should conform to the terrestrial ecosystem desired conditions.

Goal (MA-CWPZ-GOAL)

- 01 Protect communities (life and property) from the negative impacts of wildfire.
- 02 Reduce the impacts of wildfire by creating fire-adapted communities through fuel reduction treatments, prescribed fire and managing wildfires that can benefit natural resources while reducing risk.

General Wildfire Protection Zone

The general wildfire protection zone identifies where conditions currently put some natural resource values at high risk of damage from wildfire; wildfires that start in the general wildfire protection zone contribute to the high fire risk in the community wildfire protection zone. Managing wildfires to meet resource objectives in this zone is often considerably constrained due to fuel conditions, the high risk of loss of natural resources and the potential adverse impacts to communities threatened by wildfires starting in this zone. Although some wildfires that burn in this zone can potentially benefit some natural resources, high negative impacts to many natural resources are more likely under most weather, fuel moisture, and other environmental conditions during the fire season. Targeted ecological restoration and hazardous fuel reduction are needed in the general wildfire protection zone to safeguard communities and resources.

Desired Conditions (MA-GWPZ-DC)

- 01 The threat to communities from wildfires starting in this zone is minimal due to vegetation conditions reaching a balance of reduced excessive fuel loading while maintaining terrestrial ecosystem desired conditions.
- 02 The landscape is resilient and can tolerate varying effects of wildfires. Over time, risk to values is reduced sufficiently in the general wildfire protection zone to allow some areas to be placed in a lower risk zone including the wildfire restoration and wildfire maintenance zones.

Guidelines (MA- GWPZ-GDL)

- 01 Restoration treatments to reduce the spread rate and intensity of wildfires are located in more tactical opportunity areas like along ridges, roads, other natural or man-made features and in areas that pose the greatest fire threat to communities. Treatments should conform to the terrestrial ecosystem desired conditions.

Goal (MA-GWPZ-GOAL)

- 01 Protect natural resources from the negative impacts of wildfire and prevent direct threats to life or property in nearby communities.
- 02 Reduce the threat of wildfire spreading to communities through fuel reduction treatments, prescribed fire and wildfires managed to meet resource objectives, while also reducing risk to natural resources.

Wildfire Restoration Zone

The wildfire restoration zone identifies where conditions currently put some natural resource values at moderate risk of damage from wildfire. In general, wildfires that start in this zone pose a low to moderate threat to communities in average fire season conditions. Wildfires that burn in this zone can potentially benefit natural resources, but only under limited environmental conditions. Managing wildfires to meet resource objectives in this zone can be constrained due to fuel conditions and moderate risk to natural resources from wildfire. This zone is where some ecological restoration may be needed before using wildland fire under a wider range of weather, fuel moisture, and other environmental conditions.

Desired Conditions (MA-WRZ-DC)

- 01 The landscape is resilient to a range of fire effects, and wildland fire has a predominately positive benefit to ecosystems and resources.

- 02 Wildfire is managed to meet resource objectives under a wide range of environmental conditions.
- 03 The landscape is resilient to the impacts of wildfire. Over time, risk to natural resources is reduced sufficiently in the wildfire restoration zone to allow some areas to be categorized in the wildfire maintenance zone.

Standards (MA-WRZ-STD)

- 01 Use natural barriers and features like creeks, old fire scars, ridges and human-made features (e.g., roads and trails) when managing wildfires to meet resource objectives or managing unwanted wildfires that have surpassed the initial attack phase, unless unsafe or impractical. Variation from this standard will be the exception and will be documented by the responsible line officer in the current fire decision support system.

Goal (MA-WRZ-GOAL)

- 01 Create fire resilient landscapes that can be restored and maintained by managing wildfire to meet resource objectives, prescribed fire and fuel reduction treatments.

Potential Management Approaches

Fuel treatments include prescribed fire, mechanical treatments, and managing wildfire to meet resource objectives.

Areas that historically supported more frequent fire, like ponderosa pine and Jeffrey pine-dominated forests, and areas with high existing levels of understory fuels are prioritized for treatment.

Wildfire Maintenance Zone

The wildfire maintenance zone poses a low threat to communities in average fire season conditions, and where conditions allow natural resources to benefit from wildland fire. Managing wildfire to meet resource objectives in this zone is the least constrained, and implementing prescribed fire for ecological restoration is favorable. Ecological maintenance can be carried out by the management of wildland fire under a wide range of weather, fuel moisture, and other environmental conditions. Using prescribed fire to meet resource objectives is also appropriate.

Desired Conditions (MA-WMZ-DC)

- 01 Ecosystems are resilient to the impacts of wildfire and wildland fire has predominantly positive benefits to ecosystems and resources.
- 02 Lands within this zone are maintained in a predominately low risk with high potential benefit condition relative to wildland fire.

Standards (MA-WMZ-STD)

- 01 Following current wildland fire policy, manage wildfires to meet resource objectives and restore and maintain fire as an ecological process. The responsible line officer must use the current decision support system for wildfire management to document cases when naturally caused wildfires are promptly suppressed.
- 02 Use natural barriers and features, such as creeks, old fire scars, ridges, and human-made lines, such as roads and trails, when managing wildfires to meet resource objectives or

unwanted wildfires that have surpassed the initial attack phase, unless unsafe or impractical. Variation from this standard will be the exception and will be documented by the responsible line officer in the current fire decision support system.

Goal (MA-WMZ-GOAL)

- 01 Maintain fire resilient landscapes by managing wildfires to meet resource objectives, prescribed fire and fuel reduction treatments.

Wilderness

The wilderness management area on the Inyo National Forest includes all existing wilderness areas that have been designated by Congress, as well as areas recommended for wilderness designation (Figure 7, appendix A). In addition to plan components that apply to all designated wilderness areas, the Ansel Adams and John Muir Wildernesses have additional desired conditions that are specific to three different types of wilderness recreation categories that occur across these two wildernesses (Figure 7, appendix A). Similarly, the South Sierra Wilderness has additional desired conditions that are specific to four opportunity classes that occur across this wilderness. Individual wilderness plans provide wilderness area specific guidance in addition to the strategic level guidance provided in this land management plan.

All Designated Wilderness

Desired Conditions (MA-WILD-DC)

- 01 The wilderness character of each wilderness, including the qualities of untrammeled, natural, undeveloped, opportunities for solitude or primitive recreation, and other features of value (e.g., ecological, geological or other features of scientific, educational, scenic, cultural or historical value unique to each specific wilderness area) are preserved and, when possible, enhanced.
- 02 Watersheds are functioning properly and exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural and current potential condition.
- 03 Fire is restored as an ecosystem process and natural disturbance agent in wilderness where possible.
- 04 The undeveloped character of wilderness is enhanced compared to the time of designation.
- 05 Each wilderness area accommodates levels of recreation use that are ecologically sustainable.
- 06 Overall recreation use is maintained at a level that protects opportunities for solitude and wilderness character.
- 07 Forest visitors find opportunities for primitive recreation and solitude across the wilderness.
- 08 Forest system trails that access wilderness are part of a high-quality wilderness experience for visitors. Forest system trails meet national quality standards, with minimal deferred maintenance and adhere to the national trail classification system. Trails in

wilderness are located in resilient areas, and do not cause impacts to at-risk species, water quality, soils, hydrologic connectivity or cultural resources.

- 09 Concentrated use areas and associated resource impacts are not expanding into nearby areas.
- 10 Resource impacts of user-created trails are reduced.
- 11 If a wilderness permit system is in place, the permit system provides equity in access for all authorized and legitimate uses.

Guidelines (MA-WILD-GDL)

- 01 An invasive species should meet the following criteria before the Forest uses herbicide or biocides in wilderness: the invasive species would likely expand to the landscape scale, and the invasive species has the capability to displace native species or alter ecosystem processes.
- 02 Vegetation management projects on non-wilderness lands should include measures to minimize the risk of introducing non-native invasive species into wilderness
- 03 Campsites that adversely affect water quality or exceed established density standards should receive treatments that promote passive restoration to natural conditions.
- 04 Limit party size and number of stock per party to a level that protects social and natural resource values. The level may vary within or between wildernesses.

Suitability (MA-WILD-SUIT)

- 01 Developed recreation sites are not suitable.
- 02 Motorized use on forest system roads and trails is not suitable, except as provided for in the Wilderness Act or Forest Service Manual.
- 03 Over snow vehicle travel is not suitable.
- 04 Mechanized transport is not suitable.
- 05 Ski areas are not suitable.
- 06 Permanent improvements are not suitable.
- 07 Road construction or reconstruction is not suitable, except as provided for in the Wilderness Act.
- 08 Commercial enterprise sites and major utility corridors are not suitable, except as provided for in the Wilderness Act.
- 09 Disposal of National Forest System land is not suitable.
- 10 Commercial harvesting of non-timber forest products is not suitable.

Ansel Adams and John Muir Wildernesses

Recreation Category 1

Desired Conditions (MA-REC1-DC)

- 01 Opportunities for solitude are highest among the recreation categories. Evidence of human activities is predominantly absent. Encounters with other visitors while traveling or camping are very infrequent. This environment offers the highest degree of challenge, self-reliance, and risk.
- 02 An unmodified natural environment characterizes the area. Ecological and natural processes are minimally affected by the action of users. Environmental impacts are low and restricted to minor losses of vegetation where camping occurs and along travel routes. Most impacts recover on an annual basis and are apparent to few visitors.
- 03 Campsites are at low-density levels and show minor impacts that will rarely persist year to year.
- 04 There is very little vegetation loss or alteration of duff and litter layer by human use.
- 05 Riparian, lakeshore and stream channel conditions show no measurable degradation due to human uses.
- 06 Management focuses on sustaining and enhancing the natural ecosystem. Signs are present in very rare cases, for resource protection only, and at system trail junctions. Indirect methods of accomplishing management objectives predominate. Management occasionally includes direct, on-site actions. Site-specific regulations may be in place in unusual cases where resources require higher levels of protection. Trail system management is minimal, focusing on resource protection.

*Recreation Category 2***Desired Conditions (MA-REC2-DC)**

- 01 High occasions of solitude are experienced while traveling or camping outside the primary trail corridors. Along primary trail corridors, encounters with other visitors while traveling or camping is higher than Category 1 areas but far less than Category 3 areas. This environment offers a high degree of challenge, self-reliance, and risk.
- 02 A highly unmodified natural environment characterizes the area. In the few concentrated areas of moderate use, natural conditions may be more affected by the actions of users. A higher level of management is present to mitigate these impacts. Impacts may persist from year to year and may be apparent to some visitors. Most visitors will not discern impacts.
- 03 Concentration of campsites exists at trail junctions and popular destination points. No new sites are forming over time. Campsites may occasionally be within sight and sound of others. Bare mineral soil may exist on some sites and may persist from year to year. Outside these areas, campsites and impacts associated with camping is light.
- 04 Moderate soil compaction and loss of vegetation occurs. Minimal erosion occurs on disturbed sites.
- 05 Riparian, lakeshore and stream channel conditions show a temporary change within standards, which could persist from year to year at a few sites. Impacts are mitigated and prevented to reduce long-term impacts.

- 06 Management emphasizes sustaining and enhancing the natural ecosystem. Signing is minimal, providing for resource protection and direction at major trail intersections. Management may frequently include direct, on-site actions. Site-specific regulations may be in place to meet management objectives for resource protection. Primary trail corridors have highly maintained and constructed trails that support access to popular destinations and travel routes. Secondary trails allow for moderate dispersal of use but are maintained in a manner consistent with a more pristine and primitive experience than primary trail corridors.

Recreation Category 3

Desired Conditions (MA-REC3-DC)

- 01 Recreation use levels provide fewer opportunities for solitude than the other two categories, yet high opportunities for solitude exist during the non-peak use season. During peak use season, opportunities for experiencing isolation from the sights, sounds, and impacts of human activities is less than other categories. The probability of encountering other visitors on the trail and at campsites is more than other areas.
- 02 A highly unmodified natural environment characterizes the area. In the few concentrated areas of moderate use, natural conditions may be more affected by the actions of users. A higher level of management is present to mitigate these impacts. Impacts may persist from year to year and may be apparent to some visitors. Most visitors will not discern impacts.
- 03 Concentration of campsites is moderately high at destinations and along travel corridors. The number of sites accommodates peak use to prevent the formation of new sites. Bare mineral soil may exist on some sites and may persist from year to year.
- 04 Moderate soil compaction and loss of vegetation, litter, and duff occurs on many visitor created trails, in camp areas, and in areas used by livestock. Minimal erosion occurs on disturbed sites and is mitigated to prevent long-term impacts.
- 05 Riparian, lakeshore, and stream channel conditions show temporary changes within standards, which could persist from year to year at some sites. Mitigation measures accommodate moderate levels of human recreation impacts.
- 06 Management emphasizes sustaining and protecting natural conditions. Management is often direct, and management presence to mitigate visitor use impacts on resources is more noticeable. Campsites may be identified and delineated. Site-specific closures to camping, campfires, and site-specific regulations may be in place. Signs used for resource protection are present in these areas. A moderate density of social trails is present in destination camping areas. The Forest Service has a presence to provide education contact and manage high levels of use.

South Sierra Wilderness

Wilderness Opportunity Class 1

Desired Conditions (MA-OC1-DC)

- 01 Opportunities for solitude and isolation are high. There is little evidence of human activities. Encounters with other users are infrequent. Contact with other parties is rare to non-existent while traveling and are very low at campsites. Many opportunities for cross-country travel exist. This environment offers a high degree of challenge, self-reliance, and risk.
- 02 A highly unmodified natural environment generally characterizes the area. Ecological processes are largely unaffected by direct human actions. Environmental impacts are minimal and are usually restricted to areas along travel corridors. Most impacts recover on an annual basis and are not apparent to most visitors.
- 03 Management strongly emphasizes sustaining and enhancing the natural ecosystem. Communication about rules and regulations occurs outside the area. Indirect methods of accomplishing management objectives predominate, but when needed management actions can be direct. Site-specific regulations may be in place in unusual cases where resources require higher levels of protection. Maintained trails, signs, or facilities exist only for resource protection. Abandoned OHV routes may be present in some areas and native vegetation is recovering naturally.

Wilderness Opportunity Class 2

Desired Conditions (MA-OC2-DC)

- 01 Many opportunities for exploration and isolation exist. There is some evidence of human activities, and the probability of encountering other users is low on trails, but other parties may be encountered at campsites. This environment offers a high degree of challenge, self-reliance, and risk.
- 02 An unmodified natural environment generally characterizes the area, except within trail corridors (50 feet on each side of a trail). Ecological processes are minimally affected by direct human actions. Environmental impacts are low and usually restricted to areas along travel routes and near campsites. Many impacts recover on an annual basis and are not apparent to most visitors.
- 03 Management emphasizes sustaining and enhancing the natural ecosystem. Communication about rules and regulations occurs outside the area. Direct on-site management of visitors is infrequent but occurs more frequently than in Opportunity Class 1. Routes are maintained for resource protection and user safety. Signs provide directions at trail junctions or at geographical passes. Abandoned OHV routes may be present in some locations and native vegetation is recovering naturally.

Wild and Scenic Rivers 1

Desired Conditions (MA-WSR1-DC)

- 01 Outstanding opportunities for solitude and isolation are high. Encounters with other users are infrequent. This environment offers a high degree of challenge, self-reliance and risk.

- 02 An unmodified natural environment generally characterizes the area. The ecosystem is stable and natural processes generally operate free of human induced-controls. Visitor impacts are minor and typically consist of temporary disturbances of soil and vegetation in camps and along popular hiking trails. Most impacts recover on an annual basis and are not apparent to most visitors.
- 03 Management emphasizes maintaining natural conditions and primitive recreation opportunities. Indirect methods of accomplishing management objectives predominate. Direct, on-site management of visitors is rare.

Wild and Scenic Rivers 2

Desired Conditions (MA-WSR2-DC)

- 01 Some outstanding opportunities for solitude and isolation exist. Encounters with other users occur during the primary use season. Some off-trail opportunities exist to use primitive outdoor skills and experience challenge, self-reliance and risk.
- 02 A primitive environment generally characterizes the area. The environment is generally unmodified with slight human-caused modifications evident in localized areas. The ecosystem is stable with some human-induced controls. Visitor impacts are minor and typically consist of temporary disturbances of soil and vegetation in camps, along river banks and along popular trails. Disturbances may be visually noticeable along trails and around camps.
- 03 Management emphasizes maintaining natural conditions and primitive recreation opportunities. Indirect methods of accomplishing management objectives predominate. Direct, on-site management is occasional and occurs more than in other opportunity classes.

Recommended Wilderness

Desired Conditions (MA-RWLD-DC)

- 01 Areas recommended for wilderness retain their social and ecological wilderness characteristics and other identified features of value until their designation as wilderness or other use are determined by Congress.
- 02 Plant and animal communities remain substantially natural.
- 03 Ecological processes in recommended areas are generally absent from human intervention.
- 04 Existing improvements are not a substantial departure from apparent naturalness.
- 05 The existing opportunities for solitude and primitive recreation are maintained.

Standards (MA-RWLD-STD)

- 01 No new non-conforming projects or activities are allowed in recommended wilderness areas.
- 02 Manage the grazing program to be consistent with wilderness values. Address specific management needs in allotment management plans.

- 03 Permit no new energy developments or leases.
- 04 Determine the validity of existing mining claims when a plan of operations is submitted.
- 05 Permit no sales or extraction of common variety minerals in recommended wilderness.
- 06 Existing special uses may continue, new special uses may be considered if they are consistent with maintaining wilderness character.
- 07 Allow insect and disease infestations to run their natural course except where they unacceptably threaten the wilderness resource, the resources of adjacent lands, livestock, or human health and welfare.

Suitability (MA-RWLD-SUIT)

- 01 Developed recreation sites are not suitable.
- 02 Motorized use on forest system roads and trails is not suitable, except as provided for in the Wilderness Act or Forest Service Manual.
- 03 Over snow vehicle travel is not suitable.
- 04 Mechanized transport is not suitable.
- 05 Ski areas are not suitable.
- 06 Permanent improvements are not suitable.
- 07 Road construction or reconstruction is not suitable, except as provided for in the Wilderness Act.
- 08 Commercial enterprise sites and major utility corridors are not suitable, except as provided for in the Wilderness Act.
- 09 Commercial harvesting of non-timber forest products is not suitable.

Goals (MA-RWLD-GOAL)

- 01 Rehabilitate areas to address impacts caused by non-conforming activities that may affect wilderness potential.

Wild and Scenic Rivers

The wild and scenic river management areas on the Inyo National Forest include all existing wild and scenic rivers that have been designated by Congress (Figure 8, appendix A).

Designated Wild and Scenic Rivers

Desired Conditions (MA-WSR-DC)

- 01 The free flowing condition, water quality and specific outstandingly remarkable values of designated wild and scenic rivers are protected or enhanced. Any development is consistent with the river's classification, and management is consistent with a current comprehensive river management plan.

- 02 Public recreation and resource uses are provided that do not adversely impact or degrade the values for which the river was designated.

Standards (MA-WSR-STD)

- 01 Road and motorized trail access to rivers must be consistent with river classification, travel management direction and the recreation opportunity spectrum classification.
- 02 When evaluating a federally assisted water resources project under the Wild and Scenic Rivers Act Section 7(a) and where a comprehensive river management plan has not yet been completed, use the documented baseline conditions at date of designation for free flow, water quality and outstanding remarkable values to evaluate effects of the project. The river's classification is not a factor in the evaluation.
- 03 Where river management direction has not been developed, improvements can be made to existing structures in the recreation and scenic segments.
- 04 In recreation and scenic segments, permit expansion of structural improvements outside designated wilderness provided they meet assigned scenic integrity objectives and allow for user access.
- 05 Within the wild segment, limit structural improvements to existing structures.
- 06 Permit utility rights of way within recreation and scenic segments only when there are no alternatives.
- 07 Permit no utility rights of way within wild segments.

Guidelines (MA-WSR-GDL)

- 01 Uses of facilities in existence at the date of designation that do not conform to the river's classification should be allowed so long as the river's free-flowing condition, water quality, and outstanding remarkable values are protected.
- 02 Consider closing and restoring dispersed campsites to natural conditions that are adversely affecting water quality.
- 03 If new recreation facilities are needed, they should be consistent with river classification, recreation opportunity spectrum classification, scenic integrity objectives, and located to protect outstanding remarkable values.
- 04 Ensure legal access to lands of other ownership that is not acquired.
- 05 Within recreation and scenic segments, identify and determine the validity of all mining claims on public lands when a plan of operations is submitted.
- 06 Protect river, river banks and dependent plants and animals from alteration.
- 07 Control or prevent erosion.
- 08 Consider acquiring non-federal land and easements to implement the Wild and Scenic Rivers Act and to facilitate management of other resources.

Eligible or Recommended Wild and Scenic Rivers

Desired Conditions (MA-EWSR-DC)

- 01 Eligible or recommended wild and scenic rivers retain their free-flowing condition, water quality and specific outstandingly remarkable values. Recommended preliminary classifications remain intact until further study is conducted or until designation by Congress.

Standards (MA-EWSR-STD)

- 01 For interim management of Forest Service-identified eligible or recommended suitable rivers, use interim protection measures identified in FSH 1909.12 – 84.3.

Riparian Conservation Areas

Riparian conservation area (RCA) widths are defined by type: 1) perennial streams, 300 feet on each side of the stream, measured from the bank full edge of the stream; 2) seasonally flowing streams (includes intermittent and ephemeral streams), 150 feet on each side of the stream, measured from the bank full edge of the stream; 3) streams in inner gorge (defined by stream adjacent slopes greater than 70 percent gradient), top of inner gorge; 4) special aquatic features (including lakes, wet meadows, bogs, fens, wetlands, vernal pools, and springs) or perennial streams with riparian conditions extending more than 150 feet from edge of streambank or seasonally flowing streams with riparian conditions extending more than 50 feet from edge of streambank, 300 feet from edge of feature or riparian vegetation, whichever width is greater; and 5) other hydrological or topographic depressions without a defined channel, riparian conservation area width and protection measures determined through project level analysis. Riparian conservation area widths may be adjusted at the project level if interdisciplinary analysis demonstrates a need for different widths to meet or improve RCA desired conditions. Locations of riparian conservation areas for the Inyo National Forest are shown in Figure 9 (appendix A). The types of areas include

Riparian conservation area plan components apply to the entire riparian conservation area, as well as the specific riparian and aquatic environments contained within them, such as rivers, streams, meadows, springs and seeps. Riparian and aquatic environments also have additional direction specific to each environment. The relationship among watersheds, riparian conservation areas, and riparian and aquatic environments is displayed in Figure 2, chapter 2.

Desired Conditions

RCA-wide (MA-RCA-DC)

- 01 Habitat supports persistent populations of native and desired non-native plant, invertebrate, and vertebrate riparian and aquatic-dependent species. New introductions of invasive species are prevented. Where invasive species are adversely affecting the persistence of native species, the appropriate state and federal wildlife agencies work to reduce impacts of invasive species to native populations.
- 02 Species composition and structural diversity of plant and animal communities in riparian areas, wetlands, and meadows provide desired habitat conditions and ecological functions.
- 03 The distribution and health of biotic communities in special aquatic habitats perpetuates their unique functions and biological diversity.

- 04 Spatial and temporal connectivity for riparian and aquatic-dependent species and nutrient cycling is maintained within and between watersheds. Connectivity provides physically, chemically and biologically unobstructed movement for species survival, migration and reproduction.
- 05 The connections of floodplains, channels, and water tables distribute flood flows and sustain diverse habitats.
- 06 Soils with favorable infiltration characteristics and diverse vegetative cover absorb and filter precipitation and sustain favorable conditions of stream flows.
- 07 In-stream flows are sufficient to sustain desired conditions of riparian, aquatic, wetland, and meadow habitats and keep sediment regimes as close as possible to those with which aquatic and riparian biota evolved.
- 08 The physical structure and condition of stream banks and shorelines minimizes erosion and sustains desired habitat diversity.
- 09 Flooding is the primary disturbance. Streams and rivers maintain seasonal water flow over time, including periodic flooding, which promotes natural movement of water, sediment, nutrients and woody debris. Flooding creates a mix of stream substrates for fish habitat, including clean gravels for fish spawning, large wood structures and sites for germination and establishment of riparian vegetation.
- 10 Native fish, amphibians and other native aquatic species are present within their historic distribution, adjusted for climate change, and habitat conditions support self-sustaining populations, except areas managed for desirable non-native fish species. Streams and rivers provide a variety of habitats for aquatic species, including deep pools and overhanging banks, structure provided by large wood, off channel areas and cover. Woody and herbaceous overstory and understory regulate stream temperatures. Aquatic and upland components are linked, providing access to food, water, cover, nesting areas and protected pathways for aquatic, riparian and upland species.
- 11 Native riparian vegetation is diverse, structurally complex and provides food and cover to sustain fish and wildlife populations.
- 12 The condition of riparian vegetation including riparian species composition, stand density and fuel loading are consistent with healthy riparian systems and reduce risks due to high-intensity wildfire in the watershed.
- 13 Riparian areas provide a range of substrates to sustain habitat for a variety of aquatic and terrestrial fauna. Soil structure and function is sustained to infiltrate and disperse water properly, withstand erosive forces and cycle nutrients. Associated water tables support riparian vegetation and restrict non-riparian vegetation.
- 14 Riparian areas in frequent fire landscapes (e.g., montane) have low to moderate intensity fire restored as an ecological process. Fire effects occur in a mosaic and support restoration and ecological integrity and function of composition, structure, and ecological resilience.

- 15 Ecological conditions contribute to the recovery of threatened and endangered species, conserve proposed and candidate species, and support the persistence of species of conservation concern.
- 16 Riparian areas protect or improve riparian area-dependent resources while allowing for management of other compatible uses like recreation, vegetation management or livestock grazing.

Meadows (RCA-MEAD-DC)

- 01 Meadows are hydrologically functional. Sites of accelerated erosion, such as gullies and headcuts are stabilized or recovering. Vegetation roots occur throughout the available soil profile. Meadows with perennial and intermittent streams have the following characteristics: (1) stream energy from high flows is dissipated, reducing erosion and improving water quality; (2) streams filter sediment and capture bedload, aiding floodplain development; (3) meadow conditions enhance floodwater retention and groundwater recharge; and (4) root masses stabilize stream banks against cutting action.
- 02 Wetlands and groundwater-dependent ecosystems, including springs, seeps, fens, wet meadows, and associated wetlands or riparian systems, support stable herbaceous and woody vegetative communities that are resilient to drought, climate change and other stressors. Root masses stabilize stream channels, shorelines and soil surfaces. The natural hydrologic, hydraulic and geomorphic processes in these ecosystems sustain their unique functions and biological diversity.
- 03 Meadows are resilient and recover rapidly from natural and human disturbances; they exhibit a high degree of hydrologic connectivity, laterally across the floodplain, and vertically between surface and subsurface flows; they provide important ecosystem services such as high quality water, recharge of streams and aquifers, and moderation of climate variability and change.
- 04 Soil in wet and headwater meadows are influenced by a shallow water table and function to filter water. These soils also store and release water over an extended period of time, which helps to maintain streamflow during dry summer months.
- 05 Meadows are in mid- to late-seral condition, with substantive ground cover and a rich and diverse species composition, especially of grasses and forbs. Meadows have high plant functional diversity with late successional functional types represented. Perennial streams in meadows contain a diversity of age classes of hardwood shrubs along the stream bank, where the potential exists.
- 06 Fen condition is within the natural range of variation. Fens are resilient with continual peat accumulation. The hydrologic regime, and vegetation, soil and water characteristics sustain the fen's ability to support unique physical and biological attributes.
- 07 A complexity of meadow habitat types and successional patterns support native plant and animal communities. Meadow species composition is predominantly native, where graminoid (grass-like) species are well represented and vigorous, and regeneration occurs naturally. Healthy stands of willow, alder, and aspen are present within and adjacent to meadows with suitable physical conditions for these species. Natural disturbances and management activities are sufficient to maintain desired vegetation structure, species diversity, and nutrient cycling.

- 08 Meadows in montane and upper montane areas have low to moderate intensity fire restored as an ecological process, especially on meadow edges, limiting conifer encroachment and enhancing native understory plant composition and cover.

Rivers and Streams (RCA-RIV-DC)

- 01 Stream ecosystems, riparian corridors and associated stream courses sustain ecosystem structure; are resilient to natural disturbances (e.g., flooding) and climate change; promote the natural movement of water, sediment and woody debris; and provide habitat for native aquatic species or desirable non-native species.
- 02 Stream ecosystems, including ephemeral watercourses, exhibit full connectivity where feasible to maintain aquatic species diversity, except where barriers are maintained in good condition to protect native aquatic species. Ephemeral watercourses provide for dispersal, access to new habitats, and perpetuation of genetic diversity, as well as nesting and foraging for riparian and aquatic species.

Lakes, Pools, Ponds (RCA-LPP-DC)

- 01 Natural lakes and ponds retain necessary attributes, such as adequate vegetation and large woody debris, to function properly and support native biotic communities. Attributes include floodwater retention and groundwater recharge, stabilized islands and shoreline features, and diverse characteristics to provide for amphibian production, waterfowl breeding and biodiversity.

Springs and Seeps (RCA-SPR-DC)

- 01 Springs provide sufficient water to maintain healthy habitats for native riparian and aquatic species.
- 02 Springs are resilient to natural disturbances, groundwater diversions, and changing climate conditions. Springs function across the landscape within their type and water availability.
- 03 Springs and associated streams and wetlands have the necessary soil, water, and vegetation attributes to be healthy and functioning at or near potential. Water flow is similar to historic levels and persists over time, within constraints of climate change.

Standards (MA-RCA-STD)

All standards listed here also apply to critical aquatic refuges except as noted.

- 01 Ensure that management activities do not adversely affect water temperatures necessary for local aquatic- and riparian-dependent species assemblages.
- 02 Limit pesticide applications to cases where project level analysis indicates that pesticide applications are consistent with riparian conservation areas desired conditions.
- 03 Within 500 feet of known occupied sites for Yosemite toad and mountain yellow-legged frog, design pesticide applications to avoid adverse effects to individuals and their habitats.
- 04 Within riparian conservation areas only, prohibit storage of fuels and other toxic materials except at designated administrative sites and sites covered by special use authorization.

- Prohibit refueling within riparian conservation areas except if there are no other alternatives.
- 05 Ensure that culverts or other stream crossings do not create barriers to upstream or downstream passage for aquatic-dependent species, except where desired to protect native species.
 - 06 Locate water drafting sites to minimize adverse effects to in stream flows and depletion of pool habitat.
 - 07 Prevent disturbance to streambanks and shorelines of natural lakes and ponds caused by resource activities (e.g., livestock, off-highway vehicles, and dispersed recreation) from exceeding 20 percent of stream reach, or 20 percent of natural lake and pond shorelines. Disturbance includes bank sloughing, chiseling, trampling, and other means of exposing bare soil or cutting plant roots. This standard does not apply to developed recreation sites; sites authorized under special use permits; and designated off-highway vehicle routes.
 - 08 In stream reaches occupied by or identified as “essential habitat” in the conservation assessment for the Lahontan and Paiute cutthroat trout, limit streambank disturbance from livestock to 10 percent of the occupied or “essential habitat” stream reach. Implement corrective action where streambank disturbance limits have been exceeded.
 - 09 Use screening devices for water drafting pumps. (Fire suppression activities are exempt during initial attack.) Use pumps with low entry velocity to minimize removal of aquatic species from aquatic habitats, including juvenile fish, amphibian egg masses and tadpoles.
 - 10 During ecological restoration or other activities, use methods and equipment that limit soil disturbance and erosion to achieve RCA desired conditions.
 - 11 Assess the hydrologic function of meadow habitats and other special aquatic features during range management analysis. Ensure that characteristics of special features are, at a minimum, at proper functioning condition or at functioning at-risk and trending toward proper functioning condition, as defined in appropriate technical reports^{3,4,5,6}.
 - 12 Prohibit or mitigate ground-disturbing activities that adversely affect hydrologic processes that maintain water flow, water quality, or water temperature critical to sustaining fen ecosystems and the plant species that depend on these ecosystems. During

³ Barrett, H., J. Cagney, R. Clark, J. Fogg, K. Gebhardt, P. L. Hansen, B. Mitchell, D. Prichard, D. Tippy. 1993 (Revised 1998). Riparian area management: Process for assessing proper functioning condition TR-1737-9. U.S. Department of the Interior, Bureau of Land Management. 60 pp.

⁴ Prichard, D., J. Anderson, C. Corell, J. Fogg, K. Gebhardt, R. Krapf, S. Leonard, B. Mitchell, and J. Staats. 1998. Riparian Area Management TR-1737-15. A user guide to assessing proper functioning condition and the supporting science for lotic areas. U.S. Department of the Interior, Bureau of Land Management, National Applied Resource Sciences Center. 136 pp.

⁵ Prichard, D., C. Bridges, R. Krapf, S. Leonard, and W. Hagenbuck. 1994. Riparian area management: Process for assessing proper functioning condition for lentic riparian-wetland areas T R-1737-11. US Department of Interior, Bureau of Land Management Service Center. Denver, Colorado. USA. 38 pp.

⁶ Weixelman, D. and D. J. Cooper. 2009. Assessing Proper Functioning Condition for Fen Areas in the Sierra Nevada and Southern Cascade Ranges, California. A user’s guide. Gen. Tech. Rep. R5-TP-028. Vallejo, CA. US Department of Agriculture, Forest Service, Pacific Southwest Region, 52 p.

project analysis, survey, map, and develop measures to protect fens from activities causing significant degradation, such as trampling by livestock, pack stock, and humans. In all cases, wheeled vehicles should be prohibited from entering fens. The criterion for defining fens is the presence of at least 40 cm of peat (thickness) in the top 80 cm of soil. Complete initial inventories of fens within active grazing allotments prior to re-issuing permits. If more than 10 fens occur on an allotment, ensure 25 percent of all fens are inventoried, and establish a 5-year schedule to complete inventory.

- 13 Locate new facilities for gathering livestock and pack stock outside of meadows and riparian conservation areas.
- 14 Designate equipment exclusion zones within riparian conservation areas when designing projects. The default is half of the riparian conservation area width (150 feet for perennial streams, 75 feet for intermittent streams):
 - a. These widths may be adjusted on a project by project basis based on geomorphology, slope, and/or soil conditions, as long as best management practices and other plan direction are met. Adjustments may be made only after consultation with experts in aquatic ecology, soils, and/or hydrology.
 - b. If further mechanical incursion is warranted, use methods that limit soil disturbance within the RCA, such as low ground pressure equipment, helicopters, over the snow logging, extra ground cover requirements, or other non-ground disturbing actions to achieve desired conditions consistent with best management practices and other plan direction.
 - c. When vegetation is treated in the near stream area, meet the needs for coarse wood in stream channels where possible.

Guidelines (MA-RCA-GDL)

All guidelines listed here also apply to critical aquatic refuges.

- 01 Prior to activities that could adversely affect streams, determine if relevant stream characteristics are within the range of natural variation. If characteristics are outside the range of natural variation, mitigation measures should be considered.
- 02 Within rivers and streams, ensure proposed management activities maintain the level of coarse large woody debris within the natural range of variation.
- 03 Post-wildfire management activities in riparian conservation areas and critical aquatic refuges should emphasize enhancing native vegetation cover, stabilizing channels, and minimizing adverse effects from the existing road network. Post-wildfire operations shall minimize the exposure of bare soil, to limit erosion.
- 04 Maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features by identifying roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore connectivity.
- 05 Minimize the construction of new skid trails or roads for access into riparian conservation areas.
- 06 Consider actions in project design to ensure consistency with standards and guidelines and move toward desired conditions for roads, trails, OHV trails and staging areas,

developed recreation sites, dispersed campgrounds, special use permits, grazing permits, and day use sites, that have been identified as contributing to degradation of water quality or habitat for aquatic and riparian-dependent species.

- 07 During permit reissuance for livestock, evaluate impacts of facilities on the riparian conservation areas and, consider relocating existing livestock facilities outside of meadows and riparian areas.
- 08 Manage all stream reaches of all state designated wild trout waters, as of February 2001, according to the following:
 - a. Any activity that results in trampling and chiseling should not exceed 10 percent of any given stream reach. A reach is defined as a continuous portion of a stream with homogeneous physical characteristics.
 - b. Unstable or eroding stream banks should be restored to attain a stream bank system that is no more than 10 percent unstable of the reaches current potential.
 - c. Streamside vegetation should strive to provide a minimum of 90 percent of the habitat's capability to provide stream shading and fish cover
- 09 Prohibit stream modifying construction activities within or immediately adjacent to the aquatic zone during the following spawning seasons:
 - a. In streams with spring spawning species (rainbow, cutthroat, and golden trout), February 15 to August 20.
 - b. In streams with fall spawning species (brown and brook trout), October 1 to April 15.
 - c. The Forest Supervisor has the authority to make exceptions to these seasons.
- 10 High quality habitat for all golden trout streams should be managed as best that can be achieved given the incised conditions of stream channels as defined by accepted methodologies such as proper functioning condition (PFC), stream condition inventory (SCI), and desired conditions using greenline for riparian vegetation habitat.

Goals (MA-RCA-GOAL)

- 01 Continue to coordinate and collaborate with California Department of Fish and Wildlife to implement and re-new the California Golden Trout Conservation Assessment and Strategy in order to improve riparian and stream resources for the golden trout.

Potential Management Approaches

All management approaches listed here also apply to Critical Aquatic Refuges (CARs), except as noted.

Look for opportunities to use prescribed fire treatments in riparian areas.

For waters designated as “water quality limited” (Clean Water Act Section 303(d)), participate in the development of total maximum daily loads and total maximum daily loads implementation plans. Execute applicable elements of completed total maximum daily loads implementation plans.

