United States Department of Agriculture

Detailed Proposed Action in Support of the Need to Change Items in the Notice of Intent for Forest Plan Revision for the Inyo, Sequoia and Sierra National Forests

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Contents

Introduction

This document provides detail to the Notice of Intent filed in the Federal Register for plan revision for the Inyo, Sequoia and Sierra National Forests, specifically the "Proposed Action" section. Included here are potential plan components for the topic areas where change is proposed, including desired conditions, standards and guidelines. Unless otherwise specified, these plan components would apply to each individual forest plan. The proposed action makes changes to some standards and guidelines from the Sierra Nevada Forest Plan Amendment (SNFPA). Under SNFPA, standards and guidelines were combined. Under the 2012 Planning Rule, standards and guidelines are separate and distinct plan components. These changes are noted specifically by number in the Notice of Intent. The other plan components of objectives and suitability of lands are not determined at this time but will be developed when alternative are developed. In addition to plan components, strategies are included that may be used to achieve desired conditions.

Management and Geographic Areas

Management and Geographic Areas are still under development. Some will be brought forward from the Sierra Nevada Forest Plan Amendment and Forest Plan. Some will not be brought forward because they are no longer needed or are replaced by forest-wide direction. Some will be brought forward with updates. Areas currently proposed for change are listed below:

1. For fire management, a risk assessment will be used to inform the creation of a series of strategic wildfire management zones that cover the entire forest and will be used to provide direction for managing wildfires and prioritizing fuels and restoration treatments. Where the risks are the highest, the wildland urban interface (WUI) Defense and Threat Zones from the Sierra Nevada Forest Plan Amendment will be replaced with a Community Wildfire Protection Zone and a General Wildfire Protection Zone. The remainder of the forest where there is less threat from wildfire to communities and sensitive resources will be separated into two strategic wildfire management zones called the Wildfire Restoration and Wildfire Maintenance Zones. The risk analysis with a process to provide updates throughout time to account for changing conditions is still being developed. Currently the four zones are described as follows:

    - Community Wildfire Protection Zone: Conditions currently put communities and community assets at very high risk of damage from wildfire.
    - General Wildfire Protection Zone: Conditions currently put communities, community assets, and natural resource values (watersheds, habitat, timber) at high risk of damage from wildfire.
    - Wildfire Restoration Zone: Conditions currently put communities, community assets, watersheds and natural resource values at moderate risk of damage from wildfire.
    - Wildfire Maintenance Zone: Conditions currently are such that communities, community assets, watersheds and natural resource values are at low risk of damage from wildfire and many natural resources would benefit from wildland fire.

2. Some management direction related to vegetation and fuels management in the Community and General Wildfire Protection Zones will be replaced with more descriptive desired conditions and updated standards and guidelines to facilitate increasing the pace and scale of ecological restoration to reduce wildfire risks.

3. Additional management areas will be incorporated based on information identified in the conservation strategies for the fisher and interim guidelines and conservation assessment for the California spotted owl that are currently being developed.

4. The existing Old Forest Emphasis Area land allocation will not be carried forward. The existing general desired conditions for old forest are updated and old forests are addressed better in some of the major vegetation types.

5. The Pacific Crest National Scenic Trail will have a designated corridor established of sufficient width to encompass resources, qualities, values and associated settings and the primary use or uses that are present or to be restored.

6. Consideration will be given to defining and designating cultural management areas for sacred sites, areas of cultural and religious sensitivity, traditional cultural properties and significant concentrations of cultural properties.

7. The proposed action will retain riparian conservation areas and critical aquatic refuges.

8. Each forest has additional unique management areas and geographic areas that may be brought forward from the existing plans. The list of these management and geographic areas is still being developed.

Tribal Relations and Uses

Desired Conditions

1. 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 consult and communicate with tribal leadership, tribal historic preservation officers, traditional religious practitioners, traditional gatherers, tribal members and other tribal organizations.

2. The forest coordinates with tribes to identify traditional cultural properties, resources and sacred sites where historic preservation laws alone may not adequately protect the resources or values and potential mitigation measures are identified.

3. Native American cultural practitioners have access to areas that provide them an opportunity to practice traditional, cultural and religious activities, such as plant gathering and ceremonial activities that are essential in maintaining their cultural identity and the continuity of their culture.

4. Traditional ecological knowledge is a valued part of the process when developing and implementing restoration projects.

5. 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.

Strategies

1. Recognize the importance of a strong relationship with Native American tribes and groups, and ensure forest personnel continuously cultivate those relationships.

2. 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.

3. 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.

4. Collaborate with tribes in the management of culturally significant and sacred sites.

5. Incorporate indigenous knowledge into the development of priorities and methods of managing fire for resource benefits, restoration projects and other forest programs.

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

7. Continue to manage the land in a spirit of shared stewardship with tribes. Support tribal rights to pursue the vitality of tribal cultures, economies and land. Recognize the mutual benefits of restoration.

8. Develop partnerships that leverage different sources of funding. Recognize opportunities to contribute to the economic sustainability of tribal communities.

Forest-wide Vegetation

Some of the prescriptive standards and guidelines of the 2004 SNFPA specifically related to vegetation and fuels management with the purpose of reducing fuels are replaced with desired conditions, standards, guidelines, and in some cases strategies. They are described in this section and in the sections for westside vegetation and eastside vegetation. These standards and guidelines are intended to apply within the Community Wildfire Protection Zone and the General Wildfire Protection Zone, and to the extent relevant, existing plan direction will be carried forward in the Wildfire Restoration and Wildfire Maintenance Zones.

All Vegetation Types

Desired Conditions

Vegetation (Landscape Scale – Areas Greater than 10,000 Acres)

1. 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.

2. Vegetation conditions, particularly structure and composition, are resilient to climate change, the frequency, extent and severity of ecological processes such as fire in fire-adapted systems, drought, and flooding in riparian systems. Functioning ecosystems retain their 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.

3. 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, cavity-nesting birds and various bats; and specialists such as old forest and sagebrush-associated species.

4. Carbon storage and sequestration are within the carbon carrying capacity for a given ecosystem and stable or improving with trends in climate change, fire and drought.

5. Fire occurs as a key ecological process where possible, creating, restoring and maintaining ecosystem resilience and to increase the resiliency, understory plant vigor, heterogeneity and range of diverse habitat.

6. Composition, density, structure and condition of vegetation help reduce the threat of undesirable wildfires to local communities, ecosystems and scenic character.

7. The landscape sustainably provides a variety of benefits that improve peoples' economic, social and physical wellbeing, such as 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 habitat for biodiversity in the forest. Vegetation conditions support the long term sustainability of these benefits to people by reducing the risk of undesirable fire effects, disease and mortality, which interrupt and eliminate forest benefits.

8. Vegetation types and vegetation conditions support continued use by tribes for traditional, ceremonial and medicinal purposes.

9. Vegetation provides sustainable amounts of forest products such as wood fiber, biomass, forage, firewood, edible and medicinal plants, boughs, bark, berries and cones for commercial, tribal, personal, educational and scientific uses, while considering soil and water productivity and sustainability. Plants known to be used by tribes that traditionally use the forest are thriving.

10. Community members, interested stakeholders, other agencies and leaders from local jurisdictions are well informed of ecosystem processes and management challenges, and work cooperatively to resolve issues.

Strategies

1. Design projects to restore or enhance structural diversity (e.g., stem density, canopy cover, snag and downed log density, hardwoods) as defined by the desired conditions.

2. 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.

3. Restore fire to the landscape where conditions are appropriate. Planned and unplanned ignitions are managed when it is safe and conditions are appropriate to achieve resource benefits.

4. Consider recreation settings and scenic character when evaluating landscape restoration priorities and risks.

5. Accomplish ecological restoration, in part, through the reduction of fuels by decreasing tree densities that are above natural ranges, reducing some concentrations of down woody material near high value objects, and reducing ladder fuels and shrubs that can allow fire to easily enter tree crowns. Use a proactive approach for improving ecosystem health with management objectives to reduce susceptibility of forest stands to insect and drought-related mortality by managing stand density levels.

6. Promote heterogeneity in plantations and young stands by encouraging more diversity in species composition and tree ages and increasing heterogeneity using initial planting and plantation management techniques. Consider climate change when determining appropriate species and seed sources for planting. Manage plantations to contribute to mature and old forests over time.

7. Detect the presence of insect outbreaks and pests early, so that proper management measures can be applied to minimize excessive mortality, especially in concentrated recreation areas, developed recreation sites and other high value resource areas.

8. Provide for stewardship opportunities by partnering with schools, organizations, the public, tribes and other agencies. Through joint participation, cooperative agreements, volunteer agreements, and grant funding, encourage partners and volunteer stewards to assist with achieving mutual resource management and stewardship goals.

Guidelines

1. Projects should retain the integrity of the hardwood component (oak, aspen, cottonwood, birch) in all vegetation types where it exists by managing for a diversity of tree size classes within a stand such that seedlings, saplings and pole-sized trees are sufficiently abundant to replace large trees that die.

Old Forest and Complex Early Seral Habitats

The existing Old Forest Emphasis Area land allocation will not be carried forward. The existing general desired conditions are replaced with desired conditions provided below and, where appropriate, with additional desired conditions by major vegetation types.

Desired Conditions

1. The composition, structure, and functions of old forests and surrounding landscapes are resilient to fire, drought, insects and pathogens, and climate change. Fire occurs as a key ecological process where possible, creating, restoring and maintaining ecosystem resilience and fire-related composition and structure.

2. 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 such as goshawk, spotted owl, fisher and marten.

3. At least 40 but up to 80 percent of the forested landscape contains old forest components, usually in clumps and patches and including large or old trees, dead trees (snags), and large down logs.

These clumps and patches are irregularly distributed across the landscape and interspersed with younger tree stands, shrubs, meadows, other herbaceous vegetation and non-vegetated patches.

4. The number and density of old trees vary by topographic position and soil moisture (e.g., as described in the Forest Service general technical report (GTR) 220 and GTR 237). Large trees, used as a proxy for old trees, are well distributed, but are often clumpy, ranging from 0.5 to 20 trees per acre with a general area average of 5 trees per acre. Trees greater than 40 inches in diameter represent the oldest trees, generally from the pre-European settlement period and over 150 years old, and comprise the greatest 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 very low and low soil productivity sites, the oldest trees may be smaller diameters. Sufficient numbers of younger trees are present to provide for recruitment of old trees over time.

5. Old forests are 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. Older trees with larger branches and those showing signs of decadence provide the best potential to create cavities. Large tree clumps, snags, large logs and decadent older trees are maintained on the landscape to benefit wildlife and are distributed throughout the planning area pre and post-disturbance.

6. 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.

7. 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 (e.g., single trees succumbing to age or resource stress or clusters of trees or acres of trees killed by insects or diseases). Coarse wood debris is patchily distributed and the density of large down logs varies by vegetation type by averages 1 to 5 tons per acre across the landscape. Surface dead wood levels provide for legacy soil microbial populations.

8. Complex early seral habitat created as a result of a disturbance (e.g., burned forest habitat) contains dense patches of snags as well as habitat elements characteristic of natural succession (e.g., regenerating shrub cover and herbaceous understory) 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.

9. Snags, logs and live trees are widely distributed in large patches of high vegetation burn severity (greater than 75 percent mortality) to provide habitat while also considering the need for other resource objectives such as hazard tree removal, reforestation, strategic fuel treatment locations or management of fuels in and adjacent to the community wildfire protection zone.

Strategies

1. During prescribed fire and when managing fires for resource benefits, take actions designed to achieve a patchy mosaic of fire severity in old forests, with predominately low and moderate vegetation burn severity and with most high severity patches generally fewer than 200 acres in size. Due to the complexity of managing fires, on very large fires, some larger patches of high

severity fire may occur due to localized weather and existing fuels conditions. The balance of benefits from restoring fire to large landscapes should be weighed against the effects to old forests. In areas where there are limited opportunities to manipulate fuels conditions other than with fire, these tradeoffs of accepting more or larger patches of high severity fire in old forests with managed fire are weighed against the risk of effects to old forests from unmanaged wildfire.

Standards

1. For vegetation management projects, design projects to restore, maintain or enhance structural diversity (e.g., large tree clumps, large and old tree density, and variability in tree density, canopy cover, snags, downed logs and the amount of hardwoods) of existing old forest stands as redefined by the desired conditions for each major forest type.

Guidelines

1. To protect old forest components from uncharacteristic fire, effective methods of fuels reduction should be considered, such as thinning or selective harvest, prescribed fire and wildfires managed for resource objectives. When conducting prescribed burning, firing patterns should limit mortality to old trees by managing smoldering at the base of large, old trees.

2. To perpetuate old forest components, the development of old forest conditions should be encouraged in areas where old forest is lacking. Projects should seek to restore patchiness within stands using approaches described in GTR-220 and 237. To promote old forest attributes consistent with desired conditions, also manage for large black oak trees, pine tree regeneration, and snags where present, to be sustained over time.

3. During wildfires in areas with large areas of identified old forest patches, a resource advisor should be consulted. The resource advisor should identify old forest and old forest associated wildlife resource values for consideration by the fire planning team and suggest opportunities to retain and protect large and old trees where feasible. When safe and feasible, ahead of burn operations prepare particularly highly valued old trees and den and nest trees using techniques such as targeted preparatory burning, removing large fuel away from the base of especially important trees, or providing direct protection to high value trees.

4. Restoration projects for large stand replacing events (wildfire, insect and disease infestations, windstorms and other unforeseen events) should establish restoration objectives considering: the need to provide for safety to people in the short and long terms; the need to limit fuel loads over the long term, including the need to restore fire to the recovering or restored landscape; the urgency to restore forested habitat to deforested areas, including restoring connectivity; the need to provide habitat for local wildlife species that use burned forest habitats; the need for other ecological restoration actions in the affected area; and the opportunity to recover economic value from dead and dying trees.

5. 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. Examples are activities that would: provide for adequate soil cover in the short term; accelerate the dispersal of coarse woody debris; reduce the potential impacts of the fire on water quality; and carefully plan restoration and salvage activities to minimize additional short term effects.

6. Post-disturbance restoration projects should be designed to manage the development of fuel profiles over time. Examples are activities that would remove sufficient standing and activity generated material to balance short term and long term surface fuel loading and protect remnant

old forest structure (surviving large trees, snags and large logs) from high severity re-burns or other severe disturbance events in the future.

7. Post-disturbance restoration projects should be designed to recover the value of timber killed or severely injured by the disturbance. Examples are activities that would: conduct timber salvage harvest in a timely manner to minimize value loss; minimize harvest costs within site-specific resource constraints; and remove material that local managers determine is not needed for long term resource recovery needs.