At either the landscape or project-scale, determine if the ecological conditions within riparian conservation areas are outside of the natural range of variation for the vegetative community including age class, structural diversity, composition, and cover of riparian vegetation. Include

consideration of the ecological role of fire. If conditions are outside the range of natural variation, consider implementing mitigation and/or restoration actions that will result in an upward trend. Actions could include restoration of aspen or other riparian vegetation where conifer encroachment is identified as a problem, using fire, hand or mechanical treatments.

Evaluate required long-term restoration actions and implement them according to their status among other restoration needs.

Ensure that fuel spill plans are reviewed, up-to-date, and determined sufficient to protect soils and aquatic resources.

Recommend restoration practices in: (1) areas with compaction in excess of soil quality standards; (2) areas that have lowered water tables; or (3) areas that are actively down cutting or that have historic gullies. Identify management practices such as road building, recreational use, grazing and timber harvest that may be contributing to the observed degradation.

The priority for management is on desert springs or where at-risk species occur.

Critical Aquatic Refuges

Critical aquatic refuges are subwatersheds, generally ranging between 500 to 50,000 acres, on the Inyo National Forest, that contain either: 1) known locations of at-risk species; 2) highly vulnerable populations of native plant or animal species; or 3) are localized populations of rare native aquatic- or riparian-dependent plant or animal species. Critical aquatic refuges on the forest are shown in Figure 10 (appendix A). The boundaries of critical aquatic refuges may be refined based on the findings from conservation assessments or verification of the presence and condition of habitat for at-risk species.

Desired Conditions (MA-CAR-DC)

- 01 Critical aquatic refuges provide habitat for native fish, amphibian and aquatic invertebrate populations. Remnant plant and animal populations in aquatic communities are maintained and restored.
- 02 Streams in critical aquatic refuges have vegetation and channel bank characteristics that are properly functioning or functioning at-risk with an upward trend. These ratings are made in relation to the current potential of the stream system. If the current potential is different from historic potential, assess what restoration measures are required to attain historic potential and if this is necessary or achievable.
- 03 The ecological integrity of upland vegetation is resilient and maintains soil productivity, water quality, and creates conditions to maintain or improve watershed conditions under the Watershed Condition Framework.

Potential Management Approaches

Consider seeking withdrawal of lands in critical aquatic refuges from location and entry under federal mining laws, subject to valid existing rights.

Pacific Crest National Scenic Trail

The Pacific Crest National Scenic Trail management area includes the lands in the visible foreground encompassing resources, qualities, values, associated settings and primary uses (Figure 11, appendix A). The visible foreground is the distance zone, up to a half mile, that is visible from the trail at a height of 5 feet, and using terrain to define the boundaries. The Pacific Crest Trail travels through designated wilderness and non-wilderness lands with management direction for both.

Pacific Crest Trail in Designated Wilderness

Desired Conditions (MA-PCTW-DC)

- 01 The Pacific Crest National Scenic Trail's nature and purpose are to provide for outstanding journeys on foot or on horseback amongst the spectacularly wild landscapes of high Pacific mountain ridges. Tranquility and closeness with nature can be found consistently along the trail, evoking a feeling of extended retreat from civilization, even if only venturing out for a day.
- 02 The recreation setting is consistent with or compliments the primitive recreation opportunity spectrum.
- 03 When possible, the Pacific Crest Trail management area provides panoramic views of natural landscapes in a tranquil scenic environment and offers outstanding views along the crest of the Sierra Nevada.

Standards (MA-PCTW-STD)

- 01 Prohibit heavy equipment line construction on the Pacific Crest Trail, unless necessary for emergency protection of property and safety.

Guidelines (MA-PCTW-GDL)

- 01 All management activities should meet or exceed high or very high scenic integrity objectives.

Potential Management Approaches

Reconstruct or relocate existing portions of the PCT as needed to enhance the recreation experience and protect resources. Evaluate proposed trail relocations using the established Pacific Southwest Region process in partnership with adjoining federal agencies, Pacific Crest Trail Association, and other partners.

Key observation points along the trail corridor are used to evaluate the condition of scenery resources.

Implement visitor use management strategies to minimize impacts to desired conditions for natural resources and visitor experiences on the Pacific Crest Trail, through education, site management, regulation and enforcement.

Pacific Crest Trail outside Designated Wilderness

Desired Conditions (MA-PCT-DC)

- 01 The Pacific Crest National Scenic Trail's nature and purpose are to provide for outstanding journeys on foot or on horseback amongst the spectacularly wild landscapes

of high Pacific mountain ridges. These primitive forms of travel, hearken back to a simpler and more rugged time. Tranquility and closeness with nature can be found consistently along the trail, evoking a feeling of extended retreat from civilization, even if only venturing out for a day

- 02 The Pacific Crest National Scenic Trail corridor retains a natural, forested or pastoral landscape character shaped by both natural processes and humans. Management practices are modified to recognize the nationally significant scenic attributes and recreational values of these lands. Vegetation management is appropriate to maintain the long-term goals and stewardship objectives of the PCT management area and provide for ecosystem restoration, public safety, and enhancement of the trail environment.
- 03 The PCT corridor traverses a range of recreation opportunity spectrum classes. The recreation setting of the PCT corridor is consistent with or complements the semi-primitive non-motorized recreation opportunity spectrum class, except in locations where the existing condition is semi-primitive motorized or roaded natural.
- 04 When possible, the Pacific Crest Trail management area provides panoramic views of natural landscapes in a tranquil scenic environment and offers outstanding views along the crest of the Sierra Nevada.

Standards (MA-PCT-STD)

- 01 Hauling or skidding along the Pacific Crest Trail itself or using the Pacific Crest Trail for landings or temporary roads is prohibited.
- 02 Prohibit heavy equipment line construction on the Pacific Crest Trail, unless necessary for emergency protection of property and safety.
- 03 For leasable minerals such as oil, gas and geothermal energy, permits and activities within the management area that are available for leasing must contain a “no surface occupancy” stipulation within the Management Area.
- 04 New permits for extraction of mineral materials such as sand, gravel, pumice, cinders and other common variety minerals, are prohibited within the PCT management area. When existing permits terminate or expire, new permits will not be issued.
- 05 Project design and mitigation for utility and rights-of-way projects will be sufficient to protect trail values. Require mitigation measures including screening, feathering, and other visual management techniques to mitigate visual and other impacts of new or upgraded utility rights-of-way.
- 06 Outside the national forest’s proclaimed boundary, PCT lands or interests acquired will be managed consistent with deed transfer language and the PCT management area direction.

Guidelines (MA-PCT-GDL)

- 01 All new management activities should meet or exceed high or very high scenic integrity objectives.
- 02 Timber harvest, prescribed burning, wildfire, herbicides, biological controls and grazing may be used to manage vegetation to meet the desired conditions of the management area.

- 03 New recreation events such as foot races or horseback endurance events and fundraising events should be limited to designated crossings only. Existing recreation events may be allowed to continue at current levels.
- 04 Existing roads and trails within the PCT management area that are available for public motorized travel and designated on the forest motor vehicle use map may remain open for public motor vehicle use. Other federal, state, county or other public roads within the management area available for public motor vehicle use may remain open for motorized travel.
- 05 All new road and trail crossings of the PCT will be evaluated and planned to minimize impacts to the scenic, natural, and experiential values of the trail. New temporary roads and new motorized and mechanized transport trails within the PCT management area should be designed to minimize the visual, aural and resource impacts to the PCT. Exemptions may be allowed if required by law to provide access to private lands or documented as the only prudent and feasible alternative.
- 06 New permanent roads are not permitted within the management area unless required by law to provide access to private lands or documented as the only prudent and feasible alternative.
- 07 New buildings and structures associated with special uses that would be visible from the PCT are designed to blend into the natural landscape and be visually subordinate.
- 08 Locate new public utilities and rights-of-way in areas of this management prescription area where impacts already exist. Limit linear utilities and rights-of-way to a single crossing unless additional crossings are documented as the only prudent and feasible alternative.

Suitability (MA-PCT-SUIT)

- 01 The Pacific Crest National Scenic Trail management area is not suitable for special-use authorizations for new communication sites and wind generation sites.
- 02 On the trail itself, year-round motorized or mechanized transport is not suitable, except at designated crossings and on interim routes.
- 03 Mineral exploration or extraction that causes surface disturbance within the Pacific Crest National Scenic Trail management area is not suitable.

Potential Management Approaches

Place priority on the purchase of lands or interest in lands necessary to protect the PCT experience as delineated in the PCT land acquisition inventory.

Reconstruct or relocate existing portions of the PCT as needed to enhance the recreation experience and protect resources. Evaluate proposed trail relocations using the established Pacific Southwest Region process in partnership with adjoining federal agencies, Pacific Crest Trail Association and other partners.

Key observations points along the trail corridor are used to evaluate the condition of scenery resources.

Implement visitor use management strategies to minimize impacts to desired conditions for natural resources and visitor experiences on the PCT, through education, site management, regulation and enforcement.

Recreation Places

Recreation places (Figure 12, appendix A) and associated desired conditions provide a framework to guide management efforts to sustain scenery and recreation settings, recreation opportunities, and recreation sites and infrastructure. Recreation places help connect the public to the relevant and various types of places within the forest.

Recreation places are characterized by their distinctive roles and contributions within the landscape, taking into account the agency mission, unique capabilities, and the broader area beyond national forest boundaries. This includes the scenic character of each place. Plan components that guide management of each recreation place are provided within the context of each place's distinctive roles and contributions. In addition, each place on the Inyo National Forest is categorized as one of the following types:

- **Destination:** These places have regional and national significance. Visitors are drawn to these places to experience sport-type activities or participate in recreation activities in higher-end recreation settings; more highly developed infrastructure is prevalent and visitor controls are evident.
- **Dispersed Use:** These places have local and regional significance. Visitors are drawn to these places to experience unregimented recreation activities and moments of solitude in undeveloped settings. Infrastructure tends to be rustic or non-existent, with minimal visitor controls.
- **High Country:** These places have local and regional significance. Visitors are drawn to these places to experience challenge and adventure in high-elevation settings and as relief from the warmer lower-elevation climates. Infrastructure tends to be rustic or non-existent, with minimal visitor controls.
- **High-Use Overnight:** These places have local and regional significance. Visitors are drawn to these places to experience a high social exchange among families, friends and other forest visitors in developed recreation settings. More highly developed infrastructure is prevalent; visitor controls are evident.
- **Scenic Drive:** These places have regional and national significance. Visitors are drawn to these places to experience the interaction of natural-resource elements in the landscape or to view the vestiges of California's rich historic frontier past. More highly developed infrastructure is prevalent; visitor controls are evident.
- **Wildlands:** These places have regional, national and international significance. Visitors are drawn to these places to experience extreme challenge and solitude in remote high-elevation settings. Infrastructure and visitor controls are non-existent.

Benton-Casa Diablo Place

Benton-Casa Diablo is a dispersed use type of place; it is a natural-appearing, remote backcountry, non-wilderness area. The landscape is varied and rugged consisting of a broad volcanic tableland punctuated by mountain peaks of the Benton Mountain Range. The area is

historical native land of the Owens Valley Paiute. Locations of cultural and tribal value are found in this place. The area has an abundance of pine nuts, and has been an important source of collection for thousands of years. Benton–Casa Diablo Place is valued for motorized travel, touring, fishing, climbing, bouldering, hunting and dispersed camping.

Desired Conditions (MA-BENT-DC)

- 01 The Benton-Casa Diablo Place recreation setting and opportunities are sustained as a remote, backcountry, non-wilderness area with a management emphasis on dispersed recreation opportunities. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Developed recreation facilities are rustic in design with less obvious management controls. Areas of high use are managed to maintain a quality experience for visitors. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the Place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place.

Bishop to Convict Creek Place

Bishop to Convict Creek is a high-use overnight type of place; it is a naturally-evolving, natural-appearing landscape that transitions from pockets of concentrated recreation to the remoteness of the John Muir Wilderness. The mountain range serves as a scenic backdrop that enhances the destination resort aspect of nearby communities and US Highway 395, the Eastern Sierra Scenic Byway. The majority of this place is dominated by high peaks and high elevation forests that create isolated nooks in the cracks of the mountains and include magnificent displays of geological processes. The area includes historical native lands of the Owens Valley Paiute. Locations of cultural and tribal value are found in this place; areas of tribal value include the north and along river valleys in the south. Traditional currant gathering occurs. One third of the Place is an inventoried roadless area. The Place is valued for climbing, scenery viewing, motorized touring, hiking and camping. The fall aspen color in this area draws visitors to the surrounding communities in fall. Some of the most valued back country alpine skiing in the eastern Sierra within California is located in this Place. The Buttermilk area is internationally known for its bouldering. Other outdoor activities include backcountry skiing, fishing, backpacking and day-use along Bishop Creek.

Desired Conditions (MA-BSHP-DC)

- 01 The Bishop to Convict Creek Place recreation setting and opportunities are sustained as a naturally-evolving, natural-appearing landscape. A network of non-motorized trails support access to the high elevation vistas. The road system supports delivery and staging to non-motorized trailheads used for overnight use. Developed recreation facilities include campgrounds, trailheads, day use sites, group camps, recreation residences and cross-country ski trails. Developed sites and transportation are managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature. Rock climbing and other dispersed recreation activity is managed to support the recreation opportunity spectrum of the place. Areas of high use are managed to maintain a quality experience for visitors, surrounding communities and the scenic byway. Private inholdings or recreation residence permits are considered for land exchange or discontinuation, respectively, if those activities promote the roles, contributions and sense of the place. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the Place. Management

actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place.

Coyote Place

Coyote Place is a scenic drive type of place; it is a remote, natural-appearing, backcountry non-wilderness area where wide open views of surrounding peaks are viewed from pinyon woodlands and sagebrush flats. Aspen, meadows adorned with wildflowers, and the occasional lake are found in sharp contrast to their high desert surroundings. Access via roads is very limited, although there is a network of motorized trails and a few non-motorized stock trails. This place includes expansive views of Coyote Ridge, Lookout Mountain, Round Mountain, and Sugarloaf Peak, a portion of the Inconsolable Range, and Baker and Coyote Creeks. Ten percent of Coyote Place consists of small inholdings of private and state lands, and properties of the Los Angeles Department of Water and Properties. Coyote Place is valued for motorized uses associated with the enjoyment of these views, hunting, and dispersed camping.

Desired Conditions (MA-COYT-DC)

- 01 Coyote Place recreation setting and opportunities are sustained as a natural-appearing, remote, non-wilderness area. Management emphasis of the place includes providing dispersed motorized recreation opportunity experiences that support the recreation opportunity spectrum of the place. Access is provided that allows for sustainable use along the network of motorized trails. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Private inholdings are considered for land exchanges if they promote the roles, contributions and sense of the place. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting, particularly aspen stands and meadows.

Glass Mountain Place

Glass Mountain Place is a dispersed use type of place; it is a natural-appearing, remote backcountry, non-wilderness area that derives its sense of place from the relatively flat terrain and large quantities of obsidian found here. It is home to the largest contiguous stand of pure Jeffery pine in the world. Owens River Headwaters along the southern boundary is a designated California national recreational river. Prehistoric use was significant here with Glass Mountain being an important source for obsidian, a naturally occurring volcanic glass traditionally used in crafting knives, arrowheads and other cutting tools. Glass Mountain Place includes the historic native lands of the Northern Paiute (northwest half) and the Owens Valley Paiute (southeast half). There are traditional currant gathering locations throughout the place. There is an inventoried roadless area that covers nearly half of the place, mainly in the east and south. There are two research natural areas (RNA); Sentinel Meadow RNA and Indiana Summit RNA. Glass Mountain Place is valued for motorized travel, touring, fishing, climbing, bouldering, hunting and dispersed camping in summer and cross-country skiing, snowmobiling and back country skiing in winter.

Desired Conditions (MA-GLAS-DC)

- 01 The Glass Mountain Place recreation setting and opportunities are sustained as a natural-appearing, remote backcountry landscape area with management emphasis on year round dispersed recreation opportunities. Developed recreation facilities tend to be rustic in design, with vehicular controls and regimentation of users less obvious, and provided if they support the dispersed recreation opportunity spectrum of the place. The road and trail system is aligned with the recreation opportunity spectrum, and support delivery to dispersed recreation opportunities particularly those in the west and north. Locations of

cultural and tribal value are enhanced via management actions to sustain landscape resiliency. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in Glass Mountain Place is aligned with recreation opportunity spectrum and scenery management system; managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature.

Golden Trout-South Sierra Place

The Golden Trout-South Sierra Place is a wildlands type of place; it is a naturally-evolving wilderness and non-wilderness area. It is characterized by high plateaus, expansive meadows and sense of solitude. This place consists of two designated wilderness areas; the Golden Trout and the South Sierra Wildernesses, and the South Sierra Inventoried Roadless Area. The Golden Trout Wilderness is named after California's brightly colored state fish, which is endemic to the area. Both wilderness areas and the inventoried roadless area extend past the southern forest boundary and are jointly managed with the Sequoia National Forest. This place also: borders Sequoia and Kings Canyon National Parks to the northwest; includes Last Chance Meadow Research Natural Area; and encompasses the headwaters of the Kern National Wild and Scenic River. This is the historic native land of the Tubatulabal and the Owens Valley Paiute. This place is valued for remoteness and adventure. Access is limited, which contributes to the sense of wilderness and solitude. There is a single road from Horseshoe Meadow in the north and a road system that provides for dispersed use from the Sequoia National Forest in the south. Recreation opportunities consist of traditional dispersed activities including equestrian riding and camping, backpacking, hiking, motorized use and fishing. There are many non-motorized trails including the Pacific Crest National Scenic Trail that traverses the length of the place, north to south.

Desired Conditions (MA-GTSS-DC)

- 01 The Golden Trout-South Sierra Place recreation setting and opportunities are sustained as a remote, backcountry area. The trail system is aligned with the recreation opportunity spectrum and management emphasis is on dispersed recreation to provide visitors with a sense and experience of wildness and remoteness. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Access is provided for motorized users along designated routes. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place.

Inyo Mountains Place

The Inyo Mountains Place is a wildlands type of place, characterized by large, rugged mountains, a windswept landscape and expansive views, which offer the visitor a solitude-rich wilderness experience. It includes the Inyo Mountains Wilderness, which is bordered by the Death Valley Wilderness to the east. The north-south Inyo Mountains comprise a high and vast desert range, and the isolated and pristine wilderness that bears their name encompasses a large portion of this sheer and rugged terrain. Most of the eastern border is shared with Death Valley National Park. Year-round streams, some with cascading waterfalls, can be found in eight canyons on the rough east side. These steep-walled canyons offer challenges to rock climbers. In addition to Keynote Peak, the prominent summits of New York Butte and Mount Inyo provide tough, nontechnical hikes with splendid views as rewards. Lush riparian habitat occurs in moist canyons, contrasting

with pinion-juniper woodlands found on some slopes. The Inyo Mountains Place also contains the Whipporwhill Flat Research Natural Area. A rich mining legacy left a smattering of ruins to explore, including the towers that supported a men-and-salt-bearing tram from the Saline Valley. Roughly half of the Inyo Mountain Place, excluding road corridors, is designated inventoried roadless area. Salt mines to Owens Lake can still be seen on Cerro Gordo Peak. Areas outside of designated wilderness are accessible by many roads and motorized trails, lend to OHV experiences of views from Mazourka Peak and offer access to dispersed camping areas.

Desired Conditions (MA-INYM-DC)

- 01 The Inyo Mountains Place recreation setting and opportunities are sustained as a remote, backcountry area with a management emphasis on continuing to provide visitors with a sense of wildness and remoteness experience. The trail system and motorized access is aligned with the recreation opportunity spectrum, and management emphasis is on dispersed recreation that provides visitors with a sense and experience of wildness and remoteness. Outfitter and guide services promote the roles, contributions and sense of the place, and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place.

June Lake Loop-Walker-Parker Place

The June Lake Loop-Walker-Parker Place is a destination type place; a natural-appearing, destination landscape that derives its sense of place from the developed recreation opportunities along the June Lake Loop in the south and its adjacency to the Ansel Adams Wilderness. Visitors value the place for dramatic vistas and developed recreation opportunities, predominantly around the June Lake Loop. The landscape is characterized by glacial carved lakes surrounded by dramatic snow-capped peaks and rock outcrops. June mountain ski area is located along the south boundary. Recreation opportunities include driving for pleasure. Aspens give the scenery brilliant displays of fall color visible from any point on a four mile stretch of Scenic Byway 395, drawing visitors into the “Loop” in search of more breathtaking views from overlooks and vista points. The June Lake Loop-Walker-Parker Place is valued for dispersed recreation opportunities including fishing, hiking, trail rides, rock climbing and lake recreation such as boating. This place is the historic tribal territory of the Northern Paiute and there is a concentration of places of tribal importance.

Desired Conditions (MA-JUN-DC)

- 01 The June Lake Loop-Walker-Parker Place recreation setting and opportunities are sustained as a natural-appearing, destination landscape with a management emphasis on developed recreation opportunities. June, Gull, Silver, and Grant Lakes developed sites are sustained to support the needs of changing demographics. Developed sites remain concentrated in the south. Areas of high use are managed for a quality experience for visitors. Recreation residence permits are considered for discontinuation if such actions would promote the roles, contributions and sense of the place. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Management actions are aligned with recreation

opportunity spectrum and the roles, contributions and sense of the place. Development in the place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting.

Mammoth Place

Mammoth Place is a destination type place; it is a natural-appearing, cultural destination landscape that derives its sense of place from the resort community of Mammoth Lakes. This place provides an array of recreation opportunities for summer and winter recreation and is known as a magnet for outdoor recreation enthusiasts. The scenic character of Mammoth Place is a result of past glacial activity, and consists of gentle slopes with a dramatic, snow-capped mountain backdrop. The area was historically occupied by the Owens Valley Paiute Native American tribe and there are many historic and pre-historic archeological sites. Mammoth Place includes a portion of a designated scenic byway corridor, Hwy 395, as well as State Road 203, or Main Street, providing access to downtown Mammoth Lakes, and the valued Mammoth Mountain, Red's Meadow and Devil's Postpile National Monument. Mammoth Place is valued for a wide variety of outdoor activities including skiing, sightseeing, hiking, camping, cycling, fishing, paddle boarding, kayaking and other water-based recreation activities on the many nearby lakes. This place is also a popular destination for landscape artists and outdoor photographers.

Desired Conditions (MA-MMH-DC)

- 01 The Mammoth Place is sustained as a natural-appearing, cultural and tourism destination landscape providing the staging area for an abundance of year-round developed and dispersed recreation opportunities for residents and visitors. The Mammoth Lake Basin is sustained for family oriented developed recreation as well as for technical sports including rock climbing and back country skiing. Developed recreation facilities tend to be contemporary in design, with obvious vehicular controls and regimentation of users. Access is provided by a network of non-motorized trails and roads to launch from for dispersed recreation opportunities. Areas of high use are managed to a quality experience for visitors. The trail system is aligned with the recreation opportunity spectrum and management actions focus on developed and dispersed recreation. Recreation residences do not limit the recreation opportunity spectrum and do not generate resource impacts. Recreation residence permits are considered for discontinuation if such actions would promote the roles, contributions and sense of the place. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in Mammoth Place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting.

Mammoth Escarpment Place

Mammoth Escarpment Place is a destination type place; a natural-appearing, destination landscape that derives its sense of place from the steep landscape that rises from the Mammoth

Lakes Basin, a series of alpine lakes nestled in a bowl-shaped area just outside the resort community of Mammoth Lakes. The Mammoth Escarpment Place provides the dramatic scenic backdrop for the community and for the scenic byway, Highway 395. The landscape is characterized by the very steep, often precipitous terrain along the Mammoth Crest to the west and south, with many high altitude lakes, and dramatic rock outcrops. Prominent features include San Joaquin Mountain, Minaret Summit and Laurel Mountain. The John Muir Wilderness makes up southern half of this place and there are five named streams flowing north, along which recreation sites are concentrated. Designated inventoried roadless areas make up 40 percent of the Mammoth Escarpment Place, and consist of almost all the land outside of wilderness and concentrated recreation areas. Mammoth Escarpment Place is the historical native land of the Owens Valley Paiute. The Mammoth Lakes Basin includes many historic sites as well. Non-motorized trails connect recreation sites in the Lake Basin and lead into the wilderness. There is one motorized trail in this place, which accesses Laurel Mountain in the east. This place is valued for abundant developed and dispersed recreation opportunities, spurred by the town of Mammoth Lakes as a staging area, Mammoth Lakes Basin, and Mammoth Mountain. Mammoth Mountain is one of the largest mountain resorts in the nation and is a national draw for visitors interested in all types of winter skiing. Mammoth Mountain is also valued for mountain biking and other year-round outdoor recreation. The many campgrounds, trailheads and picnic sites located in the Lakes Basin provide valued family camping, fishing, hiking and cycling. Rock climbing sites are concentrated along the Mammoth Crest.

Desired Conditions (MA-MESC-DC)

- 01 The Mammoth Escarpment Place recreation setting and opportunities are sustained as a natural-appearing, tourism destination landscape with a management emphasis on developed and dispersed recreation opportunities. Developed recreation facilities tend to be contemporary in design, with obvious vehicular controls and regimentation of users. Areas of high use are managed to a quality experience for visitors. Areas of dispersed use are managed to maintain the recreation opportunity spectrum. The trail system is aligned with the recreation opportunity spectrum and management actions focus on both developed and dispersed with a focus on developed recreation around Mammoth Lakes. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Opportunities for research are sustained, with an emphasis on those that support developing adaptive management responses within the place. Recreation residences do not limit the recreation opportunity spectrum and do not generate resource impacts. Recreation residence permits are considered for discontinuation if such actions would promote the roles, contributions and sense of the place. Outfitter and guide services promote the roles, contributions and sense of the place and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Private inholdings are considered for land exchange if those activities promote the roles, contributions and sense of the place. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. The area is managed to maintain high scenic integrity for visitors and residents to enjoy. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in the Mammoth Escarpment Place is aligned with recreation opportunity spectrum and scenery management system and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature.

Mono Basin-Lee Vining Place

Mono Basin-Lee Vining Place is a destination type of place; a natural-appearing destination landscape that derives its sense of place from the town of Lee Vining set amidst the high desert in Mono Basin. The most noted feature is Mono Lake, a unique inland sea surrounded by unearthly limestone spires of tufa and dramatic views of the 13,000 foot peaks of the High Sierra, the vast sagebrush landscape, and volcanic surroundings. The Mono Basin-Lee Vining Place is also the gateway, via forest scenic byway Hwy 120, to the east entrance of world renowned Yosemite National Park. Mono Lake is among the oldest lakes in North America and one of the most productive and fascinating ecosystems in the world. In 1984, the U.S. Congress established the concept of the national scenic area, and designated the Mono Basin National Scenic Area, the first in U.S. history. The Mono Basin-Lee Vining Place also includes the Hoover and Ansel Adams Wildernesses and the Harvey Monroe Hall Research Natural Area. The high desert environment harbors a thriving but fragile ecosystem of interdependent plant and animal species, some endemic to Mono Lake. The higher elevation areas, west and south of Mono Lake have been designated inventoried roadless areas. The Place is the historic native land of Northern Paiute, and is valued for traditional gooseberry gathering locations. Access to most of the Lee Vining canyon area is limited due to steep terrain, moraine slopes, and wilderness. Scenic Byway 395 provides vehicle access north and south through the area. Trails and trailheads provide access into wilderness areas, and there are few motorized trails providing access to Mono Lake and other dispersed sites. The Place is valued for campgrounds, hiking, backcountry access (including snowmobiling and backcountry skiing), fishing, rock climbing, and ice climbing, as well as the Interagency Mono Basin Visitor Center. Unique features around Lee Vining and Mono Lake are the alkaline meadows that visually blend with the shrublands but are special because they contain soils that support rare and at-risk plant species. Riparian areas contain heavy stands of aspen and willow with some conifers and spectacular meadows.

Desired Conditions (MA-MONO-DC)

- 01 The Mono Basin-Lee Vining Place recreation setting and opportunities are sustained as a natural appearing tourism destination landscape with a management emphasis on continuing to provide visitors with a sense of wildness and remoteness experience. Areas of dispersed use are managed to maintain the recreation opportunity spectrum. The trail system is aligned with the recreation opportunity spectrum, and management actions focus on supporting the dramatic viewsheds. Locations of cultural and tribal value are enhanced via management actions to sustain landscape resiliency. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Opportunities for research are sustained, with an emphasis on those that support developing adaptive management responses within the place. Outfitter and guide services promote the roles, contributions and sense of the place and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in the Mono Basin-Lee Vining Place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature focused on the values of Mono Lake.

Owens River Headwaters Place

The Owens River Headwaters Place is a wildlands type place; a natural-evolving, remote, high elevation wilderness landscape. This place consists entirely of designated wilderness and is characterized by dramatic high peaks, rocky outcrops, and glacial lakes with opportunities for visitor solitude. The western portion of the Owens River Headwaters Place (60 percent) is part of the Ansel Adams Wilderness, and the eastern area is both Owens River Headwaters Wilderness and designated inventoried roadless areas. Elevations range from 8,000 feet to 12,000 feet. The place is valued for hiking, dispersed camping and backcountry skiing. There is a small network of hiking trails in the Ansel Adams Wilderness, including the Pacific Crest Trail. The headwaters of various named streams are located here including the wild sections of Owens River, a California designated Wild and Scenic River. This area is historic native land of the Owens Valley Paiute and the Northern Paiute and is valued for gathering sites.

Desired Conditions (MA-OWEN-DC)

- 01 The Owens River Headwaters Place recreation setting and opportunities are sustained as a remote, backcountry wilderness area with a management emphasis on continuing to provide visitors with a sense and experience of solitude, wildness and remoteness. Areas of dispersed use are managed to maintain the recreation opportunity spectrum. Locations of cultural and tribal value are enhanced via management actions to sustain landscape resiliency. The trail system is aligned with the recreation opportunity spectrum and management actions focus on sustaining the wilderness character of the place. Outfitter and guide services promote the roles, contributions and sense of the place and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting.

Owens Valley Escarpment Place

The High Country Place is a high country type place; a natural-appearing landscape with concentrated recreation pockets. The jagged ridgeline atop the Sierra Crest creates a spectacular backdrop for the Owens Valley, the communities of Lone Pine and Independence, and Scenic Byway 395. The High Country Place extends from Big Pine Creek in the north to Wonoga Peak in the south. The majority of this area is located within the John Muir Wilderness with prominent features being the eastern Sierra escarpment with its many peaks over 13,000-14,000 feet, including Mt. Whitney, and numerous canyons. Each canyon is characterized by the dramatic change in landscape character from the expansive shrub land views of the Owens Valley, into the sheltered and cavernous High Forests at the edge of the John Muir Wilderness. This place draws people from all over the world, and is highly valued for breathtaking scenery. Trails located in this place provide backcountry access to the Sierra National Forest and Sequoia and Kings Canyon National Parks. The Owens Valley Escarpment is valued for concentrated recreation areas, with popular roads and campgrounds, as well as wilderness access points. Recreation values include camping, backpacking, fishing, hiking, day-use, as well as rock climbing and backcountry skiing in high elevations.

Desired Conditions (MA-OESC-DC)

- 01 The Owens Valley Escarpment Place recreation setting and opportunities are sustained as a natural-appearing landscape with pockets of high-quality concentrated recreation with a management emphasis on dispersed recreation experiences. Areas of dispersed use are managed to maintain the recreation opportunity spectrum. The road system supports delivery and staging to non-motorized trailheads used for wilderness day and overnight

use. The trail system is aligned with the recreation opportunity spectrum and management actions focus on maintaining the remoteness of the place. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Outfitter and guide services promote the roles, contributions and sense of the place, and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting and wilderness characteristics of the place. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in the place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature.

Pizona Place

Pizona Place is a dispersed type place; a natural appearing backcountry, remote non-wilderness. This isolated portion of the forest begins six miles east of Mono Lake and extends into Nevada, with low rolling hills, mostly comprised of pinyon woodland and shrublands but contains occasional springs. The Pizona Place offers unobstructed views and a sense of discovery. This place is valued by tribes. A distinguishing feature of this area is the existence of a population of wild horses. Recreation use is extremely limited, consisting of commercial outfitter-guide operations, an occasional hunter or OHV use.

Desired Conditions (MA-PIZN-DC)

- 01 The Pizona Place recreation setting and opportunities are sustained as a backcountry area with a management emphasis on continuing to provide visitors with a sense of remoteness. Locations of cultural and tribal value are enhanced via management actions to sustain landscape resiliency. Outfitter and guide services promote the roles, contributions and sense of the place and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in the Pizona Place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature.

Reds Meadow-Fish Creek Place

Reds Meadow-Fish Creek Place is a wildlands type place; a natural-appearing landscape with concentrated recreation pockets, and backcountry access characterized by u-shaped valleys, steep precipitous slopes, basaltic outcrops and cinder cones. It is located on the back side of Mammoth Mountain and is known for: Reds and Agnew Meadows; access to the Devils Postpile National Monument and the Wilderness areas; the Minarets, a distinctive “needle-like” rock formation; Minaret Falls; and the headwaters of the Middle Fork of the San Joaquin River. Reds Meadow-Fish Creek Place is valued for its heavily used trailheads access the expansive Ansel Adams and

John Muir Wildernesses, and provide opportunity for rock climbing, backpacking, trail riding, day hiking, and riverfront camping.

Desired Conditions (MA-REDS-DC)

- 01 The Reds Meadow-Fish Creek Place recreation setting and opportunities are sustained as a natural-appearing landscape with pockets of high-quality concentrated recreation and backcountry access. Areas of high use are managed for a quality experience for visitors. Areas of dispersed use are managed to maintain the recreation opportunity spectrum. The road system supports delivery and staging to high use trailheads. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Recreation residences do not limit the recreation opportunity spectrum and do not generate resource impacts. Recreation residence permits are considered for discontinuation if such actions would promote the roles, contributions and sense of the place. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Outfitter and guide services promote the roles, contributions and sense of the place and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Private inholdings are considered for land exchange if those activities promote the roles, contributions and sense of the place. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in the Reds Meadow-Fish Creek Place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature.

Upper Owens River Place

Upper Owens River Place is a dispersed use type of place; a natural-appearing cultural setting with views of Mammoth Mountain and Minaret Summit, viewed from a high concentration of paved and unpaved roads through sagebrush flats, including Scenic Byway Highway 395. This place is located immediately above, and to the northwest of Lake Crowley. Included are the sub-drainages of Deadman Creek, Little Hot Creek, Dry Creek, and portions of Hot Creek. Prominent features include Lookout Mountain, Deer Mountain, Smokey Bear Flat, Little Antelope Valley and Deadman and Inyo Craters. Scenic Byway Highway 395 traverses this place north and south. The mineral rich volcanic landscape has numerous hot springs with elevation ranging roughly from 7000 feet to 9000 feet.

Land along Owens River and Hot Creek, (about 10 percent of this place) is owned by the Los Angeles Department of Water and Power, and another 10 percent is privately owned. The upper portion of the Owens River is National Forest System land and is federally designated as a national wild and scenic river (WSR). Most of the few developed recreation areas are located along Upper Owens River. This place is valued for its touring, some motorized trails, and a large network of non-motorized trails that are also used as winter snow trails. Recreation values include cross-country skiing and snowmobiling, access to resort skiing at Mammoth Mountain, fishing on the Owens River, rock climbing, OHV use, scenery viewing, hot springs use, and picnic site use.

Desired Conditions (MA-UPOW-DC)

- 01 The Upper Owens River Place recreation setting and opportunities are sustained as a natural-appearing cultural landscape with dispersed summer and winter recreation with a management emphasis balanced between dispersed and developed recreation opportunities. Areas of high use are managed to a quality experience for visitors. Areas of dispersed use are managed to maintain the recreation opportunity spectrum. The trail system is aligned with the recreation opportunity spectrum and management actions focus on supporting a balance of dispersed and developed recreation. Special use permits are authorized that align with the recreation opportunity spectrum and achieving the desired conditions of the place. Filming opportunities are authorized that encourage responsible use and stewardship of public lands. Recreation residences do not limit the recreation opportunity spectrum and do not generate resource impacts. Recreation residence permits are considered for discontinuation if such actions would promote the roles, contributions and sense of the place. Outfitter and guide services promote the roles, contributions and sense of the place and support meeting the needs of the recreation opportunity spectrum with the agency and partners. Private inholdings are considered for land exchange if those activities promote the roles, contributions and sense of the place. Recreation along the Owens River is managed to preserve the scenic qualities of the river. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management actions are aligned with recreation opportunity spectrum and the roles, contributions and sense of the place. Development in Upper Owens River Place is aligned with the recreation opportunity spectrum and scenery management system, and managed and adapted to changing demographics, connectivity to adjacent communities, and supporting the connection of people to nature.

White Mountains Place

The White Mountains Place is a wildlands type place; offering superb scenery and remoteness in a challenging setting of deep canyons and windy plateaus with expansive views across the largest expanse of rare alpine tundra in the western United States. Several distinctive, long distance and high elevation motorized opportunities exist. Prominent features include the iconic Bristlecone Pine Forest, home of the oldest living tree, and Boundary Peak, the tallest peak in Nevada. The White Mountains are one of the largest and highest desert mountain ranges in North America. Cottonwood Creek is a designated wild and scenic river. There are more than 1,000 native species and varieties of plants, residing in plant communities that range from desert scrub to alpine. The White Mountains Place is valued for the Ancient Bristlecone Pine Forest; research opportunities; motorized touring opportunities, hiking access to White Mountain peak, hunting, dispersed use, developed camping and the White Mountain Visitor Center; all of which provide a sense of wildness and remoteness.