8. Post-fire restoration projects should consider the landscape amounts of complex early-seral forests available on the forest and in the regional context. Restoration projects should provide for ecological conditions for complex early seral wildlife species by: retaining some areas of dense and connected patches of snags across a range of snag sizes, including the largest snag sizes; retaining some areas of regenerating vegetation such as the shrub layer, sprouting hardwood trees and herbaceous understory; and retaining some burned areas adjacent to or intermixed with unburned areas or areas with moderate or high tree survival. 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

Desired Conditions

1. The structure and function (e.g., age and size distribution, regeneration, habitat, biodiversity) and distribution of aspen are within the range of historic variability. Aspen is successfully regenerating and growing into larger trees.

2. 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.

3. Aspen groves contribute to social and economic sustainability by supporting recreational, cultural, economic, spiritual and scenic enjoyment opportunities.

Strategies

1. Conifer removal (mechanical or hand thinning) is the primary initial restorative treatment for aspen stands, especially those that are near developed areas or heavily managed areas. Where cut material cannot be removed from the stand, pile burning is used to manage residual fuel loading.

2. The number and size of conifers removed to enhance aspen is dependent on the current stand condition but 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.

3. Aspen stands that receive intensive browsing from either livestock or wildlife may need all or portions of the stand to be temporarily fenced or have browsing pressure reduced for several years to protect regenerating aspen suckers until sufficient numbers have grown large enough to provide a replacement age cohort.

Guidelines

1. Where pile burning of material from conifer removal is desired, piles should be kept at least four to 15 feet away from large aspen trees to limit damage to aspen trunks. Small piles can be closer and very large piles farther.

2. Cultural resource surveys should be conducted within and adjacent to aspen stands prior to treatment since aspen stands often contain cultural or historical sites. Treatments to manage or restore aspen and prescribed burning should consider techniques to protect aspen trees with historical carvings or to record and appropriately capture the historical values.

Upper Montane Vegetation Types

These vegetation types occur across all national forests. The nature of each type may vary by individual forest but the desired conditions are designed to be broad enough to allow individual, site specific adjustments at the project level to adjust for these differences.

Desired Conditions

All Upper Montane Vegetation Types

Landscape Scale (10,000 Acres or Greater)

1. Fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur irregularly, generally between 15 and 40 years between fires. Fires in this vegetation type burn with low, moderate or mixed severity with greater than 90 percent of the patches of high severity (greater than 75 percent basal area mortality) fewer than 300 acres in size. The proportion of areas (greater than 1 acre in size) burned at high severity within a fire is generally less than 15 to 30 percent. Due to the existing high levels of fuels and the variability of weather, managed wildfires or large landscape prescribed fires may unavoidably have higher proportions of high vegetation burn severity, up to 50 percent, with some patches of high severity up to 1,000 acres.

2. 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

Landscape Scale (10,000 Acres or Greater)

1. The red fir forest type is part of a heterogeneous mosaic of tree species and vegetation structure (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, sugar pine, lodgepole pine and mountain hemlock.

2. Areas dominated by medium and large diameter trees comprise more than 50 percent of the landscape. These areas, in combination with areas dominated by small diameter trees with moderate canopy cover between 40 to 60 percent, comprise between 50 and 70 percent of the landscape. Trees are denser in some locations such as north-facing slopes and canyon bottoms, near meadows or where snow accumulates. Denser areas with closed canopy cover greater than 60 percent occur on 40 percent of the landscape but can range from 20 to 60 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.

3. Shrub, grass and young trees grow in patches of high tree mortality with abundant snags and large logs, providing complex early seral habitat.

Mid-Scale (100 to 1,000 Acres)

1. Trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest. Numbers of seedlings and saplings are sufficient to replace old trees as they die, but are very patchy in distribution.

2. Overstory tree canopy cover is generally 40 percent but ranges from two to 70 percent, with at least 20 percent of the area in closed canopy stands with greater than 50 percent cover.

3. Large snags, greater than 20 inches in diameter are patchily distributed, average 5 to 40 snags per 10 acres providing 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.

Fine Scale (10 Acres or Fewer)

1. 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.

2. Small openings are intermixed within stands of trees. They make up 10 to 25 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. 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.

3. Shrub cover is highly variable. Vigorous shrubs cover 5 to 70 percent of the area. Higher shrub cover is common after fire.

4. Litter and surface fuel is patchy with fewer than 5 to 15 tons per acre in fuel loading on average. There may be areas with no fuels and pockets of high fuel accumulation scattered irregularly.

Variety of stand structures in red fir forests that comprise "heterogeneity"

The photos above show three different within-patch forest structures typical in red fir forests. All of the photos are from Yosemite National Park where repeated fires from lightning strikes have occurred. The top photo shows a stand of widely spaced, very large (greater than 40 inches in diameter) with fire-blackened bases. Three people from about 30 feet away are seen in the lower left. The tree stems are widely spaced but irregularly distributed, all at different spacing. There is one partially burned out snag in the lower right, leaning and about to fall down. The understory is very sunny, with little shade, indicating the low overstory canopy cover. The middle photo shows an opening, approximately 0.1 to 0.25 acre in size, with a dense cover of green, low growing shrubs and red fir seedlings. Tree cover is moderate, at least 40 percent. The bottom photo shows a stand that is intermediate. It has a dense understory and moderately dense but clumpy overstory of mostly red fir trees.

Upper Montane Jeffrey Pine

Landscape Scale (10,000 Acres or Greater)

1. Forests are dominated by Jeffrey pine trees and are generally very open with less than 40 percent cover. Generally less than 10 percent of the area has denser canopies. Open canopies allow tree regeneration of shade-intolerant Jeffrey pine.

2. Fire is a key ecological process, creating a diversity of vegetation types, maintaining understory plant diversity and lowering surface fuels. Fires occur frequently, with mostly low and moderate vegetation burn severity.

3. Areas dominated by medium and large diameter trees comprise more than 60 percent of the landscape. These areas, in combination with areas dominated by small diameter trees with low to moderate canopy less than 40 percent cover, comprise between 60 and 90 percent of the

landscape. Trees are denser in some pockets of deeper soils. Areas with closed canopies greater than 60 percent cover occur on less than 10 percent of the landscape. Early seral vegetation, shrubs, grasses, herbs, and tree seedlings or saplings mostly occur in very small areas, intermixed within forest stands or patches.

4. Shrub, grass and young trees grow in patches of high tree mortality with abundant snags and large logs, providing complex early seral habitat.

Mid-Scale (100 to 1,000 Acres)

1. Jeffrey pine forests are composed of variable patches of irregular, uneven-aged trees with open canopies, and scattered individual trees. Numbers of seedlings and saplings are sufficient to replace old trees over time. These areas are highly resilient to fire.

2. Canopy cover ranges from 10 to 60 percent. Less than 10 percent of the area has more than 40 percent canopy cover.

3. Large snags greater than 20 inches in diameter are at densities between 1 to 20 snags per 20 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 and highly variable density.

Jeffrey pine patch

The photo above shows a patch of Jeffrey pine, typical of upper montane landscapes in the southern Sierra Nevada. Very widely spaced, mostly large and old Jeffrey pine are scattered among granite rock outcrops and patches of sandy soil. Overstory tree cover is about 10 percent.

Fine Scale (10 Acres or Fewer)

1. Size and age class diversity is high within Jeffrey pine stands. Individual trees are variably spaced with some tight clumps. Tree stocking (basal area) is highly variable with most areas containing fewer than 80 square feet per acre but ranging from 20 to150 square feet per acre.

2. Openings of various shapes are intermixed with trees. More openings occur on shallow soils or when rock outcrops are interspersed with trees. They make up 10 to 70 percent of the area, are irregular in shape and vary widely in size. They contain herbaceous plants, shrubs and tree seedlings and saplings.

3. Shrub cover is highly variable and Jeffrey pine stands or woodlands often occur in a mosaic with patches of montane chaparral. Shrub cover varies from two to 70 percent of the area. At least half

of the shrubs are vigorously growing, with low amounts of dead branches. Surface fuel loads are fewer than 5 to 7 tons per acre and are patchy, covering 30 to 70 percent of the area.

Lodgepole Pine

Landscape Scale (Greater than 1,000 acres)

1. Lodgepole pine forests are highly variable throughout the landscape, occurring both as open forests on dry sites at higher elevations, to 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.

2. Areas dominated by medium and large diameter trees, in combination with areas dominated by small diameter trees with moderate canopy cover of 40 to 60 percent, comprise between 50 and 70 percent of the landscape. Closed canopies forests with greater than 60 percent cover comprise between 10 to 60 percent of the landscape, with higher levels associated with wetter soils.

3. Shrub, grass and young trees grow in patches of high tree mortality with abundant snags and large logs, providing complex early seral habitat.

Mid-Scale (100-1,000 Acres)

1. The distribution and structure of 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 lodgepole pine stands. Irregularly-shaped groups of large and intermediate trees are variably sized, with some overlapping tree crowns. Smaller trees are randomly distributed. Tree groups contain other tree species such as red fir. Sufficient tree regeneration in openings provides for stand replacement.

2. Canopy cover is generally 40 percent but ranges from 10 to 60 percent. On moister soils outside of meadows, at least 20 percent of the area is comprised of moderately dense to dense canopy cover greater than 40 percent.

3. Large snag densities are between 5 and 40 snags per 10 acres, and are well distributed, but highly irregular in spacing and 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 5 tons per acre.

Fine Scale (10 Acres or Fewer)

1. Individual trees are variably spaced with some tight groups. Tree stocking (basal area) is highly variable with most stands having around 200 square feet per acre but ranging from 10 to 280 square feet per acre.

2. 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 grasses, herbaceous plants and shrubs.

3. The understory of lodgepole pine stands is highly variable. On wet sites next to meadows, lakes, streams or springs, shrub, grass and herbaceous plant cover may exceed 80 percent. Most areas contain between zero and 40 percent shrub cover but on very dry, cold, rocky sites, there may be no shrubs.

4. 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.

Montane Chaparral

1. Chaparral is comprised of native shrub and understory species that reflect the natural range of variability for the site. The chaparral vegetation type is composed of varying age classes and densities that protect against accelerated erosion, with two to 20 percent of the type in early seral grass and herbaceous cover, 5 to 20 percent in native herbs and shrubs, and 70 to 95 percent in dense shrubs.

2. Chaparral is in a constant state of transition from young to older stages and back again, with fire as the primary disturbance. High severity fires that kill most aboveground stems occur on average every 35 to 100 years. Long fire return intervals allow the buildup of native shrub and plant seeds in the soil seed bank and for the accumulation of fuels necessary to support fire induced regeneration.

3. The fire return interval is long enough to allow the soil seed bank of uniquely adapted fire-following plants to be maintained over the short and long term. Invasive non-native plants do not dominate between fires.

Subalpine and Alpine Ecosystems

1. Subalpine woodlands are highly variable in structure and composition. Diverse patch types vary from open woodlands with scattered trees to small, dense groves.

2. Fires occur infrequently, are mostly very small and with mixed severity. Fire intensity is highly variable, but crown fires are usually limited in size.

3. 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.

4. Mature cone-bearing whitebark pine trees are well distributed spatially for natural regeneration to protect and conserve genetic diversity.

Strategies

1. Identify whitebark pine stands of conservation and restoration priority. Identify climate refugia for whitebark pine that may serve as areas for restoration and conservation.

2. Conserve whitebark pine genetic diversity by collecting and archiving seeds and growing and planting genetically diverse seedlings. Identify and collect seed from trees that exhibit some level of white pine blister rust resistance.

3. Proactively manage whitebark pine stands of high conservation or restoration priority to improve resilience after disturbance (e.g., outbreaks of mountain pine beetle) and resistance to pathogens. Actions may include precautions to limit the spread of blister rust, use of fire or silvicultural treatments or reforestation with white pine blister rust-resistant seedlings. Assess management

activities for the risk of establishment or spread of white pine blister rust or mountain pine beetle outbreaks among whitebark pine stands.

4. Develop an interagency whitebark pine conservation strategy, based on the range-wide restoration strategy for whitebark pine (GTR-279) in collaboration with other federal agencies, research organizations, especially the Pacific Southwest Research Station and other partners.

5. Collaborate with partners and stakeholders to monitor, conserve, and restore subalpine and alpine ecosystems and educate the public about potential impacts from recreation use and climate change.

6. Distribute information to the media and general public that is focused on the unique properties of subalpine and alpine ecosystems and ways to enjoy but minimize ecological impacts to them.

Special Habitats

Special habitats are small scale, habitat or vegetation types that support unique assemblages of biological populations of federally-listed species under the Endangered Species Act or species of conservation concern. They typically include uncommon rock types, harsh soils or rock outcrops. Examples include dry sandy and gravelly soils on flats, limestone or serpentine soils, alkali or acidic soils, metamorphic, volcanic or granitic rocky soils or rock outcrops and alpine talus or fell fields. Aquatic special habitat examples include bogs, 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.

Desired Conditions

1. The composition, diversity, and structure of special habitats are resilient to disturbances such as recreational activities, grazing and invasive plant and animal species.

2. Microclimate or smaller scale habitat elements provide habitat and refugia for narrow endemics and species with restricted distribution.

Standards

1. At the project scale, conduct inventories of project sites and areas of disturbance if special habitats are identified. Provide potential mitigation measures to minimize effects to habitats for which ecological integrity has been identified as a concern.

Westside Vegetation (Sequoia and Sierra National Forests)

Foothill Vegetation Types

Desired Conditions

Blue Oak-Interior Live Oak Woodland

1. Blue oak-Interior oak woodlands occur in a highly variable and complex landscape pattern. Blue oak dominates the overstory in patches but is co-dominant with interior live oak or foothill pine. Blue oak woodlands are a mosaic of varying age and size classes with mature oaks that provides acorns from older trees that are an important food for wildlife. There are occasional flushes of blue oak regeneration to successfully replace mortality in older trees.

2. Fires occur periodically to maintain lower levels of dead grass and litter levels so that they do not fuel intense fire. Fires typically burn with low to moderate vegetation burn severity.

3. In annual grasslands, native plant abundance is maintained and encouraged and enough residual plant matter remains at the end of the growing season to maintain germination potential, site productivity and protect soils.

Chaparral-Live Oak

1. Chaparral is comprised of native shrub and understory species that reflect the natural range of variability for the site. The chaparral vegetation type is composed of varying age classes and densities that protect against accelerated erosion, with two to 20 percent of the type in early seral grass and herbaceous cover, 5 to 20 percent in native herbaceous plants and shrubs, and 70 to 95 percent in dense shrubs.

2. Chaparral is in a constant state of transition from young to older stages and back again, with fire as the primary disturbance. High severity fires that kill most aboveground stems occur on average every 35 to 100 years. Long fire return intervals allow the buildup of native shrub and plant seeds in the soil seed bank and for the accumulation of fuels necessary to support fire-induced regeneration. Expanses of dense or older chaparral have fire-caused openings with chaparral regeneration.

3. The fire return interval allows the soil seed bank of uniquely adapted fire-following plants to be maintained over the short and long term. Invasive non-native plants do not dominate between fires.

Guidelines

1. To provide varying seral stages and habitat diversity, treatments using fire within chaparral should be designed to provide a diversity of seral stages at the landscape scale. Where feasible, and considering topographic position, soil types, and other fire management operational and strategic requirements, leave small to medium unburned or lightly burned patches for wildlife within very large burn units.

2. Where chaparral is the potential natural vegetation type for an area, projects should not include active reforestation with the intent to convert the area to a forested type.

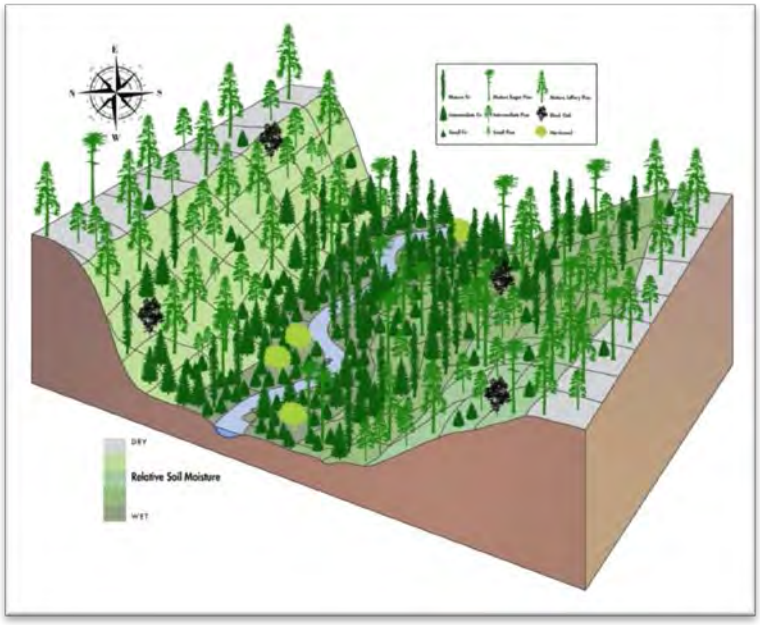
Montane Conifer and Hardwood

Ponderosa pine, black oak and mixed conifer forests comprise the montane vegetation type. It occurs on the western slopes of the Sierra Nevada, above the foothills and below the red fir and upper montane forests. These vegetation types overlap with most of the distribution of fisher and California spotted owl.

Desired Conditions

All Montane Confer and Hardwood

Landscape Scale (10,000 Acres or Greater)



Variation in dominant trees and tree density

The drawing above is from the scientific publication by North and others (2009), "An ecosystem management strategy for Sierran mixed-conifer forests." The diagram illustrates how tree sizes and tree density varies across the topography of a watershed. It shows a cross-section of a watershed, with a river or stream in the middle with slopes rising to a ridge top on either side. Sketches of individual trees are shown with lighter colors depicting sun-dependent pine trees and darker green shade-tolerant fir trees. The slope on the left is south facing and thus warmer and drier. It has widely spaced pine trees with a few scattered fir trees, mostly on the valley bottom next to the stream. The valley bottom has a clumpy pattern of trees, dominated by fir and some kind of hardwood, likely alder that are denser overall. The north-facing slope is more shaded and thus often cooler and moister. It has a moderate density of trees that becomes more widely spaced as they approach the warmer and drier ridge top.

1. Montane vegetation occurs in a complex mosaic across large landscapes that vary with topography, soils and precipitation (as see in the diagram below). The composition, structure, and functions of vegetation make them resilient to fire, drought, insects and pathogens, and climate change.

2. Montane vegetation provides ecological connectivity for a wide range of species, including old forest-associated species as well as habitat generalists. At least 30 percent of the landscape

provides greater than 40 percent tree or shrub cover for connectivity of wide-ranging forest-associated species. Between 10 and 40 percent of the landscape has closed canopied, multi-storied forests with greater than 50 percent overstory tree cover. More of these forests occur on moist sites on lower slope positions and north or east-facing slopes.

3. Fire is a key ecological process restoring and maintaining low fuel loads, and increasing heterogeneity and understory plant vigor. Fires burn with low, moderate or mixed severity with greater than 95 percent of the patches of high severity (greater than 75 percent basal area mortality) fewer than 200 acres in size. The proportion of areas (greater than 1 acre in size) burned at high severity within a fire is generally less than 15 to 30 percent**.** Due to the existing high levels of fuels and the variability of weather, managed wildfires or large landscape prescribed fires, may have higher proportions of high vegetation burn severity, up to 40 percent, with some patches of high severity up to 1,000 acres.

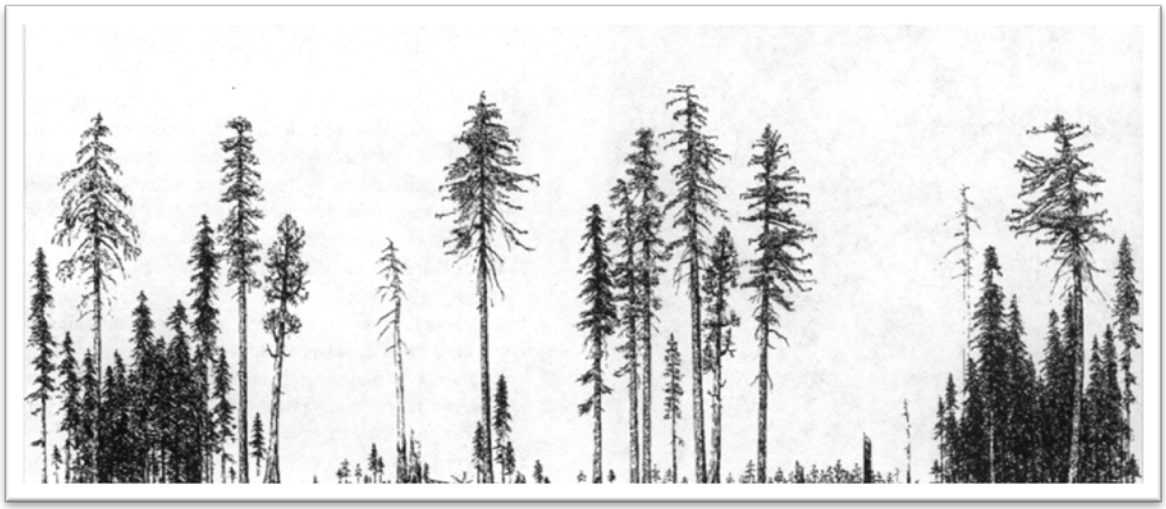
Mid-Scale (100 to 10,000 Acres)

1. A complex mosaic of groups of trees and shrub and herbaceous plants provide diverse habitat for a wide variety of wildlife species including old forest-associated species. Vigorous understories of heterogeneous, patchy, and diverse native shrubs, herbs, and grass species support small mammal, bird, insect, and fungi communities, as well as providing pollinator and herbivore forage.

2. Sugar pine is reproducing, growing successfully, and is resistant to blister rust and insects.

3. Shrub, grass and young trees grow in patches of high tree mortality with abundant snags and large logs, providing complex early seral habitat.

4. Individual trees, small clumps and groups of trees are interspersed with grass, herbaceous plants and shrubs in variably sized openings (see diagram below). A mosaic of moderate to dense shrubs, tree litter, down wood and some bare ground occurs between groups of trees.



Cross-section in a forest patch

The diagram of a cross-section in a forest patch, illustrates the heterogeneity, or complex mosaic, described by North and others (2009) in the scientific paper, General Technical Report 220, published by the Forest Service Pacific Southwest Region. From left to right, there are large and likely old, overstory

trees above a widely varying and clumpy understory. On the left, three large trees tower above a dense clump of mid and small fir trees. In the middle, encompassing two-thirds of the cross-section, several individual large trees and small clumps tower above a sparse understory, and there are scattered seedlings and clumps of shrubs. To the right, a similar dense patch as the one on the far left occurs, with a large snag and some mid-sized trees.

Black Oak

1. Large patches of black oak are present both in large patches, and intermixed throughout montane forests where it historically occurred. Oak trees in varied ages are present, with wide spacing providing full sunlight around large old oak trees, enhancing their ability to produce abundant acorn crops. Black oak is reproducing successfully. Sufficient numbers of mid-age black oaks have enough canopy space to form full crowns to replace old oaks that eventually die.

2. Fire occurs as a key ecological process to create and maintain heterogeneity, invigorate and restore fire-adapted understory plants and shrubs, reduce and maintain lower fuel loads, and promote the retention and maintenance of legacy oak trees and the recruitment of young oaks.

3. 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 for wildlife.

4. Acorns and other important plants in this vegetation type are plentiful and available for tribal uses.

Ponderosa Pine

Landscape Scale (10,000 Acres or Greater)

1. The ponderosa pine vegetation type consists of a mosaic of varied tree sizes, densities and understory vegetation. They are dominated by ponderosa pine trees and, where black oak is common, co-dominated by black oak. Understory shrubs and plants are common. These areas are highly resilient to fire.

2. Areas dominated by medium and large diameter trees comprise more than 60 percent of the landscape. These areas, in combination with areas dominated by small diameter trees with moderate canopy between 40 to 60 percent cover, comprise between 25 and 40 percent of the landscape. Trees are denser in some locations such as north-facing slopes and canyon bottoms, but areas with greater than 60 percent cover occur on only 5 to 30 percent of the landscape.

Mid-Scale (100 to 1,000 Acres)

1. Trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest composed of tree stands of similar ages. Numbers of seedlings and saplings are sufficient to replace old trees over time, but since ponderosa pine is shade-intolerant, they are very patchy in distribution with regeneration occurring when gaps and openings of sufficient size are created.

2. Overstory tree canopy cover is generally 30 percent but ranges widely from 10 to 60 percent. When black oak dominates the overstory, because of their wide crowns, canopy cover can be greater than 50 percent.

3. Large snags, greater than 20 inches in diameter are patchily distributed and highly irregular in spacing with between two to twenty snags per 10 acres providing for future downed logs. Coarse

woody debris, including large downed logs in varying states of decay is patchily distributed and ranges from 1 to 5 tons per acre.

Ponderosa pine patch

The panoramic photo above shows an example of a ponderosa pine forest that shows the heterogeneity reflective of the desired condition. In the foreground, several scattered large ponderosa pine trees, and one clump of three trees tower above a dense carpet of low growing bear clover shrubs. In the background are groups of trees with mixed sizes and sometimes more uniform appearing ages.

Fine Scale (100 Acres or Fewer)

1. 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.

2. Irregular 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.

3. Scattered thickets of small trees, shrubs, and downed wood often occur after fires burn surface litter and expose soil and when events kill overstory trees and create a gap. Vigorous shrubs cover 10 to 60 percent of the area. Less than 30 percent of shrubs are decadent with many dead branches.

4. 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.

Dry Mixed Conifer

The dry mixed conifer type occurs in the Kern Plateau, Piute Mountains, eastern escarpment of the Sierra Nevada, and on ridges, upper slopes and south and west aspects on the western slopes of the Sierra Nevada. It is distinguished from moist mixed conifer by typical understory indicator plants that are found on dry sites such as buckwheat and iris.

Landscape Scale (10,000 Acres or Greater)

1. The dry mixed conifer vegetation type has a mosaic of patches of trees of varied sizes and ages. It is dominated by Jeffrey or ponderosa pine trees, with varying amounts of white fir, red fir, incense cedar or sugar pine, and understory plants.

2. Areas dominated by medium and large diameter trees comprise more than 60 percent of the landscape. These areas, in combination with areas dominated by small diameter trees with moderate canopy cover between 40 to 60 percent, comprise between 25 and 40 percent of the landscape. Trees are denser in some locations such as north-facing slopes and canyon bottoms. Areas with closed canopies greater than 60 percent cover occur on only 5 to 30 percent of the landscape.

Mid-Scale (100 Acres)

1. Trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest. Numbers of seedlings and saplings are sufficient to replace old trees over time. These areas are highly resilient to fire.

2. Canopy cover ranges from 10 to 60 percent but is mostly open with less than 30 percent of the area having over 40 percent canopy cover. When black oak dominates the overstory, because of their wide crowns, canopy cover can be greater than 50 percent.

3. Large 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.

Dry mixed conifer

The photo above shows a cross-section of a dry mixed conifer. It illustrates the generally open canopy, but highly varied spacing and grouping of trees. Throughout the stand, scattered individual large, medium, and small trees occur irregularly, punctuated by groups of two, three or more trees. The soil is rocky and sandy, between a patchy layer of widely spaced manzanita shrubs, grasses and herbaceous plants. Overall, overstory tree canopy cover is about 30 percent.

Fine Scale (10 Acres or Fewer)

1. Individual trees are variably spaced with some tight groups. Tree stocking (basal area) is highly variable with most stands having fewer than 150 square feet per acre but ranging between 20 to 200 square feet per acre.

2. 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. Vigorous shrubs cover 10 to 60 percent of the area.

3. 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.

Moist Mixed Conifer

Moist mixed conifer forests are found where soil moisture is higher, such as lower slopes, drainages, north and east aspects or where water tables are close to the surface. They are often identified by the presence of understory plants such as trailplant, false solomon's seal, starflower, fairy bells, hazel or Pacific dogwood.

Landscape Scale (10,000 Acres or Greater)

1. The moist mixed conifer type has a mosaic of patches of trees of varied sizes and ages. This type is comprised of varying mixtures of Jeffrey or ponderosa pine, white fir, red fir, incense cedar and sugar pine trees, and understory plants.

2. Areas dominated by medium and large diameter trees comprise more than 50 percent of the landscape. These areas, in combination with areas dominated by small diameter trees with closed canopy cover greater than 60 percent, comprise 40 to 80 percent of the landscape. The combination of mid-story and understory tree and shrub density and patchy and light to moderate surface fuels make the closed canopy stands resilient to fire under most weather and drought conditions. Early seral vegetation, shrubs, grasses, herbs, tree seedlings or saplings mostly occur in very small areas, intermixed within forest stands or patches.

Mid-Scale (100 Acres)

1. Moist mixed conifer stands are diverse, with high variation between patches of trees. Trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest with all seral stages present, including old forest. Seedlings and saplings are sufficient to replace old trees over time, but are not uniformly distributed in stands. These areas are moderately to highly resilient to fire.

2. Overstory tree canopy cover ranges from 20 to 90 percent. More than 30 percent of this area has over 50 percent canopy cover.

3. Large snags greater than 20 inches in diameter are patchily distributed, averaging 5 to 40 snags per 10 acres providing for future downed logs. Coarse woody debris, including large downed logs in varying states of decay, is patchily distributed and averages fewer than 5 tons per acre. In patches centered around areas of past tree mortality, course woody debris can be up to 10 tons per acre.

Fine Scale (Fewer than 100 Acres)

1. 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.