Desired Conditions (MA-WHIT-DC)

- 01 The White Mountain Place recreation setting and opportunities are sustained as a remote, backcountry area with a management emphasis on continuing to provide visitors with a wildness and remoteness experience. Developed sites and infrastructure are rustic in nature and support the visitor experience. Access and overnight accommodation support recreation opportunities in the high elevation country near the south end of this place. Opportunities for research are sustained. Recreation opportunities, including motorized use, hiking, and hunting, are also sustained. Utilities are considered if their location will not limit the achievement of the roles, contributions and sense of the place. Management

actions are aligned with the recreation opportunity spectrum and the roles, contributions and sense of the place. Scenic character is sustained by resilient landscapes that support and enhance the scenery setting.

Designated Areas

A designated area is an area or feature identified and managed to maintain its unique special character or purpose. Designated areas are either statutorily or administratively designated, pursuant to statute, regulation, or policy. Examples of statutorily designated areas include wilderness areas, national scenic trails, and wild and scenic rivers. Examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves. Where multiple designated areas overlap, the designated area with the most restrictive plan components must be followed. A map of all statutorily designated areas can be viewed in Figure 13, appendix A.

Wilderness

Congress has designated nine wilderness areas that are either in whole or in part within the Inyo National Forest's administrative boundary and managed by the Forest Service. These wilderness areas comprise about 46 percent of the forest. They include the Ansel Adams Wilderness (shared with the Sierra National Forest), Golden Trout Wilderness (shared with the Sequoia National Forest), Hoover Wilderness (shared with the Humboldt-Toiyabe National Forest), Inyo Mountains Wilderness, John Muir Wilderness (shared with the Sierra), Owens River Headwaters Wilderness, South Sierra Wilderness (shared with the Sequoia), Boundary Peak and White Mountains Wilderness. Plan components for wilderness areas are organized under the wilderness management area section above. In addition to these nine wilderness areas, approximately 3,000 acres of the Inyo National Forest is within Granite Mountain Wilderness, which is managed by the Bureau of Land Management.

Mono Basin National Forest Scenic Area

Congress designated the Mono Basin National Forest Scenic Area to protect geologic, ecologic and cultural resources within the 116,274 acre scenic area. The legislation which designated this area also specified that management would provide for recreation use and interpretive facilities, such as trails and campgrounds, and permit full use for scientific study or research. The Mono Basin National Forest Scenic Area is managed following direction in the Mono Basin Scenic Area Management Plan.

Wild and Scenic Rivers

Congress designated three wild and scenic rivers that are either in whole or in part on the Inyo National Forest: the north and south forks of the Kern Wild and Scenic River (shared with the Sequoia National Forest and Sequoia Kings Canyon National Park), Cottonwood Creek Wild and Scenic River (shared with Bureau of Land Management), and the Owens River Headwaters Wild and Scenic River. Plan components for wild and scenic river segments on the Inyo National Forest are organized under the wild and scenic river management area section above.

Ancient Bristlecone Pine Forest (National Protection Area)

In 2009, Congress designated the Ancient Bristlecone Pine Forest within the Omnibus Public Land Management Act. This act designated the original, Ancient Bristlecone Pine Forest Special

Interest Area that was administratively established in 1958. This 28,978 acre area was established to protect the bristlecone pines for public enjoyment and scientific study.

Desired Conditions (DA-ABPF-DC)

- 01 Individual specimens and stands of ancient trees and remnant pieces of wood, which are of known scientific and/or aesthetic value, are maintained within the natural range of variation.
- 02 Natural processes are slow and proceed generally unhampered to maintain the majority of the area in its near natural condition, especially in the bristlecone pine stands and other ecologically significant areas.

Standards (DA-ABPF-STD)

- 01 The Forest Supervisor must approve the use of heavy equipment or fire retardant chemicals for controlling fires.
- 02 Construct interpretive trails, observation areas, visitor contact facilities, and parking areas at locations that do not impact major known scientific study sites.

Guidelines (DA-ABPF-GDL)

- 01 Allow management practices that do not threaten the vegetative condition for which the area was established.
- 02 Wood remnants should not be removed except for scientific, research or museum specimens.
- 03 Soil or watercourses should not be modified except to restore damaged areas to a natural condition or to control or prevent erosion.

Potential Management Approaches

Acquire all non-federal lands.

Place existing utilities underground if technically feasible.

Suitability (DA-ABPF-SUIT)

- 01 New above ground utility rights of ways are not suitable.
- 02 Timber harvesting and fuelwood gathering is not suitable.
- 03 Construction of overnight camping facilities is not suitable.
- 04 Overnight dispersed recreation use is not suitable.
- 05 Cross country over snow vehicle travel is not suitable.
- 06 Ski areas are not suitable.
- 07 Commercial enterprise sites and major utility corridors are not suitable.

- 08 Commercial harvesting of non-timber forest products is not suitable.
- 09 Mineral resources exploration and development is not suitable.

Pacific Crest National Scenic Trail

In 1968, Congress designated the Pacific Crest National Scenic Trail. The Pacific Crest Trail is a continuous long distance trail from the Mexican border near Campo, California to the Canadian Border at Boundary Monument 78 near Manning Provincial Park, Canada. The Inyo National Forest manages 80 miles of the Pacific Crest Trail, 96 percent of which are in wilderness.

The Pacific Crest National Scenic Trail Comprehensive Plan was signed in 1982 by the Chief of the Forest Service; national forests are expected to integrate the direction and guidance provided by this plan into their land management planning process. Plan components for the Pacific Crest Trail are organized under the Pacific Crest National Scenic Trail management area section above.

To ensure the conservation of the Pacific Crest Trails nationally significant wild, scenic, natural, and heritage resources, and to maximize its intended recreation opportunities, the trail's entire length, together with sufficient land area on both sides to safeguard and preserve its character, should be publically owned, permanently protected, and managed as a single entity across jurisdictions. The investment of citizen stewards offers another critical thread of continuity from Mexico to Canada. The Pacific Crest Trail experience should favor panoramic views of undisturbed landscapes in an uncrowded, non-mechanized, quiet and predominantly natural environment. It should feature diverse untrammelled ecosystems and historic high country landmarks, while avoiding, as much as possible, road crossings, private operations, and other signs of modern development. Trail facilities such as campsites, water sources and other amenities for hiker and pack-and-saddle use should be simple.

Inventoried Roadless Areas

Inventoried roadless areas are designated by the Secretary of Agriculture. About 26 percent of the Inyo National Forest has been designated as inventoried roadless areas, as governed by the Roadless Area Conservation Rule (36 CFR 294 Subpart B). The Roadless Area Conservation Rule and Forest Service policy guide and restrict management activities within inventoried roadless areas. Subject to the restrictions imposed by the Rule, forestwide plan components apply to inventoried roadless areas.

National Recreation Trails

The Secretary of Agriculture has designated three national recreation trails on the Inyo National Forest: the Whitney Portal, Discovery, and Methuselah National Recreation Trails. The Whitney Portal National Recreation Trail was established to protect the historic and scenic values of the original trail between the town of Lone Pine and the summit of Mount Whitney. The Discovery and Methuselah National Recreation Trails are located within the Ancient Bristlecone Pine Forest.

Desired Conditions (DA-NRT-DC)

- 01 National recreation trails meet the intended goals and preserve the values and recreation opportunities for which they were established.

- 02 The trail setting provides a variety of opportunities that complement the existing recreation opportunity spectrum class where the trail segment is located.

Guidelines (DA-NRT-GDL)

- 01 Management activities within the foreground views from the trail should be designed to meet a scenic integrity objective at least as high as shown on the minimum scenic integrity map. Management activities in the middle and background should meet or exceed a scenic integrity objective of at least moderate. As appropriate, include scenery management considerations in special use permits that affect national recreation trails.
- 02 During management activities, maintain safe public access to national recreation trails if practicable.
- 03 National recreation trails should be managed consistent with trail management objectives and the maintenance standards for trail class and managed use.

Research Natural Areas

The regional forester with concurrence of the research station director designates research natural areas. The purpose of research natural areas is to maintain biological diversity and to contribute to a network of representative ecosystems across the nation. Research natural areas are intended to provide ecological baseline data, and to be used for education and research that results in improved management of all National Forest System lands.

The Inyo National Forest has seven established research natural areas: Harvey Monroe Hall, Indiana Summit, Last Chance Meadow, McAfee, Sentinel Meadow, Whippoorwill Flat, and White Mountain Research Natural Area. These research natural areas represent specific target elements, including alpine meadows, Sierran mixed subalpine forest, Jeffrey pine, foxtail pine, alpine fell-field, lodgepole pine, pinyon-juniper, and bristlecone pine. Management of research natural areas is guided by individual management plans and/or by direction provided in the Forest Service Manual (FSM 4063).

Standards and guidelines for constraints on fire management activities within research natural areas are included under the components for “Fire”.

Desired Conditions (DA-RNA-DC)

- 01 Research natural areas have excellent examples of the ecological features and values for which they were established. They are generally natural appearing, and ecological processes such as plant succession, fire, and insect and disease activity function with limited human influences. They serve as areas for the study of ecosystems and ecological processes, including succession, and as baseline areas for measuring ecological change due to disturbances or stressors like climate change.

Standards (DA-RNA-STD)

- 01 Where a research natural area is located within a designated wilderness area, follow management direction for the research natural area.

Suitability (DA-RNA-SUIT)

- 01 Developed or dispersed recreation sites are not suitable.

- 02 Over snow vehicle travel is not suitable.
- 03 Timber production or wood gathering is not suitable.
- 04 Developed facilities are not suitable.
- 05 New roads, trails, fences, or signs are not suitable unless they contribute to the objectives or protection of the research natural area.
- 06 Alteration of the groundwater system is not suitable.
- 07 Sales or extraction of common variety minerals is not suitable.
- 08 Livestock grazing is not suitable, except where grazing is essential for the maintenance of a specific vegetation types.

Goals (DA-RNA-GOAL)

- 01 All qualified botanical, aquatic and geologic research natural area candidates are identified and recommended for establishment.

Potential Management Approaches

Allow natural processes to prevail, such as avalanches, floods, fires, wind-events, drought, etc. Manage pests only when necessary to preserve the values for which the RNA was established. Use prescribed fire where it would preserve the values for which the RNA was established.

Coordinate with the California Department of Fish and Wildlife to leave all waterways unstocked.

Recommend and/or maintain withdrawal from mineral entry.

Scenic Byways

Two national forest scenic byways have been administratively designated on the Inyo National Forest. Lee Vining Canyon Scenic Byway is located along Highway 120, stretching between Highway 395, at 6,781 feet in elevation near the town of Lee Vining and Mono Lake, to the Yosemite Park entrance. The Ancient Bristlecone Scenic Byway is located along Route 168 and Forest Road 4S01; this route rises more than 6,000 feet in elevation from Owens Valley to the Patriarch Grove, located within the Ancient Bristlecone Pine Forest Botanical Special Interest Area.

Wild Horse and Burro Territories

Three administratively designated wild horse and burro territories occur on the Inyo National Forest: Montgomery Pass, White Mountain and Saline Valley Wild Horse and Burro Territories. These three territories were established with the passage of the Wild Horse and Burro Act of 1971. Management of wild horse and burro territories is guided by individual management plans.

Montgomery Pass Wild Horse Territory comprises an area of 207,921 acres in California and Nevada, including 65,942 acres on the Inyo National Forest. The remaining territory acres occur on the Humboldt-Toiyabe National Forest, and Stillwater and Bishop Field Offices of the Bureau of Land Management. It is located east of Mono Lake, in the southern portion of the Excelsior Mountains, approximately 37 miles north of Bishop, California. It crosses the north end of the

White Mountains at Montgomery Pass, and is bounded by State Highway 6 to the southeast. It is situated north of State Highway 120 and bounded by Deep Wells Road to the west. The northern boundary in Nevada extends from Granite Springs southeasterly to State Highway 10. Montgomery Pass Wild Horse Territory is managed for a wild horse herd size of 138 to 230 animals. There are no wild burros in this wild horse joint management area.

White Mountain Wild Horse Territory comprises an area of 265,820 acres in California and Nevada, including 181,820 acres on the Inyo National Forest. The remaining territory acres are associated with the Bureau of Land Management's Fish Lake Valley Herd Management Area that is administered by the Tonopah Field Office in Nevada. White Mountain Wild Horse Territory is managed for a wild horse herd size of 70 to 80 animals. The territory runs along the east side of the White Mountains crest from Montgomery Pass Wild Horse Territory, along Highway 6 in the north to Highway 168 and Deep Springs in the south. There are no wild burros in this wild horse joint management area.

Saline Valley Wild Burro Territory includes 27,721 acres along the eastern slopes of the Inyo Mountains and is associated with the Bureau of Land Management's 23,000 acre Waucoba-Hunter Mountain Herd Management Area, administered by the Ridgecrest Field Office. This burro territory is managed for a small wild burro herd size of 11 animals. The territory management area borders Death Valley National Park, which is known for its hot and dry terrain. A large portion of this joint management area transferred to the National Park Service with passage of the California Desert Protection Act in 1994, but is managed by the Bureau of Land Management. There are no wild horses present in this wild burro joint management area.

Recommended Designated Areas

Recommended Wilderness

The Inyo National Forest has four areas recommended for wilderness designation: 1) White Mountains Wilderness Addition (West); 2) White Mountains Wilderness Addition (East); 3) Piper Mountain Wilderness Addition; and 4) the South Sierra Wilderness Addition. Plan components for recommended wilderness areas are organized under the wilderness management area section above. These recommended wilderness areas are mapped in Figure 7, appendix A.

Plan Objectives

Watershed Conditions

Forestwide (WTR-FW-OBJ)

- 01 Priority watersheds achieve or are moving toward a higher functioning condition class, as defined by the national Watershed Condition Framework within 10 years of plan approval.

Terrestrial Ecosystems

Forestwide (TERR-FW-OBJ)

- 01 Increase heterogeneity and restore species composition on 20,000 to 25,000 acres of eastside vegetation types within 10 to 15 years following plan approval.
- 02 Restore low and moderate severity fire mosaics using prescribed fire on 20,000 to 25,000 acres within 10 to 15 years following plan approval.
- 03 Implement 1 to 5 restoration or maintenance actions to enhance resource availability for traditional tribal collection activities (pinyon-nuts, piaga, willows, Kutsavi, acorns, etc.) within 10 to 15 years following plan approval.

Animal and Plant Species

Sage-grouse Habitat (SPEC-SG-OBJ)

- 01 Within 10 years of the plan approval, 1 to 10 percent (1,500 to 14,900 acres) of sage-grouse habitat within and between population management units will be maintained, improved or restored to meet sage-grouse priority habitat desired conditions, including areas with conifer encroachment (i.e. Jeffrey pine and pinyon-juniper).

Invasive Species

Forestwide (INV-FW-OBJ)

- 01 Within 10 years of plan approval, take action to eliminate non-native invasive plant species on 300 acres

Riparian Conservation Areas

RCA-wide (MA-RCA-OBJ)

- 01 Restore the structure and composition of 400 to 500 acres in riparian areas within ten years following plan approval, emphasizing riparian areas that face the most risk from large-scale high intensity fire, past fire exclusion or accelerated flooding events associated with climate change.

Meadows (RCA-MEAD-OBJ)

- 01 Take action to maintain, enhance, or improve conditions on 5 to 10 meadows of any size, within ten years following plan approval.

Rivers and Streams (RCA-RIV-OBJ)

- 01 Take action to maintain or restore structure, composition, or function of habitat for fisheries and other aquatic species along 10 to 20 stream miles over a 10 year period.

Timber

Forestwide (TIMB-FW-OBJ)

- 01 Provide approximately 4 to 6 MMCF (20 to 30 MMBF) within 10 years of plan approval to contribute to the local forest products infrastructure (see appendix E on timber suitability and management).

Sustainable Recreation

Forestwide (REC-FW-OBJ)

- 01 Within 10 years of plan approval, complete fuel treatment restoration activities on 200 acres at recreation sites that are in areas with a high risk of large, high intensity wildfire.
- 02 Within 10 years of plan approval, convert 10 percent of existing recreation sites to group sites.
- 03 Within 10 years of plan approval, 650 to 800 miles of trails are meeting standard.

Scenery

Forestwide (SCEN-FW-OBJ)

- 01 Within 10 years of plan approval, improve scenic stability by treating 500 acres of vegetation in areas with a high likelihood of large, high intensity wildfire, that depart from the natural range of variation.

Cultural Resources

Forestwide (CULT-FW-OBJ)

- 01 Within 10 years of plan approval, generate 5 to 10 cultural resource products such as significant interpretation; National Register of Historic Places nominations; thematic contexts; site management plans; 200 acres or more non-project surveys; development and testing of predictive models; establishment of formal cultural resource partnerships; and cultural site restoration, stabilization or adaptive reuse.

Goals

Air

Forestwide (AIR-FW-GOAL)

- 01 Continue the visibility monitoring program and determine sensitive indicators for each air quality-related value in Class I areas of the national forests. Protect air quality-related values by reviewing all projects and management activities that may affect those values. Review external prevention of significant deterioration source applications and make recommendations to permitting authorities.
- 02 Participate in and support interagency collaborative smoke management, including real time smoke monitoring and public messaging to maximize efficiency and relevance of monitoring results.
- 03 Provide early notification to the public about potential smoke from fire activities to promote awareness and protect human health and safety.
- 04 Support post-fire analysis of smoke impacts as they relate to emissions when they can inform refinement of smoke dispersion and transport modeling. Include analytical tradeoff and impact information, as appropriate, in public messaging to show smoke tradeoffs from large landscape scale fuels treatment projects.

Watershed Conditions

Forestwide (WTR-FW-GOAL)

- 01 Take a landscape- or watershed-scale approach to restoring aquatic and riparian ecosystems, integrating with recreation, fuels, and vegetation management in order to efficiently use limited resources, including partnerships, and to effectively address climate change.

Terrestrial Ecosystems

Forestwide (TERR-FW-GOAL)

- 01 Work cooperatively with researchers and other interested parties who have knowledge of past and present local ecological conditions and expertise in appropriate restoration measures.
- 02 Develop a regional whitebark pine conservation and restoration strategy in collaboration with other federal agencies, research organizations, and other partners.

Animal and Plant Species

Forestwide (SPEC-FW-GOAL)

- 01 Cooperate with private landowners to encourage resource protection on private lands.
- 02 Collaborate with the California Department of Fish and Wildlife for assessing potential disturbance factors to deer during the planning phase of vegetation management projects.

- 03 Develop and implement a consistent, systematic, biologically sound program for plant species of conservation concern and their habitat so that federal listing does not occur.
- 04 Work with the California Department of Fish and Wildlife (i.e., following the memoranda of understanding), Nevada Department of Wildlife, and U.S. Fish and Wildlife Service to rehabilitate and maintain essential habitat for species according to species' recovery plans.

Sage-grouse Habitat (SPEC-SG-GOAL)

- 01 Participate in collaborative forums such as the executive oversight committee, technical advisory committee, and local area working group to ensure agency interests are considered and to collaboratively implement the Bi-State Action Plan to further sage-grouse conservation.

Fire

Forestwide (FIRE-FW-GOAL)

- 01 Restore ecosystems to a more fire resilient condition and lessen the threat of wildfire to communities.
- 02 Coordinate with other jurisdictions such as communities, tribes, service providers, and federal, state, county and local entities regarding prevention, preparedness, planned activities and responses to wildland fires. Notify those agencies about upcoming and ongoing fire season and any prescribed fire activity.
- 03 Help communities become more fire adapted, improving their ability to withstand a fire without loss of life and property.
- 04 Where feasible and suitable, use grazing, mechanical treatment, prescribed fire and/or wildfires managed to meet resource objectives to reduce vegetation build-up to lower the risk of unwanted wildfire.
- 05 Provide defensible space as defined by the California Public Resource Code 4291- Defensible space around structures on administrative sites and structures authorized by permit.
- 06 Use wildfires forest-wide to meet multiple resource management objectives, where and when conditions permit and risk is within acceptable limits.
- 07 Coordinate with local fire districts in the development of major new structural facilities on National Forest System lands.

Local Communities

Forestwide (LOC-FW-GOAL)

- 01 Develop memoranda of agreements or other protocols between the forest and local governments as appropriate to guide coordination processes and reflect local perspectives and interests.

- 02 Identify important socioeconomic locations and activities on the forest with interested local agencies to promote a common understanding of these important contributions; help identify potential projects that may enhance community benefits; and help identify mitigation measures that may address adverse impacts to these resources.
- 03 Work with local governments, businesses, and organizations to collect economic data to track changes for businesses in sectors dependent on forest activities.

Volunteers, Interpretation, Partnerships and Stewardship

Forestwide (VIPS-FW-GOAL)

- 01 Work with neighboring communities, organizations, state and local agencies, tribes, and other federal agencies to sustain forest benefits to people across the broader landscape.
- 02 Regularly report potential projects suitable for partnership and volunteer opportunities to the public.
- 03 Maintain and expand contracting and partnering opportunities with local governments, businesses, and organizations. Develop partnerships that leverage different sources of funding to support opportunities to contribute to the economic and social sustainability of local communities.
- 04 Work with partners and volunteers to provide recreation opportunities, maintain and enhance recreation settings, collect and manage data on recreation use and demand, and contribute to socioeconomic benefits associated with recreation and tourism.
- 05 Work with skilled stewardship organizations in managing wilderness, wild and scenic rivers, national trails, and other designated areas.
- 06 Work with partners and volunteers in the coordination, development, and delivery of educational and community outreach programs. Actively engage urban populations, youth and underserved communities in programs.
- 07 Work with partners and volunteers to prioritize and complete deferred maintenance and to engage in resource stewardship and restoration.
- 08 Work with site stewards, volunteers, tribal governments, local governments, state and federal agencies, schools and universities and non-profit groups to protect, rehabilitate and restore cultural resource sites and facilitate development of research, educational and interpretive opportunities.
- 09 Develop heritage tourism opportunities with tribal governments, local organizations, and businesses to provide an economic benefit to the community, while fostering long-term sustainability of cultural resources.

Timber

Forestwide (TIMB-FW-GOAL)

- 01 After disturbances occur on lands identified as suitable for timber production, and when funding is available, adequately restock these areas within 5 years of salvage harvest, if applicable, or, when salvage harvest is not used, within 5 years of site preparation.

Range

Forestwide (RANG-FW-GOAL)

- 01 Provide grazing tenure to lend stability to the local livestock raising community and established ranching operations.
- 02 Coordinate with the Bureau of Land Management for administrating shared grazing allotments.

Sustainable Recreation

Forestwide (REC-FW-GOAL)

- 01 Link a broad variety of transportation systems, including bikeways, to connect people to nature, improve personal health, and increase access for underserved communities, minorities and urban youth.
- 02 To the extent practical, harmonize recreation direction for forest visitors to minimize confusion when crossing administrative boundaries.
- 03 Continue to coordinate with the National Park Service to share administrative and fiscal responsibility for the existing shuttle system to Red Meadows.
- 04 Coordinate with other agencies for the development and maintenance needed to provide parking opportunities for snow play and Nordic skiing.

Scenery

Forestwide (SCEN-FW-GOAL)

- 01 The Forest Service works with other agencies and adjacent landowners to maintain shared vistas.

Tribal Relations and Uses

Forestwide (TRIB-FW-GOAL)

- 01 Manage the land in a spirit of shared stewardship with tribes, supporting tribal rights and recognizing the mutual benefits of restoration.
- 02 Partner with tribes to contribute to the socioeconomic sustainability of tribal communities.
- 03 Develop memoranda of agreements or other protocols between the forests and Native American tribes as appropriate to guide consultation processes, reflect tribes' particular perspectives and interests, and protect sacred sites.
- 04 Meet regularly with tribes to better understand their needs and viewpoints. Promote the use of forest-hosted tribal forums and events, as well as attendance at tribally-hosted meetings and events, as a method to ensure consistent contact, consultation and collaboration.

Potential Management Approaches

Management approaches describe the principal strategies and program priorities the Inyo National Forest intends to employ to carry out projects and activities under the land management plan. Management approaches may discuss potential processes such as analysis, assessment, inventory, project planning or monitoring.

Air

Include smoke tradeoff evaluation in project level planning comparing local (e.g., prescribed fire) and regional (e.g., wildfire) scales. Use existing scientific information on large wildfire emissions. Consider downwind communities at the local and regional scale.

Watershed Conditions

Cooperate with federal, tribal, state and local governments to secure in-stream flows needed to maintain, recover, and restore riparian resources, channel conditions, and aquatic habitat during all basic Federal Energy Regulatory Commission, state and other authorized water use planning, water rights, and relicensing on the national forests. Coordinate relicensing projects with the appropriate state and federal agencies. Provide written and timely license conditions to the Federal Energy Regulatory Commission.

Terrestrial Ecosystems

To protect old forest components from uncharacteristic fire, prioritize restoration in key old forest areas. Methods of protecting existing old forest components on the landscape may include thinning, selective harvest, prescribed fire and wildfires managed to meet resource objectives.

To perpetuate old forest components, encourage the development of old forest conditions in areas where old forest is lacking. Restore patchiness within stands and sustain large black oak trees, pine tree regeneration, and snags over time.

During post-fire restoration projects, consider the availability of complex early-seral forests across the forest and region to provide for ecological conditions needed by complex early seral wildlife species. This includes retaining areas of dense and connected patches of snags across a range of snag sizes; naturally regenerating vegetation; adjacent or intermixed burned and unburned areas; or areas with moderate to high tree survival.

Promote native vegetation (e.g., conifers, hardwoods, shrubs) in complex early-seral habitat that supports long term ecosystem integrity considering climate change, drought, insects, disease and fire.

Projects in sagebrush should prioritize restoration treatment to remove trees from shrublands, which include recent expansion areas of pinyon and juniper into sagebrush ecosystems and other adjacent shrublands.

Animal and Plant Species

Sage-grouse Habitat

Continue coordination and communication with the California Department of Fish and Wildlife, Nevada Department of Wildlife and the U.S. Fish and Wildlife Service during project development for all projects occurring within sage-grouse habitat.

Prevention of unwanted fire in priority habitat can be accomplished through managing sagebrush systems to be resilient, implementing proactive fire prevention and limiting cheatgrass expansion.

An adaptive management strategy shall be used when conducting vegetation treatments within sage-grouse habitat. Treatment methods and intensities will be determined based on the results of past treatments as information from those past treatments becomes available. If the results of past treatments show that those treatments have caused an increase in non-native annual grasses and poor sagebrush recruitment, further treatments within sage-grouse habitat will not adhere to the same prescription.

When a right-of-way is no longer in use, relinquish the right-of-way and reclaim the site by removing power lines, reclaiming roads and removing other infrastructure.

Where sage-grouse habitat is being degraded due to wild horse and burro use, determine site-specific measures to improve or restore sage-grouse habitat.

Bighorn Sheep

If reintroduced bighorn sheep establish themselves in drainages outside the reintroduction sites, take advantage of opportunities to extend bighorn sheep range, consistent with other resource activities.

Sierra Marten

Maintain or increase understory heterogeneity in marten denning habitat to promote “hiding cover” such as shrub patches, coarse woody debris, and slash piles following vegetation treatments. Design projects to have non-linear edges.

Invasive Species

Work with tribes to determine priority areas for weed prevention and control, especially focused on traditional gathering areas that are threatened by weed infestations. Consult with tribes before using pesticides or herbicides that may affect traditional gathering.

Coordinate with research and other organizations to evaluate the potential effects of climate change on the spread of invasive, non-native species.

Fire

Prior to and during the fire season, assess conditional thresholds under which desired conditions can be met for the strategic fire management zones (see management areas section in this chapter). Work with tribes and adjacent landowners to identify areas and resources of value considered in the assessments.

Assess human-caused ignitions and implement prevention activities that reduce the likelihood of the most common human-caused ignition sources.

Work with adjacent land management agencies to identify methods to reduce costs and increase effectiveness in restoring fire to the landscape.

Prioritize fuel treatments in areas that pose the greatest threat to communities and highly valued resources.

During ecological restoration treatments, reduce fuels along ridges, roads, or other natural or man-made features to aid in the use of large prescribed fires and in managing wildfire, including wildfires managed to meet resource objectives.

Integrate terrestrial ecosystem desired conditions into spatial patterns for fuel reduction treatments. Incorporate heterogeneity by increasing variation in tree spacing, enhancing tree clumps, creating canopy gaps, promoting fire resilient tree species, increasing the ratio of large to small trees, and using topographic variation (e.g. slope, aspect, and position) to guide treatment prescriptions.

Volunteers, Interpretation, Partnerships and Stewardship

Assess partnership needs and develop priorities to meet those needs using the strategies and tools described in appendix C.

Develop a partnership and volunteer strategy to define the types of projects suitable for partnership and volunteer opportunities, potential partners and volunteers, and the mechanisms for developing partnerships and volunteer agreements.

Provide visitor information services at major entry points and areas of concentrated use.

Provide and update interpretive signage, wayside exhibits, publications and programs using a variety of media and methods.

Develop bi-lingual communication tools including publications, information boards and radio spots.

Emphasize geothermal resources at interpretive sites or in guides where appropriate.

Provide information to Nordic trail users on potential risks from landslide and seismic processes.

Timber

Encourage use of small trees and wood biomass to support a variety of potential uses.

Develop landscape scale projects to increase the pace and scale of ecological restoration, ecosystem resilience and fire resilience, and to protect the carbon carrying capacity of the forest.

Plan vegetation, fuels, and other restoration projects across large landscape areas (e.g., greater than 5,000 to 10,000 acres), when it can increase efficiency in planning and support partnership-based approaches, such as stewardship contracts.

Range

Ensure that the most intensive management strategies, such as water developments and fencing, occur on primary range that is less than 30 percent slope.

Sustainable Recreation

Use integrated resource planning during projects to respond to changing conditions in recreation settings.

Use management strategies to mitigate recreation use and resource conflicts (appendix D).

Coordinate with other agencies for the development and maintenance needed to provide parking opportunities for snow play and Nordic skiing.

Provide information to Nordic trail users on potential risks from landslide and seismic processes.

Coordinate trail construction, rerouting, improvement and maintenance with cooperating or affected agencies.

Encourage mass transit opportunities to major recreational destinations.

Scenery

Use integrated resource planning during projects to respond to changing scenery conditions affecting scenic character and integrity.

Scenic character is sustained by perpetuating and improving scenic attributes through ecological restoration activities that improve scenic stability and integrity.

Minimize visible lines in landscape areas where vegetation is removed for management objectives. Cleared areas will include edges that reflect the visual character of naturally occurring vegetation openings.

In vegetation treatment and fuels reduction projects, consider improving scenery resources, especially in areas that do not meet established scenic integrity objectives.

Tribal Relations and Uses

Provide training to forest employees about federal tribal trust responsibilities and ways in which the forest honors and implements these responsibilities.

Consider employee exchange opportunities between the Forest Service and tribes under service first agreements or other mechanisms. Provide forest staff with detail opportunities to work with tribes, and provide tribal staff opportunities to work with the agency, to increase reciprocal understanding and promote use of tribal programs and legislation that is mutually beneficial.

Cultural Resources

To protect sites from physical damage and excessive wear and tear, consider user education, restrictions and visitation controls.

Geology and Minerals

For each common variety materials site, prepare a development and rehabilitation plan prior to development and use.

Chapter 4. Design Criteria

Standards

Watershed Conditions

Forestwide (WTR-FW-STD)

- 01 Use best management practices as described in agency technical guides and handbooks to minimize adverse impacts to soils and water resources during the planning and implementation of forest activities.
- 02 Minimize the effects of stream diversions or other flow modifications on at-risk species, and other beneficial uses, during all basic Federal Energy Regulatory Commission , state and other authorized water use planning, water rights, and relicensing on the national forests. Determine and recommend in-stream flow requirements and habitat conditions that maintain, enhance, or restore all life stages of native aquatic species, and that maintain or restore riparian resources, channel integrity and aquatic passage.
- 03 For exempt hydroelectric facilities on national forest lands, ensure that special use permit language provides adequate in stream flow requirements to maintain, restore, or recover favorable ecological conditions for local riparian- and aquatic-dependent species.

Terrestrial Ecosystems

Forestwide (TERR-FW-STD)

- 01 For mechanical thinning harvests specifically designed to treat fuels, and/or control stand densities, within the wildfire restoration and maintenance zones, retain all live conifer trees 30 inches in diameter or larger, except to meet the needs for equipment operability.

Xeric Shrub/Blackbrush (TERR-XER-STD)

- 01 Restoration projects in xeric shrub and blackbrush must include design measures to avoid damage to biological soil crusts.

Special Habitats (TERR-SH-STD)

- 01 At the project scale, consider special habitats during project design.

Animal and Plant Species

Sage-grouse Habitat (SPEC-SG-STD)

- 01 Habitat restoration projects for the sage-grouse shall be designed to meet one or more of the following habitat needs:
 - Promote the maintenance of extensive, intact sagebrush communities;
 - Limit the expansion or dominance of invasive species, including cheatgrass, as well as the expansion of pine species, including pinyon-juniper and Jeffrey pine;

- Maintain or improve soil site stability, hydrologic function, and biological integrity; and
 - Enhance the native plant community.
- 02 For habitat restoration projects for the sage-grouse, implement measures to improve suitability of breeding or brood rearing habitat.
 - 03 Within sage-grouse habitat, ensure that habitat restoration activities, vegetation treatments, or other authorized uses on the forest, maintain or move toward vegetation desired conditions for sage- grouse. Short term (1 to 10 year) impacts are allowed to deviate from these habitat standards, if the long term (10 to 30 years) project objective is to achieve desired conditions.
 - 04 Mitigate long-term negative impacts to sage-grouse habitat from activities, to the extent practicable and within agency authority.
 - 05 Require site-specific project mitigation if needed to insure no net loss of habitat within the Inyo National Forest due to project disturbance.
 - 06 Establish a limiting operating period for the sage-grouse breeding season (which current best available science indicates is March 1 to May 15) within suitable breeding habitat for any activities that would cause disturbances during this time. These dates can be adjusted based on current nesting conditions or risk assessment.
 - 07 Establish a limiting operating period for the sage-grouse nesting season (which current best available science indicates is May 1 to June 15) within suitable nesting habitat for any activities which would lead to disturbances during this time. These dates can be adjusted based on current nesting conditions or risk assessment.
 - 08 Following direction under the forest-wide range utilization standards, establish key areas (appendix F) in meadow or upland habitats, where absent in occupied sage-grouse habitat.
 - 09 Within sage-grouse priority habitat, use genetically and climatically appropriate plant and seed material when seeding the area.
 - 10 Tall structures, which could serve as predator perches, will not be authorized within four miles of an active lek. Anti-perching devices shall be installed on any new structure or power line within four miles of an active lek. During the permit renewal process, existing powerlines and other utility structures within four miles of active leks will be retro-fitted with perch-detering devices.
 - 11 All fences and other barriers constructed or replaced within 1.2 miles of a known lek, must be let-down fences and/or marked with fence markers.
 - 12 Manage permitted watering facilities to prevent drowning or entrapment and provide mosquito control to reduce the risk of creating a vector for diseases.
 - 13 Do not locate new proposed salting, supplemental feeding locations, livestock watering and handling facilities on sage-grouse leks.

Bighorn Sheep (SPEC-SHP-STD)

- 01 Do not increase existing livestock use if the increase is shown to be deleterious to bighorn sheep populations.

Invasive Species

Forestwide (INV-FW-STD)

- 01 When working in water bodies with known aquatic invasive species, clean equipment and vehicles before moving to other water bodies.

Fire

Forestwide (FIRE-FW-STD)

- 01 Fire management actions and any subsequent suppression within research natural areas must be planned and carried out in consultation with the forest research natural area coordinator and the fire resource advisor.

Timber

Forestwide (TIMB-FW-STD)

- 01 Following regulated regeneration harvest (e.g., group selection) on lands identified as suitable for timber production, create and maintain planting environments that favor seedling survival and rapid growth rates, facilitate early and periodic use of fire to reduce future wildfire-related mortality, and provide sufficient tree numbers to meet a variety of ecosystem services, including forest products and carbon storage. A site-specific silvicultural prescription will be designed to ensure that lands are adequately restocked within 5 years of a regeneration harvest (see appendix E for stocking criteria).
- 02 In response to wildfire, windthrow, insects, pathogens, or other disturbance occurring on lands identified as suitable for timber production, create and maintain planting environments that favor seedling survival and rapid growth rates, facilitate early and periodic use of fire to reduce future wildfire-related mortality, and provide sufficient tree numbers to provide a variety of ecosystem services, including forest products and carbon storage.
- 03 Prohibit commercial collection of pine nuts or piuga, dried Pandora moth larvae, on the Inyo National Forest.

Range

Forestwide (RANG-FW-STD)

- 01 Rangeland utilization standards must follow direction provided in appendix F.
- 02 Issue crossing permits, to cross National Forest System land, on a case-by-case basis for established routes.

Geology and Minerals

Forestwide (GEO-FW-STD)

- 01 Conduct appropriate analysis before constructing roads or other permanent developments in known unstable areas.
- 02 New and upgraded roads shall be limited to those necessary for mineral development on valid existing claims.

Energy

Forestwide (NRG-FW-STD)

- 01 The location of fluid conveyance lines and facilities for geothermal development ensures the connectivity of wildlife movement corridors.

Guidelines

Air

Forestwide (AIR-FW-GDL)

- 01 Project design for prescribed burns, and strategies for wildfires, should incorporate emission reduction techniques to reduce negative impacts to air quality, subject to economic constraints, technical feasibility, safety criteria and land management objectives.
- 02 Decision documents for wildfires and prescribed burns should identify smoke sensitive areas and include management objectives and courses of action to mitigate impacts to those areas.

Watershed Conditions

Forestwide (WTR-FW-GDL)

- 01 Cooperate with federal, tribal, state and local governments to secure in-stream flows needed to maintain, recover, and restore riparian resources, channel conditions, and aquatic habitat during all basic Federal Energy Regulatory Commission, state and other authorized water use planning, water rights, and relicensing on the national forests. Coordinate relicensing projects with the appropriate state and federal agencies. Provide written and timely license conditions to the Federal Energy Regulatory Commission.