2. Scattered small irregularly-shaped thickets of small trees, shrubs and downed wood with less than 10 percent tree cover make up 10 to 50 percent of the area and contain a mix of grasses, herbaceous plants and shrubs. Vigorous shrubs cover 10 to 90 percent of the area.

3. Litter and surface fuel is patchy with fewer than 5 to 15 tons per acre in fuel loading on average over 30 to 70 percent of the area.

Guidelines

1. Where possible, 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.

2. Management activities that generate accumulations of green slash should be planned to minimize potential impacts from bark beetles.

3. Where possible, projects should remove trees to create crown space around existing mid-aged California black oak and canyon live oak to allow crown development of the oaks. Where replacement age classes are missing, projects should create openings near mature oaks to stimulate natural regeneration.

4. Mechanical vegetation treatments, prescribed fire, and salvage operations should retain all large hardwoods except where large trees pose a threat to human life or property, or losses of large numbers of large trees are incurred due to prescribed or wildland fire. Large montane hardwoods are trees greater than 12 inches in diameter and large blue oak woodland hardwoods are trees greater than eight inches in diameter.

Eastside Terrestrial Vegetation (Inyo and Sequoia National Forests)

Note that additional direction specific to management or geographic areas (e.g., 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 greater sage-grouse is described in the "At-risk Species" section. Where there is overlap, direction for greater sage-grouse takes precedence.

All Vegetation Types

Desired Conditions

All Eastside Vegetation Types

1. At the landscape scale (10,000 acres or greater), at least 5 percent of each vegetation type is in early, middle and late seral stages.

Sagebrush

1. The sagebrush type has a diversity of age classes, stand structure, cover classes and understory composition.

2. Sagebrush ecosystems are resilient to fire, disturbances (e.g., grazing, recreation), invasive species (including cheatgrass) and climate change.

3. 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.

4. 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

1. 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.

2. Fire frequency and severity is within the natural range of variation.

3. Plant litter (e.g., leaves, needles) 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.

4. Pinyon pine regeneration and recruitment ensures persistence of this vegetation type.

5. Mature pinyon pines provide foraging habitat for wildlife.

6. Mature pinyon pines provide opportunities for traditional collecting of pinyon nuts.

Desert Shrub and Blackbrush (Inyo National Forest only)

1. 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.

2. Vegetation conditions are resilient to natural and human disturbances, such as grazing, flooding, fire, invasive species and climate change.

3. Fires are very rare, occurring no more frequently than every 600 years on average.

4. 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.

East Slope Black Oak and Canyon Live Oak

1. 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.

Strategies

1. Restore fire as an ecological process to promote the retention and maintenance of legacy black oak and live oak trees for ecological, wildlife and cultural values and the recruitment of young oaks.

2. 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.

Standards

1. Restoration projects in desert shrub and blackbrush must include design measures to minimize damage to biological soil crusts, with the purpose of maintaining areas resistant to non-native plant invasions.

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

3. When planning prescribed fire, mechanical treatments, or salvage in or adjacent to oak ecosystems, minimize impacts to oak ecosystem structure and maintain large trees (greater than 12 inches in diameter) except: where large trees pose an immediate threat to human life or property; where losses of large trees are incurred due to prescribed or wildland fire and snags are not retained for wildlife values; and where removal of larger oak trees is supported by silvicultural prescriptions specifically designed to maintain and enhance the hardwood stand or to provide for other wildlife habitat needs.

Guidelines

1. Restoration activities should be conducted during the appropriate time of year, and on appropriate slopes, aspects and soil types to ensure native species recovery and to minimize non-native species introductions.

2. If available and needed to support restoration activities, projects should use native species seed appropriate for the ecological unit to restore the desired native species composition of the area. Consider the effects of climate change in selecting appropriate seed.

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

4. For restoration projects in sagebrush ecosystems at lower elevations (below about 6,000 feet) and in sandier soils, projects should leave large extents of undisturbed vegetation to the extent possible to minimize the risk of non-native species spread and to maximize native species restoration.

Lower Montane and Eastside Jeffrey Pine

Jeffrey pine forests are common in drier portions of the upper montane and montane vegetation of the Mono Basin, and southern Sierra Nevada, such as the Kern Plateau, Scodie Mountains and Piute Mountains.

Desired Conditions

Landscape Scale (10,000 Acres or Greater)

1. 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 tree regeneration of shade-intolerant Jeffrey pine.

2. 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 high severity fewer than 200 acres, but a few may be larger, up to 500 acres. The proportion of areas burned with high severity is generally less than 15 percent, although individual fires burning under very dry or windy conditions may have high severity proportions up to 25 percent.

Mid-Scale (100 to 1,000 Acres)

1. Jeffrey pine forests are primarily composed of widely varying patches of uneven-aged trees, with mostly open canopies and scattered individual trees.

Cross-section of a Jeffrey pine patch

This photo shows a cross-section of a Jeffrey pine patch in the Indiana Summit Research Natural Area on the Inyo National Forest. It illustrates the widely spaced, irregularly grouped overstory of large pines and variable understory. On the left, three widely spaced large pines tower over a patch of saplings and pole sized pines. In the middle, a single large pine occurs over a couple of pine seedlings and mostly open, sagebrush covered understory. To the right, a group of three large pine trees and one large snag occur with little understory beneath them.

2. 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.

3. Dwarf mistletoe, *Annosus* and *Armillaria* root diseases, Jeffrey pine beetle, and other pathogens and insects occur at endemic levels and are restricted to individual stands. Witches' brooms provide habitat for wildlife species.

Fine Scale (10 Acres or Fewer)

1. Size and age class diversity is high within Jeffrey pine stands. Individual large trees or tree groups provide nesting and denning habitat for wildlife.

2. 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.

Guidelines

1. In promoting an uneven-aged forest condition that maintains or contributes to the restoration of old forest conditions characteristic of the forest type, preference for retention should be given to pre-settlement trees, often the largest and tallest trees onsite. In general, retain groups of large trees and avoid thinning individual large trees in groups, except where silvicultural prescriptions identify a need for managing insects or diseases, or when needed to benefit the largest and oldest trees in the group.

At-Risk Species

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. A preliminary list of at-risk species was identified in the individual forest assessment reports. Further refinement of this preliminary list will occur as plan alternatives are analyzed. For each species or group of species, the forest plan will consider the extent that plan components provide for ecosystem integrity and ecosystem diversity that meet the ecological conditions necessary for those species, and will add additional species-specific plan components as needed. Additional direction is provided for special habitats under the "Forest-wide Vegetation" section to address unique habitats of some at-risk species.

Desired Conditions

1. 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.

2. 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 and recovery of listed species, contribute to the 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. Management for species of conservation concern is balanced considering multiple-use objectives.

3. The structure and function of the vegetation, aquatic and riparian system, and associated microclimate and smaller scale elements (e.g., special features, rock piles, specific soil types and wet areas) exist in adequate quantities to provide habitat and refugia for at-risk species with restricted distributions.

Strategies

1. Coordinate with the state wildlife agencies and the U.S. Fish and Wildlife Service regarding listed and native species, reintroductions, introductions, or transplants of listed or native species, control or eradication of non-native species, the management of sport and native fishes, including the identification of refugia for native fish and the management of game species. Actively participate at the appropriate levels in the development of conservation assessments, conservation strategies and conservation agreements for at-risk species. Provide information to guide development of relevant recommendations that reflect that authority of the Forest Service, the inherent capabilities of National Forest System lands, and consider the multiple use mandate and other objectives of the national forests.

2. Coordinate with the state wildlife agencies, the U.S. Fish and Wildlife Service, sports groups, the scientific community including the Pacific Southwest Research Station and other stakeholders about information, education and knowledge gaps as they relate to promoting and improving wildlife, fish, and plant resources and management. Education opportunities could include collaboration with research partners to provide student and volunteer participation in scientific studies.

Guidelines

1. To improve the status of species of conservation concern and prevent federal listing, management activities should comply with species conservation agreements and strategies completed or sponsored by the Forest Service.

2. Fire suppression techniques that minimize ground disturbance impacts should be used in sensitive habitat of at-risk species, with guidance provided by a resource advisor and considering the safety of people. Locations of key habitat areas should be provided in current fire decision support systems (e.g. the Wildland Fire Decision Support System) as appropriate.

Forest Carnivore Conservation Management

The Forest Service, the Sierra Nevada Conservancy and the Resources Legacy Fund have funded and commissioned development of a Southern Sierra Fisher Conservation Strategy, which is expected to be finalized in the fall of 2014. Direction for the Southern Sierra Fisher Conservation Area and fisher den sites are retained until the conservation strategy is complete. It is expected that direction for these management areas will be updated or replaced after considering information that will be contained in the conservation strategy. This may include deleting existing management areas or adding new management areas.

Yosemite Toad and Yellow-legged Frog Management

On June 30, 2014 the U.S. Fish and Wildlife Service listed the Sierra Nevada yellow-legged frog (Inyo and Sierra National Forests) and the northern distinct population segment of the mountain yellow-legged frog (Inyo and Sequoia National Forests) as endangered species, and listed the Yosemite toad (Inyo and Sierra National Forests) as a threatened species. Current forest plan direction specific to these species will be retained. During plan development, opportunities to clarify or improve direction may be proposed in consultation with the U.S. Fish and Wildlife Service.

California Spotted Owl Protected Activity Centers (PACs) (Sequoia and Sierra National Forests)

The following direction may be updated and clarified based on information from the new interim guidelines and conservation assessment being developed for the California spotted owl.

Desired Conditions

1. The best available habitat for California spotted owl PACs includes: two or more tree canopy layers; trees in the dominant and co-dominant crown classes averaging 24 inches diameter or greater; at least 60 to 70 percent tree canopy cover (including hardwoods); and in descending order of priority, California Wildlife Habitat Relationships (CWHR) classes 6, 5D, 5M, 4D, and 4M and other stands with at least 50 percent canopy cover (including hardwoods). PACs also contain some very large snags (greater than 45 inches diameter) and snag and down woody material levels that are higher than average.

Strategies

1. Where PACs cannot be avoided in the strategic placement of treatments, ensure effective treatment of surface, ladder and crown fuels within treated areas.

2. If it appears likely that the limitations on treatment in Standard 6 and Guideline 5 below will limit project planning and implementation to increase the pace and scale of ecological restoration, develop and implement an adaptive management monitoring strategy to gather information that could inform future plan amendments or revisions to allow more PACs to be affected.

Standards

1. Delineate California spotted owl PACs surrounding each territorial owl activity center detected on National Forest System lands since 1986. Owl activity centers are designated for all territorial owls based on: the most recent documented nest site; the most recent known roost site when a nest location remains unknown; and a central point based on repeated daytime detections when neither nest or roost locations are known. PACs are delineated to include known and suspected nest stands, and encompass the best available 300 acres of habitat in as compact a unit as possible. Aerial photography interpretation and field verification are used as needed to delineate PACs. As additional nest location and habitat data become available, boundaries of PACs may be reviewed and adjusted as necessary.

2. Examine 300 acre circular core areas around California spotted owl activity centers on non-National Forest System lands and designate any part of the circular core area that lies on National Forest System land containing suitable habitat as a California spotted owl PACs.

3. Locate fuels treatments to minimize impacts to PACs while considering opportunities to increase the resilience to the PAC network.. Consider the risk of uncharacteristic wildfire to clustered spotted owl PACs, and whether some should be managed to reduce wildfire risk and increase overall resilience of PACs in an area. Prioritize consideration of PACs that have the highest wildfire risk, such as those on upper slopes or ridge tops, or in canyons with large areas of chaparral below, and those with the lowest heterogeneity. PACs may be re-mapped during project planning to avoid intersections with treatment areas, provided that the re-mapped PACs contain habitat of equal quality and include known nest sites and important roost sites.

4. When treatment areas must intersect PACs and choices can be made about which PACs to enter, use the following criteria to preferentially avoid PACs that have the highest likely contribution to owl productivity. Historical occupancy is considered occupancy since 1990. Current occupancy is based on surveys consistent with survey protocol in the last 3 years prior to project planning.

    - Lowest contribution to productivity: PACs presently unoccupied and historically occupied by territorial singles only;
    - PACs presently unoccupied and historically occupied by pairs;
    - PACs presently occupied by territorial singles;
    - PACs presently occupied by pairs;
    - Highest contribution to productivity: PACs currently or historically reproductive.

5. When designing treatment unit intersections with PACs, limit treatment to those areas necessary to achieve strategic treatment objectives and avoid treatments adjacent to nest stands whenever possible.

6. Mechanical treatments may be conducted to meet fuels objectives in PACs located in the Community Wildfire Protection Zone. In PACs located in the General Wildfire Protection Zone, mechanical treatments are allowed where prescribed fire is not feasible and where avoiding PACs would significantly compromise the overall effectiveness of the landscape fire and fuels strategy. Design mechanical treatments to maintain suitable habitat structure and function of the PAC, removing only material needed to meet project fuels objectives. Focus on removal of surface and ladder fuels and restoring forest structure to reduce the risk of uncharacteristic wildfire using the desired conditions for moist mixed conifer and design guidelines in General Technical Reports 220 and 237. Limit mechanical treatments in PACs to no more than 5 percent per year and 10 percent per decade of the acres in California spotted owl PACs per year on a forest in order to limit project effects on annual productivity, unless part of an adaptive management strategy.

7. Mechanical treatments are prohibited within a 500-foot radius buffer around a spotted owl activity center within the designated PAC. Prescribed burning is allowed within the 500-foot radius buffer. Hand treatments, including activities such as hand line construction, tree pruning and cutting of small trees may be conducted prior to burning as needed to protect important elements of owl habitat.

8. Outside of the Community Wildfire Protection zone, prohibit salvage harvests in PACs. PACs should be evaluated to determine if they should be retained following a catastrophic stand-replacing event as provided by Guideline 4.

9. Outside the Community and General Wildfire Protection Zones, limit stand-altering activities to reducing surface and ladder fuels through prescribed fire treatments needed to meet project fuels objectives. Hand treatments, including hand line construction, tree pruning and cutting of small trees may be conducted prior to burning as needed to protect important elements of owl habitat.

Guidelines

1. As necessary to assess the effects of a project, surveys should be conducted in compliance with the Forest Service Pacific Southwest Region's survey protocols during the planning process when proposed vegetation treatments are likely to reduce habitat quality in suitable California spotted

owl habitat with unknown occupancy. Designate California spotted owl PACs where appropriate based on survey results.

2. Prior to implementing activities within or adjacent to a California spotted owl protected activity center and the location of the nest site or activity center is uncertain, surveys should be conducted to establish or confirm the location of the nest or activity center.

3. To maintain sufficient area of suitable habitat within PACs, replacement acreage of equal or better quality should be added if nesting or foraging habitat in PACs is mechanically treated and habitat becomes unsuitable. Add adjacent acres of at least comparable quality wherever possible.

4. To maintain PACs so that they continue to provide habitat conditions that support successful reproduction of California spotted owls, California spotted owl PACs should be retained regardless of occupancy status. However, after a stand-replacing event, evaluate habitat conditions within a 1.5-mile radius around the activity center to identify opportunities for re-mapping the protected activity center. If there is insufficient suitable habitat for designating a protected activity center within a 1.5-mile radius of the activity center, the PACs may be removed from the network.

5. To minimize disturbance that may lead to breeding failure, a limited operating period (LOP) should apply to vegetation treatments within approximately 0.25 mile of the activity center during the breeding season (generally March 1 through August 15), unless surveys confirm that California spotted owls are not nesting. The LOP buffer may be reduced where a nest site is shielded from planned activities by topographic features that would minimize disturbance. The LOP may be waived when it is determined that the likelihood of breeding success is not adversely affected considering the intensity, duration, timing and specific location of activities. To allow for effective large area prescribed burn projects, the breeding season limited LOP restrictions may be waived on up to an additional 5 percent of California spotted owl PACs per year on a forest.

California Spotted Owl Home Range Core Areas (HRCAs) (Sequoia and Sierra National Forests)

Desired Conditions

1. HRCAs encompass the best available California spotted owl habitat in the closest proximity to the owl activity center. The best available contiguous habitat is selected to incorporate, in descending order of priority, California Wildlife Habitat Relationships (CWHR) classes 6, 5D, 5M, 4D and 4M and other stands with at least 50 percent tree canopy cover (including hardwoods).

2. Home range core areas consist of large habitat blocks that have: at least two tree canopy layers; at least 24 inches diameter at breast height in dominant and co-dominant trees; a number of very large (greater than 45 inches diameter at breast height) old trees; at least 50 to 70 percent canopy cover; and higher than average levels of snags and down woody material.

Strategies

1. Accelerate development of currently unsuitable habitat (in non-habitat inclusions, such as plantations) into suitable habitat condition.

Standards

1. Delineate 600-acre California spotted owl HRCAs surrounding each spotted owl PAC. The acreage in the 300-acre PAC counts toward the total HRCA. Core areas are delineated within 1.5 miles of the activity center. HRCAs may overlap other adjacent HRCAs, but should not include adjacent California spotted owl PACs. Aerial photography interpretation and field verification are used as needed to delineate HRCAs. As additional nest location and habitat data become available, boundaries of HRCAs may be reviewed and adjusted as necessary.

2. Examine 1.5 mile circular core areas around California spotted owl activity centers on non-National Forest System lands and using the desired condition habitat definitions, designate any part of the circular core area that lies on National Forest System lands containing suitable habitat as a California spotted owl HRCA. Aerial photography interpretation and field verification are used as needed to delineate HRCAs.

3. Outside of the Community and General Wildfire Protection Zones, where existing vegetative conditions permit, design projects to retain at least 50 percent canopy cover averaged within the treatment unit to provide at least suitable foraging habitat. Exceptions are allowed in limited situations where additional trees must be removed to adequately reduce ladder fuels, provide sufficient spacing for equipment operations or minimize re-entry. Where 50 percent canopy cover retention cannot be met for reasons described above, retain at least 40 percent canopy cover averaged within the treatment unit.

Guidelines

1. Projects should be designed to retain existing suitable habitat conditions, recognizing that habitat within treated areas may be modified to meet fuels objectives and increase vegetation resilience and may have reduced habitat quality while retaining habitat suitability. Design treatments in HRCAs to be feasible to implement and to promote forest health where consistent with habitat objectives.

2. Reduce fuels using a strategic landscape approach to modify fire behavior. Projects should arrange treatment patterns and design treatment prescriptions to avoid the highest quality habitat (CWHR types 5M, 5D, and 6) wherever possible.

Northern Goshawk Management Protected Activity Centers (PACs)

Desired Conditions

1. Forested stands for northern goshawk PACs have the following characteristics: trees in the dominant and co-dominant crown classes average 24 inches diameter at breast height or greater; in westside conifer and eastside mixed conifer forest types, stands have at least 70 percent tree canopy cover; and in eastside pine forest types, stands have at least 60 percent tree canopy cover.

2. Stands in each PAC have: at least two tree canopy layers; dominant and co-dominant trees with average diameters of at least 24 inches diameter at breast height; at least 60 to70 percent canopy cover; some very large snags (greater than 45 inches diameter at breast height); and snag and down woody material levels that are higher than average.

Strategies

1. Where PACs cannot be avoided in the strategic placement of treatments, ensure effective treatment of surface, ladder and crown fuels within treated areas.

2. If it appears likely that the limitations on treatment in Standard 7 and Guideline 2 below will limit project planning and implementation to increase the pace and scale of ecological restoration, develop and implement an adaptive management monitoring strategy to gather information that could inform future plan amendments or revisions to allow more PACs to be affected.

Standards

1. Delineate northern goshawk PACs surrounding all known and newly discovered breeding territories detected on National Forest System lands. Northern goshawk PACs are designated based on the latest documented nest site and location(s) of alternate nests. If the actual nest site is not located, the PAC is designated based on the location of territorial adult birds or recently fledged juvenile goshawks during the fledgling dependency period.

2. PACs are delineated to: include known and suspected nest stands; and encompass the best available 200 acres of forested habitat in the largest contiguous patches possible, based on aerial photography. Best available habitat is defined by the desired condition. Where suitable nesting habitat occurs in small patches, PACs are defined as multiple blocks in the largest best available patches within 0.5 miles of one another. Non-forest vegetation (such as brush and meadows) should not be counted as part of the 200 acres. As additional nest location and habitat data become available, PAC boundaries may be reviewed and adjusted as necessary.

3. Delineate 200 acre circular core areas around northern goshawk activity centers on non-National Forest System lands. Designate any part of the circular core area that lies on National Forest System lands containing suitable habitat as a northern goshawk PAC.

4. Locate fuels treatments to minimize impacts to PACs. Consider the risk of uncharacteristic wildfire to clustered northern goshawk PACs, and whether some should be managed to reduce wildfire risk and increase overall resilience of PACs in an area. Prioritize consideration of PACs that have the highest wildfire risk, such as those on upper slopes or ridge tops, or in canyons with large areas of chaparral below, and those with the lowest heterogeneity.

5. When treatment areas must intersect PACs and choices can be made about which PACs to enter, use the following criteria to preferentially avoid PACs that have the highest likely contribution to northern goshawk productivity. Current occupancy is based on surveys consistent with survey protocol in the last 3 years prior to project planning.

    - Lowest contribution to productivity: PACs presently unoccupied and historically occupied by territorial singles only;
    - PACs presently unoccupied and historically occupied by pairs;
    - PACs presently occupied by territorial singles;
    - PACs presently occupied by pairs;
    - Highest contribution to productivity: PACs currently or historically reproductive.

6. When designing treatment unit intersections with PACs, limit treatment to those areas necessary to achieve strategic treatment objectives and avoid treatments adjacent to nest stands whenever possible.

7. Mechanical treatments may be conducted to meet fuels objectives in PACs located in the Community Wildfire Protection Zone. In PACs located in the General Wildfire Protection Zone, mechanical treatments are allowed where prescribed fire is not feasible, and where avoiding PACs would significantly compromise the overall effectiveness of the landscape fire and fuels strategy. Design mechanical treatments to maintain suitable habitat structure and function of the PAC. Limit mechanical treatments in PACs to no more than 5 percent per year and 10 percent per decade of the acres in northern goshawk PAC per year on a forest in order to limit project effects on annual productivity, unless part of an adaptive management strategy.

8. Outside of the Community Wildfire Protection Zone, prohibit salvage harvests in PACs. PACs should be evaluated to determine if they should be retained following a catastrophic stand-replacing event.

9. Outside the Community and General Wildfire Protection Zones, limit stand-altering activities to reducing surface and ladder fuels through prescribed fire treatments. Hand treatments, including activities such as hand line construction, tree pruning, and cutting of small trees may be conducted prior to burning as needed to protect important elements of northern goshawk habitat.

Guidelines

1. As necessary to assess the effects of a project, conduct surveys in compliance with the Pacific Southwest Region's survey protocols during the planning process when vegetation treatments likely to reduce habitat quality are proposed in suitable northern goshawk nesting habitat that is not within an existing California spotted owl or northern goshawk PAC. Suitable northern goshawk nesting habitat to survey is defined based on the survey protocol.

2. To minimize disturbance that may lead to breeding failure, a limited operating period (LOP) should apply to vegetation treatments within approximately 0.25 mile of the nest site during the breeding season (generally February 15 through September 15), unless surveys confirm that northern goshawks are not nesting. The LOP buffer may be reduced where a nest site is shielded from planned activities by topographic features that would minimize disturbance. If the nest stand within a PAC is unknown, either apply the LOP to a quarter-mile area surrounding the PAC, or survey to determine the nest stand location. The LOP may be waived when it is determined that the likelihood of contributing to breeding failure is low considering the intensity, duration, timing and specific location of activities. To allow for effective large area prescribed burn projects, the breeding season limited operating period restrictions may be waived on up to an additional 5 percent of northern goshawk PACs per year on a forest.

3. To maintain sufficient area of suitable habitat within PACs, replacement acreage of equal or better quality should be added if nesting or foraging habitat in PACs is mechanically treated and habitat becomes unsuitable. Add adjacent acres of at least comparable quality wherever possible.

4. To maintain PACs so that they continue to provide habitat conditions that support successful reproduction of northern goshawks, northern goshawk PACs should be retained regardless of occupancy status. However, after a stand-replacing event, evaluate habitat conditions around the activity center to identify opportunities for re-mapping the PAC. If there is insufficient suitable habitat nearby for designating a PAC, the PAC may be removed from the network.

Bi-State Distinct Population Segment of Greater Sage-Grouse (Inyo National Forest)

The following proposed direction is from the Inyo National Forest Sage-Grouse Interim Management Policy, portions of the Humboldt-Toiyabe National Forest Sage-Grouse Plan Amendment DEIS and strategies from the Rocky Mountain Research Station-led conservation strategy. Additional changes will be made to align to management direction with the Humboldt-Toiyabe National Forest Sage-Grouse Amendment FEIS to the extent practical and through the conferencing process with the U.S. Fish and Wildlife Service.

Desired Conditions

Landscape Scale (10,000 Acres or Greater)

1. Suitable sage-grouse habitat includes breeding, brood-rearing, and wintering habitats, and a distribution of these habitats to allow for dispersal and genetic flow.

2. 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.

3. 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.

4. Sage-grouse habitat and movement corridors allow for population movement, seasonal movements, and genetic flow and habitat is maintained or increased.

5. Sage-grouse habitats do not include overstory trees, such as pinyon pine, juniper or Jeffrey pine.

6. Fire occurs within the natural range of variation for sagebrush species.

7. 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 habitats.

8. The predicted increase in unwanted fire (more frequent, severe or larger than the natural range of variability) that have already occurred on surrounding landscapes in sage-grouse priority habitat is limited or prevented.

Fine to Mid-Scale (10 to100 Acres)

1. 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 following desired conditions for nest sites:

Sage-Grouse Nesting Habitat

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 >10 percent if total shrub cover <25 percent
Annual grass cover	<5 percent

Sage-Grouse Brood-Rearing Habitat

Vegetation component	Amount of Occurrence in the Habitat
Sagebrush canopy cover	10 to 25 percent
Total shrub canopy cover	14 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

2. Meadows provide suitable habitat for sage-grouse, including desirable foraging species (insects and plants), have suitable sagebrush cover around the meadows edge, hydrologically are fully functional and vegetation is within mid-seral conditions. Within grazed systems, meadow condition is rated at fully functional based on Forest-wide Range Utilization Standards.

Strategies

1. 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.

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

3. 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.

Standards

1. Habitat restoration projects for the greater sage-grouse shall be designed to meet one or more of the following habitat needs:

   - Promote the maintenance of large, intact sagebrush communities;
   - Limit the expansion or dominance of invasive species, including cheatgrass;
   - Maintain or improve soil site stability, hydrologic function, and biological integrity; and
   - Enhance the native plant community.

2. For habitat restoration projects for the greater sage-grouse, if suitable breeding or brood-rearing habitat is not at desired conditions, implement measures to improve suitability of habitat, including but not limited to mechanical treatments, prescribed fire or hand treatments.

3. At the fine to mid-scale, 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.

4. Long-term negative impacts in habitat from discretionary or non-discretionary activities shall be mitigated to the extent practicable.

5. Buffers, timing limitations or offsite habitat restoration shall be applied to all new or renewed discretionary actions in Bi-State sage-grouse habitat to mitigate potential long term negative impacts.

6. When long term negative impacts from non-discretionary actions are unavoidable require site-specific project mitigation if needed to ensure there is no net loss of habitat due to project disturbance.

7. Establish a limiting operating period for the sage-grouse breeding season (March 1-May 1) within suitable breeding habitat for any activities which would lead to disturbances during this time, including but not limited to livestock grazing, vegetation treatments, recreation events and mineral and energy development projects. A wildlife biologist can adjust these dates based on current nesting conditions.

8. Establish a limiting operating period for the sage-grouse nesting season (May 1–June 15) within suitable nesting habitat for any activities which would lead to disturbances during this time, including but not limited to livestock grazing, vegetation treatments, recreation events and mineral and energy development projects. A wildlife biologist can adjust these dates based on current nesting conditions.

9. Livestock grazing utilization levels, seasons of use, numbers of livestock and livestock management practices shall continue to follow the Inyo National Forest, Forest-wide Range Utilization Standards.

10. Key areas will be established if no key areas exist in meadow or upland habitats where sage-grouse occur. Key areas will be established according to guidance in the Forest-wide Range Utilization Standards.

11. When seeding, genetically and climatically appropriate and certified weed-free plant and seed material shall be used.

12. After new soil disturbances within sage-grouse habitat (i.e. disturbances that result in increased sedimentation, increased bare soil, and lack of vegetation from activities such as wildfires or flash floods) or seeding, soil-disturbing authorized uses shall not occur until desired habitat conditions have been met, or unless a resource team determines that disturbance is needed to meet desired conditions, or will not inhibit progress toward desired conditions.

13. Any vegetation treatment within sage-grouse habitat shall include objectives to maintain, improve or restore sage-grouse habitat.

14. Vegetation treatment methods and intensities within sage-grouse habitat shall be determined based on results of past treatments. If past treatments have shown an increase in non-native annual grasses and poor sagebrush recruitment, further treatments in that area will not adhere to the same prescription.

15. 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.

16. No new structures or power lines taller than the surrounding vegetation that could serve as predator perches shall be installed within suitable sage-grouse habitat within three miles from a lek unless they are necessary to protect or improve habitat or for human health and safety. Anti-perching devices shall be installed on any current or new structure or power line within suitable sage-grouse habitat within three miles from a lek.

17. If fences are determined to be necessary, and they occur within three miles of a lek, they will be constructed as a let-down fence whenever feasible and marked with fence markers.