Terrestrial Ecosystems

Forestwide (TERR-FW-GDL)

- 01 Projects should facilitate increasing heterogeneity at all scales, from tree clumps to large landscapes. Several treatment strategies can be employed: using landscape topography (e.g. slope, aspect, and slope position) to vary stand densities; promoting tree clumps and gaps within a stand, increasing the proportion of large to small trees; retaining important habitat structures such as large trees, snags and trees with broken tops; and increasing diversity by promoting hardwoods, pines and native plant species.
- 02 Vegetation treatment projects should include a widely distributed but often clumped distribution of snags and downed logs. Some snags and downed logs should be retained along edges of openings and within groups and clumps of large trees to provide habitat and roost sites for wildlife species such as small mammals, cavity-nesting birds and tree-dwelling bats.
- 03 Management activities that generate accumulations of green slash should minimize potential impacts from bark beetles.

Xeric Shrub/Blackbrush (TERR-XER-GDL)

- 01 Restoration projects in desert shrub and blackbrush should include islands of untreated vegetation in project design to speed native species regeneration.

Black Oak/Canyon Live Oak (TERR-OAK-GDL)

- 01 Mechanical vegetation treatments and prescribed fire and salvage operations should retain all large hardwoods greater than 12 inches in diameter, except where they pose a threat to human life or property.

Old Forest (TERR-OLD-GDL)

- 01 When large tree densities meet desired condition levels, thinning to increase heterogeneity and resilience should emphasize retention of the oldest and largest trees, especially pines. Large trees with deformities, broken tops, large branches and cavities should be retained for wildlife habitat whenever possible.
- 02 During burning, firing patterns should limit mortality of old trees by managing smoldering at the base of large old trees. Limit fire intensity in areas with large old trees where possible.

Complex Early Seral Habitats (TERR-CES-GDL)

- 01 Restoration projects following large stand replacing events (e.g., wildfire and bark beetle infestations) should consider:
 - a. safety to people in the short and long term;
 - b. fuel loads over the long term, including the need to restore fire to the recovering or restored landscape;
 - c. restoring forested habitat to deforested areas, including restoring connectivity;
 - d. habitat for local wildlife species that use burned forest habitats;
 - e. other ecological restoration actions in the affected area;
 - f. opportunities to recover economic value and carbon stored as a harvested wood product from dead and dying trees
- 02 Post-disturbance restoration projects should be designed to reduce potential soil erosion and the loss of soil productivity caused by loss of vegetation and ground cover.
- 03 Post-disturbance restoration projects should be designed to protect and maintain important wildlife habitat.
- 04 Post-disturbance restoration projects should be designed to manage the development of fuel profiles over time.
- 05 Post-disturbance restoration projects should be designed to recover the value of timber killed or severely injured by the disturbance.
- 06 Large fires with more than 1,000 acres of contiguous blocks of moderate and high vegetation burn severity should retain at least 10 percent of the moderate and high vegetation burn severity area without harvest to provide areas of high snag density for species that use complex early seral habitat.

Aspen (TERR-ASPN-GDL)

- 01 Where pile burning of material from conifer removal is desired, piles should be kept at least 4 to 15 feet away from large aspen trees to limit damage to aspen trunks. Larger piles should be farther from aspen trunks than smaller piles.
- 02 During treatment to manage or restore aspen, aspen trees with historical carvings should be protected, or the record and historical value appropriately captured.
- 03 Near developed or heavily managed areas, conifer removal (mechanical or hand thinning) should be the primary initial restorative treatment for aspen stands. Where cut material cannot be removed from the stand, pile burning is used to manage residual fuel loading.
- 04 Within the community and general wildfire protection zones, the number and size of conifers removed to enhance aspen should meet the following long term objectives: maximize direct and indirect light (this requires treating beyond the existing aspen stand perimeter); allow aspen expansion; reduce conifer seed sources; create fuel loads that reflect functioning aspen stands to allow future prescribed burning; and promote wildlife habitat, plant assemblages, and water yields typically found in functioning aspen communities.
- 05 Browsing pressure should be reduced in aspen stands that receive intensive browsing from either livestock or wildlife, to protect regenerating aspen stands.

Animal and Plant Species

Forestwide (SPEC-FW-GDL)

- 01 Known nest, roost, or den trees used by species of conservation concern, including surrounding trees that provide beneficial thermal or predatory protection, should not be purposefully removed, with the exception of hazard trees.
- 02 In order to minimize disturbance in mule deer holding areas, vegetation treatment projects should not occur from May 1 through June 15, and in key winter range areas from November 15 through March 31. Long-term over short-term benefits should be the deciding factor where conflicts exist.
- 03 Projects should protect at-risk species and their habitat by considering at-risk species early in the environmental planning process.
- 04 Habitat management objectives from approved recovery plans should be considered in the design of projects that will occur within federally-listed species habitat to promote recovery of the species.
- 05 Design features, mitigation, and project timing considerations should be incorporated into ground-disturbing projects that may affect occupied habitat for species of conservation concern.
- 06 Water developments (such as a diversion or well) should be avoided near streams or seeps and springs where there is high risk of dewatering aquatic habitats where species of conservation concern occur.

Sage-grouse Habitat (SPEC-SG-GDL)

- 01 Time the implementation of habitat restoration projects so they cause the least disturbance to sage-grouse individuals and populations.
- 02 Use existing roads to co-locate new power lines to reduce disturbance footprints (areas) and habitat fragmentation.
- 03 Where feasible, bury power lines to reduce overhead perches.
- 04 When agency personnel, contractors, and permit holders are driving off road and working in areas with known noxious weed infestation, the vehicles should be cleaned before entering a different area to reduce the spread of noxious weeds.
- 05 Vegetation treatments and post-disturbance restoration should seed or transplant sagebrush to restore patches of sagebrush cover and connect existing patches to improve sage-grouse habitats within and between population management units.
- 06 After soil disturbance or seeding, subsequent soil-disturbing management activities shall not occur until desired habitat conditions have been met within sage-grouse habitat, unless a resource team determines that disturbance will help achieve desired conditions.
- 07 No new structure or power line that could serve as predator perches shall be installed within four miles from an active lek, unless they are necessary to protect or improve habitat or for human health and safety.

Bighorn Sheep (SPEC-SHP-GDL)

- 01 Actions should be consistent with the US Fish and Wildlife Service's recovery plan for the Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*).

Sierra Marten (SPEC-SM-GDL)

- 01 Within marten core habitat, retain some overtopping and multi-storied canopy conditions, including some shade-tolerant understory trees such as firs and cedars, especially in drainages, swales and canyon bottoms and on north and east-facing slopes. Retain a patchy mosaic of shrubs and understory vegetation, separated by more open areas, to reduce fuel continuity, increase habitat heterogeneity, support prey and provide hiding cover, with a goal of 10 to 20 percent shrub cover at the home range scale.

Bats (SPEC-BAT-GDL)

- 01 To conserve long-term bat species persistence in the plan area, bat gates should be considered at the entrances of caves and mines when known bat hibernacula or maternity colonies may be adversely affected by recreational, management or other activities.

Invasive Species

Forestwide (INV-FW-GDL)

- 01 Use an integrated pest management approach in the planning and implementation of all projects and activities.
- 02 Projects should be designed to minimize invasive species spread by incorporating prevention and control measures into ongoing management or maintenance activities that

involve ground disturbance, terrestrial or aquatic habitat alteration, or the possibility of spreading invasive species. When feasible, projects should include measures to provide invasive species-free gravel, fill, topsoil and mulch; include follow-up inspections as needed and specified in regional or national strategies.

- 03 To the extent feasible, hay, straw and mulch used for animal feed or bedding, soil stabilization and land rehabilitation, or other purposes should be certified by California or the North American Invasive Species Management Association as being weed-free to prevent unintentional introduction of invasive species.
- 04 Weed-free plant material should be selected for all seeding and mulching projects to restore natural species composition and ecosystem function to the disturbed area. Plant or seed materials should be used that are appropriate to the site, capable of becoming established, and not invasive.
- 05 Weed prevention measures should be included as necessary when amending or re-issuing permits, including but not limited to livestock grazing, special uses and pack stock operator permits.
- 06 The non-chemical method should be used when the integrated pest management approach determines that chemical combined with one or more other form of management, cost or feasibility will be comparable in the control of non-native invasive species.

Fire

Forestwide (FIRE-FW-GDL)

- 01 When managing wildland fire (i.e., wildfire and prescribed fire), a variety of fire management options and activities should be considered, including hand and aerial ignitions, to achieve a mix of fire effects. When safe and feasible, limit extensive continuous areas of high severity fire effects in old forest habitat and riparian areas.
- 02 Plan restoration and fire management projects for large landscapes (i.e., subwatershed or larger) when and where possible to improve economic feasibility of restoration and effectiveness of changing the negative fire effects from large wildfires.
- 03 When wildfires affect identified areas of tribal importance, communicate and collaborate with tribal leadership during fire incident management to identify and, to the extent practical, protect tribal values and minimize impacts to resources or areas of tribal importance.
- 04 When managing wildland fire, the role of fire in riparian ecosystem function should be considered. Allow fire to burn in riparian ecosystems when fire intensity and continuous crown fire are limited.
- 05 During wildland fire management activities, where possible, locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of riparian conservation areas or critical aquatic refuges to avoid impacts to aquatic- and riparian-dependent resources.
- 06 During wildfires, avoid fire management activities in special habitats (see Terrestrial section, chapter 2) except when necessary to protect life and property. This includes

activities such as line construction, staging areas, safety zones, water drafting and camps. When conducting fire management activities near special habitats, take extra measures to avoid spread of invasive plants.

- 07 If fire management actions are required within designated wilderness areas, research natural areas, or the Pacific Crest National Scenic Trail management area, apply minimum impact strategies and tactics to manage wildland fire, unless more direct attack is needed to protect people or adjacent property. When possible, allow naturally ignited wildfires to function in their natural role. In cases where fire may damage the ecological values for which a research natural area was established, measures should be taken to exclude fire from the research natural area.
- 08 Wildfire management techniques that minimize ground disturbance impacts should be used in sensitive habitat of at-risk species, while considering the safety of people.
- 09 Consult a resource advisor during wildfires in large areas of old forest patches to identify old forest and wildlife resource values and to suggest opportunities for retaining and protecting large and old trees. When safe and feasible, protect highly valued old, den and nest trees ahead of burn operations using techniques such as targeted burning, removing large fuel from the base of trees, and providing direct protection.
- 10 When determining the appropriate wildfire management strategy, use spatial support tools such as wildfire risk assessments, fire management operating plans, and the current Forest Service decision support system for wildfire management. Locations of special habitats, old forest patches, and key habitat areas for at-risk species should be readily available in the current Forest Service decision support system for wildfire management ahead of fire season.

Timber

Forestwide (TIMB-FW-GDL)

- 01 Retention of snags within and immediately adjacent to areas planned for reforestation should be discouraged to mitigate hazards to workers. High fuel levels should not be retained in plantations that would preclude the use of prescribed burning at appropriate times as the plantation matures.
- 02 Reforestation of suitable lands should be designed to achieve stocking levels, spatial arrangements and species composition to allow for long term resilience of the developing forest, while considering potential future plantation management, carbon carrying capacity, and climate change adaptations. Competing vegetation, fuel levels, and fire risk should be managed to provide for the long term survival and vigor of reestablishing forests as they move toward maturity.
- 03 On lands not suited for timber production, reforestation of deforested lands should be considered when forest cover could contribute to ecological restoration, while providing benefits such as improving scenic character, restoring connectivity for wildlife, increasing carbon storage and improving watershed condition.

Range

Forestwide (RANG-FW-GDL)

- 01 Where feasible, all range improvements should be located away from travel corridors, especially trails, popular fisheries and other watercourses.
- 02 The impacts to fisheries, wildlife, recreation and watershed, as well as range, should be considered when designing range improvements, such as water sources.
- 03 Forage for mule deer should be accounted for when determining livestock animal unit months (AUMs) on key deer winter range and other important habitats such as migration routes, holding areas and fawning areas.

Sustainable Recreation

Forestwide (REC-FW-GDL)

- 01 Recreation projects should meet the minimum characteristics for recreation opportunities and settings as classified by the recreation opportunity spectrum (Figure 14, appendix A). Exemptions may occur on a case-by-case basis as documented in site-specific permits.
- 02 Recreation uses should be managed adaptively to prevent impacts to other resources and recreation settings, while considering the recreation places inventory.
- 03 During implementation of projects with the potential to adversely affect recreation activities, implement measures to minimize adverse effects to recreation activities, facilities and visitor safety.
- 04 Redesign, restore, or rehabilitate recreation sites where recreation activities have caused unacceptable natural resource and social resource impacts.
- 05 New developed campgrounds and designated dispersed campsites should be located away from riparian areas, flood plains and other environmentally sensitive areas.
- 06 Within developed campgrounds, vegetation removal should promote visitor safety, scenic values and vegetation health.
- 07 Seasonal road and trail closures, or other management methods, should be used to manage and protect resources and infrastructure.
- 08 Existing developed facilities, roads, and trails for both summer and winter recreation activities should be used, whenever possible, before developing new ones for exclusive seasonal use.
- 09 To be cost effective, conversion of recreation sites should fall within footprints of existing development unless there is a possibility of partnerships or alternative funding for a new recreation site.

Scenery

Forestwide (SCEN-FW-GDL)

- 01 Built environment and permitted activities should be designed to meet or exceed scenic integrity objectives and contribute to scenic stability.
- 02 Maintain scenic integrity objectives and scenic stability levels for the Pacific Crest Trail corridor, and surrounding National Forest System lands viewsheds, for the retention of panoramic views and landscape connectivity.
- 03 Restoration and salvage activities should achieve scenic integrity objectives in the long-term timeframes established in project analysis.

Cultural Resources

Forestwide (CULT-FW-GDL)

- 01 Cultural artifacts should only be collected for diagnostic dating purposes, answering research questions, or protection of the artifact when special circumstances require collection. Artifact collections should be curated at nearby facilities and accessible to local tribes and researchers.
- 02 Historic property protection provisions should be included in contracts and special use permits as applicable.
- 03 To protect the cultural setting of a site and visitor experiences, commercial use of heritage-based interpretive sites should be limited to activities that enhance the public understanding of the resource, protect and preserve the resource, and are consistent with tribal interests.

Geology and Minerals

Forestwide (GEO-FW-GDL)

- 01 Ensure that plans of operation, reclamation plans, and reclamation bonds address the costs of: (1) removing facilities, equipment, and materials; (2) isolating and neutralizing or removing toxic or potentially toxic materials; (3) salvaging and replacing topsoil; and (4) preparing the seed bed and revegetating to meet the objectives of the land allocation in which the operation is located.
- 02 During mining-related activities, limit the clearing of trees and other vegetation to the minimum necessary. Clearing of vegetation should be pertinent to the approved phase of mineral exploration and development.

Energy

Forestwide (NRG-FW-GDL)

- 01 Energy development should not be authorized where development impacts wildlife values and cannot be mitigated.

Lands

Forestwide (LAND-FW-GDL)

01 Acquire lands by exchange, purchase, or donation in the following priority:

High Priority

- a. lands inside the proposed wilderness boundary;
- b. lands with water frontage such as lakes, streams, floodplains, wetlands and riparian areas;
- c. key game management areas and lands having endangered or threatened fish, wildlife or plant habitat;
- d. lands needed to reduce fire risks;
- e. lands needed to prevent soil erosion;
- f. lands and easements that ensure access to public lands and resources;
- g. lands having unique historical or cultural resources;
- h. wilderness inholdings

Moderate Priority:

- a. lands primarily of value for outdoor recreation purposes and lands needed for aesthetic purposes;
- b. lands needed for administrative purposes

Lowest Priority:

- a. lands need to consolidate existing blocks of National Forest System lands to improve administration of the area

02 To reduce impacts on other resources, existing public or private utility rights of way should be used; minimize the creation of new right of way where feasible.

03 Where feasible, new or reconstructed power distribution lines (i.e., 33kV or less) and telephone lines should be buried.

04 Existing electronic sites should be fully developed before authorizing new sites, unless new sites are determined necessary to fill coverage gaps like cell towers.

Chapter 5. Forest Plan Monitoring

Introduction

Monitoring forms the basis for continuous improvement of the forest plan and provides information for adaptive management within the plan area. The forest plan monitoring program enables the responsible official to determine where changes are needed in forest plan components, other plan content, and plan implementation strategies that guide resource management.

The forest plan monitoring program measures management effectiveness and assesses progress toward achieving or maintaining the forest plan desired conditions and objectives through a set of monitoring questions and associated indicators. These are designed to inform management of resources in the plan area, including testing relevant assumptions, tracking relevant changes, and measuring management effectiveness. By using appropriate indicators which can be measured, observed, or described over time, management actions can be evaluated to determine if they are trending conditions toward the anticipated results. Not every plan component will have a corresponding monitoring question or indicator since monitoring in the plan is focused on priority management questions and related core information that are achievable within the means of the national forest.

The plan monitoring program is just one piece of the monitoring that occurs within the forest and region; project and activity monitoring, and resource or species monitoring conducted by other agencies and organizations may inform the plan monitoring program and adaptive management of the plan. To address plan monitoring program questions and associated indicators that can best be answered at a broader geographic scale than one plan area, the Regional Forester shall develop a broader-scale monitoring strategy. The intent of the broader-scale monitoring strategy is to inform decision-making regarding the effectiveness of the forest plan, within the context of an all-lands approach, and realize efficiencies by coordinating similar monitoring across units, integrating agency protocols and leveraging partner and adjacent landowner monitoring work.

The monitoring program outlined below considers the 2014 science synthesis⁷ and 2013 forest plan assessment⁸. Existing national and regional monitoring programs, like the Forest Inventory and Analysis National Program, the National Visitor Use Monitoring Program, the current forest plan monitoring, and ongoing monitoring with the states contribute to the plan monitoring program. Monitoring is also coordinated with other Forest Service program mission areas (i.e., U.S. Forest Service State & Private Forestry and Research & Development), other federal and state agencies, partners and the public.

Monitoring information will be evaluated every two years, starting no later than two years after the effective date of the forest plan decision. This biennial evaluation includes information gathered through this plan monitoring program and relevant information from the Region 5

⁷ Long, Jonathan W.; Quinn-Davidson, Lenya; Skinner, Carl N., eds. 2014. Science synthesis to support socioecological resilience in the Sierra Nevada and southern Cascade Range. Gen. Tech. Rep. PSW-GTR-247. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 723 p.

⁸ [USDA, Forest Service. 2013. Final Inyo National Forest assessment. U.S. Department of Agriculture, Forest Service, Pacific Southwest.](#)

broader scale monitoring strategy. A written report of the evaluation will be made available to the public. Where frequency of monitoring is longer than two years, evaluation of that information will be made in the next biennial evaluation.

The monitoring program contains one or more monitoring questions and associated indicators addressing each of the following topics:

- The status of select watershed conditions.
- The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
- The status of focal species to assess the ecological conditions required under the Code of Federal Regulations, specifically 36 CFR 219.9.
- The status of a select set of the ecological conditions required under 36 CFR 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
- The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
- Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
- Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
- The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

Some monitoring questions and indicators may address more than one of these required topics. The entire monitoring program must be within the financial and technical capability of the forest, augmented by broader-scale monitoring by the Pacific Southwest Region and other monitoring with partners.

The monitoring program for the Inyo National Forest is presented below in a set of tables, each related to one of the eight required topics previously listed. For clarity, monitoring questions for terrestrial ecosystems and aquatic ecosystems are presented in separate tables. In the tables, each row represents a single monitoring question and associated indicators used to respond to a selected desired condition or objective. The desired conditions are generally complex statements that cannot be fully monitored. Therefore, the monitoring questions and indicators focus on some core aspect of the desired condition related to the required monitoring item that we are capable of monitoring. Monitoring questions and indicators that address more than one of the eight required items are repeated for each such item. Details of the plan monitoring program, including monitoring and analysis protocols, will be part of a separate monitoring guide.

Monitoring Program

Watershed Conditions

These monitoring questions and their associated indicators are related to water resources and watershed conditions in the plan area. The geographic scale may extend beyond the plan area and may include receiving areas for water that flows off the plan area.

Table 8. Monitoring questions and associated indicators that evaluate watershed conditions

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<p>WTR-FW-DC-03 Watersheds have the following conditions: fully functioning or trending toward fully functioning and resilient; recover from natural and human disturbances at a rate appropriate with the capability of the site; and have a high degree of hydrologic connectivity laterally across the floodplain and valley bottom, and vertically between surface and subsurface flows. Physical (geomorphic, hydrologic) connectivity and associated processes (i.e., runoff, flooding, in-stream flow regime, erosion and sedimentation) are maintained and restored. Watersheds provide important ecosystem services: high quality water; recharge of streams and shallow groundwater; maintenance of riparian communities; and moderation of climate change and atmospheric deposition. Watersheds maintain long term soil productivity.</p>	<p>Is the condition of watersheds improving?</p>	<p>Watershed condition indicators from the Watershed Condition Framework.</p>
<p>WTR-FW-DC-02 Water quality is sustained at a level that retains the biological, physical, and chemical integrity of aquatic systems and benefits the survival, growth, reproduction and migration of native aquatic and riparian species.</p>	<p>Do aquatic benthic macroinvertebrate communities indicate stream ecosystem integrity is being maintained? (Same as aquatic ecosystems and focal species below)</p>	<p>Diversity; species composition; other indices of macroinvertebrate response to current conditions (e.g., Rivpacs score [O/E], index of biotic integrity [IBI], Ephemeroptera Plecoptera Trichoptera index [EPT]).</p>

Terrestrial Ecosystems

A select set of ecological conditions is monitored for terrestrial ecosystems. The monitoring questions and indicators are selected to measure the effectiveness of the plan to maintain or restore ecological conditions for key ecosystem characteristics associated with composition, structure, function and connectivity.

Table 9. Monitoring questions and associated indicators that evaluate ecological conditions for terrestrial ecosystems

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<p>TERR-CES-DC-01 Complex early seral habitat created as a result of a disturbance event contains dense patches of snags and other habitat elements characteristic of natural succession that are important to early seral forest-associated species. Large areas of shrubs are managed in locations where they represent the potential natural vegetation considering fire risks over time to adjacent vegetation and resources. Aspen and oak sprouts are well distributed in areas where they occur.</p>	<p>What is the amount and distribution of complex early seral habitat across large landscapes?</p>	<p>Patch size; patch density; and patch distribution.</p>
<p>TERR-UPPR-DC-01 At the landscape scale, the upper montane landscape is a heterogeneous mosaic of patches of red fir forests, lodgepole pine patches, Jeffrey pine woodlands, meadows and montane chaparral. Upper montane vegetation occurs in a complex mosaic of different densities, sizes, and species mix across large landscapes that vary with topography, soils and snow accumulation. The composition, structure, and function of vegetation make them resilient to fire, drought, insects and pathogens, and climate change. The mix of seral stage patches, and open versus closed canopied areas, varies by forest type. Large and old trees are common in most seral stages throughout the landscape and in varying densities (see old forest section below).</p>	<p>What are the proportions and spatial distributions of seral stage patches and canopy cover areas for vegetation types across large landscapes?</p>	<p>Amount of seral stage patches by vegetation type at the landscape scale as shown in Table 1 (chapter 2): acres; and patch size distribution.</p>
<p>TERR-OLD-DC-03 Between 40 and 80 percent of the forested landscape contain old forest areas. Old forest areas are clumps and patches of old forests components such as old trees, snags and large downed logs. These areas are irregularly distributed across the landscape and interspersed with stands of</p>	<p>Are the proportion of the landscape with large trees and the density of large trees increasing?</p>	<p>Proportion of area with large trees; number of large trees per acre averaged at the landscape scale.</p>

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<p>younger trees, shrubs, meadows, other herbaceous vegetation and non-vegetated patches.</p> <p>TERR-OLD-DC-04 The number and density of old trees vary by topographic position and soil moisture. In general, more large and old trees are found on moister sites; on lower slopes, bottoms, and north and east aspects, especially where soils are deeper. Large trees are well distributed but are often clumpy. The densities vary by forest type. Trees greater than 40 inches in diameter, generally over 150 years old, represent the oldest trees, and comprise a significant proportion of large and old trees. In many areas of high soil productivity, trees grow to large sizes (e.g., around 30 inches in diameter) in fewer than 100 years. On low and very low soil productivity sites, the oldest trees may be smaller in diameter. Sufficient numbers of younger trees are present to provide for recruitment of old trees over time.</p>		
<p>TERR-OAK-DC-01 Vigorous oak trees, snags, and down logs provide habitat for a variety of wildlife species. Black oak snags greater than 20 inches in diameter, and live oak trees with dead limbs, hollow boles and cavities, provide shelter, resting and nesting habitat. Acorns are plentiful and provide food for wildlife and are collected for traditional cultural uses.</p>	<p>Are black oak populations stable or increasing?</p>	<p>Oak spatial extent; basal area; density; regeneration; and tree health (e.g., mortality rates, insects, etc.).</p>
<p>TERR-MJF-DC-01 At the landscape scale, the Jeffrey pine type is part of a heterogeneous mosaic of shrublands, grasslands or other forest types. Forests are dominated by Jeffrey pine trees and are generally open. Open-canopied stands dominate the landscape, with generally less than 10 percent of the area with more than 40 percent canopy cover. Open canopies allow shade-intolerant Jeffrey pine tree regeneration.</p>	<p>Are Jeffrey pines increasing?</p>	<p>Pine relative density; basal area; average diameter at breast height; regeneration density; health.</p>

Aquatic Ecosystems

A select set of ecological conditions are monitored for riparian and aquatic ecosystems. The monitoring questions and indicators are selected to measure the effectiveness of the plan to maintain or restore ecological conditions for key ecosystem characteristics associated with composition, structure, function and connectivity.

Table 10. Monitoring questions and associated indicators that evaluate ecological conditions for aquatic and riparian ecosystems

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
WTR-FW-DC-02 Water quality is sustained at a level that retains the biological, physical, and chemical integrity of aquatic systems and benefits the survival, growth, reproduction and migration of native aquatic and riparian species.	Do aquatic benthic macroinvertebrate communities indicate stream ecosystem integrity is being maintained? (Same as watershed condition above and focal species below)	Diversity; species composition; and other indices of macroinvertebrate response to current conditions (e.g., Rivpacs score [O/E], index of biotic integrity [IBI], Ephemeroptera Plecoptera Trichoptera index [EPT]).
RCA-MEAD-DC-05 Meadows are in mid- to late-seral condition, with substantive ground cover and a rich and diverse species composition, especially of grasses and forbs. Meadows have high plant functional diversity with late successional functional types represented. Perennial streams in meadows contain a diversity of age classes of hardwood shrubs along the stream bank, where the potential exists.	What is the ecological condition of meadows in selected grazed and ungrazed allotments?	Range condition class; species richness; species diversity; and plant functional groups.
RCA-MEAD-DC-05 Meadows are in mid- to late-seral condition, with substantive ground cover and a rich and diverse species composition, especially of grasses and forbs. Meadows have high plant functional diversity with late successional functional types represented. Perennial streams in meadows contain a diversity of age classes of hardwood shrubs along the stream bank, where the potential exists.	What is the status of streambank vegetation in selected grazed and ungrazed meadow perennial streams?	Range greenline monitoring: vegetation community types; presence of woody regeneration; and plant functional groups.
RCA-MEAD-DC-01 Meadows are hydrologically functional. Sites of accelerated erosion, such as gullies and headcuts are stabilized or recovering. Vegetation roots occur throughout the available soil profile.	Do meadows have well-functioning streams and floodplains?	Undercut banks; down cut streams; headcuts; number and size of deep pools, glides, riffles; and woody vegetation along streams.

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
Meadows with perennial and intermittent streams have the following characteristics: (1) stream energy from high flows is dissipated, reducing erosion and improving water quality; (2) streams filter sediment and capture bedload, aiding floodplain development; (3) meadow conditions enhance floodwater retention and groundwater recharge; and (4) root masses stabilize stream banks against cutting action.		

Focal Species

Focal species are a small subset of species whose status permits inference to the integrity of the larger ecological system to which they belong. Focal species monitoring provides information regarding the effectiveness of the plan in providing the ecological conditions necessary to maintain the diversity of plant and animal communities and the persistence of native species in the plan area. They should act as indicators for the attributes of community composition, structure, connectivity or function, or factors that regulate them.

An effective focal species, or assemblage of species, will be sensitive to the ecosystem components or habitat attributes of concern. There are a few key qualities of well-selected focal species: the species is taxonomically well-known and stable; the species is specialized within a narrow habitat; and the species is a permanent resident (migrants are subject to a variety of sources of mortality and stress on their wintering grounds and during migration). A focal species could be a keystone species, an ecological engineer, an umbrella species, a link species, or a species of conservation concern, but need not be any of these species categories. Monitoring questions should relate the species to the ecological condition and reason for its selection, and indicators may include affected attributes of the species, such as presence or occupancy, habitat use, reproductive rate, and population trends. If the focal species’ sensitivity to habitat changes cannot be directly attributable to a cause and effect relationship, then the influence of habitat change on the focal species may not be separable from the influence of other factors on the species, such as climate change, predation, disease, or competition.

Focal species, as used by the Forest Service, are not meant to act as surrogates for other species. Focal species monitoring is also not the same as monitoring those species in which we have a particular interest, such as threatened or endangered species, invasive species, or other species for which we deliberately manage the landscape.

Focal species are intended to reduce the cost and effort of ecosystem monitoring and should only be used when direct measurement of resources is not efficient or practical.

Table 11. Monitoring questions and associated indicators that evaluate the status of focal species

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<p><u>Focal species is cheatgrass and red brome for the following ecosystems and desired conditions:</u></p> <p>TERR-SAGE-DC-01 The sagebrush type has a diversity of age classes, stand structure, cover classes and understory composition.</p> <p>TERR-SAGE-DC-02 Sagebrush ecosystems are resilient to fire and other disturbances including grazing, recreation, invasive species (including cheatgrass) and climate change.</p> <p>TERR-PINY-DC-01 Pinyon-juniper types have a mosaic of trees and open areas that provide wildlife habitat, contribute to functional soils, and are resilient to disturbances such as fire, invasive species and climate change.</p>	<p>Is the abundance of Cheatgrass and red brome (non-native <i>Bromus</i> spp.) changing over time?</p> <p>(Same as ecological conditions for sage-grouse, at-risk species below)</p>	<p>Spatial extent (acres); and cover (%).</p>
<p><u>Focal species is benthic macroinvertebrate communities for stream ecosystems and the following desired conditions:</u></p> <p>WTR-FW-DC-02 Water quality is sustained at a level that retains the biological, physical, and chemical integrity of aquatic systems and benefits the survival, growth, reproduction and migration of native aquatic and riparian species.</p> <p>RCA-RIV-DC-01 Stream ecosystems, riparian corridors and associated stream courses sustain ecosystem structure; are resilient to natural disturbances (e.g., flooding) and climate change; promote the natural movement of water, sediment and woody debris; and provide habitat for native aquatic species or desirable non-native species.</p>	<p>Do aquatic benthic macroinvertebrate communities indicate stream ecosystem integrity is being maintained?</p>	<p>Diversity; species composition; and other indices of macroinvertebrate response to current conditions (e.g., Rivpacs score [O/E], index of biotic integrity [IBI], Ephemeroptera Plecoptera Trichoptera index [EPT]).</p>

Ecological Conditions for At-risk Species

For select at-risk species, a select set of ecological conditions, including habitat, is monitored. The selected ecological conditions are necessary to provide for diversity of plant and animal communities and contribute to the recovery of, conserve, or maintain the viability of at risk species within the plan area. At-risk species include federally recognized threatened, endangered, proposed, and candidate species plus the species of conservation concern identified for the forest. Only a select set of ecological conditions is monitored for select at-risk species and may include characteristics at both the ecosystem and species-specific levels of terrestrial, riparian, or aquatic ecosystems.

Table 12. Monitoring questions and associated indicators that evaluate ecological conditions for select at-risk species

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
TERR-SH-DC-01 The integrity of special habitats is maintained or improved. Composition, diversity and structure are maintained in all areas, including those with multiple use activities).	Is the integrity of special habitats (e.g. pumice flats, limestone or serpentine soils, fens) for at-risk plants being maintained or improved over time?	Special habitat extent (acres) and health (e.g., species composition, hydrologic function, grazing utilization).
MA-CAR-DC-02 Streams in critical aquatic refuges have vegetation and channel bank characteristics that are properly functioning or functioning at-risk with an upward trend. These ratings are made in relation to the current potential of the stream system. If the current potential is different from historic potential, assess what restoration measures are required to attain historic potential and if this is necessary or achievable.	Do streams in selected grazed and ungrazed meadows and grasslands have vegetation and channel bank conditions within the natural range of variation?	Range greenline monitoring: vegetation community types, and presence of woody regeneration.
SPEC-FW-DC-02 Habitats for at-risk species support self-sustaining populations within the inherent capabilities of the plan area. Ecological conditions provide habitat conditions that: contribute to the survival, recovery, and delisting of species under the Endangered Species Act; preclude the need for listing new species; improve conditions for species of conservation concern; and sustain both common and uncommon native species.	Do stream temperatures support persistence of California golden trout, Lahontan cutthroat trout, and Paiute cutthroat trout? (Same as climate change and other stressors below)	Maximum summer stream temperature; average daily stream temperatures; maximum daily average stream temperature during summer and fall for fall spawners; and maximum and minimum winter stream temperatures.

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
Greater Sage-Grouse (<i>Centrocercus urophasianus</i>) SPEC-SG-DC-06 The extent and dominance of non-native annual grass species, such as cheatgrass and other noxious weeds, is limited and does not lead toward reduction in the suitability of sage-grouse habitat.	Is the abundance of Cheatgrass and red brome (non-native <i>Bromus</i> spp.), changing over time? (Same as focal species above)	Spatial extent (acres); and cover (%).

Visitor Use, Visitor Satisfaction, and Progress toward Meeting Recreation Objectives

The plan monitoring program includes monitoring questions and associated indicators that address the status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

Table 13. Monitoring questions and associated indicators that evaluate visitor use, visitor satisfaction, and progress toward meeting recreation objectives

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<u>Visitor Use</u> REC-FW-DC-04 Visitors can connect with nature, culture and history through a full range of inclusive and sustainable outdoor recreation opportunities.	Do visitors engage in selected activities that focus on natural and cultural resources?	Percentage of visitors participating in viewing natural features, hiking or walking, viewing wildlife, visiting historic sites, nature study, and backpacking.
<u>Visitor Satisfaction</u> REC-FW-DC-03 Recreation opportunities on land, water and in the air provide a high level of visitor satisfaction and safety. Recreation activities are ecologically, socially and economically sustainable. Agency resources focus on supporting the forest recreation program niche.	What level of satisfaction do visitors express for developed facilities, access, services, and perception of safety?	Percent meets expectations (PME) measure for developed facilities, access, services, and perception of safety.

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<u>Recreation Objective</u> REC-FW-DC-02 Recreation settings are capable of adapting to changing conditions and support social, ecological and economic sustainability on the forest and in surrounding communities.	How much money is spent in a year by non-local visitors within the local area on lodging, restaurant meals, groceries, gas and oil, and activities?	Total spending by non-local visitors (whose home is at least 50 miles from the forest) within the local area (within 50 miles of the forest) on lodging, restaurant meals, groceries, gas and oil, and activities.
<u>Recreation Objective</u> REC-FW-OBJ-03 Within 10 years of plan approval, 650 to 800 miles of trails are meeting standard.	How many trail miles meet National Trail Quality Standards?	Miles of trail meeting National Trail Quality Standards.
<u>Recreation Objective</u> SCEN-FW-DC-01 The forest provides a variety of ecologically sound, resilient and visually appealing forest landscapes that sustain scenic character, supporting the forest recreation program niche in ways that contribute to visitors' sense of place and connection with nature.	What level of satisfaction do visitors express for scenery associated with day-use developed sites, overnight developed sites, undeveloped areas, and wilderness?	Percent meets expectations (PME) measure for scenery associated with day-use developed sites, overnight developed sites, undeveloped areas, and wilderness.

Climate Change and Other Stressors

The plan monitoring program includes monitoring questions and associated indicators to determine whether there are measurable changes on the plan area resulting from climate change and other stressors.