18. No new structures greater than eight feet tall that could serve as predator perches shall be installed within Bi-State sage-grouse habitat unless they are equipped with anti-perching devices.

19. Water developments (tanks and troughs) shall be drained when not in use so they do not create a vector for West Nile Virus.

20. Wildlife escape ramps shall be installed and maintained in water troughs or open water facilities with vertical embankments that pose a drowning risk to birds.

21. Any new proposed salting, supplemental feeding locations, livestock watering and handling facilities (corrals, chutes, dipping vats) will not be located on sage-grouse strutting grounds.

22. Visible markers shall be installed on fences and other barriers in sage-grouse habitat within three miles of known lek locations.

23. Federal lands in Bi-State sage-grouse habitat shall be retained unless a public interest determination identifies a net benefit to sage-grouse habitat.

24. When informed that 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.

25. A weed-washing station shall be established on every wildfire within sage-grouse habitat where large equipment is used.

26. Fire suppression actions, fire rehabilitation efforts and fuels treatments shall be prioritized to minimize sagebrush habitat loss or type conversions in and immediately adjacent to known occupied and potential sage-grouse habitats in the Bi-State area.

27. Dispatch systems and protocols shall be updated annually to include line officer and resource advisor notifications and requirements for all wildland fire incidents within and immediately adjacent to known occupied and potential sage-grouse habitats in the Bi-State area.

28. A sage-grouse resource advisor shall be assigned to all extended attack fires in or near key sage-grouse habitat areas. Prior to the fire season, provide training to sage-grouse resource advisors on wildfire suppression organization, objectives, tactics and procedures to develop a cadre of qualified individuals.

29. Sagebrush and sage-grouse habitat awareness training will be developed and provided to federal fire personnel in the Bi-State area during required annual fire line refreshers. Training will focus

on sagebrush habitat identification, basic sagebrush habitat ecology and initial attack strategies and tactics designated to minimize long term impacts to sagebrush ecosystems.

30. An interagency cadre of sagebrush and sage-grouse habitat resource advisors will be established to support fire suppression, burned area emergency rehabilitation and fuels management projects in the Bi-State area.

31. Resource advisor kits will be updated annually to include the most recent information specific to sage-grouse populations and habitats within the Bi-State area to ensure that the distinct population segment and its habitat area are adequately protected.

Guidelines

1. Time the implementation of habitat restoration projects so they cause the least disturbance to sage-grouse individuals and populations as possible.

2. Fuels treatments which increase the potential for suppressing wildfires within sage-grouse habitat can occur within sage-grouse habitat. These treatments can include mowing along roads or maintaining fuel breaks surrounding sage-grouse habitat.

3. Use existing roads and co-locate new power lines whenever possible to reduce disturbance footprints and habitat fragmentation.

4. Where feasible, bury power lines to reduce overhead perches.

5. 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.

6. To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, and helibases) in areas where physical disturbance to sage-grouse habitat can be minimized. These include disturbed areas, grasslands, near roads and trails or in other areas where there is existing disturbance or minimal sagebrush cover.

7. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in sage-grouse habitat areas.

8. Within greater sage-grouse habitat, utilize retardant and mechanized equipment and other means to minimize burned acreage of sagebrush during initial attack.

9. Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles and ATVs prior to deploying in or near sage-grouse habitat areas to minimize noxious weed spread.

10. Minimize unnecessary cross-country vehicle travel during fire operations in sage-grouse habitat.

11. Minimize burnout operations in key sage-grouse habitat areas by constructing direct fire line whenever safe and practical to do so.

12. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs or other habitat features to minimize sagebrush loss.

13. 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. Implement measures to ensure wild horse and burro populations are being maintained at their recommended animal management level in the current wild horse and burro territory plans.

Invasive Species

Desired Conditions

1. Terrestrial and aquatic invasive species are controlled and establishment of new populations is prevented.

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

Strategies

1. Coordinate with stakeholders and educate the public to reduce, minimize or eliminate the potential introduction, establishment, spread and impact of non-native invasive species.

2. Work cooperatively with California and Nevada state agencies and individual counties to prevent the introduction and establishment of noxious weed infestations and to control existing infestations.

3. Consult 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.

4. Maintain an inventory of invasive species on forest lands. For plant inventories, prioritize areas of unique and rare habitats first, and areas of high use and disturbance second (e.g., material pits, trailheads, campgrounds, corrals, roads, boat ramps and bridges), especially in those areas in close proximity to unique, rare and pristine habitats.

5. 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 riparian areas to maintain the integrity of native species and ecosystems. Prepare control and prevention plans for high priority invasive species that promote early detection of new populations and rapid management response as an effective approach to minimize spread.

6. Periodically evaluate invasive plant management projects to determine success and to determine the need for follow up treatments or different control methods. Track known infestations, as appropriate, to determine changes in population and rate of spread.

7. Coordinate with research and other organizations such as the California Invasive Plant Council to evaluate the potential effects of climate change on the spread of invasive, non-native species.

Guidelines

1. Measures should be incorporated into project planning, implementation and monitoring to prevent, control, contain and, where reasonable and feasible, eradicate priority infestations or populations of invasive species.

2. 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 or the possibility of spreading invasive species. Refer to prevention practices in the Regional Noxious Weed Management Strategy and other regional invasive species strategies as they are developed. Projects should include follow up inspections as needed and specified in regional strategies.

3. As part of project planning, a noxious weed risk assessment should be conducted to determine risks for weed spread (high, moderate or low) associated with different types of proposed management activities. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy to develop mitigation measures for high and moderate risk activities.

4. To the extent feasible, hay, straw and mulch used for animal feed or bedding, applied control, soil stabilization and land rehabilitation, or other purposes by Forest Service personnel or their contractors should be certified as being weed and seed-free by an authorized state department official or equivalent certification system to prevent unintentional introduction of invasive species. 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 are not invasive.

5. 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.

6. When recommended in project-level noxious weed risk assessments to control spread of known populations of invasive species, projects should consider requiring off road equipment and vehicles (both Forest Service and contracted) used for project implementation to be inspected and cleaned using methods specified in the risk assessment.

Timber

Desired Conditions

1. Predictable and sustainable forest product yields contribute to maintaining and improving local and regional industry infrastructure sufficient to meet the needs of the desired pace and scale of ecological restoration over the next several decades.

2. Production of timber contributes to ecological, social and economic sustainability and associated desired conditions. A sustainable mix of forest products (including both saw timber and non-saw timber) is offered under a variety of harvest and contract methods in response to market demand and restoration needs.

3. Salvage of dead and dying trees captures as much of the economic value of the wood as possible while retaining amounts that provide for wildlife habitat, soil productivity and ecosystem functions.

Strategies

1. Plan vegetation, fuels, and other restoration projects across large landscape areas (e.g., greater than 5,000 to 100,000 acres), when it can increase efficiency in planning and support partnership-based approaches, such as stewardship contracts.

2. Develop and share multi-year estimates of potential restoration work to support planning for infrastructure (e.g., mills and biomass plants) to process and use wood products.

3. Plan and implement biomass projects that support and enhance market-driven mechanisms for diverse and sustainable biomass utilization.

4. To increase the pace and scale of restoration, evaluate and use new technologies for wood processing that increase access to more areas, including steeper slopes, while lessening impacts to soils.

5. To the extent practical, design vegetation and fuels management projects and use contracting practices that provide opportunities for local workforces and support developing and maintaining local and regional forest products infrastructure.

Standards

1. Regulated timber harvest activities shall occur only on those lands classified as suitable for timber production. Timber harvest may occur as a secondary purpose as part of ecological restoration projects.

2. Timber harvest on other than suitable lands may occur for such purposes as salvage, fuels management, insect and disease mitigation, protection or enhancement of biodiversity or wildlife habitat, to perform research or administrative studies or recreation and scenic resource management consistent with other management direction.

Guidelines

1. The management of fuels and fire risk and growing conditions within plantations over time should be considered when developing reforestation plans. 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.

2. Reforestation of suitable lands is designed to achieve the desired conditions for the project area. Stocking levels, spatial arrangements and species composition for reforestation should be designed to allow for long term resilience of the developing forest, considering potential future plantation management 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.

3. Reforestation of deforested lands should be considered where forest cover could contribute to ecological restoration which provides benefits such as improving scenic character, restoring connectivity for wildlife, increasing carbon storage and improving watershed condition.

Fire Management

Desired Conditions

1. Fire management activities minimize the risk of loss of life, damage to property or ecosystem function. Firefighter and public safety is the first priority in every fire management activity.

2. The full range of fire management activities, including wildland fires (prescribed fire and wildfire), are recognized and used by forest administrators as an integral part of achieving ecosystem sustainability, including interrelated ecological, economic and social components.

3. 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 accepted as a necessary process integral to the sustainability of the forest's fire-adapted ecosystems.

4. Fire management uses an all lands, landscape approach, that is risk-based, consistent with the latest national policy guidance and strategy, responsive to the latest fire and social sciences and adaptable to rapidly changing conditions, such as climate change. Wildfire management is coordinated with relevant state agencies and adjacent federal agencies.

5. Community leaders, service providers, homeowners and permittees who are invested in or adjacent to the forest are knowledgeable about wildfire risk. They understand the need to adapt their communities, properties and structures to the inevitable wildfire, while recognizing that wildland fire is a needed ecological process. The maintenance of defensible space, fire resistant buildings and the reduction of the potential fire intensity around community assets that allows direct suppression tactics are examples of adapting to wildfire.

6. In areas where fuel conditions currently pose the highest wildfire threat to communities and community assets (power lines, communication towers, developed recreation sites) wildland fuel will be reduced so the threat is lowered to manageable levels.

Strategies

Forest-wide

1. Risk assessments are performed 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). As a risk-based approach, these zones would change as wildfire risk changes over time. 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. Work with tribes and adjacent landowners to identify areas and resources of value considered in the risk assessments.

2. Partner with adjacent land management agencies to identify methods to reduce costs and increase effectiveness in fire management by considering agreements or understandings that inform annual operations related to boundary fire management, prescribed burning and restoration treatments.

3. Foster partnerships with fire science and management organizations to develop collaborative strategies that enhance coordination and cooperation within and among agencies.

Community Wildfire Protection Zone

1. Focus fire prevention programs on predominant historic causes of human ignition in highest fire risk areas.

2. Encourage the development and implementation of community wildfire protection plans to promote public safety and to reduce the risk of wildfire to lands adjacent to National Forest System lands.

3. Where feasible, use mechanical treatment and/or prescribed fire to reduce risk of damage from wildfire.

4. Use wildfire on a limited basis to increase ecosystem resilience and provide ecological benefits when conditions allow.

General Wildfire Protection Zone

1. Coordinate with other jurisdictions such as communities, 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.

2. Where feasible, use mechanical treatment and/or prescribed fire to reduce risk of damage from wildfire.

3. Use wildfire on a limited basis to increase ecosystem resilience and provide ecological benefits when the conditions allow.

Wildfire Restoration Zone

1. Where feasible, use mechanical treatment combined with prescribed fire to reduce risk of damage from wildfire.

2. Fuel treatments are prioritized first in areas that historically supported more frequent fire such as the ponderosa pine and Jeffrey pine-dominated forests with high existing levels of understory fuels.

3. Use wildfire to increase ecosystem resilience and to provide ecological benefits when conditions allow.

4. Treatments are prioritized to maximize the use of prescribed fire and wildfire on a landscape scale. Use roads and natural topographic features such as rock outcrops and ridgelines to create “containers”. These containers will facilitate the use and management of wildland fire.

5. Restore fuel conditions to allow fire to burn in its characteristic pattern, and allow fire to resume its ecological role.

Wildfire Maintenance Zone

1. Use wildland fire as often as possible to maintain ecosystem resilience and provide ecological benefits when conditions allow.

2. Where feasible, use mechanical treatment combined with prescribed fire to reduce risk of damage from wildfire.

Standards

Forest-wide

1. Provide defensible space around all structures on administrative sites, structures authorized by permit and developments adjacent to National Forest System lands to meet the most current California Public Resource Code 4291-Defensible Space.

Community Wildfire Protection Zone

1. Keep snags absent or their densities very low to maximize firefighter safety and minimize the likelihood of spotting or ember ignitions in areas where firefighters are likely to work, in close proximity to structures, private property, and administration sites and along roads that could be used for escape routes by firefighters and the public.

2. When planning projects to reduce fuels, design mechanical treatments to remove or rearrange the material necessary to achieve the following outcomes under 97th percentile fire weather conditions: achieve an average flame length of four feet or fewer on more than 75 percent of the area; and modelled torching and crowning indices show limited crown fire initiation and spread under double the locally-recorded wind speed gusts.

General Wildfire Protection Zone

1. Keep snags absent or their densities very low to maximize firefighter safety and minimize the likelihood of spotting or ember ignitions in areas where firefighters are likely to work, in close proximity to structures, private property and administration sites, and along roads that could be used for escape routes by firefighters and the public.

2. When planning projects to reduce fuels, design mechanical treatments to remove the material necessary to achieve the following outcomes under 97th percentile fire weather conditions: an average flame length of six feet or fewer on more than 50 percent of the area; and modelled torching and crowning indices show limited crown fire initiation and spread under double the locally recorded wind speed gusts.

Wildfire Restoration Zone

1. When conditions make it safe and practical, natural barriers and features such as creeks, old fire scars, and ridges, and human-made lines of convenience such as roads and trails should be incorporated into fire control lines. The property boundary of a private inholding is an exception. Variation from this standard will be the exception and will be documented by a line officer.

Wildfire Maintenance Zone

1. When conditions make it safe and practical, natural barriers and features such as creeks, old fire scars, ridges and human-made lines of convenience such as roads and trails will be used as fire control lines. The property boundary of a private inholding is an exception. Variation from this standard will be the exception and will be documented by a line officer.

2. Use lightning-caused wildfires to maintain ecosystem resilience and provide ecological benefits. Variation from this standard will be the exception and will be documented by a line officer.

Guidelines

1. Use wildfires forest-wide to meet multiple resource management objectives where and when conditions permit and risk is within acceptable limit and when allowed by Forest Service policy. Meeting resource objectives generally means progress toward or maintaining desired conditions.

2. A variety of fire management options and activities should be considered to achieve a mix of fire effects, including burn operations and aerial ignitions. When safe and feasible ahead of burn operations, limit extensive continuous areas of high severity fire effects in old forest habitat and riparian areas.

3. 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.

4. Prescribed fire and wildfire strategies should recognize the role of fire in riparian ecosystem function. These strategies should also identify those instances where fire suppression has degraded riparian habitat or long term function of the riparian community, and increased the risk of large-scale, uncharacteristic fire.

5. For Community and General Wildfire Protection Zones, locate fuels treatments in areas that pose the greatest threat to communities, community assets, watersheds and natural resource values so that the spread and intensity of wildfire is reduced to substantially lower overall wildfire risk.

6. Plan restoration and fire management projects and strategies for large landscapes (subwatershed or larger) when and where possible to improve economic feasibility of restoration and effectiveness of changing the fire effects from large wildfires. When feasible, partner with adjacent land management agencies to plan across administrative boundaries.

7. Outside of the Community Wildfire Protection Zone, locations of mechanical treatments should be informed by recommendations that describe the desired spatial patterns of vegetation such as GTR-220 and 237.

Air

Desired Conditions

1. The air quality value of visibility in Class I Areas is maintained or improved to the natural background condition specified in the California Regional Haze State Implementation Plan.

2. Forest administrators recognize the need to use the full spectrum of vegetation management activities, including prescribed fire and wildfire, to help reduce wildland fuel loadings and potential harmful effects on air quality from future high intensity wildfires.

Strategies

1. 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 to the extent possible.

2. Participate in the most current wildland fire information and reporting system, the Prescribed Fire Incident Reporting System and the California Natural Ignition Communication Protocol. This creates coordination with regulatory and other burn agencies to maximize opportunities.

3. To promote awareness and protection of human health and safety, notify the public about potential smoke from fire activities using advanced notification, the media, and smoke warning signs along roads when visibility may be reduced due to wildland fire.

4. Consider the impacts from wildfire smoke on downwind communities when identifying landscape treatment priorities for restoration.

Standards

1. 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.

Guidelines

1. Participate in and support interagency collaborative smoke management, including real time smoke monitoring and public messaging to maximize efficiency and relevance of monitoring results.

2. 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.

3. Include smoke tradeoff evaluation in project level planning at a broad scale. Use existing scientific information on large wildfire emissions. Consider downwind communities at the local and regional scale.

4. Decision documents for wildfires and prescribed burns should follow local regulatory procedures, the Prescribed Fire Incident Reporting System and the California Natural Ignition Communication Protocol to identify management objectives and courses of action to mitigate impacts to those areas.

Water Quality, Water Quantity, Soils and Watershed Condition

Desired Conditions

1. Adequate quantity and timing of water flows support ecological functions, including aquatic species and riparian vegetation consistent with existing water rights and claims. Affects to

quantity and timing from climate change, such as changes in runoff timing and patterns, should be taken into account.

2. 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. Water quality meets or exceeds federal, California and Nevada water quality standards, and supports designated beneficial uses in light of atmospheric deposition of nitrogen and impacts of ozone to vegetation.

3. Watersheds with recharge areas for segments of designated and eligible wild and scenic rivers retain water quality and recharge to those segments.

4. Groundwater quantity and quality in aquifers are sustained.

5. Watersheds are fully functioning, are resilient and recover rapidly from natural and human disturbances, 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 surface processes, such as runoff, flood-pulse, in-stream flow regime, erosion and sedimentation are maintained. Watersheds provide important ecosystem services such as high quality water, recharge of streams and aquifers, maintenance of riparian communities, moderation of climate change and atmospheric deposition. Watersheds maintain long term soil productivity.

6. Soil and vegetation functions in upland and riparian settings are retained or enhanced. Resilient landscapes provide forage for browsing and grazing animals, timber production and recreation opportunities without adversely affecting soil and water productivity.

7. Spatial and temporal connectivity for riparian and aquatic-dependent species and nutrient cycling is maintained within and between watersheds, and they are able to adjust and recover from natural and human-caused disturbances.

Strategies

1. Participate and collaborate in all interagency water rights and water use authorizations on National Forest System(NFS) lands or that may affect water quantity on NFS lands. Examples would include hydropower relicensing, other surface water flow diversions and ground water withdrawal. Evaluate the connections between ground water and surface water where major deviations from natural hydrology occur.

Standards

1. During evaluation of site-specific projects with the potential to affect groundwater such as recreational development, determine groundwater conditions and evaluate potential effects on groundwater levels and groundwater-dependent ecosystems. Establish a minimum distance from a connected river, streams, wetlands or other groundwater-dependent ecosystems from which a well may be sited, and establish minimum limits to which water levels can be drawn down at a specified distance from a groundwater-dependent ecosystem.

Guidelines

1. 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 (FERC), state and other authorized water use

planning, water rights, and relicensing on the national forests. Maintain in-stream flows to protect aquatic systems to which species are uniquely adapted. 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. Minimize the effects of stream diversions or other flow modifications from hydroelectric projects on threatened, endangered and sensitive species. Coordinate relicensing projects with the appropriate state and federal agencies. Provide written and timely license conditions to FERC.

2. For all meadow restoration related projects or water extraction (e.g., wells) projects determine patterns of recharge and discharge and minimize disruptions to groundwater levels that are critical for wetland integrity. Determine the groundwater levels, within a range of natural variability, that provide base flows to maintain and enhance the condition of groundwater-dependent resources and their habitat.

Aquatic/Riparian Ecosystems and Streams

Desired Conditions

1. Stream ecosystems, riparian corridors and associated stream courses are functioning properly and 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.

2. Stream ecosystems, including ephemeral watercourses, exhibit full connectivity where appropriate to maintain aquatic species diversity. Barriers to non-native fish are maintained in good condition, where they are needed. Ephemeral watercourses provide for dispersal, access to new habitats, and perpetuation of genetic diversity, as well as nesting and foraging for special status species.

3. Flooding is the primary disturbance. Streams and rivers maintain a natural hydrograph, or 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.

4. Where possible, native fish, amphibians and other native aquatic species are present within their historic distribution, and habitat conditions support self-sustaining populations. Fish aquatic species habitat includes 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 and upland species.

5. Species composition and structural diversity of plant and animal communities in riparian areas, wetlands and meadows provide habitat and promote ecological processes.

6. Non-native sport fish and habitats are managed in locations and ways that do not pose substantial risk to native species, and still allow for economic sustainability of local communities.

7. 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 function at a level that allows retention of their unique functions and biological diversity.

8. Lakes and ponds retain necessary attributes, such as adequate vegetation and large woody debris, to function properly and support native biotic communities. They filter sediment and aid floodplain development, improve floodwater retention and groundwater recharge, develop root masses that stabilize islands and shoreline features against cutting actions, and develop diverse ponding characteristics to provide for amphibian production, waterfowl breeding and biodiversity.

9. Native riparian vegetation is diverse, provides the structure and composition to function within their natural potential and provides food and cover for wildlife.

10. Riparian species composition, stand density and fuel loading are consistent with healthy riparian systems and support rates of wildfire spread that are no higher than surrounding forests.

11. Riparian areas provide physical structure such as silt, sand, gravel, cobble, boulders and bedrock for a variety of aquatic and terrestrial fauna. Soil function is sustained to infiltrate and disperse water properly, withstand accelerated erosion and cycle nutrients. Associated water tables support riparian vegetation and restrict non-riparian vegetation.

12. Meadows have ground cover and species composition as represented by condition class (e.g., good to excellent), species richness and diversity. Meadows with perennial streams contain a diversity of age classes (at least two) of hardwood shrubs along the stream bank where the potential exists.

13. Fens and meadows are in proper functioning condition or improving. Fens and meadows are resilient to climate change and disturbances. Development of fens continues. Necessary soil, hydrologic regime, vegetation, and soil and water characteristics sustain that system's ability to support unique physical and biological attributes.

14. Springs provide sufficient water to maintain healthy habitats for native riparian and aquatic species and meet demands of water rights and uses and possible tribal uses.

15. Springs are resilient to natural disturbances and changing climate conditions and function within their type and capability.

16. Soil, water and vegetation attributes sustain healthy springs. Water flow, recharge rates and geochemistry are similar to historic levels and persist over time.

Strategies

1. For biodiversity, maintain and restore the species diversity and structural diversity of plant and animal communities in riparian areas, streams, wetlands and meadows to provide desired ecological functions. Maintain and restore the distribution and health of biotic communities in special aquatic habitats such as springs, seeps, vernal pools, fens, bogs and marshes to perpetuate their unique functions and biological diversity.

2. Maintain and restore spatial and temporal connectivity for aquatic and riparian species within and between watersheds to provide physically, chemically and biologically unobstructed movement for their survival, migration and reproduction. Maintain and restore the connections of floodplains, channels and water tables to distribute flood flows and sustain diverse habitats and species. Maintain and restore the physical structure and condition of stream banks and shorelines to minimize erosion and sustain desired habitat and species diversity. Maintain and restore the hydrologic and ecological 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 ecological connectivity and aquatic organism passage.

3. Restore ecological integrity of riparian vegetation as part of all vegetation management projects where appropriate and considering all other aquatic and riparian desired conditions. Use of mechanical treatment in riparian conservation areas and critical aquatic refuges may be considered, if the area is resilient to ground disturbance, as long as the treatment moves the area toward desired conditions, and water and soil quality can be adequately protected.

4. Enhance hardwood tree and shrub cover, density and vigor through reduction of conifer density and use of patchy prescribed fire. Fire effects objectives should be determined in collaboration with ecologists, biologists and earth scientists.

5. At either the landscape or project scale, determine if the age class, structural diversity, composition and cover of riparian vegetation are within the range of natural variability for the vegetative community. If conditions are outside the range of natural variability, consider implementing mitigation 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.

6. Design prescribed fire treatments to minimize post fire erosion and water quality impacts. In determining which mitigation measures to adopt, weigh the potential harm of mitigation measures, for example fire lines, against the risks and benefits. Projects should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could be damaging to habitat or long term function of the riparian community, and where restoring fire is beneficial. Use ignition patterns during prescribed burning to create a mosaic of fire in patches of varying intensities in the riparian areas. Evaluate if ignitions are needed in the riparian conservation area and whether soil and water resources protection can be achieved.

7. Meadow management is conducted in an integrated ecosystem approach, with hydrology, aquatic habitat, soils, vegetation and wildlife functions all considered together.

8. Priorities for meadow restoration are based on an integrated evaluation across hydrology, aquatic habitat, soils, vegetation, wildlife, range, recreation, fire and other disciplines. Prioritization includes the best available science, such as the hydro-geomorphic classification of meadows.

9. The forests participate in and encourage active collaboration with partners, stakeholders and researchers on integrated understanding of meadow function and restoration.

10. Identify and prioritize restoration in meadows that are important for groundwater storage, downstream water users, connectivity, and sensitive or listed species.

11. Work with tribes to identify and prioritize springs of tribal importance for restoration and management.

12. Manage springs and their riparian areas as integrated systems.

13. Consider opportunities to manage vegetation in upland areas to restore and maintain water tables. Consider the latest science.

Standards

1. Designate riparian conservation area widths as follows:

    - Perennial Streams: 300 feet on each side of the stream, measured from the bank full edge of the stream.
    - 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.
    - Streams in inner gorge: top of inner gorge.
    - Special aquatic features (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.
    - Other hydrological or topographic depressions without a defined channel: riparian conservation area width and protection measures determined through project level analysis.
    - Equipment exclusion zones will be designated within the riparian conservation areas. The default is half of the riparian conservation area width (150 feet for perennial streams, 75 feet for intermittent streams):
        - ♦ 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. Expertise in soils, hydrology and aquatic ecology should be consulted.
        - ♦ If further mechanical incursion is warranted, use low ground pressure equipment, helicopters, end lining, over the snow logging, extra ground cover requirements, or other non-ground disturbing actions to operate off of existing roads when needed to achieve desired conditions consistent with best management practices and other plan direction.
        - ♦ Other stream classification systems may be used to create equipment exclusion zones and other protective measures nested in the riparian conservation areas.
        - ♦ When vegetation is treated in the near stream area consider the coarse woody debris budget of the stream, ensure desired conditions for coarse wood in stream channels will be met.

2. For the Inyo National Forest, livestock utilization standards are determined and established using soil/site stability, hydrologic function and biotic integrity conditions at a site-specific scale. Standards allow for sustainability and improvement in rangeland ecosystems. Utilization standards are established using matrices based on vegetation condition, vegetation type and

grazing system. Soil, site stability and hydrologic function characteristics can modify the use standards where necessary (Inyo National Forest Forest-Wide Range Utilization Standards).

Guidelines

1. Determine patterns of recharge and discharge and minimize disruptions to groundwater levels that are critical for wetland and meadow integrity.

2. Where there is a structure in place to use water from a spring as a water source, water should be piped out of the riparian area to avoid trampling of the riparian area around the spring.

Sustainable Recreation

Recreation Settings

Desired Conditions

1. The diverse landscapes of the forest offer a variety of high-quality summer and winter recreation settings (including quiet and non-quiet recreation) for a broad range of nature-based recreation opportunities, focusing on those that complement the forest recreation distinctive roles and contributions.

2. Recreation settings support specific opportunities, activities and expected experiences that are compatible with the landscape's natural and cultural resource attributes, and contribute to the economic sustainability of local communities and businesses.

3. Skilled stewardship organizations and volunteers are engaged as integral partners with the forest in managing front country and backcountry recreation settings across all Recreation Opportunity Spectrum (ROS) classes.

Strategies

1. Use the forest recreation niche to focus available agency resources in areas and types of opportunities with high niche conformance.

2. Collaborate with local communities, partner organizations, federal, state and local agencies and tribes to restore, maintain and enhance recreation settings impacted by declining ecosystem health, wildfire and inappropriate use in order to improve the quality of outdoor experiences and to promote citizen stewardship of public lands.

3. Ensure that site and facility planning and design blend with the natural environment and incorporate sustainable practices.

4. Effectively manage concentrated recreation uses and still preserve a quality visitor experience. Ecosystem effects from recreation use are managed and enhanced within sustainable levels.

5. Use the Watershed Condition Framework for establishing priorities for the restoration of recreation settings. Identify and prioritize restoration of areas where recreation settings are contributing to watershed impairment and/or have activities that are inconsistent with the ROS designation.

Standards

1. New and restored facilities, sites and features shall use the Built Environment Image Guide.

Recreation Opportunities

Desired Conditions

1. Recreation opportunities on land, water and in the air provide a high level of visitor satisfaction, enhance local tourism and gateway communities, and focus agency resources on the forest's recreation distinctive roles and contributions.

2. Culturally diverse visitors interact with nature and connect to cultural heritage through a full spectrum of sustainable high-quality summer and winter outdoor recreation opportunities.

3. The forest provides for high quality hunting and fishing opportunities. There is more emphasis, interest and opportunity to fish for native sport fish and hunt game species. Non-native sport fish and game species and their habitats are managed in locations and ways that do not pose substantial risk to native species, while still contributing to economic sustainability to local communities.

4. Well-established partnerships with outdoor recreation and tourism providers, communities, recreation interest groups, and other partners provide recreation opportunities to connect individuals and communities to the forest and promote stewardship of public lands.

5. Forest visitors find opportunities for solitude, primitive and unconfined recreation in wilderness and recommended wilderness areas.

6. The management and operations of recreation facilities is to a standard that is financially and ecologically sustainable and serves the general public. Recreation opportunities are planned taking into account variability and changes in seasonal conditions from climate change.