Table 14. Monitoring questions and associated indicators that measure changes on the plan area resulting from climate change and other stressors

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
<p>TERR-ALPN-DC-03 Subalpine woodlands and alpine ecosystems are resilient to insects, diseases, fire, wind and climate change. High-elevation white pines (e.g., whitebark pine and foxtail pine) are healthy and vigorous, with a low incidence of white pine blister rust, and resilient to moisture stress and drought. White pine blister rust-resistant trees are regenerating and populations of high elevation white pines have the potential to expand above the tree line.</p> <p>TERR-RFIR-DC-01 At the landscape scale, the red fir forest type is part of a heterogeneous mosaic of tree species and vegetation structures (e.g., tree density, size, age and shrub cover), with patches of Jeffrey pine, meadows and montane chaparral. It is dominated by red fir trees, with varying amounts of white fir, Jeffrey pine, western white pine, lodgepole pine and mountain hemlock.</p>	<p>Are high-elevation white pines and red fir being sustained or increasing across the landscape with climate change?</p>	<p>Extent by forest type (acres); tree mortality (%); incidence of insects and pathogens (e.g., white pine blister rust) (%); tree regeneration (#/acre); and extent of tree mortality (acres).</p>
<p>RCA-RIV-DC-01 Stream ecosystems, riparian corridors and associated stream courses sustain ecosystem structure; are resilient to natural disturbances (e.g., flooding) and climate change; promote the natural movement of water, sediment and woody debris; and provide habitat for native aquatic species or desirable non-native species.</p>	<p>Do stream temperatures support persistence of California golden trout, Lahontan cutthroat trout, and Paiute cutthroat trout? (Same as at-risk species above)</p>	<p>Maximum summer stream temperature; average daily stream temperatures; maximum daily average stream temperature during summer and fall for fall spawners; and maximum and minimum winter stream temperatures.</p>
<p>FIRE-FW-DC-03 Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a healthy and sustainable</p>	<p>Are wildfires managed for resource objectives meeting the</p>	<p>Fire severity; proportion high fire severity classes; fire severity index (FSI); and mean and maximum high severity patch size.</p>

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
manner. Wildland fire is a necessary process, integral to the sustainability of fire-adapted ecosystems.	desired range of conditions within forested landscapes?	
<p>FIRE-FW-DC-03 Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a healthy and sustainable manner. Wildland fire is a necessary process, integral to the sustainability of fire-adapted ecosystems.</p> <p>TERR-UPPR-DC-02 At the landscape scale, fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur irregularly, generally every 15 to 100 years, averaging about 40 years. Fires in this vegetation type burn with low, moderate or mixed severity with patches of very high severity (greater than 90 percent basal area mortality) minimal, rarely greater than 300 acres in size. The proportion of areas burned at high severity within a fire is generally less than 10 to 15 percent. Due to existing high levels of fuels and weather variability, greater proportions of areas burned at high severity, up to 40 percent, may be unavoidable during large landscape prescribed fires or wildfires managed to meet resource objectives. Some patches of high severity burn reach 1,000 acres in size.</p>	Are natural fire regimes within terrestrial ecosystems becoming less departed from the desired conditions and the natural range of variation?	Fire return interval departure.
<p>FIRE-FW-DC-03 Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a healthy and sustainable manner. Wildland fire is a necessary process, integral to the sustainability of fire-adapted ecosystems.</p> <p>TERR-UPPR-DC-02 At the landscape scale, fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur irregularly, generally every 15 to 100 years, averaging about 40 years. Fires in this vegetation type burn with low, moderate or mixed severity with patches of very high severity (greater than 90 percent basal area mortality) minimal, rarely</p>	Are wildfires becoming larger, more frequent, and more severe with warming climate conditions?	Fire return interval departure; fire severity; proportion high fire severity; fire severity index; mean and maximum high severity patch size; and total fire size.

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
greater than 300 acres in size. The proportion of areas burned at high severity within a fire is generally less than 10 to 15 percent. Due to existing high levels of fuels and weather variability, greater proportions of areas burned at high severity, up to 40 percent, may be unavoidable during large landscape prescribed fires or wildfires managed to meet resource objectives. Some patches of high severity burn reach 1,000 acres in size.		

Desired Conditions, Including Social, Cultural, and Economic Sustainability

Progress toward meeting desired conditions, objectives, or other plan components that do not fall under one of the other eight required items are included in the monitoring program. Specifically, the plan monitoring program must contain one or more questions and associated indicators addressing the plan contributions to communities, social and economic sustainability of communities, multiple use management in the plan area, or progress toward meeting the desired conditions and objectives related to social and economic sustainability.

Table 15. Monitoring questions and associated indicators that evaluate progress toward meeting desired conditions not addressed elsewhere in the monitoring program, particularly those related to social and economic sustainability of communities

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
LOC-FW-DC-03 Forest uses such as recreation, forest products, mining and grazing are provided in an ecologically sustainable way that also contributes to economic and social sustainability in local communities.	What are the economic conditions in local communities that could affect the impact of forest contributions to local economies?	<p><u>Economic health</u>: unemployment (%); household earnings; per-capita income; and source of income (%).</p> <p><u>Economic diversity</u>: employment diversity index; employment projections by occupation (% change); number of local businesses, employees, and average salaries in forest related sectors.</p> <p><u>Local fiscal conditions</u>: forest land use receipts; timber yield tax revenue (\$); transient lodging tax revenue (\$); visitor</p>

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
		spending contribution to county sales tax; and PILT and FFR/SRS payments to counties (\$).
LOC-FW-DC-03 Forest uses such as recreation, forest products, mining and grazing are provided in an ecologically sustainable way that also contributes to economic and social sustainability in local communities.	What economic contributions are forest-based recreation, forest products, mining and grazing making to local communities?	<u>Conditions in forest based sectors:</u> forest-related sector employment (jobs); forest-related sector wages (annual salary); and employment and earnings from travel and tourism (by county). <u>Forest contributions:</u> units of commodities provided; value of contributions of commodities to local economies; contributions of USDA FS employees; and ratio of annual local contracted value to annual total contracted value.

Productivity of the Land

This monitoring requirement comes from the NFMA requirement that there be research regarding the effects of timber management systems on the productivity of the land, and that such research is to be based on continuous monitoring and assessment in the field. Monitoring is focused on key ecosystem characteristics related to soils and soil productivity.

Table 16. Monitoring questions and associated indicators that evaluate soils and soil productivity

Selected Desired Condition and Objective or Other Plan Component	Monitoring Question	Associated Indicators
WTR-FW-DC-04 Soil and vegetation functions in upland and riparian areas are sustained and resilient. Healthy soils provide the base for resilient landscapes and nutritive forage for browsing and grazing animals, and support timber production. Healthy upland and riparian areas support healthy fish and wildlife populations, enhance recreation opportunities, and maintain water quality.	Is soil quality being maintained such that productivity of the land is not substantially or permanently impaired?	Soil stability; surface organic matter; soil organic matter, soil strength, soil structure; and macro-porosity.

<p align="center">Selected Desired Condition and Objective or Other Plan Component</p>	<p align="center">Monitoring Question</p>	<p align="center">Associated Indicators</p>
<p>TERR-FW-DC-08 Landscape sustainably provides a variety of benefits that improve peoples' economic, social and physical wellbeing: clean water; forest products; livestock forage; carbon sequestration and storage stability; energy generation; recreational opportunities; landscapes with scenic character and scenic integrity; cultural uses; and biodiversity. Vegetation provides sustainable amounts of forest products that include wood fiber; biomass; forage; firewood; edible and medicinal plants; and boughs, bark, berries and cones for commercial, tribal, personal, educational and scientific uses. These products are provided while sustaining soil and water quality and productivity. Vegetation conditions support the long-term sustainability of these benefits to people by reducing the risk of undesirable fire effects, disease and mortality.</p>		

Appendices

Appendix A: Maps

Management Areas

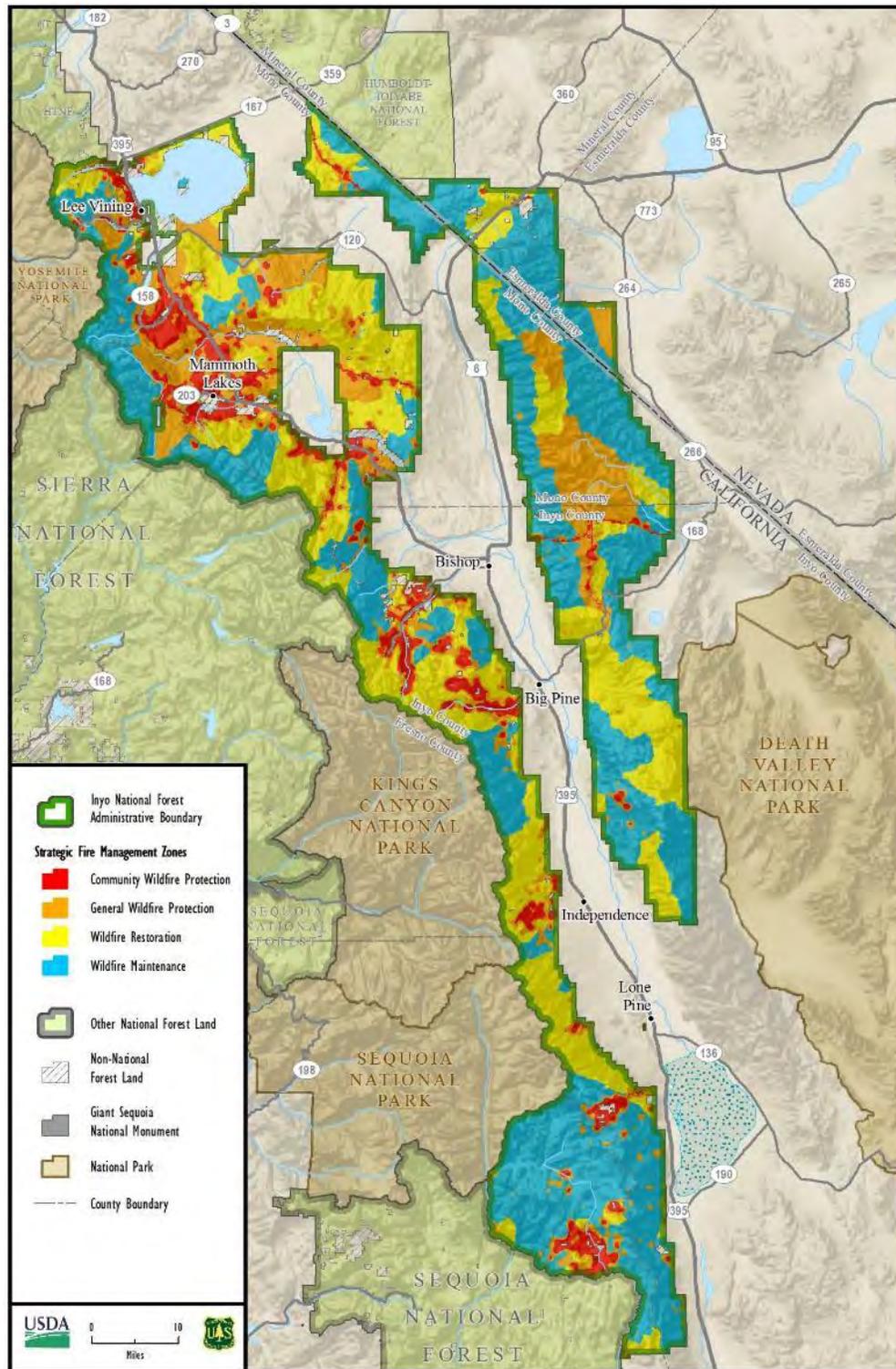


Figure 6. Strategic fire management zones of the Inyo National Forest

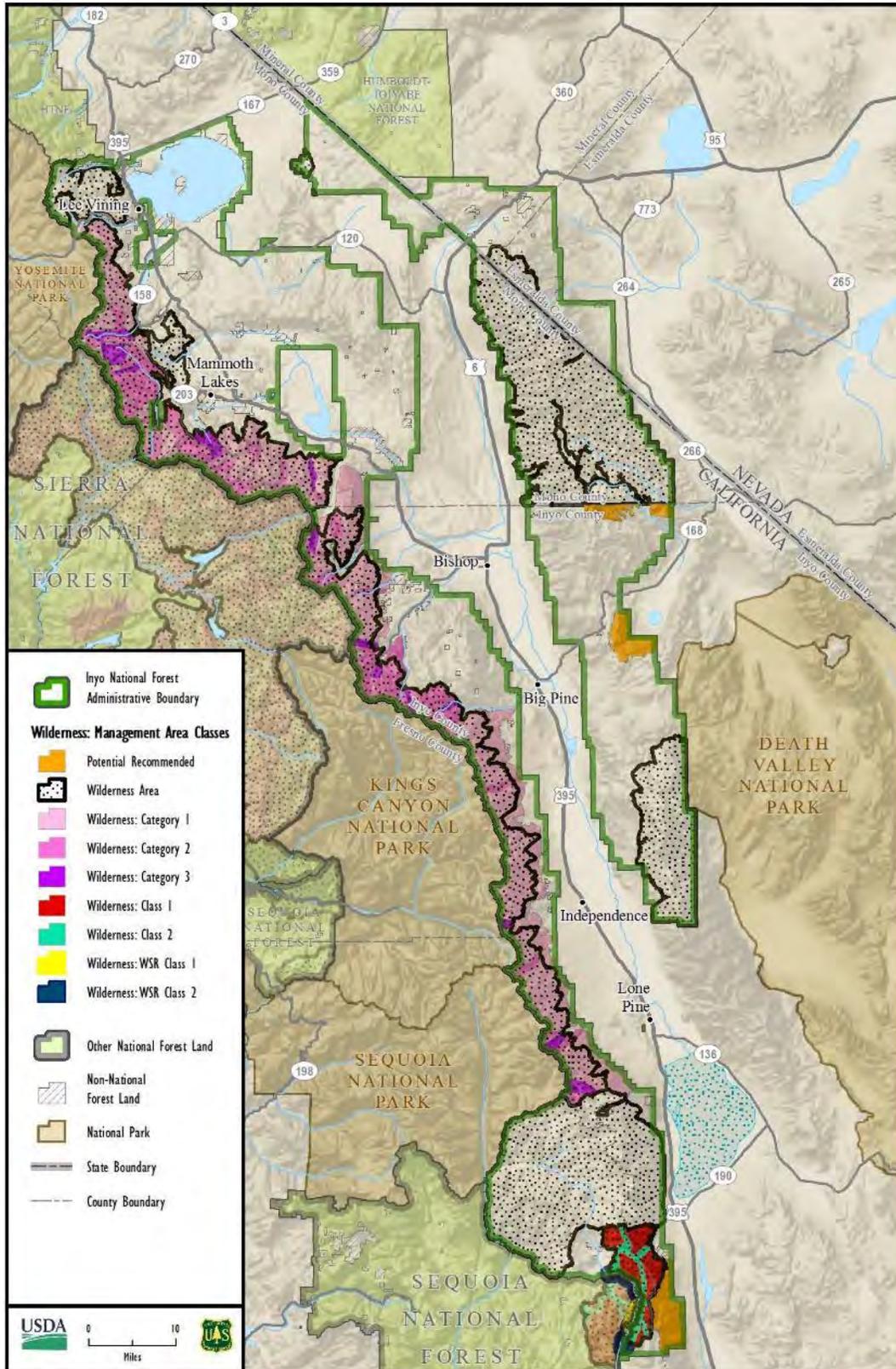


Figure 7. Wilderness management area classes of the Inyo National Forest

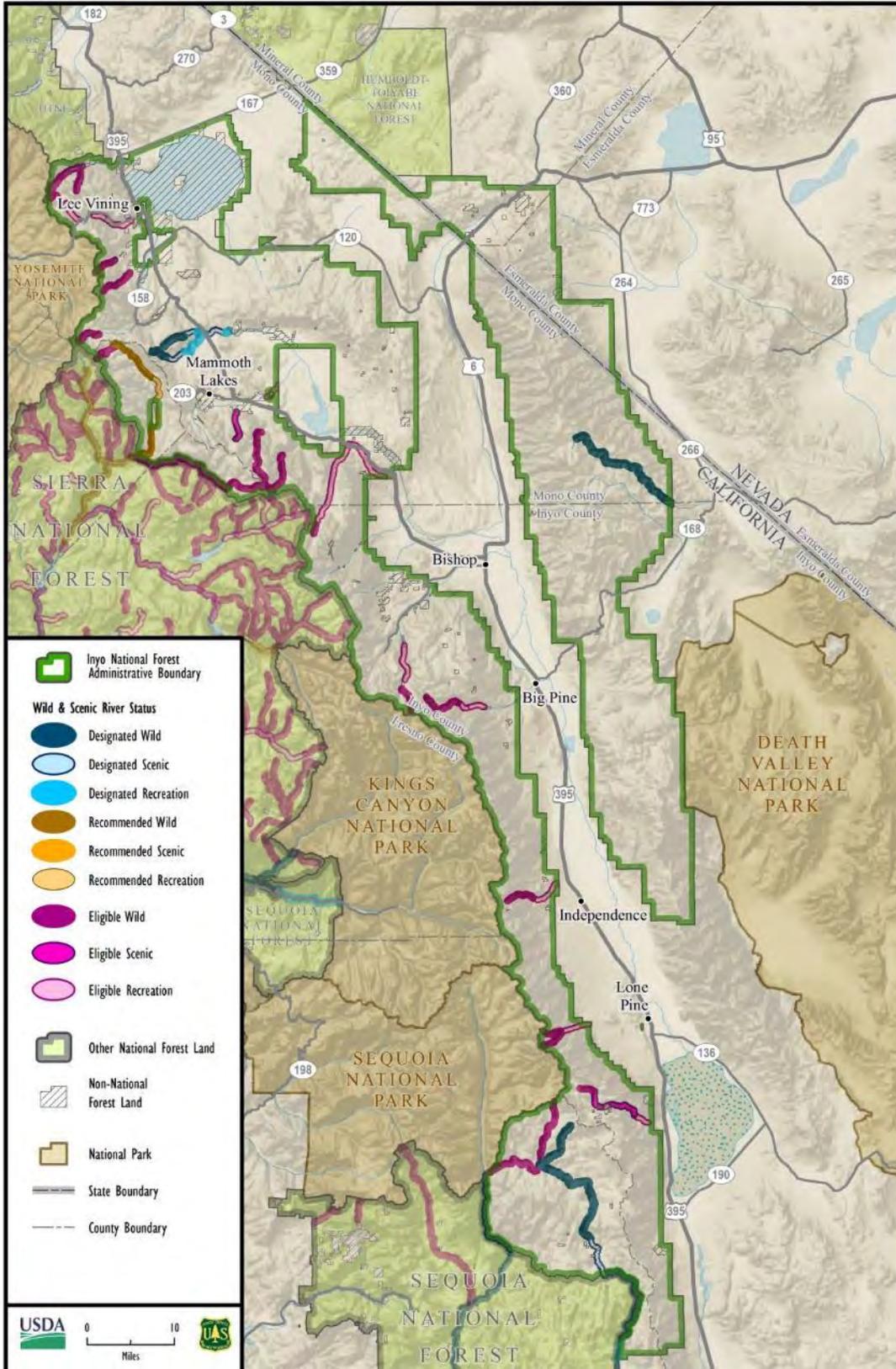


Figure 8. Wild and scenic river status of the Inyo National Forest

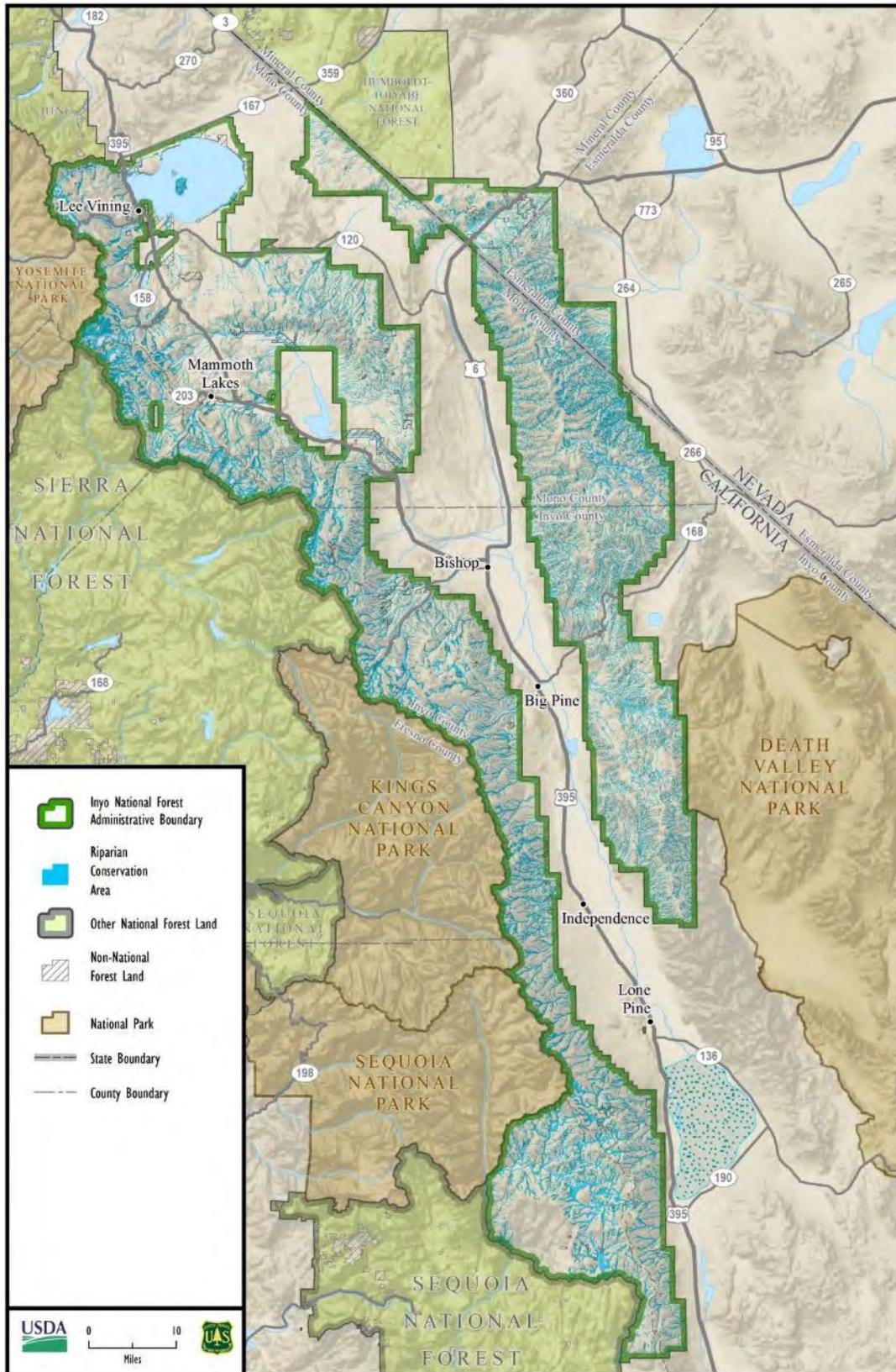


Figure 9. Riparian conservation areas of the Inyo National Forest

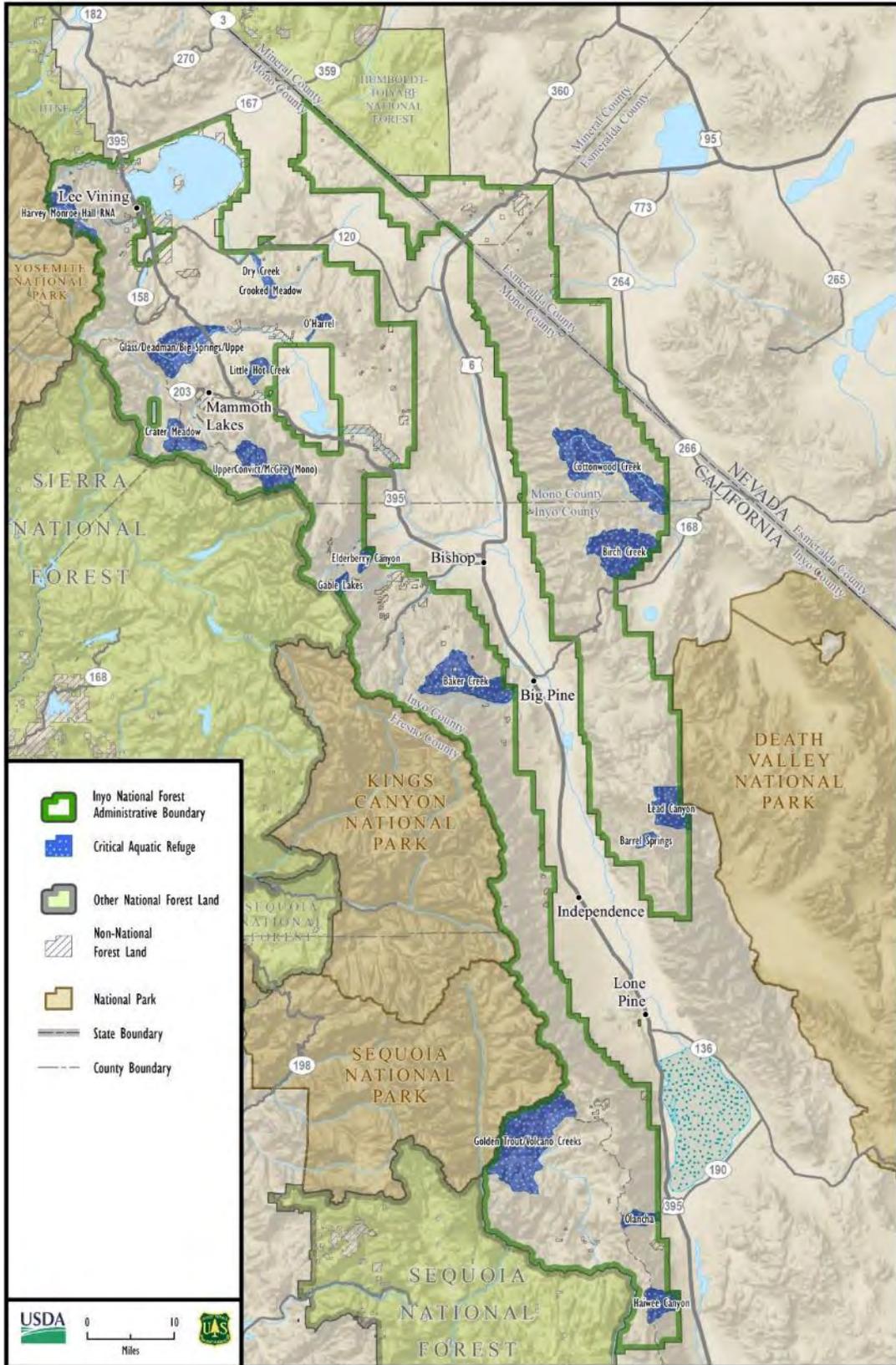


Figure 10. Critical aquatic refuges of the Inyo National Forest

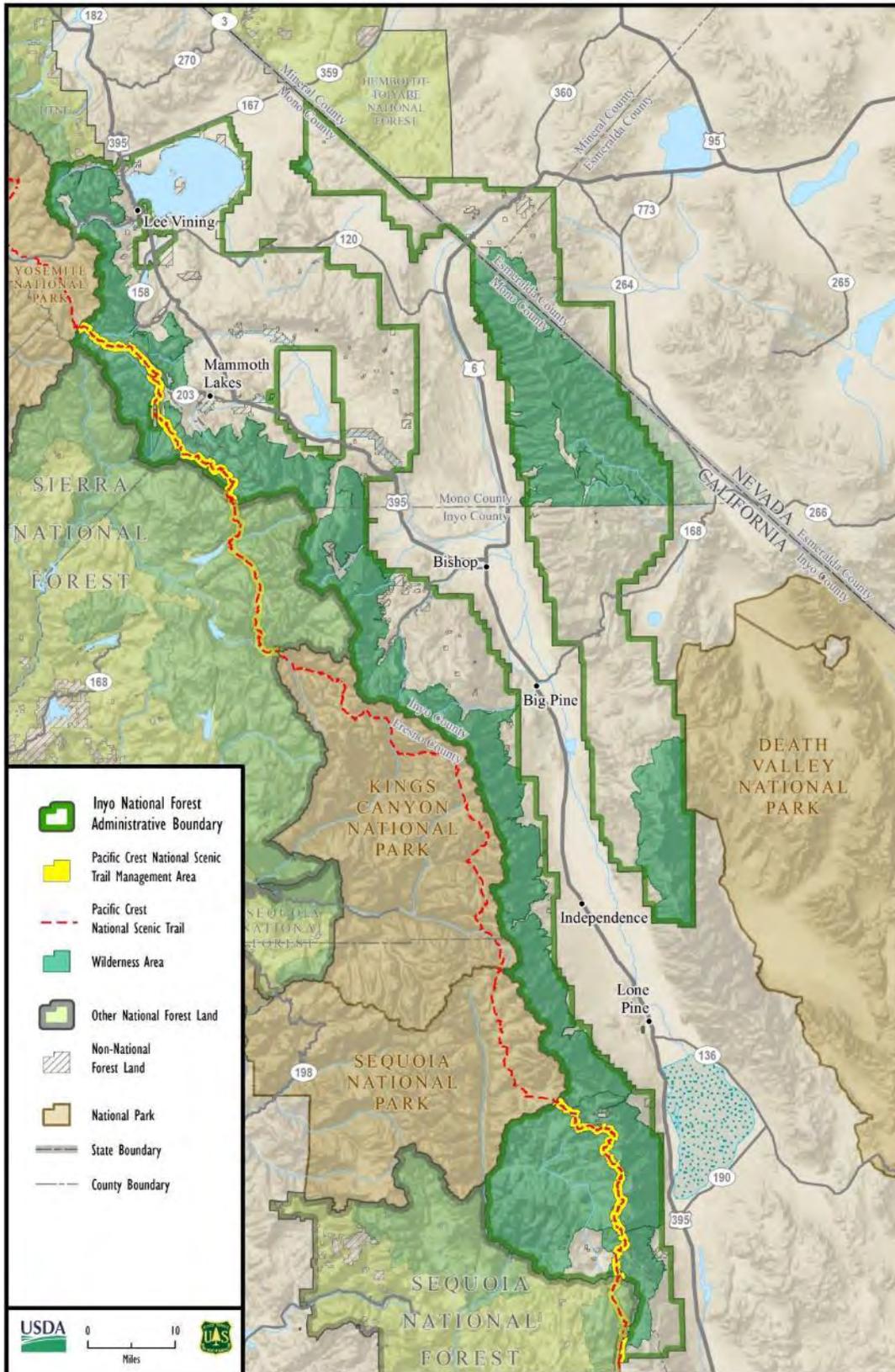


Figure 11. Pacific Crest National Scenic Trail management area of the Inyo National Forest

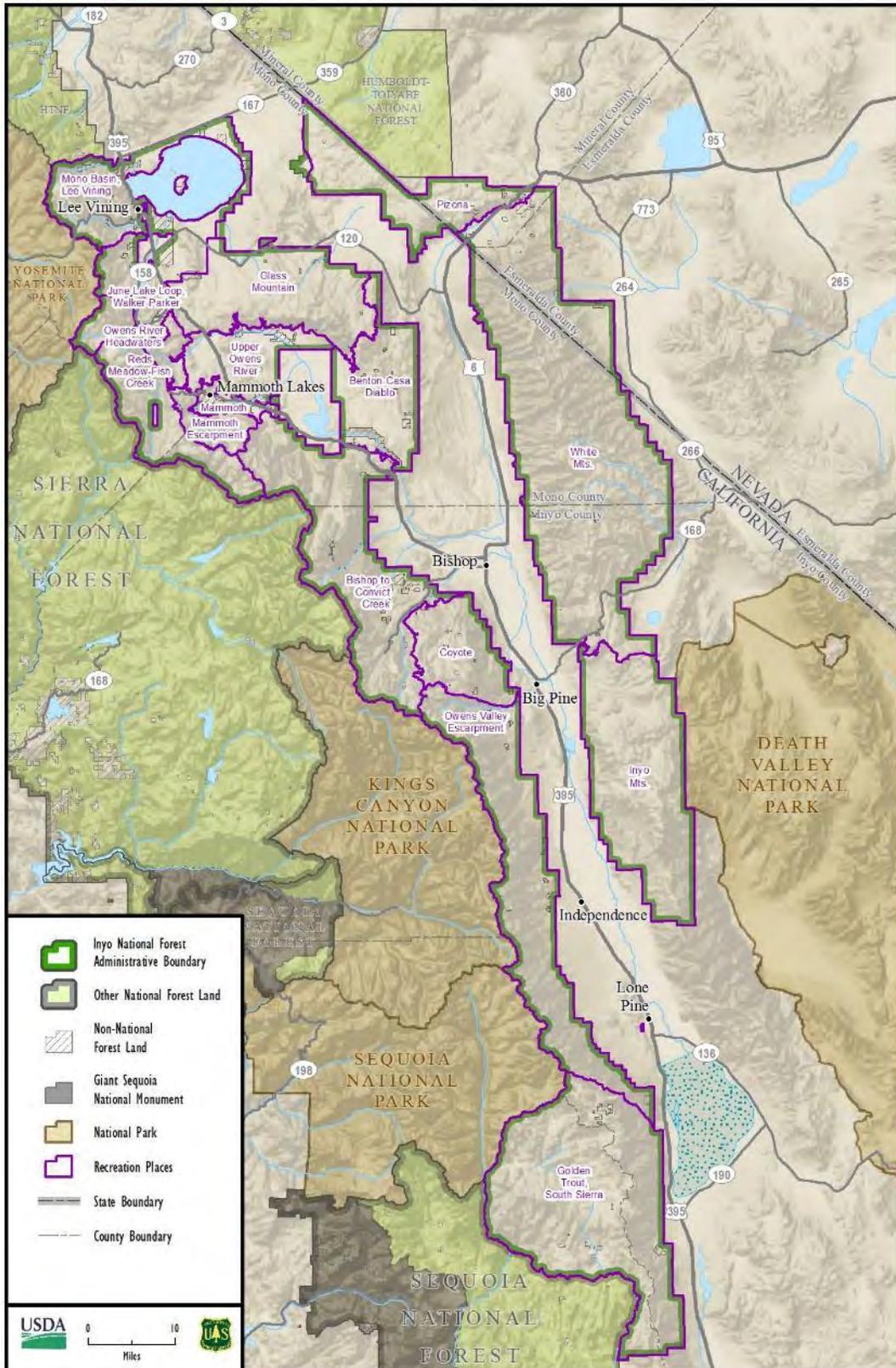


Figure 12. Recreation places on the Inyo National Forest

Congressionally Designated Areas

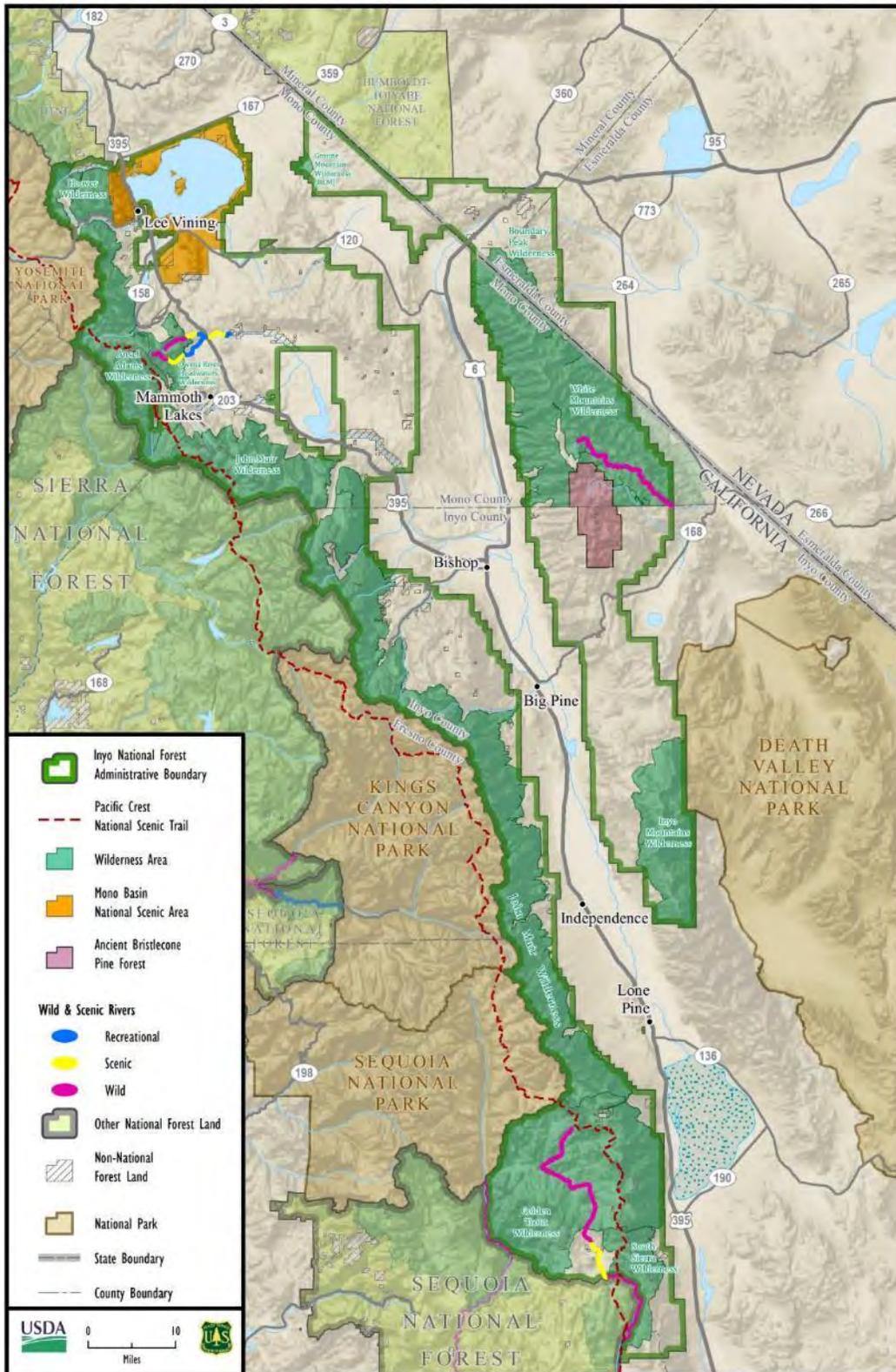


Figure 13. Congressionally designated areas on the Inyo National Forest

Recreation Opportunity Spectrum

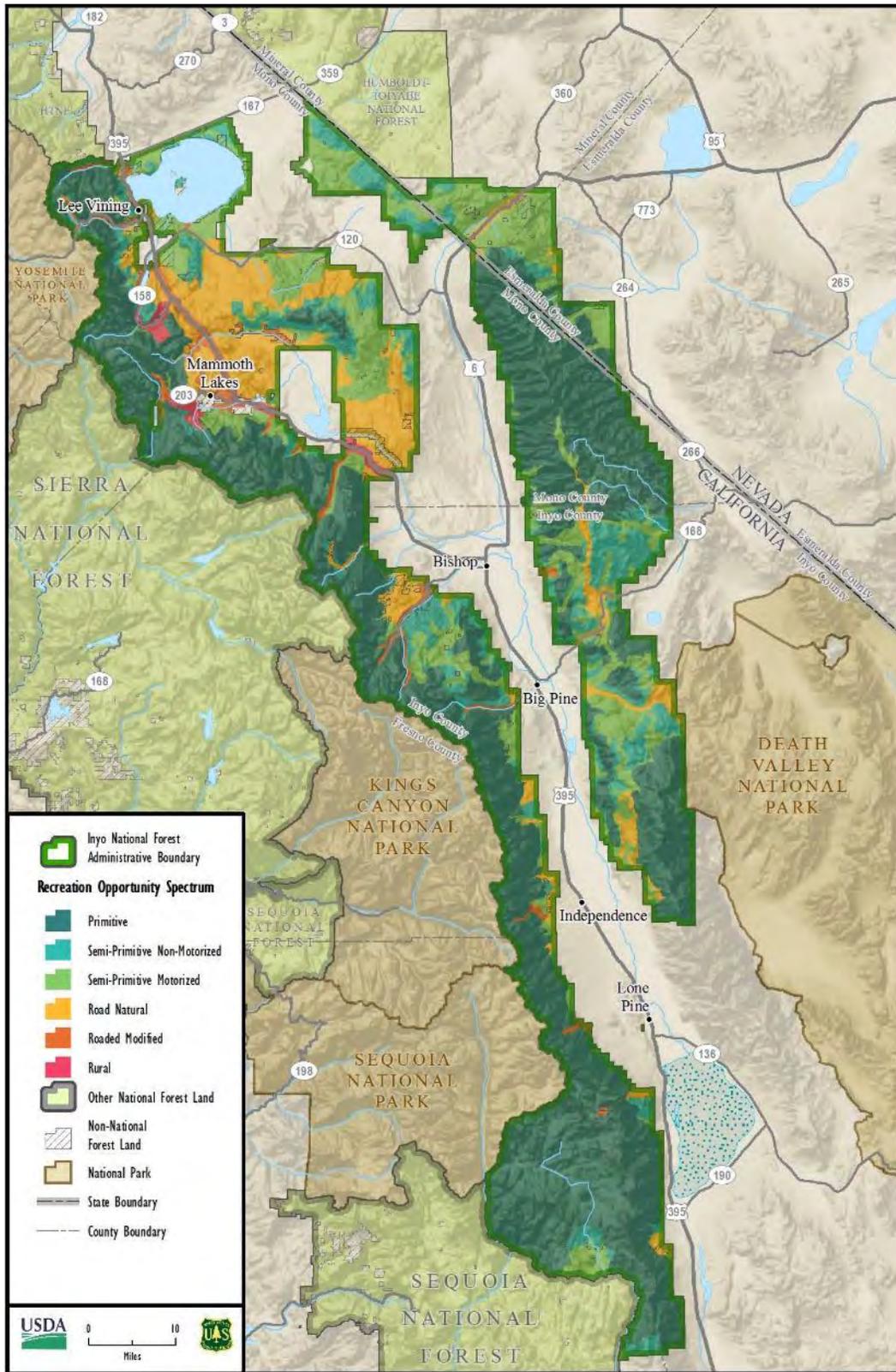


Figure 14. Recreation opportunity spectrum map for the Inyo National Forest

Scenic Integrity Objectives

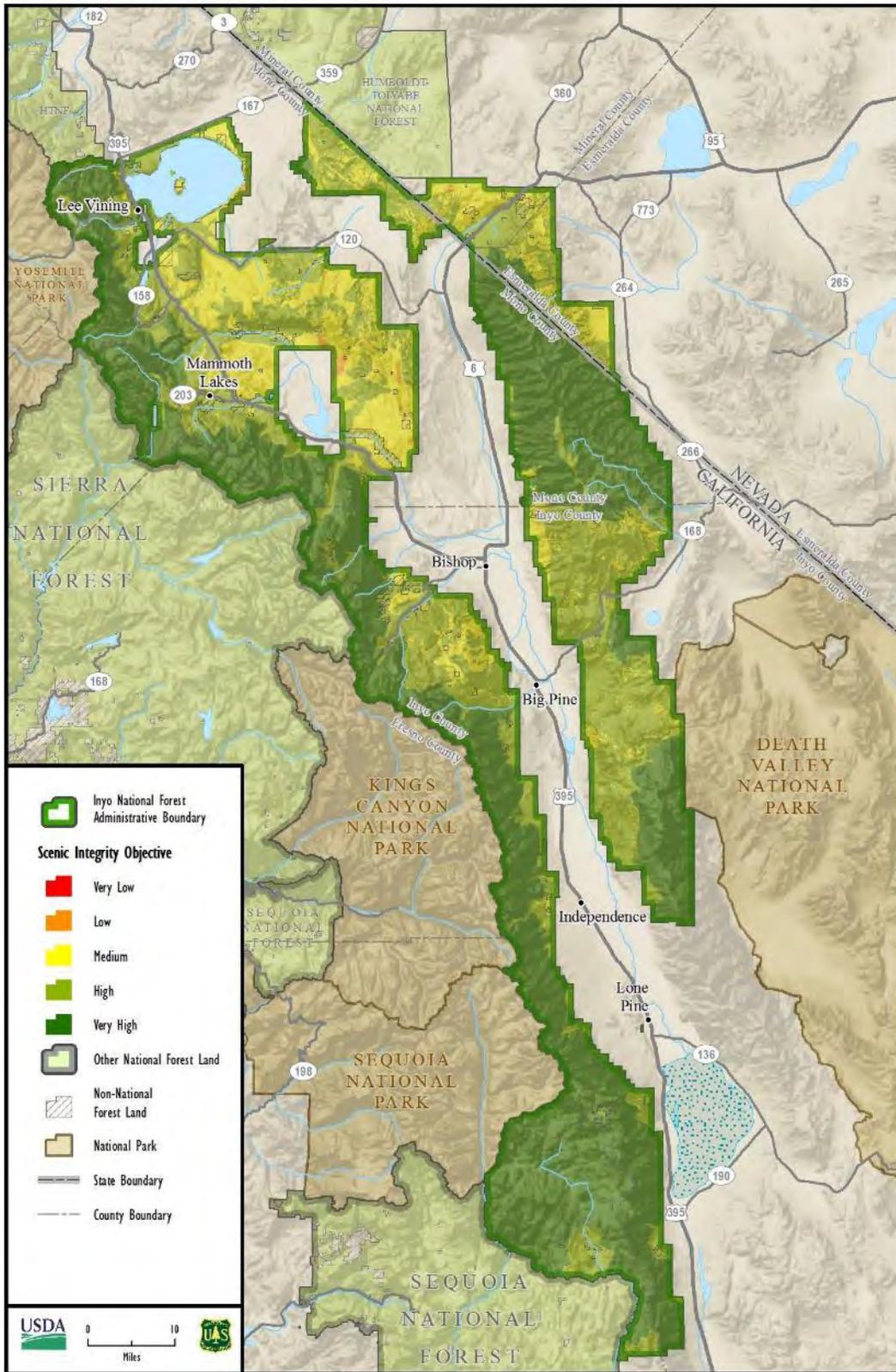


Figure 15. Scenic integrity objectives map for the Inyo National Forest

Appendix B: Proposed and Possible Actions

Introduction

This appendix describes proposed and probable practices that may take place on the Inyo National Forest at the project or activity level to help maintain existing conditions or achieve the desired conditions described in the plan. Included are items such as program strategies; inventories, assessments, resource analyses and other planning needs; and ongoing work with partners and cooperating agencies anticipated during the next 3 to 5 years.

The listed proposed and probable management practices are not intended to be all-inclusive, nor are they intended to be decisions, but simply projections of what actions may take place in the future. A plan amendment is not required to change or modify any proposed and possible actions. The list of these actions can be updated at any time through an administrative correction of the plan. More information may be found under plan objectives and management approaches.

Air

- Coordinate with the California Air Resources Board, Air Pollution Control Division and Air Quality Management District jurisdictions during the implementation of prescribed burns to comply with state and federal regulatory requirements for authorization and mitigations. Design prescribed burn projects to minimize prolonged smoke impacts to communities and recreationists to the extent possible.

Water, Soils, and Watershed

- Plan and implement improvement activities in priority watersheds which are functionally at risk or impaired.
- Update the priority watershed list to reflect actual needs on the ground.
- Participate and collaborate in all interagency water rights and water use authorizations on National Forest System lands, or those that may affect water quantity on National Forest System lands.
- Maintain and restore the connections of floodplains, channels and water tables to distribute flood flows and sustain diverse habitats.
- Maintain good soil conditions and improvement of fair and poor soil conditions as outlined in the Region 5 Forest Service Manual (R5 FSM 2550). Treatments which move forest priority 6th code watersheds toward satisfactory conditions should take precedence.
- Implement resource improvement projects that are beneficial for maintaining and improving soil condition and productivity, and water quality and quantity.
- Complete onsite soil investigations and refinement of maps for soil disturbing projects that require site-specific, precise and highly detailed soil information that is beyond the scale of the current soil surveys.

Terrestrial Ecosystems

- Due to the uniqueness of eastside vegetation types, work cooperatively with researchers and other interested parties who have knowledge of local ecological conditions, past and present, and expertise in appropriate restoration measures.
- Maintain or restore habitat connectivity where appropriate to improve adaptive capacity of native plants and animals. Collaborate with partners to establish priority locations for maintaining and restoring habitat connectivity.
- Restore fire to the landscape where conditions are appropriate.

Sagebrush

- Reduce overstory encroachment of pinyon-juniper and Jeffrey pine within sagebrush stands.
- Conduct vegetation treatments to diversify age-class structure of sagebrush stands.
- Manage fire to limit fire size and intensity within sagebrush stands.

Pinyon-Juniper

- Thin and use prescribed fires and naturally-ignited fires to treat pinyon-juniper.
- Monitor insect and disease infestations, and treat epidemic outbreaks.

Dry Mixed Conifer

- Thin and use prescribed fires and naturally-ignited fires to treat dry mixed conifer.
- Monitor insect and disease infestations, and treat epidemic outbreaks.

Montane Jeffrey Pine

- Thin and use prescribed fires and naturally-ignited fires to treat Jeffrey pine.
- Monitor insect and disease infestations, and treat epidemic outbreaks.

All Upper Montane Vegetation Types

- Thin and use prescribed fires and naturally-ignited fires to treat upper montane vegetation.
- Monitor insect and disease infestations, and treat epidemic outbreaks.

Red Fir

- Thin and use prescribed fires and naturally-ignited fires to treat red fir.
- Monitor insect and disease infestations, and treat epidemic outbreaks.

Lodgepole Pine

- Thin and use prescribed fires and naturally-ignited fires to treat lodgepole pine.
- Monitor insect and disease infestations, and treat epidemic outbreaks.

Subalpine and Alpine

- Cooperate with Region 5 Ecology Program to monitor health of whitebark pine stands.
- Educate the public about the unique properties of subalpine and alpine ecosystems and the potential impacts of climate change, recreation use and other stressors.

Complex Early Seral

- Continue to monitor black-backed woodpecker populations and habitat use.

Aspen

- Plan for treatments within highest and high risk aspen stands.

Special Habitats

- Restore OHV damage in pumice flats, and continue monitoring of species of conservation concern in pumice flats.
- Monitor alkali flats resources to determine ecosystem function, and implement restoration actions if needed.

Aquatic and Riparian Ecosystems

- Use vegetation treatments to restore the structure and composition of riparian areas and meadows where encroachment is impacting meadow function.
- Restore nonfunctioning or functioning-at-risk riparian areas so they are in or moving toward proper functioning condition.

Meadows

- Design grazing allotment plans to move riparian areas and meadows towards the desired conditions.
- Continue to work with partners to direct planning and implementation of meadow restoration projects where meadows have impaired hydrologic function.

Rivers and Streams

- Use vegetation treatments or other active restoration activities to maintain the structure and composition of habitat for fisheries and other aquatic species.
- Implement restoration of riparian areas from the effects of unauthorized and illegal activities, such as from marijuana cultivation.

Springs and Seeps

- For the limited portion of fens that are identified to be in a downward trend, use herding management strategies before using barriers to restrict livestock from accessing those fens.
- Restore degraded spring sites back to providing functional habitat for spring dependent species.

- Reconstruct or restore riparian function to springs identified as not in proper functioning condition.

Animal and Plant Species

Sage-Grouse

- Continue to work with partners on planning and implementing pine encroachment treatments as identified by the technical advisory committee.
- Continue to fund science advisor and sage-grouse monitoring efforts.

Ramshaw Meadows abronia

- Implement a conservation agreement, including campsite restoration, conifer encroachment monitoring and damage monitoring, if necessary.

California Golden Trout

- Continue to implement and update the California Golden Trout Conservation Assessment and Strategy with cooperating agencies

Invasive Species

- Where invasive species are adversely affecting the viability of native species, work cooperatively with appropriate state and federal wildlife agencies to reduce impacts to native populations.
- Focus treatment efforts on high priority invasive species and infestations, while developing management goals for lower priority species and infestations. Prioritize areas such as wilderness, research natural areas, botanical areas, wild and scenic areas, and aquatic and riparian areas to maintain the integrity of native species and ecosystems. Prepare control and prevention plans for high priority invasive species, which promote early detection of new populations and rapid management response as an effective approach to minimize spread.

Fire

- Coordinate with local and state agencies for an updated fire prevention program that coordinates efforts across jurisdictions and supports a unified message. Target audience should include local residents and out of area forest users.
- Perform risk assessments prior to and during fire season to assess conditional thresholds under which desired conditions can be met for the strategic wildfire management zones (protection, restoration and maintenance). Changes in fuel conditions from restoration treatments and wildfires, as well as new or changed communities, assets or natural resource values are factors that will affect wildfire risk. As a risk-based approach, these zones would change as wildfire risk changes over time. Work with tribes and adjacent landowners to identify areas and resources of value considered in the risk assessments.

Local Communities

- Work with local governments, businesses and organizations to assist in permit processes, including providing technical assistance, processing programmatic environmental clearance, and other measures to streamline the time and expense of permitting.
- Work to maintain and expand contracting and partnering opportunities with local governments, businesses and organizations. Develop partnerships that leverage different sources of funding to support opportunities to contribute to the economic and social sustainability of local communities.
- Develop partnerships with local governments, businesses and organizations to collect economic data to track changes for businesses in sectors dependent on forest activities.

Timber and Other Forest Products

- Implement vegetation and fuels management restoration projects utilizing a mix of contracting practices including stewardship contracts, timber sales, service contracts, partnership agreements, etc.
- Provide forest products which will sustain opportunities for local workforces and support developing and existing local and regional forest products infrastructure.
- See appendix E for more information on the possible timber sale program and vegetation management practices.

Range

- Review active allotment management plans on a regular basis.
- Maintain and replace fencing, waters and other range improvements.
- Implement the Inyo National Forest's revised Rescissions Act Schedule for grazing allotment environmental analyses (NEPA) in order to update allotment management plans accordingly.
- Secure and maintain stock water rights for existing water structures and water improvements and proposed stock water or spring development.

Sustainable Recreation

- Collaborate with local communities, partner organizations, and federal, state, local and tribal agencies to restore, maintain and enhance recreation settings impacted by climate change, declining ecosystem health, wildfire and inappropriate use, in order to improve the quality of outdoor experiences and to promote citizen stewardship of public lands.
- Effectively manage concentrated recreation use; provide a quality visitor experience while managing ecosystem effects within sustainable levels.
- Collaborate with neighboring communities, partner organizations, state and local agencies, tribes and adjacent Forest Service and National Park Service units to provide recreation opportunities that are economically, socially and environmentally sustainable. Work to harmonize direction that affects users to the extent practical in order to minimize confusion when crossing administrative boundaries.

- Actively engage urban populations, youth and underserved communities in outreach programs, such as conservation education, recreation and volunteer programs, to help people connect to the benefits of national forests and develop stewardship of public lands.
- Modify existing developed recreation facilities, and develop new facilities to accommodate the diversity of cultures, abilities, family structures and preferred activities of current populations who could benefit from recreation opportunities.
- Explore partnership opportunities with user groups and seek reliable information sources outside of the agency to improve data collection and data management on recreation use and demand.
- Strategically engage volunteers and partners to prioritize and complete deferred maintenance and to engage in resource stewardship and restoration.
- Issue and supervise permits for new special use activities on the forest including powerlines, special events, large group gatherings, outfitter-guide activities and research.

Scenery

- In all vegetation treatment and fuels reduction projects, consider improving scenery resources, especially in areas that do not meet established scenic integrity objectives.
- Consult annually with Indian tribes, tribal cultural leaders and consulting parties; use project design to protect heritage resources, traditional cultural properties and sacred sites.
- Consider heritage, and traditional and cultural values for properties and sacred sites in project level scenery assessments.

Tribal Relations and Uses

- Maintain regular and open consultation and communication with tribes regarding projects, programs and activities on the Forest.
- Develop partnerships that involve tribes and tribal youth in natural resource management.
- Host forums that provide tribes and forest staff the opportunity to discuss natural and cultural resource management concerns, approaches and opportunities.

Cultural Resources

- Promote on and off-site educational enrichment products such as interpretive signing, classroom programs, heritage celebrations, publications and field trips.
- Incorporate public volunteers, tribal youth and tribal monitors into cultural resource surveys and to cultural site identification, protection, monitoring and enhancement efforts.
- Capitalize on opportunities for suitable adaptive reuse of historic buildings.
- Follow up on reports of archaeological looting in conjunction with law enforcement.
- Identify priority cultural sites in need of protection from physical damage

Geology and Minerals

- Coordinate with the Bureau of Land Management to properly process applications for mineral entry on the forest.
- Rehabilitate mineral operations sites that are no longer in use.

Energy

- Coordinate with the Bureau of Land Management to properly process applications for mineral entry on the forest.

Infrastructure

- Continue to implement energy-efficient operations.
- Naturalize or decommission unauthorized roads and system roads to create a more cost-effective road system and to restore natural resources impacted by roads.
- Construct and close new temporary and permanent roads to support ecosystem restoration activities.
- Coordinate with local, State and Federal agencies to mitigate impacts from community, highway, and interstate road reconstruction and management needs.

Lands

- Coordinate with landowners and local and regional governments to encourage private land uses that are compatible with the forest's desired conditions.

Designated Areas

Wilderness

- Rehabilitate wilderness sites or areas that have been impacted by recreation in order to restore wilderness character.
- Continue restoration of unauthorized routes in wilderness.
- Reconstruct Forest System trails to address deferred maintenance or improve watershed conditions.
- Implement the wilderness stewardship performance measure program.

Wild and Scenic Rivers

- Complete comprehensive river management plans for the newly designated Cottonwood Creek and Upper Owens River Wild and Scenic Rivers.

Research Natural Areas

- Continue to work with local Native American Tribes in the implementation of the Indiana Summit treatment project.

Wild Horse and Burro Territories

- Update the Montgomery Pass Wild Horse Territory Herd Management Plan.

Appendix B. Proposed and Possible Actions

- Monitor the wild horse populations in the Montgomery Pass Wild Horse Herd and White Mountains Herd.
- Restore ecosystems of designated wild horse territories and herd boundaries.

Appendix C: A Renewed Partnership Focus for the Inyo National Forest

Partnerships in land stewardship reflect a growing and important trend, the joining of passion and resources by committed citizens, organizations and government agencies to achieve social, economic and ecological goals. The U.S. Forest Service has worked with partners throughout its more than 100-year history. But the challenges of land management have grown more complex, and the needs of the public more varied. The American people today are voicing their strong desire to volunteer and participate in the stewardship of natural resources and in the decisions that affect their communities. The Forest Service has responded by developing partnership strategies at the [national](#) and [regional](#) levels.

The mission of the Forest Service is to “sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations.” Partnerships are essential to carrying out that mission today. Fortunately, there are hundreds of organizations in California whose missions overlap with ours in some way, creating the opportunity to work together toward bigger, better outcomes than each can achieve on its own.

The Inyo National Forest recognizes the value of continuing to develop effective partnerships, wherein we invite public participation, embrace stakeholder proposals, and successfully leverage our resources by working together to achieve the desired conditions set forth in the forest plan.

Creating a Partnership Culture

The forest supervisor on the Inyo National Forest responds to the needs of a varied public by empowering employees and communities of place, interest, and culture to create and sustain successful partnerships. The forest supervisor and forest staff have established the following partnership goals to accomplish the Forest Service mission, implementing the forest plan, and building a strong and lasting community of stewardship on the forest:

- Through partnership, sustain the health, diversity and productivity of the Inyo National Forest.
- Partnership is integrated throughout all levels of the agency.
- Identify authorities and mechanisms within the agency to execute partnerships and define the responsibilities of the agency and partners.
- The forest should designate a partnership coordinator who will define an easily understood process for becoming a partner as well as expectations for both the forest and the partner.
- Build community support for, and understanding of, the Inyo National Forest.
- Enhance opportunities to connect people to the land, especially in urban areas and of diverse cultures, and international visitors.
- Expand partnerships with other federal, state, and local government agencies, as well as associations, non-government organizations, outfitters and guides, local businesses, and other community groups, to leverage information (help serve as messengers to the visiting public) and resources for mutual benefit to enhance and improve forest infrastructure (i.e. roads, trails, campgrounds) .

- Foster partnerships dealing with science.
- Create more “citizen stewards” of the Inyo National Forest through volunteerism by establishing a comprehensive volunteer program.
- Support the ongoing efforts of the Eastern Sierra Interpretive Association.
- Develop new partnerships focused on management of the land (e.g., tree planting).
- Build and enhance partnerships to protect tribal sites and interpret cultural and historic assets.

Accomplishing these goals will require new and innovative methods as well as the continuation of investment in ongoing successful partnership efforts. The purpose of this strategy is to outline an iterative process for building and sustaining a strong partnership culture for the Forest. The strategy includes the following components: a method for determining the forest capacity for working in partnership; best practices for building and sustaining new partnerships; and steps for ensuring effective outreach to nontraditional partners.

Forest Capacity for Working in Partnership

The National Partnership Office of the U.S. Forest Service has designed a [partnership capacity assessment tool](#) to help Forest Service units assess, sustain and improve their abilities to work with partners and continue the Forest Service’s long history of partnership and collaboration in land stewardship.

What is the Partnership Capacity Assessment Tool?

The “partnership capacity assessment tool” is essentially a group exercise to reflect on experiences and attitudes about partnerships and collaboration. The tool asks the group to score itself on a series of questions about partnership opportunities, goals, resources, procedures, incentives, barriers, skills and relationships. The group then uses these scores to chart strengths, analyze positive and negative factors that contribute to partnership capacity, and identify actions to sustain and grow capacity.

Who Should Use the Assessment Tool?

The tool is used by Inyo National Forest in conjunction with communities of place, interest and culture, who care about the uses and resources within the Inyo National Forest and whom will benefit from completing the assessment. This tool is designed to generate open dialogue with partners and among staff. It is a useful starting point for assessing current partnership abilities and discussing how to maintain strengths or address needs.

How Can the Assessment Tool Best Meet the Needs of the Forest?

The assessment tool provides the format for a community forum to assess partnership needs and develop priorities to meet those needs. Use of the assessment tool by Forest Service staff can help identify needed resources and changes to better position the Forest for successful accomplishment of goals through partnerships; including partners in the process can help promote dialogue and improve relationships. However, the tool is not intended to assess the feasibility of or develop plans for specific partnership opportunities. These details will be identified during project-level planning.

How Long and Where Will the Assessment Take Place?

The community forum can expect to complete the assessment in one session lasting 3 to 4 hours. The investment of time will pay off by helping forest staff and potential partners to systematically identify needs and actions to meet those needs. Trained facilitators and recorders can be used to keep the process moving smoothly.

Best Practices for Building New Partnerships

Partnerships can be thought of as a type of alliance, where the complex interaction of business and interpersonal activities are essential to successfully achieving mutually beneficial goals. Key characteristics of successful interpersonal relationships include trust, communication, perspective taking, rapport building, and commitment. Partnerships are known to yield better results under certain conditions^{9 10}, for example: when each partner recognizes the need to have access to capabilities and competencies it cannot develop internally; or when a gradual and sustained approach is preferable in accessing resources, capabilities and competencies, as opposed to faster and shorter-term mechanisms such as contracting.

Keeping these conditions in mind, the following best practices are provided to assist forest staff in the identification and development of new partners:

1. Identify the need for partnerships within the long-term strategies and desired condition of the forest
2. Define specific objectives of the partnership
3. Choose partners
4. Evaluate what to offer and what to receive in exchange
5. Define and act upon opportunities
6. Evaluate the effect on forest stakeholders
7. Determine each partner's resources and capabilities
8. Plan the integration
9. Create the partnership
10. Take action and achieve objectives
11. Recognize and celebrate successes

⁹ Mockler, R.J. 1999. *Multinational Strategic Alliances*. John Wiley & Sons. 266 p.

¹⁰ [O'Neill, B. \(n.d.\) Brian O'Neills' 21 partnership success factors. San Francisco, CA: Golden Gate National Parks.](#)

Identify the need for partnerships within long-term strategies and desired condition of the forest

Strategic alliances respond to various long-term strategies of the Forest. For example, the Interpretive Plans for the Inyo National Forest established a strategy for the forest's interpretive program, featuring the interpretation of the objects of interest, both natural and cultural, based upon districts and visitor centers. The forest should use Eastern Sierra Interpretive Association's resources to ensure these interpretive plans remain current and relevant. Interpretive services may be provided on-site or virtually. The specific interpretive products, services and delivery methods are expected to evolve over time, in response to evolving technologies, visitor needs and demands, and available resources. Partnerships are important not only because of the extra resources they provide, but also because they help to enrich a sense of stewardship in both the partners and recipients of interpretive services.

Define specific objectives of the partnership

Three aspects of defining objectives are necessary for the success of the partnership:

1. The objective should be compared with the forest's available resources and capabilities and with those that could be used. The partnership should bridge the gap of existing resources and capabilities to achieve the objectives. The assessment tool can assist in identifying where gaps occur regarding both the forest's capability to cultivate new partnerships and its resources to accomplish management goals alone.
2. A clear consensus (internally) on why the agency cannot reach particular goals on its own, and why it must seek a partnership with an external organization, rather than internal development or via procurement.
3. Knowing where the partnership generates mutual advantages within the chain of value, and clarifying why each partner cannot develop these advantages internally.

Choose partners

The right partner in an alliance must have three principal features¹¹:

1. The partner must have the resources and capabilities to help the Forest achieve its strategic goals, bringing to the partnership what is missing and which they are seeking.
2. The partner and forest must share the same long-term goals for the partnership. Failure is inevitable if the goals are divergent.
3. The partner must not use the alliance to gain know-how, relationships with clients or suppliers, or technology without making contributions of equal strategic weight. Alliances are longer lasting and better when they are considered between partners with a reputation for trustworthiness.

Evaluate what to offer and what to receive in exchange

¹¹ Hill C., and G. Jones. 2000. Strategic Management: an Integrated Approach, 5th ed. Boston, MA: Houghton Mifflin Company.

Reciprocity is a key component of building trust. Each partner should evaluate which capabilities are critical to the partnership, and then decide what the forest can offer to the others and what it can expect from them.

Define and act upon opportunities

Knowing the value of the opportunities that can be achieved with the alliance is an essential guide in negotiation, and subsequent management, of the partnership. Beyond the opportunities, it is also important to examine the possible risks.

Evaluate the effect on forest stakeholders

A key question to consider is, “How will stakeholders, including other partners, react to the partnership?”

Determine each partner’s resources and capabilities

Understanding a partner’s abilities and limitations is an important component in creating a successful partnership. A key question to consider is, “What resources and capabilities can the partners realistically bring to the partnership?”

Plan the integration

Develop a partnership business plan, which should:

1. Organize activities and functions
2. Define accounting procedures
3. Define procedures to resolve conflicts
4. Define the relationships between the partnership and the forest, including duration and renewal process
5. Define the authorizing instrument for the partnership (e.g., memorandum of understanding) that will be appropriate to formalize the relationship

Create the partnership

Flexibility is integral to sustaining an effective partnership. Whatever the form of the partnership, some principles apply:

1. Each partner has its own goals that dictate the role of the partnership
2. The role of the partnership changes as internal and external conditions evolve
3. The relationship between the partners is quite dynamic
4. Evaluate the partnership for effectiveness in meeting mutual goals

Take action and achieve the objectives

For a partnership to last, both parties must find the partnership to be meaningful and to satisfy the established objectives.

Recognize and celebrate successes

Honor the efforts accomplished through the work of partnership. This recognizes the individuals involved and strengthens the relationship between partners.

Steps for Ensuring Effective Outreach and Communication with Nontraditional Partners and the Public

The diversity of people using and valuing the Inyo National Forest will continue to increase as the American population grows and becomes more diverse, and as international visitation increases. California's youth is more culturally diverse than any previous generation. Interpretation and outreach methods designed to connect users to the forest need to communicate important resource issues, solicit commitment to conservation, and encourage appropriate behaviors. Use of the forest by nontraditional user groups, especially Hispanics and Asians, is prevalent and growing.

To assure effective outreach occurs within this growing segment of potential forest partners, metrics should be designed to monitor and evaluate success, adapting as necessary to continually broaden the circle of involvement. The following steps may be considered, as appropriate, in developing innovative partnerships:

- Translation of major documents (or summaries thereof), provision of translators at meetings, or other efforts as appropriate to ensure that limited English speakers gain understanding of potential partnership opportunities
- Provision of opportunities for limited English speakers to provide comments and actively engage in partnership opportunities
- Provision of opportunities for public participation through means other than written communication, such as personal interviews or use of audio or video recording devices to capture oral comments
- Use of different meeting sizes or formats, or variation on the type and number of media used, so that communications are tailored to the particular community or population
- Use of locations and facilities that are local, convenient and accessible to disabled individuals, low-income and minority communities, and Native American tribes
- Assistance to hearing-impaired or sight-impaired individuals

Appendix D: Management Strategies for Resolving Recreation Resource Conflicts

Management strategies can be applied to existing or new recreation sites and uses whenever a conflict between recreation uses or sensitive resources is detected. Sensitive resources include at-risk species and habitats, riparian habitats, soil and watersheds, heritage resources, and other resources.

Implementation of these actions would also take into consideration available funding and staffing. The actions and practices include the following:

1. Conservation Education

- Use information networks, including public service announcements, internet sites and links, and visitor guides and newsletters to communicate information regarding sensitive resources.
- Install and maintain appropriate multilingual information boards, interpretive panels and regulatory signs at developed sites and dispersed areas within sites of sensitive resources.
- Develop interpretive and environmental education programs about sensitive resources and habitats for the public, Forest Service personnel, concessionaires, other special-use authorization holders, and volunteers. Engage the services of special-use authorization holders that provide services to the public (i.e., concessionaires, organization camps, outfitter guides) to assist in the development and delivery of these programs. Provide authorization holders with messages about sensitive resources and management issues so that they can use them to educate people. Ensure that the methods chosen do not result in unacceptable effects to sensitive resources. Coordinate efforts between national forests for maximum results and cost efficiencies. Use existing visitor centers where appropriate.
- De-emphasize the site or area and develop an information strategy to direct visitors to national forest recreation opportunities that do not affect sensitive resources.

2. Perimeter Control

- Modify visitor access to manage use. Install and maintain appropriate fencing or other barriers to protect sensitive resource areas. Limit the number of users at the site or area.
- Install and maintain appropriate multi-lingual informational, interpretive and regulatory signing, in conjunction with perimeter controls, to engage national forest visitors with protection of sensitive resources at recreation sites and areas.

3. Presence

- Provide adequate management presence to ensure protection of sensitive resources. This presence could include Forest Service personnel, peer education, contractors, concessionaires, other permit holders, and volunteer support.

4. Direct Action

- Limit visitor use of recreation sites and areas through diurnal, seasonal or temporary closures during critical life cycle periods for affected at-risk species.
- Where visitor use is allowed, seek opportunities to proactively rehabilitate, design, reconstruct, rehabilitate and harden the site; locate new facilities and areas for redistributing human use away from sensitive resources.
- Where visitor use is restricted, limit or control use at developed recreation sites and areas through permit system (e.g., group campgrounds). When other actions are ineffective, enact and enforce forest orders to protect sensitive resource areas through use of seasonal or temporary closures of developed recreation sites and areas. Seek opportunities to proactively design and locate new facilities and areas for re-distributing human use away from sensitive resources.
- Where visitor use is prohibited when seasonal or temporary closures are ineffective, enact and enforce forest orders to close recreation sites or areas. If monitoring and evaluation indicate that closure is ineffective, take steps to decommission facilities and permanently discontinue visitor use.

Appendix E: Timber Suitability and Management

Determination of Suitability for Timber Production

Timber production is the purposeful growing, tending, harvesting and regeneration of regulated crops of trees to be cut into logs, bolts or other round sections for industrial or consumer use (36 CFR 219.19). Timber production activities can contribute to social, economic and ecological sustainability. Timber production may offset some or all of the costs of silvicultural treatments and other forest management activities that restore ecosystems to desired conditions, lower uncharacteristic fire and insect risk, increase understory plant diversity and abundance, and create employment opportunities.

The National Forest Management Act (NFMA) requires that the Forest Service determine the suitability of National Forest System lands for timber production and has specific requirements for timber suitability analysis in land management plans. Note that there is a distinction between timber harvest as a resource use (i.e., timber production) and timber harvest as a management tool to achieve desired conditions. Timber harvest on lands classified as not suitable for timber production may be used as a tool designed to achieve desired conditions.

Lands that *May be* Suitable for Timber Production

Identification of land that *may be* (tentatively) suitable for timber production is the first step in the process of determining lands that are suited for timber production. This preliminary classification is made prior to the consideration of objectives and desired conditions that are part of the forest plan revision process. It excludes National Forest System lands that are not suitable for timber production based on the following criteria:

- Timber production is prohibited by statute, executive order, regulation or where the Secretary of Agriculture or the Chief of the Forest Service has withdrawn the land from timber production. Examples include designated wilderness areas, designated wild and scenic rivers, research natural areas and other designated areas where timber is specifically prohibited.
- Land that is not forested (nonforest), identified by having less than 10 percent occupation¹² by conifer trees of any size or having a nonforest use like powerline clearings, residential or administrative sites, improved pasture, etc.
- Known environmental factors exist that preclude reasonable assurance that restocking can be achieved within five years of final regeneration harvest¹³.
- Technology to harvest timber is not currently available without causing irreversible damage.

Forest lands that remain after this initial screening are termed “lands that *may be* suitable for timber production.” Based on this initial suitability analysis, the Inyo National Forest has 84,876 acres that *may be* suitable for timber production.

¹² Ten percent occupation was represented utilizing ten percent canopy cover during analysis.

¹³ The following Regional Dominance Types (CalVeg Forest Types) are recognized as capable of adequate restocking within 5 years: Giant Sequoia, Pacific Douglas-fir, Douglas-fir-Ponderosa Pine, Eastside Pine, Jeffrey Pine, Mixed Conifer-Giant Sequoia, Incense Cedar, Mixed Conifer-Fir, Mixed Conifer-Pine, Ponderosa Pine, Red Fir, and White Fir. In addition, Order 3 soil survey data was used to inform the likelihood of regeneration success.

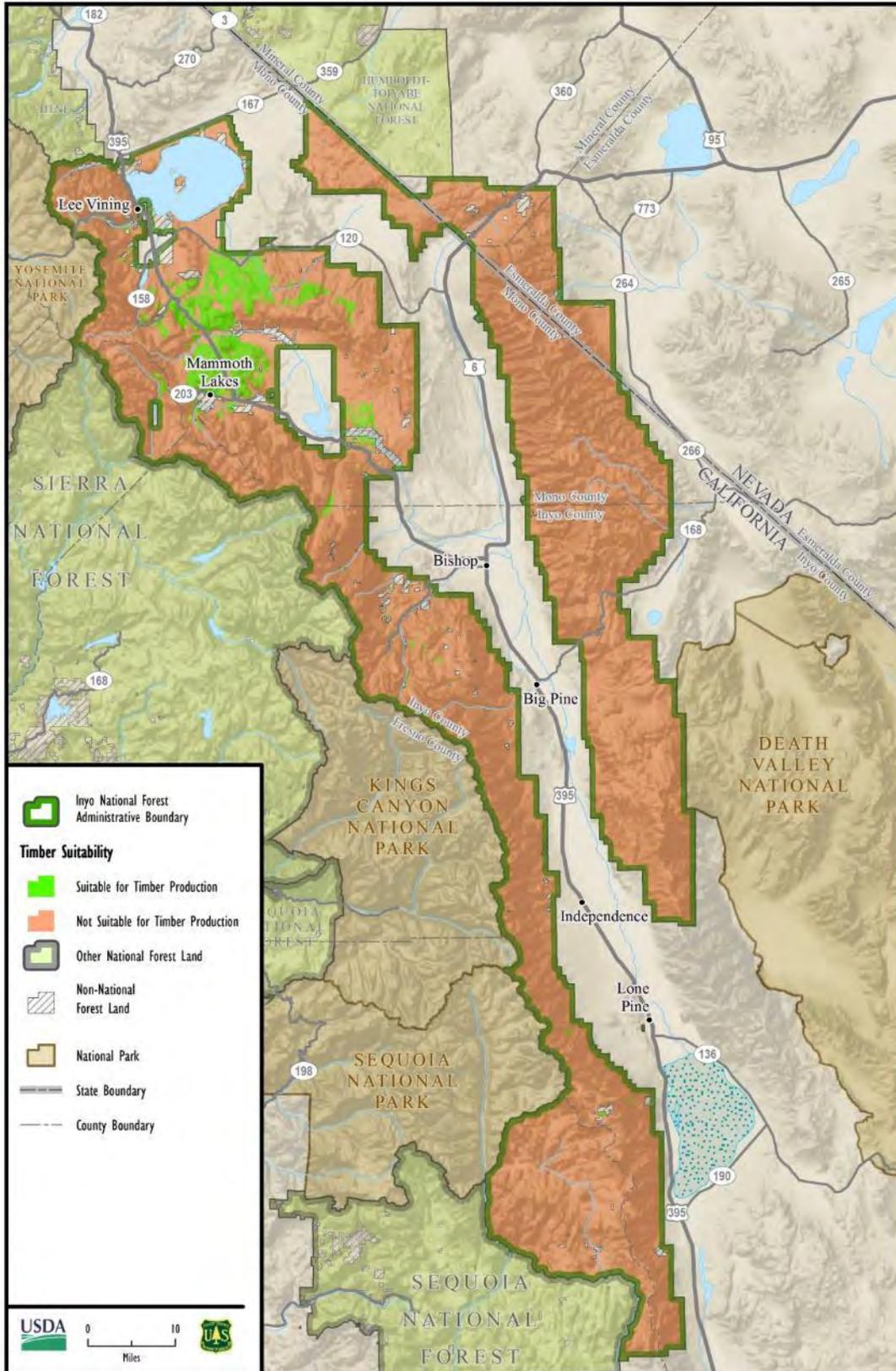


Figure 16. Timber suitability map for the Inyo National Forest

Lands Suitable for Timber Production

The final step in determining lands suitable for timber production is to determine which of the lands that *may* be suitable for timber production, are suited for timber production, based on compatibility with desired conditions and objectives:

- Timber production is a desired primary or secondary use of the land
- Timber production is anticipated to continue after desired conditions have been achieved
- A flow of timber can be planned and scheduled on a reasonably predictable basis
- Regeneration of the stand is intended
- Timber production is compatible with the desired conditions or objectives for the land

After subtracting the lands that are suited for timber production from the lands that *may* be suitable, the remaining lands are not suited for timber production because timber production is not compatible with the land area's desired conditions and objectives. Categories of lands deemed not suited for timber production include areas recommended for wilderness designation, wild river segments of eligible wild and scenic rivers¹⁴, and California spotted owl protected activity centers.