Strategies

1. Develop a common vision and define potential roles with communities and stakeholders to sustain the quality of life and economic benefits associated with recreation and tourism assets within forest destinations and adjoining lands.

2. 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.

3. Actively engage urban populations, youth and underserved communities in outreach programs, such as conservation education and volunteer programs, to help people connect to the benefits of national forests and develop stewardship of public lands.

4. 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.

5. Provide opportunities for photography and filming to encourage public engagement such as stewardship, volunteerism, conservation education and interpretation.

6. Support the efforts of non-profit, public benefit organizations promoting conservation, education, and recreational enjoyment of the forest and the surrounding Sierra Nevada region.

7. Use recreation facility analysis to determine priority sites for both decommissioning as well as capital investment to better provide recreational and access opportunities.

Guidelines

1. New projects affecting recreation opportunity should be designed to conform to ROS classes to ensure that winter and summer activities protect natural and cultural resources and allow for quiet and non-quiet recreation activities.

Access

Desired Conditions

1. National Forest access is safe, sustainable and properly sized to provide public enjoyment and focuses on the forest's distinctive roles and contributions. Forest roads provide access to recreation destinations, to sites where Native American traditional, cultural and religious activities are practiced, and to other forest areas that generate economic benefits for local communities.

2. Forest trails are sustainably designed and managed to provide a variety of high-quality motorized and non-motorized summer and winter public access that connects people to nature.

Strategies

1. Encourage increased access in appropriate recreation settings (ROS classes) and in areas where sustainability can be achieved and maintained.

2. Size and maintain the road and trail system to minimize adverse resource effects, while providing appropriate public access to National Forest System lands and recreation facilities. Conduct a forest-level trail system assessment focusing on collaborative planning, user satisfaction and "right-sizing" the trails system for social, environmental and financial sustainability. Conduct a forest-level trail system assessment focusing on collaborative planning, user satisfaction and "right-sizing" the trails system for social, environmental and financial sustainability.

3. Coordinate management activities and projects to minimize impacts to public access and recreational experience.

4. Provide adequate parking and staging areas to meet projected access to recreation opportunities, other public use or management activities.

5. 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.

6. Use the Watershed Condition Framework for establishing priorities for the restoration of unauthorized routes.

7. Increase the use of volunteers and partners to prioritize and complete deferred maintenance work.

Standards

1. Over-snow vehicle use shall only occur on depths of snow 18 inches or greater and avoids ground disturbance.

Guidelines

1. Restoration projects that address unauthorized routes that are contributing to substantial adverse resource effects should consider restoring the impacted area to a natural contour and natural landscape condition to minimize long term erosion risks and reduce the risk of further unauthorized uses.

Scenic Character

Desired Conditions

1. A variety of ecologically sound, resilient and visually appealing forest landscapes support the forest's recreation distinctive roles and contributions.

2. Landscapes reflect healthy ecosystem diversity and contribute to visitors' sense of place.

3. Scenic character is improved by perpetuating scenic attributes and improving scenery stability, producing more ecologically-sound landscapes through the use of vegetation treatments and by restoring fire and other ecological processes to the landscape.

4. High scenic integrity is evident in places people prefer to visit and view. The Forest Service, other agencies and other adjacent landowners maintain shared vistas.

5. Scenic character associated with heritage resources, traditional cultural properties and sacred sites are protected through consultation with Indian tribes, traditional cultural practitioners, consulting parties and project design.

Strategies

1. Manage for scenic stability through actions that will enhance and protect desired scenic attributes through vegetation treatments to achieve high scenic stability on a project-by-project basis over the plan period. Examples include aspen stand enhancements and riparian area restorations.

2. Restore damaged landscapes (currently meeting low or no scenic integrity levels), to meet or exceed the established scenic integrity objective.

3. Mitigate the establishment of 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.

4. Maintain or create scenic vistas as necessary to meet the needs of the public and improve scenery in areas of high public concern.

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

6. Manage scenery to perpetuate the overall natural-appearing setting, protect significant scenic features, and ensure that development is appropriate for the area in which it is located in terms of size, mass, architectural style and density.

7. In prioritizing areas for restoration, focus on landscapes with high scenic attractiveness to improve scenic stability.

8. Consult annually with Indian tribes, traditional cultural practitioners and consulting parties and use project design to protect heritage resources, traditional cultural properties and sacred sites.

9. Incorporate heritage, traditional and cultural properties and sacred sites in the development of project level scenery assessments.

Guidelines

1. All resource management and permitted activities should strive to meet or exceed the established scenic integrity objectives, recognizing that short-term changes in visual condition may be needed to achieve longer-term scenic integrity objectives.

Cultural Resources

Desired Conditions

1. 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 and receive minimal impact from visitors.

2. Cultural resources, traditional cultural properties and sacred sites are protected through consultation with Indian tribes, traditional cultural practitioners, consulting parties and project design.

3. Cultural resources provide educational opportunities that connect people, past and present, to the land and its history. Through positive heritage experiences provided by interpretive sites, historic standing structures and other materials, the public has an appreciation for the region's history and develops 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 some historic features. Heritage-based recreation opportunities are connected, where practical, with other recreation opportunities such as trails.

4. 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.

5. Opportunities exist for volunteers to participate in cultural resource conservation activities such as research, site stabilization, 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.

Strategies

1. Efficiently manage cultural resource databases to support resource management and research, in cooperation with the appropriate California and Nevada state agencies.

2. Use education and enforcement to deter vandalism.

3. Implement restrictions, using permits and visitation controls, when necessary, to protect sites from physical damage and excessive wear and tear.

4. Collaborate with site stewards, volunteers, tribal governments, local governments, state and federal agencies, schools and universities and non-profit groups to protect sites and facilitate development of research, educational and interpretive opportunities.

5. Identify and develop heritage tourism opportunities in collaboration with tribal governments, local organizations and businesses to provide an economic benefit to the community, while fostering a mindset of long term sustainability of the resource.

6. Emphasize "self-discovery" developments for interpretation to minimize the need for onsite staffing. Interpretation should include messages on individual responsibility to protect forest resources.

Guidelines

1. When avoiding significant adverse impacts to traditional cultural properties is not possible, impacts should only be authorized after negotiating and signing a memorandum of agreement between the Forest Service and the appropriate tribe(s).

2. Cultural artifacts should only be collected for diagnostic dating purposes, answering research questions or protection of the artifact when special circumstances require collection.

3. Historic property protection provisions should be included in contracts and special use permits as applicable.

4. 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's understanding of the resource, protect and preserve the resource and are consistent with tribal interests.

Wilderness

Desired Conditions

1. The wilderness character of each wilderness, including the qualities of untrammeled, natural, undeveloped, opportunities for solitude or primitive recreation, and other features of value (ecological, geological or other features of scientific, educational, scenic or historical value unique to each specific wilderness area) are preserved and, when possible, enhanced.

2. Areas recommended for wilderness, and similar areas designated through forest plans, retain their wilderness character until their designations as wilderness or other use are determined by Congress.

Existing plan direction is being reviewed to determine if additional updates are needed.

Wild and Scenic Rivers

Desired Conditions

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

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

Existing plan direction is being reviewed to determine if additional updates are needed.

Pacific Crest National Scenic Trail Corridor

Desired Conditions

1. The Pacific Crest National Scenic Trail (PCT) corridor is permanently protected to provide outstanding primitive hiking and horseback experiences:

    - Roads and motorized trails, including snowmobiles, do not intersect the trail except at designated crossings which should be minimized, preferably fewer than one crossing per 5 miles of trail;
    - Lands or interests are acquired where needed to protect the trail experience;
    - Visitor use is managed to protect the experiences and other overlapping land management desired conditions.

2. The trail corridor provides panoramic views of undisturbed landscapes in a tranquil scenic environment, and features historic high country landmarks where they occur. The corridor is of sufficient width to encompass national trail resources, qualities, values, associated settings and the primary use or uses. This includes vistas (key observation points), campsites, water sources and other important resource values.

3. National Forest System lands within the PCT corridor meet or exceed a high scenic integrity objective, and those within the middle ground and background landscape distance zones meet at least a medium scenic integrity objective.

4. The emphasis will be on providing remote backcountry recreation settings in a predominately natural or natural-appearing landscape. Development levels and levels of use vary by location and do not detract from those experiences.

Strategies

1. Use partnerships to achieve the maintenance and management goals for the PCT.

2. 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.

3. Reconstruct or relocate existing portions of the PCT as needed to enhance the recreation experience and protect resources. Trail relocations will be evaluated using the optimal location review process in partnership with adjoining federal agencies and the Pacific Crest National Scenic Trail Association.

4. Establish key observations points along the trail corridor that will serve as monitoring points for proposed projects during the life of the plan to evaluate the condition of scenery resources.

5. Allow timber harvest, prescribed burning and wildland fire to manage vegetation consistent with desired conditions and setting for the PCT.

6. Wildfire suppression strategies will strive to minimize impacts on PCT values.

Standards

1. New recreation events such as foot races or horseback endurance events and fundraising events must be limited to designated crossings only.

2. New roads, permanent or temporary, are not permitted within the trail corridor unless required by law to provide access to private lands and documented as the only prudent and feasible alternative.

3. The use of bicycles and other mechanized transport and motorized use is prohibited on the PCT tread and within the trail corridor, except on trails designated crossings where such use is allowed.

4. Outside the proclamation boundary, PCT corridor lands with easements or outstanding rights will be managed consistent with deed transfer language and the PCT corridor direction.

5. The PCT is a concern level 1 travelway, and middle ground and background areas on National Forest System lands seen from the PCT must be managed to meet or exceed a scenic integrity objective of at least moderate for scenery in accordance with scenic integrity objectives identified through the scenery management system.

6. All management activities must meet a scenic integrity objective of high or very high.

7. For leasable minerals such as oil, gas and geothermal energy, PCT permits and activities within the trail corridor are available for leasing but must contain a “no surface occupancy” stipulation within the foreground and immediate foreground visual zones, based on the Forest Service Scenery Management System.

8. For mineral materials such as sand, gravel, pumice, cinders and other common variety minerals, extraction is prohibited within the PCT corridor. When existing permits terminate or expire, new permits will be changed to reflect this standard.

9. All mining claims pre-dating the congressional designation of the PCT are subject to valid existing rights. Any mineral exploration or extraction that causes surface disturbance within the trail corridor is prohibited, including recreational rock and mineral collecting.

10. Construction of new communication sites is prohibited within the PCT corridor.

11. Construction of new wind towers is prohibited within the PCT corridor.

12. New utility lines or rights-of-way are prohibited within the PCT corridor unless they represent the only feasible and prudent alternative to meet an overriding public need. Project design and mitigation will be sufficient to protect trail values. This includes required mitigation measures such as screening, feathering and other visual management techniques to mitigate visual and other impacts of new or upgraded utility rights-of-way. Mitigation measures apply to facilities as well as vegetation.

13. New buildings and structures associated with special uses that would be visible from the PCT are prohibited within the trail corridor.

Guidelines

1. To maintain the outstanding primitive hiking and horseback experiences, new crossings of the PCT by trails for bicycles or other mechanized transport should be avoided except as mutually agreed on by the forest and the Pacific Crest National Scenic Trail Association.

2. Road and utility corridors should cross at right angles to the PCT wherever possible to minimize scenery impacts.

3. To provide outstanding opportunities for primitive hiking and equestrians, apply Recreation Opportunity Spectrum (ROS) primitive class wherever possible, with a second preference for semi-primitive non-motorized within the PCT corridor. In locations where the existing condition is semi-primitive motorized or roaded natural, that ROS may be retained.

4. To minimize impacts to desired conditions for natural resources and visitor experiences, such as solitude, implement visitor use management strategies such as planning and managing visitor use and the recreation setting through education, site management, regulation and enforcement.

5. Management of overnight camping and recreation use should recognize different levels of use and desired recreation opportunities consistent with overall PCT desired conditions.

6. To enhance the recreation experience and protect resources, consider reconstructing or relocating existing portions of the PCT as needed. Trail relocations should be evaluated using the optimal location review process in partnership with adjoining federal agencies and the Pacific Crest National Scenic Trail Association.

National Recreation Trails

Inyo: Whitney Portal, Methuselah and Discovery National Recreation Trails

Sequoia: Cannell Meadow, Jackass Creek, and Summit National Recreation Trails

Sierra: Black Point, Rancheria Falls, Kings River, Lewis Creek, and Shadow of the Giants National Recreation Trails

Desired Conditions

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

2. The trail setting provides a variety of opportunities that are consistent with or complement the existing recreation opportunity spectrum class where the trail segment is located.

3. Limited recreation facilities, such as interpretive signs, viewing platforms and benches may be present along the trail. Trailheads may offer amenities such as picnic facilities or interpretive information that enhances the experience of using the trail.

Strategies

1. Use partnerships and volunteers to achieve management goals for national recreation trails.

2. Where the trail leads to an outstanding destination feature, protect the qualities of that feature.

3. Reconstruct or relocate existing portions of the trail as needed to enhance the recreation experience and protect natural and cultural resources.

4. Design trailheads with sensitivity to scale and the character of the setting.

5. Implement measures to protect areas of high ecological values, such as rare plant sites or unique geological features within the corridor, as needed.

Standards

1. National recreation trails must be managed consistent with trail management objectives and the maintenance standards for trail class and managed use.

Guidelines

1. 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.

2. During management activities, measures should be implemented to maintain safe public access to national recreation trails.

Interpretation and Education

Desired Conditions

1. Communication and interpretive messages show respect for the diverse backgrounds and needs of visitors.

2. Interpretation and conservation education materials convey clear messages about natural and cultural resources, climate change, responsible recreation use and etiquette and Native American heritage and culture.

3. Interpretive activities and programs communicate key stewardship concepts relevant to the forest.

4. Residents and visitors have ample opportunities to experience, appreciate and learn about the forest's wildlife, fish and plant resources.

5. There is little human litter as a result of effective enforcement, patrols and use of refuse and recycling facilities.

6. The public understands and is aware of Forest Service projects and management actions, as well as the importance of ecosystem services.

7. Partners and volunteers are engaged in coordination, development and delivery of educational and community outreach programs.

8. Outreach programs actively engage urban populations, youth and underserved communities.

9. Public use and education are provided for while preserving the historically and culturally significant aspects of nationally registered historic sites and culturally important properties.

Strategies

1. Periodically review interpretation and education programs and information for consistency with national objectives and regional and local issues.

2. Communicate the range of recreation opportunities and settings while emphasizing shared and multiple use objectives to the public. Encourage public responsibility for natural and cultural resource protection and recreation etiquette.

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

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

5. Educate the local community about the importance of ecosystem services and stewardship principles using teacher trainings, school programs and community events.

6. Educate the local community about principles and methods for sustaining forests in a changing climate.

7. Inform the public about Forest Service projects and management actions.

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

9. Involve and encourage youth from diverse backgrounds in environmental education programs.