On lands not suited for timber production, timber harvest may occur to protect multiple use values other than timber production, and for salvage, sanitation, public health or safety. Multiple use values may also include various other restoration activities. For example, meadow restoration may require cutting encroaching trees. These trees may be made available for sale, but the intent is to maintain the meadow.

The Inyo National Forest includes approximately 84,795 acres that are suitable for timber production, with the majority in the northwest corner the forest (Figure 16). The detailed acres of suitability are shown in table 17. Project designs will incorporate actions to meet a variety of objectives, such as riparian area enhancement, habitat maintenance or development, and scenic stability and integrity.

Planned Timber Sale Program

The planned timber sale program represents an estimation of treatment types, planned to achieve the outcomes described by the plan's desired conditions and objectives, and consistent with the other plan components during the plan period (i.e., by decade). The planned practices are based on the projected fiscal capability and organizational capacity of the planning unit, and not a commitment to take an action or to develop a project-specific proposal for such action.

Sustained Yield Limit

The sustained yield limit is the amount of timber, meeting applicable utilization standards, "which can be removed from a forest annually in perpetuity on a sustained yield basis" (NFMA at section 11, 16 USC 1611; 36 CFR 219.11(d) (6)). It is the volume that could be produced in perpetuity on lands that *may be suitable* for timber production. The calculation of the sustained yield limit is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The sustained yield limit for the lands that *may be suitable* for timber production is 40 millions of cubic feet (MMCF) per decade.

¹⁴ Area includes a corridor incorporating approximately 0.25 miles on either side of eligible Wild and Scenic Rivers.

Table 17. Inyo National Forest land suitable for timber production

Land Classification Category	Acres
A. Inyo National Forest System Land	1,983,919
B. Lands non suited for timber production due to legal or technical reasons (1+2+3)	1,899,042
1. Land withdrawn from timber production	1,554,013
2. Nonforested lands and/or lands where adequate stocking is not assured	345,029
3. Lands where irreversible resource damage is likely	0
C. Lands that <i>may</i> be suitable for timber production (A-B)	84,876
D. Lands where management objectives limit timber harvest	81
1. Recommended wilderness areas	11
2. Eligible wild river segments	70
3. California spotted owl protected activity centers	0
E. Lands not suitable for timber production (B+D)	1,899,124
F. Lands suitable for timber production (A-E)	84,795

Projected Wood Sale Quantity and Timber Sale Quantity

The estimated quantity of timber and all other wood products that is expected to be sold from the plan area for the plan period is called the projected wood sale quantity (PWSQ). The PWSQ consists of the projected timber sale quantity as well as other woody material such as fuelwood, firewood, or biomass that is also expected to be available for sale. The PWSQ includes volume from timber harvest, for any purpose, based on expected harvests that would be consistent with the plan components. The PWSQ is also based on the planning unit's fiscal capability and organizational capacity. PWSQ is neither a target nor a limitation on harvest.

The projected timber sale quantity (PTSQ) is the estimated quantity of timber meeting applicable utilization standards that is expected to be sold during the plan period. As a subset of the PWSQ, the PTSQ includes volume from timber harvest for any purpose, from all lands in the plan area, based on expected harvests that would be consistent with the plan components. The PTSQ is also based on the planning unit's fiscal capability and organizational capacity. PTSQ is neither a target nor a limitation on harvest. Average volume outputs for the 1st and 2nd decades for Inyo National Forest planned timber sale program is displayed in Table 18.

Table 18. Average volume outputs for the 1st and 2nd decades for Inyo National Forest planned timber sale program¹

Land suitability	Product Type	Product Subtype	1 st Decade MMCF ²	1 st Decade MMBF ³	2 nd Decade MMCF	2 nd Decade MMBF
Suitable ⁴	Timber Product ⁵	A1. Sawtimber	1–1.5	5–7.5	1–1.5	5–7.5
Suitable	Timber Product	A2. Other products	2–3	10–15	2–3	10–15
Not Suitable ⁶	Timber product	B1. Sawtimber	<0.5	<5	<0.5	<5
Not Suitable	Timber product	B2. Other products	1–1.5	5–7.5	1–1.5	5–7.5
Both Suitable & Not Suitable	Timber Product Total	C. Projected Timber Sale Quantity (A1+A2+B1+B2)	4–6	20–30	4–6	20–30
Both Suitable & Not Suitable	Other Estimated Wood Products ⁷	D. Fuelwood	3	15	3	15
Both Suitable & Not Suitable	All	E. Projected Wood Sale Quantity (PWSQ) (C+D)	7–9	35–45	7–9	35–45

¹Although the NFMA provides that the plan period is at least every 15 years; it limits the sale of timber to less than the sustained yield limit for each decade of the plan (16 U.S.C. 1611). Providing estimates in the plan of the annual projected wood sale quantity and the annual projected timber sale quantity for the each of first two decades aligns with the NFMA decadal periods limiting the sale of timber, and provides estimates to cover a second decade if revision of the plan is delayed beyond the 15-year limit.

²MMCF: Millions of cubic feet.

³MMBF: Millions of board feet.

⁴Lands suitable for timber production.

⁵The timber product categories are for volumes other than for salvage or sanitation, that meet timber product utilization standards.

⁶Lands not suitable for timber production.

⁷Other estimated wood products include fuelwood, biomass and others that do not meet timber product utilization standards.

Vegetation Management Practices

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

Forest management on the Inyo National Forest consists of restoration and fuels reduction treatments designed to achieve desired conditions for the associated terrestrial vegetation type on suitable timber lands. Most treatments would occur in the montane zone, with minor amounts in the upper montane zone. Thinning removes sawtimber and miscellaneous convertible products; however, due to proximity to existing mill facilities, most treatments yield fuelwood and specialty wood products.

The projected management approach uses uneven-aged management systems. Thinning will be the primary practice, with group selection implemented as the regeneration method. Thinning is used to increase individual tree vigor, increase horizontal heterogeneity, and reduce fuel hazards. Group selection will be used to regenerate suitable lands, increasing vertical heterogeneity and tree species diversity. Table 19 displays estimates of acres of activity implemented by decade and vegetation management type for the Inyo National Forest.

Forest management in wildfire protection zones and strategic ridge tops will be prioritized for treatment. Forest management on unsuitable lands is primarily responsive to safety concerns or disturbance agents such as wildfire, windthrow, insect and disease, or other restoration objectives.

Table 19. Estimated vegetation management practices on the Inyo National Forest in acres implemented per decade

Forestwide vegetation management Practices	1st Decade	2nd Decade
Thinning (Intermediate Harvest)	8,000–11,500	8,000–11,500
Regeneration (Group Selection)	1,000–2,000	1,000–2,000

Silvicultural treatments used in timber management prescriptions

While an uneven-aged management system will be the primary approach used to achieve desired conditions and restoration objectives, other silvicultural treatments may be used to better meet specific forest health and restoration objectives.

Reforestation

Reforestation is the act of renewing forest cover by establishing young trees. This is typically accomplished by planting nursery-grown seedlings, but establishment of seedlings from natural seeding of nearby sexually-mature trees may supplement areas planted with nursery-grown seedlings. In some cases, natural seedlings originating from nearby trees may be used to meet management objectives. In the case where desired tree species are capable of sprouting new trees

from roots (e.g., oaks and aspen), prolific root sprouting can provide for effective reestablishment.

Site Preparation

Site preparation treatments are designed to enhance the success of regeneration efforts. A variety of methods may be used to reduce competing vegetation, planting obstacles and fuel levels. Ground-based equipment may be used to reduce tree and shrub levels, providing a more favorable environment for developing seedlings. Selective herbicides may be applied to suppress competing plants, reducing competition for soil moisture and sunlight. Fire may be used to reduce surface fuel or to consume woody material piled by machine or hand.

Seedling Establishment

As discussed under reforestation, new forests may be established by planting nursery-grown seedlings or by germinating seed from nearby mature trees. Seedlings are grown in tree nurseries, from selected seed sources, to meet the expected demands of the future growth environment. Selected species, numbers, and arrangements are designed to provide a variety of options for the future. Seedlings developing from seeding of nearby mature trees vary widely in number and arrangement and commonly establish, in pulses, over time.

In managed environments, planting selected species at designed numbers and arrangements provides advantages over the development of seedlings from nearby mature trees. Seedlings originating from seeding of nearby trees often provide numbers in excess of need and in undesirable arrangement. They may, however, provide for successful establishment of new forests in places regarded as difficult to plant, or where planted seedling mortality levels are unacceptably high. Regardless of origin, both sources benefit from actions taken to provide more favorable growth environments.

Seedling Stocking Criteria

The stocking criteria for lands suitable for timber production are indicated in Table 20. They are designed to provide for the attainment of long-term desired conditions, and provide sufficient stocking to meet the potential forest product yields over time. The values apply after regeneration harvests, and after disturbances, like in areas affected by high severity fire.

Table 20. Stocking criteria for suitable lands by forest type*

Forest Type	Region 5 Site Class	Trees per Acre Minimum
Ponderosa/Jeffrey Pine	0–3	200
Ponderosa/Jeffrey Pine	4–5	150
True Fir	All	300
Douglas-fir	All	225
Mixed Conifer	All	200

* Final density after stand establishment (within 5 years of harvest).

Release

These treatments are designed to free young trees from undesirable competing vegetation. Treatments are aimed at increasing the availability of moisture, sunlight and nutrients to planted seedlings, thus increasing survival and favorable growth rates. Depending on conditions, release can be performed using hand tools, herbicides or mechanically.

Precommercial Thinning

This treatment removes selected trees to reduce stocking and promote the growth and development of desirable trees. The removed trees are typically small and without sufficient value to cover the cost of the treatment.

Timber Harvest

The projected activities associated with scheduled forest management on suitable lands for timber production are geared toward uneven-aged management, a system using a planned sequence of treatments, designed to maintain and regenerate a stand with three or more age classes. The types of treatments used are primarily “thinning” and “group selection”:

- Thinning is commonly applied to lower stand density and improve the health and growth rates of the remaining trees. It may also be designed to alter tree arrangement. Trees of merchantable size are selected for removal; trees of less than merchantable size are selected when the reduction of ladder fuels is an objective. The youngest age classes are typically excluded from thinning.
- Group selection is the most common method used to regenerate an age class. All, or most, of the trees are removed, followed by the establishment of seedlings. The size of the opening is variable, but is designed to provide sufficient site resources for favorable seedling establishment and growth.

In addition to scheduled forest management, management may also occur in response to disturbance events (i.e. wildfire, windthrow, insect, parasite or pathogen-related decline). Other harvest methods will likely apply to these specific conditions and project objectives. For example, after wildfire, and especially on suitable land, salvage harvests may be implemented to recover the economic value of dead and dying trees and to reduce the fuel environment. Other events, such as windthrow and insect and pathogen related infestations, may lead to salvage or sanitation harvests, to recover economic value and improve residual stand health.

Site-specific analysis may also lead to the use of alternative regeneration methods, including those associated with the even-aged management system. For example, project-specific objectives may lead to use of the shelterwood regeneration method to aid in establishment of seedlings.

Safety considerations, although not regarded as a component of a harvest system, will likely lead to the harvest of dead and dying trees, as well as living trees deemed a risk, that may fail along roads and other places where people or property are threatened. This action, commonly referred to as hazard tree removal, or tree risk reduction, may be used extensively along roads and trails within wildfire areas.

Appendix F: Forestwide Rangeland Standards

Introduction

The rangeland standards from the conversion process of the 1988 Land and Resource Management Plan Inyo National Forest are brought forward into this Draft Revised Land Management Plan for the Inyo National Forest. These rangeland standards will allow the Inyo to sustain and improve rangeland ecosystems. They are summarized in matrices based on vegetation condition, vegetation type and grazing system.

Vegetation and Grazing Systems Matrices

General

Management matrices, or tables, were developed based on regional range analysis handbooks (Region 5 draft amendment to FSH 2209.21) and supported by the Pacific Southwest Region Rangeland Analysis and Planning Guide¹⁵. The range analysis handbooks provide for a continuum of allowable uses, depending on vegetative condition. An interdisciplinary team made adjustments to the figures in the tables based on the specific grazing system used, current literature, and professional experience with Inyo National Forest conditions. An interdisciplinary team considered these standards to be the maximum allowable per vegetation type on the Inyo National Forest.

Allowable use refers to use by all users, including wildlife, recreation and domestic livestock. Allowable use is measured by percent weight removed for grasses and sedges; and by percent leader growth removed or broken (i.e., measured by length or volume) for shrubs and trees. Allowable use figures were based on a normal precipitation year and adjustments should be made by managers during drought years. Note that five percent allowable use refers to incidental use such as occasional stray and recreational animals. In practice, 5 percent means no planned use.

The regional guide identifies strategies for monitoring different ecological types and for determining desired conditions. The watershed evaluation criteria modify the use standards where necessary. Habitats of threatened, endangered, sensitive and proposed wildlife and plant species are evaluated and allowable use standards modified as necessary after consultation with the US Fish & Wildlife Service, in order to maintain species viability. Cultural sites will be surveyed, and use will be in accordance with Section 106 of the National historic Preservation Act, and other relevant laws.

Vegetation Types

Rangeland vegetation types were originally classified according to the Region 5 Range Analysis Handbook (Region 5 draft amendment to FSH 2209.21) and adjusted based on the presence of commonly found plant associations on the Inyo National Forest, and updated based on current research¹⁶. A preliminary list of desired species selected for monitoring key species is shown in Table 21. Desired plants refer to plant species that are representative of a specific vegetation type,

¹⁵ USDA Forest Service. 1997. Pacific Southwest Region 5 Range Analysis and Planning Guide. Region 5 - Pacific Southwest Region, Vallejo CA. March 1997.

¹⁶ Weixelman, Dave A. and Gross, Shana E. (n.d.) Plant functional types in relation to disturbance and hydrologic gradients in mountain meadows, Sierra Nevada and Southern Cascade ranges, CA. USDA Forest Service, Region 5. Unpublished report.

in a healthy state; key species refers to a plant species of sufficient abundance and palatability to justify their use as indicators, to the degree of utilization for the associated vegetation type. Additional desired and key species may be identified by an interdisciplinary team, based on site specific conditions and objectives, at the time of site-specific project planning. Non-native grass species in the genus *Poa* are not identified as key species. If a key species is not present at a given site, a different representative desired species may be substituted during actual monitoring.

Table 21. A preliminary list of desired species that are selected for monitoring key species

Vegetation Type	Desired Species	Key Species
Carex-Dominated (Wet) Meadows	<i>Carex nebrascensis</i> <i>Carex aquatilis</i> <i>Carex utriculata</i> <i>Carex athrostachya</i> <i>Eleocharis spp.</i>	<i>Carex spp.</i>
Carex-Grass-Dominated (Moist) Meadows ¹	<i>Carex spp.</i> <i>Trifolium spp.</i> <i>Deschampsia caespitosa</i> <i>Poa spp.</i> <i>Hordeum brachyantherum</i> Miscellaneous forbs	<i>Carex spp.</i>
Desert Shrub	<i>Elymus spicatus</i> <i>Ambrosia domosa</i> <i>Stipa hymenoides</i> <i>Grayia spinosa</i> <i>Atriplex spp.</i> <i>Menodora spinescens</i> <i>Krascheninnikovia lanata</i> <i>Stipa speciose</i> <i>Ephedra viridis</i> <i>Ephedra nevadensis</i> <i>Psoralea polydenius</i>	<i>Stipa hymenoides</i> <i>Stipa speciose</i> <i>Grayia spinose</i> <i>Ceratoides lanata</i>
Sagebrush	<i>Atriplex spp.</i> <i>Grayia spinose</i> <i>Stipa spp.</i> <i>Elymus elymoides</i> <i>Stipa hymenoides</i> <i>Ephedra viridis</i>	<i>Grayia spinose</i> <i>Stipa spp.</i> <i>Elymus elymoides</i> <i>Stipa hymenoides</i>

Vegetation Type	Desired Species	Key Species
Bitterbrush	<i>Purshia</i> spp. <i>Artemisia tridentate</i> <i>Stipa</i> spp. <i>Elymus elymoides</i> <i>Stipa hymenoides</i> <i>Ribes cereum</i> <i>Ribes velutinum</i> <i>Agropyron</i> spp. <i>Poa secunda</i>	<i>Purshia</i> spp.
Alpine Meadow	<i>Carex</i> spp. <i>Agropyron</i> spp. <i>Eleocharis</i> spp. <i>Deschampsia caespitos</i> <i>Danthonia</i> spp. <i>Poa</i> spp.	<i>Carex</i> spp. <i>Poa</i> spp. <i>Deschampsia caespitosa</i> <i>Danthonia</i> spp.
Alpine Dwarf Shrub	<i>Artemisia arbuscula</i> <i>Ribes</i> spp. <i>Eriogonum</i> spp. <i>Koeleria macrantha</i> <i>Elymus elymoides</i> <i>Poa</i> spp.	<i>Poa</i> spp. <i>Koeleria macrantha</i> <i>Elymus elymoides</i>
Willow	<i>Salix</i> spp.	<i>Salix</i> spp.
Aspen ²	<i>Populus tremuloides</i>	<i>Populus tremuloides</i>

¹ This type does not include degraded wet or moist meadows. Dry meadows do not represent a management problem on the Inyo. Use the same standards for this type as for adjacent dryland vegetation types on a site specific basis.

² This type does not include use standards for the understory vegetation. For understory vegetation, use the appropriate vegetation matrix.

Grazing Systems

There are five primary grazing systems used on the forest: continuous season long; once over; compressed season; rest rotation; and deferred rotation. There are three others that are either not in current use, or used less frequently: year round; holistic resource management; and setback pastures. Here are the descriptions of eight grazing systems:

- Continuous season long: This system permits continuous grazing throughout the entire plant growing season. Continuous season long grazing often requires more restrictive standards (i.e. reduced utilization levels) than other grazing systems due to repeated use of individual plants over an extended period of time. This repeated use can lead to a downward trend in plant vigor if utilization levels are set too high.
- Once over: Once over grazing refers to a duration of approximately three days for sheep or five to seven days for cattle, within a given management unit. This grazing scheme is of short duration and low to moderate intensity. Once over grazing may occur early, mid or late season.

- **Compressed season:** This system enables permitted animal months to be reached by allowing more livestock over a shorter period of time. For example a historical permitted use of 150 head for 4 months (600 animal months) might be changed to 600 head for 1 month to reach the same 600 AM'S of use.
- **Rest rotation:** This includes only the two-pasture rest rotation system in which there would be total rest on one pasture and season long use on the other. Allowable use was largely based on season- long continuous use for the grazed pasture. Rest rotation systems with 3 or more pastures are treated as “deferred rotation”, because one pasture is grazed early and another is grazed late as in a deferred rotation system, while the third is rested.
- **Deferred rotation:** This is a system in which units are used for only a portion of the growing season. The use standards are set individually according to the timing of use, i.e. first half or second half of the plant growing season.
- **Year-round:** This refers to grazing on a 9 to 12 month basis per year. This form of grazing was considered, but is currently not in use on the Inyo National Forest.
- **Holistic resource management:** Commonly associated with Alan Savory and the Center for Holistic Resource Management, holistic resource management typically incorporates high intensity-short duration grazing strategies as well as other resource management techniques. Holistic resource management is unique with each land use application; it is inconsistent with predetermined utilization standards and could be adopted on an allotment specific basis as decided by a holistic resource management interdisciplinary team. If this grazing system is to be implemented, the holistic resource management team should determine appropriate allowable use standards and participate in the requisite site specific NEPA analysis.
- **Setback pastures:** Setback pastures are resource enclosures, or pastures, that can be grazed occasionally. They normally will be assigned standards on a site specific basis.

Proposed Utilization Standards: Vegetation Parameters

In this section the proposed utilization tables, or matrices, for each vegetation type (i.e., Carex-dominated (wet) meadows, Carex-grass-dominated (moist) meadows, desert shrub, sagebrush, bitterbrush, alpine meadow, alpine dwarf shrub, willow and aspen) by grazing system are presented.

Within the matrices there are overlaps in the numbers of desired plants over total herbaceous plants. Total herbaceous refers to the total number of plants counted out of 100 tallied. This includes invaders as well as desired plants. It does not include tallies on litter, bare soil, gravel or rock. When more than one vegetation type exists within a management unit, more than one use standard may exist. Livestock should be removed from a unit when the first (in chronological time) allowable use standard is reached.

Table 22. Proposed utilization standards for Carex dominated wet meadow by grazing system. The key species is Carex sp. (i.e., sedges). Allowable use is in percent by weight.

Desired Plant Tally ¹ (Total Herbaceous)	Continuous Season Long ²	Once Over (Early Season/Late Season)	Compressed Season	Rest Rotation ³	Deferred Rotation (Early Season/Late Season)
68 (68+)	45%	60%/45%	NR ⁴	-	50%/40%
51–67 (51+)	45% ²	45%/35%	NR	-	50%/40%
19–50 (19+)	25%	35%/25%	NR	-	40%/30%
7–34 (16–85)	15%	25%/15%	NR	-	30%/20%
0–16 (0–45)	5% ⁵	15%/10%	NR	-	20%/10%

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21).

² Number given is for concave meadow; drop by 10 % for convex meadow.

³ For 2-pasture systems, use season-long standards; for ≥3-pasture systems, use deferred rotation early/late season standards.

⁴ Grazing practice not recommended.

⁵ The 5% allowable use is for incidental use only. The intent is not to have grazing at this level.

Table 23. Proposed utilization standards for Carex-grass dominated moist meadow vegetation type by grazing system. The key species is Carex sp. (i.e., sedges). Allowable use is in percent by weight.

Desired Plant Tally ¹ (Total Herbaceous)	Continuous Season Long	Once Over (Early Season/Late Season)	Compressed Season	Rest Rotation ²	Deferred Rotation (Early Season/Late Season)
>51 (55)	40%	55%/40%	55%/40%	-	45%/35%
37–57 (>37)	40%	40%/30%	40%/30%	-	45%/35%
17–57 (>20)	20%	30%/25%	30%/25%	-	35%/25%
0–20 (>10)	10%	20%/10%	20%/10%	-	25%/15%
<13 (0–25)	5% ³	10%/5%	10%/5%	-	15%/5%

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21).

² For 2-pasture systems, use season-long standards; for ≥3-pasture systems, use deferred rotation early/late season standards.

³ The 5% allowable use is for incidental use only. The intent is not to have grazing at this level.

Table 24. Proposed utilization standards for desert shrub vegetation type by grazing system. Key species are *Stipa sp.* (needlegrass), *Stipa hymenoides* (ricegrass), and *Grayia spinosa* (spiny hopsage). Allowable use is in percent by weight.

Desired Plant Tally ¹ (Total Herbaceous)	Continuous Season Long	Once Over (Early Season/Late Season)	Compressed Season	Rest Rotation ²	Deferred Rotation (Early Season/Late Season)
29–41 (>38)	30%	50%/40%	50%/40%	NR	40%/30%
8–40 (>30)	30%	50%/40%	50%/40%	NR	40%/30%
<32 (>10)	20%	30%/20%	30%/20%	NR	30%/20%
<14 (>5)	10%	20%/10%	20%/10%	NR	20%/10%
<8 (<11)	5% ³	10%/5%	10%/5%	NR	10%/5%

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21 Range Analysis Handbook).

² Grazing practice not recommended.

³ The 5% allowable use is for incidental use only. The intent is not to have grazing at this level.

Table 25. Proposed utilization standards for sagebrush/bunchgrass vegetation type by grazing system. Key species include *Stipa sp.* (needlegrass), *Elymus elymoides* (squirreltail), *Stipa hymenoides* (ricegrass), and *Grayia spinosa* (spiny hopsage). Allowable use is set by whichever limit is utilized first: allowable use on grasses is in percent by weight; allowable use of brush is percent of the current year's growth.

Desired Plant Tally ¹ (Total Herbaceous)	Continuous Season Long	Once Over (Early Season/Late Season)	Compressed Season	Rest Rotation	Deferred Rotation (Early Season/Late Season)
29–41 (>38)	50%	40%/60%	40%/60%	50%	40%/60%
8–40 (>30)	50%	40%/60%	40%/60%	50%	40%/60%
<32 (>10)	40%	30%/50%	30%/50%	40%	30%/50%
<14 (>5)	20%	20%/40%	20%/40%	20%	10%/40%
<8 (<11)	5% ²	10%/30%	10%/30%	5	5%/30%

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21 Range Analysis Handbook).

² The 5% allowable use is for incidental use only. The intent is not to have grazing at this level.

Table 26. Proposed utilization standards for bitterbrush vegetation type by grazing system. Key species is *Purshia* sp. (bitterbrush). Allowable use is set by whichever limit is utilized first: allowable use of bitterbrush is the percent of current year’s leader growth; allowable use on grasses is by percent weight.

Desired Plant Tally ¹ (Total Herbaceous) [<i>Purshia</i> sp. Condition]	Continuous Season Long	Once Over (Early Season/Late Season)	Compressed Season	Rest Rotation	Deferred Rotation (Early Season/Late Season)
29–41 (>38) [<15% <i>Purshia</i> in Form Classes 3 and/or 6 ²]	40%	50%/40%	50%/40%	NR ³	50%/40%
8–40 (>30) [<15% <i>Purshia</i> in Form Classes 3 and/or 6 ²]	40%	50%/40%	50%/40%	NR	50%/40%
<32 (>10) [<15% <i>Purshia</i> in Form Classes 3 and/or 6 ²]	30%	40%/30%	40%/30%	NR	40%/30%
<14 (>5) [<15% <i>Purshia</i> in Form Classes 3 and/or 6 ²]	20%	30%/20%	30%/20%	NR	30%/20%
<8 (<11) [<15% <i>Purshia</i> in Form Classes 3 and/or 6 ²]	5% ⁴	20%/5%	20%/5%	NR	20%/5%

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21 Range Analysis Handbook).

² FSH 2209.21 (Range Handbook) Form classes for brush:

- Class 1 = All bitterbrush available, little or no hedging.
- Class 2 = All bitterbrush available, moderately hedged
- Class 3 = All bitterbrush available, heavily hedged.
- Class 4 = Bitterbrush largely available, little or no hedging.
- Class 5 = Bitterbrush largely available, moderately hedged.
- Class 6 = Bitterbrush largely available, heavily hedged.

³ Grazing practice not recommended.

⁴ The 5% allowable use is for incidental use only; the intent is not to have grazing at this level. Also used if all hits are decadent and there is no regeneration

Table 27. Proposed utilization standards for alpine meadow vegetation type by grazing system. Key species include *Carex sp.* (sedges), *Poa sp.* (bluegrass), *Deschampsia cespitosa* (hairgrass), and *Danthonia sp.* (oatgrass). Allowable use is in percent by weight.

Desired Plant Tally ¹ (Total Herbaceous)	Continuous Season Long	Once Over (Early Season/Late Season)	Compressed Season	Rest Rotation ²	Deferred Rotation
>38 (40)	30%	35%/30%	NR ³	30%	NR
31–40 (>30)	20%	30%/20%	NR	20%	NR
19–30 (>21)	15%	20%/15%	NR	15%	NR
9–20 (>9)	5% ⁴	10%/5%	NR	5%	NR
<11 (<28)	5%	5%	NR	5%	NR

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21 Range Analysis Handbook).

² Only the 2-pasture system is used, because of the short growing season.

³ Grazing practice not recommended.

⁴ The 5% allowable use is for incidental use only. The intent is not to have grazing at this level.

Table 28. Proposed utilization standards for alpine dwarf shrub vegetation type by grazing system. Key species are *Poa sp.* (bluegrass), *Koeleria macrantha* (junegrass) and *Elymus elymoides* (squirreltail). Allowable use is in percent by weight.

Desired Plant Tally ¹ (Total Herbaceous)	Continuous Season Long	Once Over (Late Season Only)	Compressed Season	Rest Rotation ²	Deferred Rotation
>38 (40)	25%	30%	NR ³	25%	NR
31–40 (>30)	20%	20%	NR	20%	NR
19–30 (>21)	15%	15%	NR	15%	NR
9–20 (>9)	5% ⁴	5%	NR	5%	NR
<11 (<28)	5%	5%	NR	5%	NR

¹ Number of vegetation hits tallied out of 100 total using the toe-point method (FSH 2209.21 Range Analysis Handbook).

² Only the 2-pasture system is used, because of the short growing season.

³ Grazing practice not recommended.

⁴ The 5% allowable use is for incidental use only. The intent is not to have grazing at this level.

Table 29. Proposed utilization standards for aspen vegetation type by grazing system. Key species is *Populus tremuloides* (aspen). Allowable use is percent (by number) aspen regeneration utilized (either consumed or trampled) annually.

Age Class ¹ / Regeneration	Continuous Season Long	Once Over (Late Season Only)	Compressed Season	Rest Rotation ²	Deferred Rotation
≥ 2 Age classes / Adequate regeneration	20%	20%	20%	20%	20%
< 2 Age classes / Adequate regeneration	NU ²	NU	NU	NU	NU
≥ 2 Age classes / No regeneration	NU	NU	NU	NU	NU
< 2 Age classes / No regeneration	NU	NU	NU	NU	NU

¹ Sites with stems <2 years and/or no regeneration were combined and put into a NO USE category, since the objectives in aspen stand management are to manage for a minimum of two age classes, for regeneration if only one class exists, and for protection of the stands if there are more than 2 age classes. FSH 2209 .21 (Range Handbook) Age Classes: seedling, young plant, mature plant, decadent plant, sprouts or suckers

² No use.

Table 30. Proposed utilization standards for willow vegetation type by grazing system. Key species is *Salix sp.* (willow). Allowable use is percent (by volume) available willow twigs and leaves utilized or trampled.

Age Class ¹ and Regeneration	Continuous Season Long	Once Over ²	Compressed Season	Rest Rotation ²	Deferred Rotation
Form Classes 1 & 4 or Good Regeneration	25%	30%	NR ²	25%	NR
Form Classes 2 & 5 or Good Regeneration	20%	20%	NR	20%	NR
Form Classes 3, 6, 7, 8 or Good Regeneration	15%	15%	NR	15%	NR

¹ FSH 2209.21 (Range Handbook) form classes: class 1 = all willows are available, little or no hedging; class 2 = all willows are available, moderately hedged; class 3 = all willows are available, heavily hedged; class 4 = willows largely available, little or no hedging; class 5 = willows largely available, moderately hedged; class 6 = willows largely available, heavily hedged; class 7 = willows mostly unavailable; and class 8 = willows unavailable.

² Late season only.

³ Grazing practice not recommended.

Watershed Evaluation Criteria and Corrective Actions

An ecosystem approach to determining final forage utilization standards must include an evaluation of current watershed condition or function. A watershed that is fully functional will have the ability to capture, store and slowly release water over time. When a watershed or sub-watershed is non-functional or degraded, the ability to store and release water for plant use over the grazing season is reduced or lost. After a preliminary allowable use factor has been determined from the vegetation matrices adjustments and corrective actions may be identified based on watershed evaluations, in order to implement restoration of watershed function.

A watershed evaluation consists of two parts, a site specific evaluation and a broad scale watershed analysis. A site specific evaluation assesses watershed characteristics in representative riparian, upland and stream channel vegetation types based on evaluation criteria listed in Table 31 and Table 32. The broad scale watershed analysis examines watershed characteristics over a much greater area, including all areas upstream and downstream within the watershed.

If the results of these evaluations indicate that the watershed is fully functional, with no off-site factors that need to be addressed, no adjustment to the preliminary allowable use factor is needed. If the watershed is less than fully functional, the results of the site-specific and broad scale evaluations are integrated by an interdisciplinary team and corrective actions are developed that specifically relate to the identified problems on the ground. The number of corrective actions required is dependent on the severity and number of problems present.

Watershed Assessment Protocol

Identify the watershed area to be evaluated. This will usually be a sub-watershed, however it is important to consider the entire watershed condition and identify any upstream or downstream contributing factors and impacts. Site specific watershed observations will be taken in conjunction with the vegetation toe point data collection (FSH 2201.09).

Broad-scale Evaluations

The area upstream will be considered and any factors contributing to watershed problems at the site will be noted. These may be outside of the grazed vegetation, the allotment or National Forest. Working down from the top of the watershed will help identify and track these contributing factors. The area downstream from the site will also be considered. Any factors found on the site that are contributing to watershed problems downstream will be noted. The information regarding upstream and downstream impacts will be used by the Forest's interdisciplinary team to determine the effective location for application of the mitigation actions identified in the site specific evaluations.

Site-specific Evaluations

Use the watershed table for the appropriate vegetation type and check the appropriate category for each watershed characteristic on the tally sheet. Complete the streambank and channel assessment if there is a stream channel within the vegetation type. The methodology is intended to be a rapid visual assessment, not a detailed quantitative measurement. The intent is to identify, categorize and respond to readily apparent problems. Tally the number of checks for each characteristic, keeping the tally sheets separate for riparian, upland and stream channel.

Allowable Use Adjustment Protocol

All allowable use level reductions in the following section refer to the allowable use matrices. A one level reduction is defined as changing the allowable use to the value in the box directly below

the previously identified allowable use factor. A two level reduction requires changing the allowable use to two boxes directly below the previously identified allowable use factor.

For riparian vegetation (type a), out of a possible five check marks:

- Good or fully functional: if four or more are in the fully functional category and no checks are in the degraded or non-functional categories, then no corrective actions are required.
- Fair or functioning at risk: if one check is in the degraded category, two or more checks in the at risk category, and no checks in the non-functional category, then either one management change or a reduction of one allowable use level from the vegetation matrices must be implemented.
- Poor or degraded: if one check is in the non-functional category and up to one check is in the degraded category, or if two checks are in the degraded category and no checks are in the non-functional category, then either two management changes, or a reduction of two allowable use levels from the vegetation matrices, or one management change and a reduction of one allowable use level, must be implemented, or the area must be rested.
- Non-functional: if any two or more checks are in the degraded category and one check is in the non-functional category, or if two or more checks are in the non-functional category, then the area must be rested until recovery is documented.

For upland vegetation (type b), out of a possible eight total check marks:

- Good or fully functional: if at least six are in the fully functional category and no checks are in the degraded or non-functional categories, the no action is required.
- Fair or functioning at risk: if at least four checks are in the at risk category or better and no more than two checks are in the degraded and no checks in the non-functional categories, then a reduction of one allowable use level or one management change is required.
- Poor or degraded: if three checks are in the degraded category, or one check is in the non-functional category and the remainder are in the at risk or fully functional categories, then a reduction of two allowable use levels, or two management action changes, or a reduction of one allowable use level and one management action must be implemented.
- Non-functional: if four or more checks are in either the degraded or non-functional categories, or two or more checks are in the non-functional category, then a reduction of two allowable use levels and one management action change, or a reduction of one allowable use level in the use table and two management actions must be implemented.

For stream and streambanks, use the proper functioning condition protocol^{17 18}, as discussed in chapter 3 or the updated versions of these protocols:

¹⁷ Barrett, H., J. Cagney, R. Clark, J. Fogg, K. Gebhardt, P. L. Hansen, B. Mitchell, D. Prichard, D. Tippy. 1993 (Revised 1998). Riparian area management: Process for assessing proper functioning condition TR-1737-9. U.S. Department of the Interior, Bureau of Land Management. 60 pp.

¹⁸ Prichard, D., J. Anderson, C. Corell, J. Fogg, K. Gebhardt, R. Krapf, S. Leonard, B. Mitchell, and J. Staats. 1998. Riparian Area Management TR-1737-15. A user guide to assessing proper functioning

- If threatened at fully functional category then no change is required.
- If rated at functioning at risk with an upward trend, then either one management change or a reduction by one allowable use level is required.
- If rated as functional at risk with a downward trend or non-functional categories, then the area must be rested until recovery is documented.

Consider any broad scale contributing factors noted and determine if correcting those factors will help correct site-specific problems. If so, successful corrective action for those contributing factors will count toward total corrective actions required.

Potential Problems and Corrective Actions

The following is a list of potential problems and possible corrective actions that may be applied in order to reach management goals. Actual problems and solutions will normally be identified and developed on an individual site basis by a forest interdisciplinary team.

Presence of hummocks rated as “degraded” in wet meadows:

- Delay on-date to allow wet areas to become firm.
- Change to a shorter duration grazing system.
- Fence the wet area to exclude grazing.
- Drop the forage use by one level in the allowable use table.

Presence of rills, gullies and headcuts:

- Construct grade control structures.
- Slope back and protect headcuts.
- Revegetate headcuts and raw areas and protect from trampling.
- Protect headcuts and raw areas and allow natural revegetation.
- Change to a shorter duration grazing system.
- Drop the forage use by one level in the allowable use table.

Presence of compacted soils:

- Delay on-date to allow wet areas to become firm.
- Change to a shorter duration grazing season.
- Protect compacted areas (fencing, brush, etc.) to allow natural healing.
- Drop the forage use by one level in the allowable use table.

condition and the supporting science for lotic areas. U.S. Department of the Interior, Bureau of Land Management, National Applied Resource Sciences Center. 136 pp.

Presence of bare ground due to disturbance:

- Reseed with native/endemic desirable plants.
- Delay on-date until after seed has been set on desired plants.
- Change to a shorter duration grazing system.
- Drop the forage use by one level in the allowable use table.

Presence of poor streambank stability:

- Evaluate upstream areas for poor management practices.
- Protect banks from trampling with brush, fencing, etc.
- Establish a riparian pasture and graze at lower intensity and shorter duration.
- Delay on-date to allow banks to become firm prior to grazing.
- Change from cattle to sheep.
- Drop the forage use by one level in the allowable use table.

Presence of stream channel incisement:

- Same as for poor streambank stability.
- Restore the entire reach, including reconstruction of the natural stream channel configuration, profile, and pattern.

Examples of broad scale problems and their potential solutions

A road with poorly designed drainage is crossing a wet meadow or a stream causing headcutting. The headcuts can be stabilized by sloping back and seeding, placing sod or erosion control cloth over the raw earth, then protect from grazing, trampling and allowed to heal. The road can also be evaluated and be removed and rehabilitated, redesigned or relocated.

A road is channeling overland flow leading to rills and gullies in an upland. In addition to grade control structures in the gully, the road can be redesigned or relocated.

A stock trail is crossing a wet meadow, resulting in a change in meadow gradient and headcuts originating from the trail working uphill through the meadow. Along with sloping back, revegetating and protecting the headcuts from trampling, the trail can be raised by building a causeway or must be relocated out of the soft meadow.

Changing water levels in a stream or reservoir is resulting in a drop in hydrological base level and headcuts working upstream throughout the tributaries. If possible, the water level in the stream or reservoir should be stabilized. If that is not possible, the tributary can be stabilized at or near the point where it enters the main body of water with some sort of grade control. Then the headcuts can be treated, rested and allowed to revegetate and recover.

Uphill road building, mining, logging, grazing or other activities is increasing local sediment loads, changing instream flow patterns and causing bank erosion and sloughing. The streambank area can be protected from trampling and the vegetation given a chance to grow and stabilize the banks. The upstream sediment source should also be identified and corrected.

Watershed Rating Tables and Field Sheets

Table 31. Watershed characteristics rating table for riparian vegetation types

Characteristic	Non-functional	Degraded	At-Risk	Fully Functional
<p>Sod or surface organic layer: sod is the upper layer of soil and identified by the depth of the layer in which fine roots and organic material are integrally mixed with mineral soil at the surface; an organic layer may be present in especially wet sites and can be considered a special kind of sod. Record typical sod depth.</p>	<p>Where sod layer would be expected, it appears to be fragmented and discontinuous. More than 50 % of the area has bare mineral soil without a protective organic or sod cover. The sod layer is thinner than expected for the site and/or fragmented by erosion, trails or other disturbance.</p>	<p>Where sod layer would be expected, it appears to be fragmented and discontinuous; up to 10-50 % of the area may be missing sod layer, or sod layer thinner or fragmented by erosion, trails or other disturbance.</p>	<p>Where sod layer would be expected, it is thick and mostly continuous, but up to 10% of the area may be missing sod layer or sod layer is thinner or beginning to be fragmented by erosion, trails, or other disturbance. Alkali meadows may fit in this category as an assessment of natural risk factors.</p>	<p>Wet and moist meadows have a thick (>2"), continuous sod layer throughout most of the site. Especially wet or spring areas may have a layer of organic soil above the mineral layer. Dry meadow sites should have thick grass litter cover; sod layer may be <2" thick over the entire site. Alkali meadows may naturally lack this sod layer; naturally at greater risk to compaction and erosion.</p>
<p>Compaction is best assessed with a tile spade, using undisturbed (or highly disturbed) areas as comparative references. Platiness, mashed roots or lack of roots are indicators of severe compaction. Note extent, severity, and depth of compaction where possible.</p>	<p>Similar to at-risk, except degree and extent of compaction is more severe. Plant vigor and cover is affected, rooting depth is restricted to few inches at surface; probably associated evidence of water runoff.</p>	<p>Evidence of slight or moderate compaction over much of the site, or severe compaction in small but critical areas (e.g., near streambanks or sideslopes capable of delivering sediment to stream or moving soil offsite.) Plant vigor and rooting depth appear to be affected. Compaction is not alleviated over the winter rest period.</p>	<p>Some evidence of slight or moderate compaction levels over parts of the site. No severe compaction except in major trails, bedding or salt areas. (Severely compacted areas are not near streambanks or sideslopes capable of delivering sediment to stream.) Extent of compaction is minimal and plant vigor and rooting depth are not greatly affected.</p>	<p>No evidence of severe compaction. Slight or moderate compaction is limited only to trails, salting or bedding areas.</p>

Characteristic	Non-functional	Degraded	At-Risk	Fully Functional
<p>Hummocks are a surface ground pattern of mounds and intermounds that can form naturally in alpine environments where organic or wet soils are present. May also form in mineral soils due to disturbance. Disturbance can also make these natural temporary features permanent and compaction between the mounds can lead to reduced water infiltration and erosion leading to nickpoints and headcuts. Hummocks, when permanent, are part of the landscape for an undetermined amount of time.</p>	<p>Numerous static hummocks are evident in most spring areas and wet spots. There is distinct topographical relief. Roots are exposed on edges of hummocks and/or hoofmarks present. Vegetation composition is different on top of the hummocks and between the hummocks. Vegetation between hummocks does not effectively capture sediment.</p>	<p>Similar to "At-Risk" but the degree and extent of hummocking is greater. Static hummocks are evident in most spring and wet areas with the following characteristics: There is distinct topographical relief. Roots may be exposed on edges of hummocks or hoofmarks present. Vegetation composition may be different on top and between the hummocks. Vegetation between hummocks is mostly able to capture sediment.</p>	<p>Slight evidence of static hummocks with distinct relief and trailing pathways. Hummocks are still mostly vegetated with similar species on top and between hummocks. There may be one large area in a critical part of the watershed (e.g., headwater spring) or several smaller areas. Vegetation between hummocks is able to capture sediment.</p>	<p>No evidence of static hummocks or where hummocks are present they are naturally occurring features resulting from frost heave in organic soils. In such cases positions change from year to year and vegetation should be similar and continuous on and between hummocks.</p>
<p>Rills & gullies: Rills are intermittent depressions formed by erosion and concentrated flow during heavy rains at least 2-3 cm deep and greater than 1 meter in length. If rills have enlarged to the point where they are greater than 10 cm deep and 15 cm wide they are considered gullies ¹⁹</p>	<p>Rills present at intervals of less than 1.5 meters; Rills and gullies are numerous and well developed, may occur in a dendritic pattern, with active erosion; or a few well-developed gullies with active erosion.</p>	<p>Rills occur in exposed areas at intervals of 1.5 to 3 meters (5 to 10 feet); gullies are well-developed with active erosion; some vegetation may be present; rill and/or gully pattern may be branching or dendritic.</p>	<p>Some rills in evidence at infrequent intervals of over 3 meters (10 feet) OR some evidence of gullies that show some bed or slope erosion; some vegetation is present on the sideslopes; apparent trend is toward revegetation and improving stability.</p>	<p>No evidence of active rills or gullies. Old rills or gullies may be present, but are in stable condition. Channel beds and sideslopes contain vegetation.</p>

¹⁹ Modified from Best Management Practices Evaluation Program User's Guide, USDA Forest Service, Region 5, May 1992.

Characteristic	Non-functional	Degraded	At-Risk	Fully Functional
<p>Headcuts & nickpoints: Nickpoints are the initial stage of a headcut, before a rill or gully has developed. Headcuts are the uppermost end of a rill or gully. Both headcuts and nickpoints are characterized by a vertical or undercut dropoff perpendicular to the flow of water; when water is present the headcut is a waterfall.</p>	<p>Headcut near the bottom of the meadow or numerous headcuts present and active within the meadow. Vegetation conversion is occurring, and the water table may be dropping.</p>	<p>Headcut near the bottom of the meadow or several headcuts or nickpoints present and active within the meadow.</p>	<p>Some evidence of nickpoints, they may be partially vegetated. Apparent trend is toward revegetation and stabilization.</p>	<p>No active headcuts or nickpoints, any remnant headcuts or nickpoints are well vegetated and stabilized.</p>
<p>Bare ground due to disturbance: In most cases in moist and wet meadows vegetative cover is assumed to be near 100 percent; there are exceptions (e.g., alkaline meadows and some high alpine dwarf shrub meadows).</p>	<p>Bare ground is 15% more than would be expected in the natural range of variation for a particular vegetative type.</p>	<p>Bare ground is 10 to 15% greater than would be expected in the natural range of variation for a particular vegetative type.</p>	<p>Bare ground is 5 to 10% greater than would be expected in the natural range of variation for a particular vegetative type.</p>	<p>Bare ground is less than 5% or is within the natural range of variation for a particular vegetative type.</p>

Table 32. Watershed characteristics rating table for upland vegetation types

Characteristic	Non-functional	Degraded	At Risk	Fully Functional
<p>A-horizon is the surface mineral horizon characterized by dark colors and organic enrichment. Check soil survey for typical depths and colors. (Note: due to scale of mapping be aware that some inclusions and exceptions may occur naturally.)</p>	<p>A-horizon appears to be fragmented or discontinuous or is thinner than the predicted range of variation. More than 50% of the subsoil or b-horizon may be exposed. Remaining a-horizon is found only around plant roots and nutrient cycling and a-horizon development is impeded due to lack of vegetation.</p>	<p>A-horizon appears to be fragmented or discontinuous and/or is thinner than the predicted range of variation. Up to 50% of the subsoil or b-horizon may be exposed. Nutrient cycling and a-horizon development is impeded due to lack of regenerating vegetation.</p>	<p>A-horizon is present and continuous, but is thinner than the predicted range of variation or fragmented with up to 10% of the subsoil or b-horizon exposed. Nutrient cycling may be affected by lack of regenerating vegetation.</p>	<p>A-horizon is present and within the range of variability expected for that soil type. Plant cover is within the range of variability and nutrient cycling is active with a-horizon development ongoing.</p>
<p>Mass soil movement characteristic relates to sheet and wind erosion and to the depletion of the a-horizon. This rating criterion also includes unstable slopes and mass sloughing areas.</p>	<p>Extreme movement of soil is visible. Subsoil is exposed over much of the area. Area may have embryonic dunes and wind-scoured depressions. Soil is moving off-site. Terracing may be noticed or erosion may have eliminated terraces too.</p>	<p>Moderate movement of soil is visible. More soil and debris is deposited against minor obstructions than would be expected under undisturbed conditions and/or soil appears to be reaching waterways or channels and moving offsite. Slight terracing may be noticed.</p>	<p>Some movement of soil is visible. Slight buildup of soil and debris against minor obstructions may occur (more than would be expected under undisturbed conditions); soil is not reaching waterways or stream channels for transport offsite. Slight terracing may be noticed. Naturally sloughing or at risk areas are included in this category.</p>	<p>Little or no soil movement is present or the soil movement is within the range of variability expected for the site and soil is not moving offsite.</p>

Characteristic	Non-functional	Degraded	At Risk	Fully Functional
Surface litter and/or rock: This characteristic is also related to erosion and nutrient cycling. (This must be carefully judged on lower productivity sites where litter accumulation is naturally low and associated with the vegetation and not the bare spaces between.)	Extreme movement and redistribution of litter and surface rock/pebbles by wind or water erosion is evident and these materials appear to be moving offsite or shows extreme redistribution in the form of embryonic dunes or flow patterns.	Moderate litter movement and redistribution of litter or surface pebbles or rocks by wind or water erosion is occurring. Litter is moving offsite. (Flow patterns and evidence of surface rock and soil movement off site may also be visible).	Litter shows some apparent redistribution by wind or water erosion (built up against obstacles other than the plants that produced the litter). Pebbles and surface fragments show evidence of redistribution by wind or water. Litter is essentially remaining on site.	Litter is accumulating in place. Rock or small surface pebbles do not show movement by wind or water beyond the natural range of variation and litter remains on site.
Flow patterns characteristic is evidence of excessive water erosion and concentrated flow. It often precedes or is associated with rilling. (This is not to be confused with natural ephemeral features found in some ecological types).	Flow patterns are numerous and readily noticeable. The site may have large barren fan deposits. Sediment may be moving off site.	Well defined flow patterns regularly spaced and often containing deposits of sand, silt, and litter and small "alluvial fans".	Few well defined flow patterns; some have intermittent deposits of sediment or litter.	Little or no evidence of concentrated water flow. Soil surface is capable of absorbing and holding water received.
Bare ground due to disturbance: The natural range of variation of bare ground should be determined based on the ecological type or the combination of soil productivity and the vegetation.	Bare ground is 15% or more than would be expected in the natural range of variation for a particular ecological type.	Bare ground is 10 to 15% greater than would be expected in the natural range of variation for a particular ecological type.	Bare ground is 5 to 10% greater than would be expected in the natural range of variation for a particular ecological type.	Bare ground is within the natural range of variation for a particular ecological type.
Pedestaling: Erosion by wind or water from around the base of a plant or a gravel so that it appears to be on a "pedestal".	Most rocks and plants are pedestaled and roots are exposed.	Rocks and plants on pedestals are generally evident, plant roots are exposed, or small rock and plant pedestals occur in flow patterns.	Slight pedestaling, usually at edges of flow patterns or around a few plants.	Little or no evidence of pedestaling.

Characteristic	Non-functional	Degraded	At Risk	Fully Functional
<p>Compaction is best assessed with a tile spade, using undisturbed (or highly disturbed) areas as comparative references. Platiness, mashed roots or lack of roots are indicators of severe compaction. Note extent, severity, and depth of compaction where possible)</p>	<p>Similar to at-risk except degree and extent of compaction is more severe. Plant vigor and cover is affected, rooting depth is restricted to few inches at surface, and there will probably be associated evidence of water runoff.</p>	<p>Evidence of slight or moderate compaction over much of the site or severe compaction in small but critical areas (e.g., near streambanks or sideslopes capable of delivering sediment to stream or moving soil offsite.) Plant vigor and rooting depth appear to be affected. (Compaction is not alleviated over the winter rest period.)</p>	<p>Some evidence of slight or moderate compaction levels over parts of the site. No severe compaction except in major trails, bedding or salt areas. (Severely compacted areas are not near streambanks or sideslopes capable of delivering sediment to stream.) Extent of compaction is minimal and plant vigor and rooting depth are not greatly affected.</p>	<p>No evidence of severe compaction (platiness). Slight or moderate compaction (resistance to tile spade, mashed roots or lacking roots) is limited only to trails and or salting or bedding areas.</p>
<p>Rills & gullies: Rills are intermittent depressions formed by erosion and concentrated flow during heavy rains at least 2-3 cm deep and greater than 1 meter in length. If rills have enlarged to the point where they are greater than 10 cm deep and 15 cm wide they are considered gullies.²⁰</p>	<p>Rills present at intervals of less than 1.5 meters; Rills and gullies are numerous and well developed, may occur in a dendritic pattern, with active erosion; or a few well-developed gullies with active erosion. Trend is apparently declining.</p>	<p>Rills occur in exposed areas at intervals of 1.5 to 3 meters (5 to 10 feet); gullies are well-developed with active erosion; some vegetation may be present; rill and/or gully pattern may be branching or dendritic. Trend is not apparent or appears not to be revegetating or stabilizing.</p>	<p>Some rills in evidence at infrequent intervals of over 3 meters (10 feet) OR some evidence of gullies that show some bed or slope erosion; some vegetation is present on the sideslopes; apparent trend is toward revegetation and improving stability.</p>	<p>No evidence of active rills or gullies. Old rills or gullies may be present, but are in stable condition. Channel beds and sideslopes contain vegetation.</p>

²⁰ Modified from Best Management Practices Evaluation Program User's Guide, USDA Forest Service, Region 5, May 1992.

Characteristic	Non-functional	Degraded	At Risk	Fully Functional
<p>Headcuts & nickpoints: Nickpoints are the initial stage of a headcut, before a rill or gully has developed. Headcuts are the uppermost end of a rill or gully. Both headcuts and nickpoints are characterized by a vertical or undercut dropoff that is perpendicular to the flow of water; when water is present the headcut is a waterfall.</p>	<p>Headcut near the bottom of the meadow or numerous headcuts present and active within the meadow. Vegetation conversion is occurring, and water table may be dropping.</p>	<p>Headcut near the bottom of the meadow or several headcuts or nickpoints present and active within the meadow.</p>	<p>Some evidence of nickpoints, they may be partially vegetated. Apparent trend is toward revegetation and stabilization.</p>	<p>No active headcuts or nickpoints, any remnant headcuts or nickpoints are well vegetated and stabilized.</p>

Appendix G: Existing Resource Plans

The following is a list of existing resource plans and agreements that also guide management of the Inyo National Forest along with the land management plan. This list is not comprehensive, and there may be other resource plans that are being implemented by the Inyo National Forest.

- Individual research natural area management (RNA) plans for established research natural areas:
 - Indiana Summit RNA, established 1932
 - Harvey Monroe Hall RNA, established 1933
 - White Mountain RNA, established 1953
 - Last Chance Meadow RNA, established 1982
 - Sentinel Meadow RNA, established 1983
- Ancient Bristlecone Pine Forest Management Plan (1958)
- Mono Basin Scenic Area Comprehensive Management Plan (1989)
- North and South Forks of the Kern Wild and Scenic River Plan (1994)
- Hoover Wilderness Plan (1977)
- Golden Trout Wilderness Plan (1982)
- South Sierra Wilderness Plan (1991)
- John Muir, Ansel Adam and Dinkey Lakes Wilderness Plan (2001)
- Motorized Travel Management Plan (2009)
- Lahontan Cutthroat Trout (*Oncorhynchus clarki hensawi*) Recovery Plan (1995)
- Revised Recovery Plan for the Paiute Cutthroat Trout (*Oncorhynchus clarkia seleniris*) (2004)
- Owen Basin Wetland and Aquatic Species Recovery Plan Inyo and Mono Counties, California (1998)
- Wild Horse Management Plan for White Mountain and Inyo Mountain Herds (1976)
- Saline Valley and Lee Flat Burro Herd Management Plan (1985)
- Montgomery Pass Wild Horse Management Territory Coordinated Resource Plan (1988)
- Sierra Nevada Bighorn Sheep (*Ovis candensis sierrae*) Recovery Plan (1997)
- Bi-State Action Plan: Conservation of the Greater Sage-Grouse Bi-State Distinct Population Segment (2012)
- Conservation Agreement for *Abronia alpina* (Ramshaw Meadows abronia) (2015)

Glossary

Adaptive capacity is the ability of ecosystems to respond, cope, or adapt to disturbances and stressors, including environmental change, to maintain options for future generations.

At-risk species are federally recognized threatened, endangered, proposed, and candidate species and species of conservation concern within a plan area.

Best management practices for water quality (BMPs) are methods, measures or practices selected by an agency to meet its nonpoint source control needs. Best management practices for water quality include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Best management practices for water quality can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 CFR 219.19).

Biotic integrity refers to habitat that supports viable populations of native and desired non-native plant, invertebrate, and vertebrate species. Species composition and structural diversity of plant and animal communities provide desired habitat conditions and ecological functions. New introductions of invasive species are prevented. Where invasive species are adversely affecting the viability of native species, the appropriate State and Federal wildlife agencies have reduced impacts to native populations. The distribution and health of biotic communities perpetuates functions and biological diversity.

Broader landscape is the plan area and the lands surrounding the plan area. The spatial scale of the broader landscape varies depending upon the social, economic, and ecological issues under consideration.

Candidate species is a species under the purview of the U.S. Fish and Wildlife Service (USFWS), for which the USFWS possesses sufficient information on vulnerability and threats to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published by the USFWS. For species under the purview of the National Marine Fisheries Service (NMFS), a candidate species is a species that is the subject of a petition to list as a threatened or endangered species and for which the NMFS has determined that listing may be warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 U.S.C. 1533(b)(3)(A)), or a species that is not the subject of a petition but for which the NMFS has announced in the Federal Register the initiation of a status review.

Canopy closure is the percentage of the sky hemisphere obscured by vegetation when viewed from a single point.

Canopy cover is the percentage of forest floor covered by the vertical projection of the tree crowns.

Carbon carrying capacity is the amount of carbon that can be stored in a system as a function of prevailing climatic conditions and natural disturbance regimes, and a potential foundation for carbon management plans²¹.

Climate change adaptation is an adjustment in natural or human systems in response to actual or expected climatic stimuli, or their effects, which moderates harm or exploits beneficial opportunities. This adaptation includes initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects: building resistance to climate-related stressors; increasing ecological resilience by minimizing the severity of climate change impacts, reducing the vulnerability, and increasing the adaptive capacity of ecosystem elements; and facilitating ecological transitions in response to changing environmental conditions.

Collaboration is a structured manner in which a collection of people with diverse interests share knowledge, ideas, and resources, while working together in an inclusive and cooperative manner toward a common purpose.

Community buffers are areas around communities that are adjacent to or surrounded by National Forest System lands that currently have high fire risk and where treatments on National Forest System lands are designed to reduce fire behavior and intensity. Human health and safety are the primary values at risk within these areas. Community buffers are within the community wildfire protection zone (chapter 3).

Complex early seral habitat is a type of early successional forest habitat that contains structural, compositional, or functional elements of ecological complexity or integrity. These post-disturbance elements may include large snags, logs, and isolated live trees or tree clumps, as well as patches of young native shrubs, hardwoods, herbaceous plants or tree regeneration. Spatial heterogeneity in vegetation structure and diversity in vegetation composition during post-disturbance recovery is an important element of complexity in early seral forest habitat.

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

Conservation is the protection, preservation, management or restoration of natural environments, ecological communities and species

Critical aquatic refuges (CARs) are subwatersheds, generally ranging between 500 to 50,000 acres, on the Inyo National Forest, that contain either: 1) known locations of at-risk species; 2) highly vulnerable populations of native plant or animal species; or 3) are localized populations of rare native aquatic- or riparian-dependent plant or animal species.

Critical habitat for a threatened or endangered species is: (1) the specific areas within the geographical area occupied by the species, at the time it is listed and in accordance with the provisions of section 4 of the Endangered Species Act (16 USC 1533), on which are found those

²¹ Hurteau, M.D. and M. L. Brooks. 2011. Short- and long-term effects of fire on carbon in US dry temperate forest systems. *BioScience*, 61 (2):139-146.

physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protections; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 USC 1533), upon a determination by the Secretary that such areas are essential for the conservation of the species, ESA, sec. 3 (5)(A), (16 USC 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce, ESA, sec. 4 (a)(3) and (b)(2) (16 USC 1533 (a)(3) and (b)(2)).

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

Early Season refers to use before range readiness (pre-boot stage: before seedhead is formed) of key species. This is especially hard on perennial grasses physiologically.

Ecological conditions are 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 is the quality or condition of an ecosystem when its dominant ecological characteristics (e.g., composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence.

Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future condition.

Ecosystem is a spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. An ecosystem is commonly described in terms of its: 1) composition or the biological elements within the different levels of biological organization, from genes and species to communities and ecosystems; 2) structure or the organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern and connectivity; 3) function or the ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire and floods; and 4) connectivity.

Ecosystem services are benefits people obtain from ecosystems: 1) provisioning services, such as clean air and fresh water, energy, food, fuel, forage, wood products or fiber, and minerals; 2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood and drought control; and disease regulation; 3) supporting services, such as pollination, seed dispersal, soil formation and nutrient cycling; and 4) cultural services, such as educational, aesthetic, spiritual, and cultural heritage values, recreational experiences, and tourism opportunities.

Endangered species are any species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are listed at 50 CFR sections 17.11, 17.12, and 224.101.

Ephemeral stream is a stream that flows only in direct response to precipitation in the immediate locality (watershed or catchment basin), and whose channel is at all other times above the zone of saturation.

Even-aged stand refers to a stand of trees composed of a single age class.

Federally recognized Indian Tribe is an Indian Tribe or Alaska Native Corporation, band, nation, pueblo, village or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe under the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a).

Final regeneration harvest is the final timber harvest in a sequence of harvests designed to regenerate a timber stand or release a regenerated stand. A final regeneration harvest could be a clearcut, removal cut of a shelterwood or seedtree system, or a selection cut.

Fine-scale refers to areas less than 10 acres in size.

First half (of the season) refers to razing during the first half of the growing season (normally refers to a rotation-type system). First-half grazing allows time for regrowth of grasses, sedges, and shrubs when sufficient soil moisture is present, so use standards generally can be a little higher (in percentages of the plant taken) than late season. Use during the first half coupled with a shorter season of use such as “deferred rotation” or “once over” will generally yield higher allowable use standards.

Focal species refers to a small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the forest plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the forest plan area. Focal species are commonly selected on the basis of their functional role in ecosystems

Foreground refers to the scenery management system, detailed in Forest Service Handbook 701, with a distance zone consisting of a detailed landscape generally found from the observer to 0.5 mile away.

Forest land is land that is at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest uses. Land developed for nonforest use includes areas for agricultural crops, improved pasture, residential or administrative areas, roads of any width and adjoining road clearing, and powerline clearing of any width (36 CFR 219.19).

Forest recreation program niche is the specific recreation focus of a forest, incorporating public expectations with unique social and ecological features of the land. It is used to help focus to create the most public value with limited resources.

Fuelwood is wood used for conversion to some form of energy.

Functional hydrology refers to perennial and intermittent streams having the following characteristics: (1) stream energy during high flows is dissipated, reducing erosion and improving water quality; (2) streams filter sediment and capture bedload, aiding floodplain development; (3)

meadow conditions enhance floodwater retention and ground water recharge; and (4) root masses stabilize stream banks against cutting action.

Functional restoration refers to restoration of abiotic and biotic processes in degraded ecosystems. Functional restoration focuses on the underlying processes that may be degraded, regardless of the structural condition of the ecosystem. Functionally restored ecosystem may have a different structure and composition than the historical reference condition. As contrasted with ecological restoration that tends to seek historical reference condition, the functional restoration focuses on the dynamic processes that drive structural and compositional patterns. Functional restoration is the manipulation of interactions among process, structure and composition in a degraded ecosystem to improve its operations. Functional restoration aims to restore functions and improve structures with a long-term goal of restoring interactions between function and structure. It may be, however, that a functionally restored system will look quite different than the reference condition in terms of structure and composition and these disparities cannot be easily corrected because some threshold of degradation has been crossed or the environmental drivers, such as climate, that influenced structural and (especially) compositional development have changed.

Geographic area is a spatially contiguous land area identified within the planning area. A geographic area may overlap with a management area.

Greenline is a linear grouping of perennial plants at or near the stream channel.

Groundwater-dependent ecosystem refers to the community of plants, animals, and other organisms whose extent and life processes depend on groundwater. Examples include wetlands, groundwater-fed lakes and streams, cave and karst systems, aquifer systems, springs, and seeps.

Growing stock is all trees growing in a forest or in a specified part of it, usually commercial species, meeting specified standards of size, quality, and vigor, and generally expressed in terms of trees per acre, density, or volume.

Inherent capability of the plan area is the ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances.

Integrated resource management refers to multiple use management that recognizes the interdependence of ecological resources and is based on the need for integrated consideration of ecological, social, and economic factors.

Intermittent stream is a stream or reach of stream channel that flows in its natural condition only during certain times of the year, or in several years, and is 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.

Invasive species are alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health; species that causes, or is likely to cause harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens.

Landscape refers to 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 refers to areas that are greater than 10,000 acres in size.

Late Season refers to range conditions after seed maturity.

Line Officer is a Forest Service official who serves in a direct line of command from the Chief.

Maintain in reference to an ecological condition is to keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both.

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

Management intensities are the set and schedule of management practices typically used for certain forest or timber types to achieve desired conditions that may include timber production.

Management practices (vegetation management practices) are silvicultural practices such as reforestation, prescribed fire, thinning to reduce stand density, and other practices designed to facilitate growth and development of trees.

Management system is a timber management system including even-aged management and uneven-aged management.

Marten core areas are large contiguous areas of marten habitat within which martens can establish home ranges and comingle as a population²².

Mean annual increment of growth is the total increment of increase of volume of a stand (standing crop plus thinning) up to a given age, divided by that age. The **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, the mean annual increment of growth is expressed in cubic measure and is based on the expected growth of stands according to intensities and utilization guidelines in the plan (36 CFR 219.19).

Mid-scale refers to areas that are hundreds to thousands of acres in size.

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

Monitoring is a systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships.

²² Spencer, W. and H. Rustigian-Romsos. 2012. Decision-Support Maps and Recommendations for Conserving Rare Carnivores in the Interior Mountains of California. Unpublished report produced by Conservation Biology Institute

Multiple use is the management of all the various renewable surface resources of the National Forest System 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 use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531).

National Forest System includes national forests, national grasslands, and the National Tallgrass Prairie.

Native species is an organism that is, or was historically, present in a particular ecosystem as a result of natural migratory or evolutionary processes and not as a result of an accidental or deliberate introduction into that ecosystem. An organism's presence and evolution (adaptation) in an area are determined by climate, soil, biotic and abiotic factors.

Natural range of variation (NRV) is 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 explicit 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.

Nonforest land is land that does not meet the definition of forest land.

Patch refers to a relatively homogeneous area that differs from its surroundings. Patches are the basic unit of the landscape that change and fluctuate. Patches have a definite shape and spatial configuration, and can be described compositionally by internal variables such as number of trees, number of tree species, age of trees, height of trees, or other similar measurements.

Perennial stream is 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.

Persistence is continued existence.

Plan components are the parts of a national forest land management plan that guide future project and activity decision-making. Specific plan components may apply to the entire plan area, to specific management areas or geographic areas, or to other areas as identified in the plan. Every plan must include the following plan components: desired conditions; objectives; standards; guidelines; suitability of lands. A plan may also include goals as an optional component.

Plan monitoring program is an essential part of the land management plan that based on plan components sets out the plan monitoring questions and associated indicators. The plan monitoring program informs management of resources on the plan area and enables the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed.

Population management unit is a geographic area that defines sub-populations of sage-grouse. The Bi-State distinct population segment of sage grouse (i.e., of eastern California and western Nevada) is sub-divided into seven population management units, two of which are on the Inyo National Forest.

Productivity is the capacity of National Forest System lands and their ecological systems to provide the various renewable resources in certain amounts in perpetuity. For the purposes of the land management planning, productivity is an ecological term, not an economic term (36 CFR part 219).

Project refers to an organized effort to achieve an outcome on National Forest System lands identified by location, tasks, outputs, effects, times and responsibilities for execution.

Proposed species is any species of fish, wildlife or plant that is proposed by the U. S. Fish and Wildlife Service or the National Marine Fisheries Service in the Federal Register to be listed under Section 4 of the Endangered Species Act.

Reasonable assurance is a judgment made by the responsible official based on best available scientific information and local professional experience; practices that are based on existing technology and knowledge are likely to deliver the intended results. Reasonable assurance applies to average and foreseeable conditions for the area and does not constitute a guarantee to achieve the intended results.

Recovery is a word used with respect to threatened or endangered species to denote the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate

Recreation opportunity is an opportunity to participate in a specific recreation activity in a particular recreation setting and enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include primitive, non-motorized, motorized, developed, and dispersed recreation on land, water and in the air.

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

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

Restocked is the condition of the growing space occupancy of trees that is to be achieved after a disturbance that substantially altered the previous stocking.

Riparian areas include terrestrial and aquatic ecosystems that extend down into the groundwater, up above the canopy, outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths.

Risk is a combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences

Rotation is the number of years (including the regeneration period) required to establish and grow timber under an even-aged management system to a specified condition or maturity for regeneration harvest.

Satisfactory soils are soil conditions with favorable structure and infiltration characteristics to absorb and filter precipitation, and support adequate vegetative cover to minimize erosion and sustain desired habitat diversity.

Satisfactory condition for range vegetation is good to excellent vegetation condition or fair vegetation condition with an upward trend.

Scenic character is a combination of the physical, biological and cultural images that give 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 objectives in the context of the forest plan are equivalent to goals or desired conditions. Scenic integrity describes the state of naturalness or a measure of the degree to which a landscape is visually perceived to be “complete.” The highest scenic integrity ratings are given to those landscapes that have little or no deviation from the landscape character valued by constituents for its aesthetic quality. Scenic integrity is the state of naturalness or, conversely, the state of disturbance created by human activities or alteration. Scenic integrity is measured in five levels:

Very high: landscapes where the valued landscape character “is” intact with only minute, if any deviations. The existing landscape character and sense of place is expressed at the highest possible level.

High: landscapes where the valued landscape character appears unaltered. Deviations may be present but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident.

Moderate: landscapes where the valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.

Low: landscapes where the valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect, pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed, but compatible or complimentary to the character within.

Very Low: landscapes where the valued landscape character appears heavily altered. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect, pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However, deviations must be shaped and blended with the natural terrain so that elements such as unnatural edges, roads, landings and structures do not dominate the composition.

Second half (of the season) refers to wet/moist meadows and shrubby species: Grazing during the second half of the growing season allows less time for regrowth before onset of dormancy, so generally requires a more restrictive standard than first-half grazing. It tends to be particularly hard on browse and shrub species such as bitterbrush and willow because by this time of year they are becoming more attractive to livestock as the herbaceous forage begins to dry out. For perennial bunchgrass species, second half grazing of perennial bunchgrass on dry sites is often preferred because regrowth is not always possible anyway due to lack of moisture. In this case it is generally better to wait until the second half to commence grazing, thus allowing adequate time for plants to reach seed maturity and restore root reserves before having their herbage removed.

Special forest products are products or natural resources that are not the traditional timber and wood products. Examples include such products as moss, Christmas trees and boughs, mushrooms, transplants (trees, shrubs or herbaceous plants), cones, medicinal plants, seeds, nuts, berries and decorative wood.

Species of conservation concern are species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the Regional Forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area.

Stand is a contiguous group of trees sufficiently uniform in age class distribution, composition and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit, such as mixed, pure, even-aged and uneven-aged stands.

Stressors are factors that may directly or indirectly degrade or impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity, such as invasive species, loss of connectivity, or the disruption of a natural disturbance regime.

Sustainability is the capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For the purposes of the land management planning regulation at 36 CFR part 219, ecological sustainability refers to the capability of ecosystems to maintain ecological integrity; economic sustainability refers to the capability of society to produce and consume or otherwise benefit from goods and services, including contributions to jobs and market and nonmarket benefits; and social sustainability refers to the capability of society to support the network of relationships, traditions, culture and activities that connect people to the land and to one another, and support vibrant communities.

Sustainable recreation refers to the set of recreation settings and opportunities on the National Forest System that is ecologically, economically and socially sustainable for present and future generations.

Threatened species is any species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future

throughout all or a significant portion of its range. Threatened species are listed at 50 CFR sections 17.11, 17.12, and 223.102.

Timber harvest refers to the removal of trees for wood fiber use and other multiple use purposes.

Timber production is the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts or other round sections for industrial or consumer use (36 CFR 219.19).

Trail corridor is an allocation established through the land use planning process, pursuant to Section 7(a)(2) of the National Trails System Act (“rights-of-way”), for a public land area of sufficient width, within which to encompass national trail resources, qualities, values and associated settings, and the primary use or uses that are present or to be restored.

Two-aged system is a planned sequence of treatments designed to regenerate or maintain a timber stand with two age classes. A two-aged system is a form of even-aged management.

Uncharacteristic wildfire refers to wildfire that exceeds the natural range of variation in fire severity (e.g., high severity proportion, high severity patch size) and other fire effects indicators for a specific vegetation type²³.

Undesirable wildfire refers to wildfire that does not meet the desired conditions for a specific vegetation type.

Utilization standards are specifications for merchantable forest products offered in a timber sale.

Viable population is a population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments (36 CFR 219.19).

Visible foreground is the area within the foreground distance zone (up to 0.5 mile) that is visible from a height of 5 feet on the trail, using terrain to define the boundaries.

Watershed is a region or land area drained by a single stream, river, or drainage network, a drainage basin.

Watershed condition is the state of a watershed based on physical and biogeochemical characteristics and processes.

Watershed condition framework is a national comprehensive and consistent approach for classifying watershed condition, proactively implementing integrated restoration in priority watersheds on national forests and grasslands, and tracking and monitoring outcome-based program accomplishments for performance accountability²⁴.

²³ Hardy, C. C. 2005. Wildland fire hazard and risk: Problems, definitions, and context. *Forest ecology and management*, 211(1), 73-82.

²⁴ USDA, Forest Service. 2011. Watershed Condition Framework; a framework for assessing and tracking changes to watershed condition. U.S. Department of Agriculture, Forest Service, Washington, Report FS-977.

Wild and Scenic River is a river designated by Congress as part of the National Wild and Scenic Rivers System that was established in the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 (note), 1271–1287).

Wilderness is any area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 U.S.C. 1131–1136).

Wildland fire refers to wildfire or prescribed fire.

