Record of Decision

Sierra Nevada Forest Plan Amendment Environmental Impact Statement

January 2001

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SIERRA NEVADA FOREST PLAN AMENDMENT

Record Of Decision

ERRATA

(January 2001)

The narrative in the Record of Decision (ROD) for the Sierra Nevada Forest Plan Amendment Project Environmental Impact Statement summarizes management standards and guidelines for national forests in the Sierra Nevada and Modoc Plateau. Appendix A of the ROD presents the final land allocations and standards and guidelines for the decision. There are some discrepancies between the summarized standards and guidelines in the narrative of the ROD and the detailed standards and guidelines in Appendix A. Where there are discrepancies between the two, the standards & guidelines in Appendix A govern.

(March 2001)

1. In the ROD on page 43, the second sentence under the heading *Further collection and evaluation of additional information* should read:

> "My intent is to complete ***by the end of calendar year 2002*** a Conservation Assessment for the willow flycatcher in cooperation with the Fish and Wildlife Service."

Rationale: This timeframe is consistent with the timeframes specified for this Conservation Assessment in other parts of the ROD (pages 5 and 15).

Citation: Record of Decision, pages 5 & 15

2. In the ROD on page 43, change the second sentence under the heading *Southern Sierra Fisher Conservation Area* to read:

> "This consists of an elevational band from ***3,500*** to 8,000 feet on the Sierra and Sequoia National Forests."

Rationale: The 3,500 foot elevational level reflects the actual elevational band of the Southern Sierra Fisher Conservation Area on the westside of the Sierra Nevada.

Citation: Record of Decision, Page 4

3. In Appendix A on page A-4, change the second sentence under the heading *Southern Sierra Fisher Conservation Area* to read:

> "This consists of an elevational band from ***3,500*** to 8,000 feet on the Sierra and Sequoia National Forests."

Rationale: The 3,500 foot elevational level reflects the actual elevational band of the Southern Sierra Fisher Conservation Area on the westside of the Sierra Nevada.

Citation: Record of Decision, Page 4

4. In Appendix A on page A-42, first paragraph, change the first sentence to read:

> "Retain all snags 15 inches or greater ***except*** following stand-replacing events ***and*** except to address imminent hazards to human safety."

Rationale: The inserted words were unintentionally omitted during the final edits of this standard and guideline. The other sentences in this standard and guideline imply the intent to allow the removal of snags larger than 15 inches following large stand-replacing events. Inserting these three words in the first sentence makes this standard and guideline clearer.

Citations: FEIS Volume 1, Chapter 2, page 172 under the heading "snags"
FEIS Volume 4, Appendix D1, Page D1-24, S&G FW-FC-25

5. In Appendix A on page A-45, change the second sentence under the heading *Description* to read:

> "This consists of an elevational band from ***3,500*** to 8,000 feet on the Sierra and Sequoia National Forests."

Rationale: The 3,500 foot elevational level reflects the actual elevational band of the Southern Sierra Fisher Conservation Area on the westside of the Sierra Nevada.

Citation: Record of Decision, Page 4

6. In Appendix A on page A-62, change the first sentence in the first paragraph under the heading *Willow Flycatcher Habitat: Activity-Related Standards and Guidelines* to read:

> "Within 3 years of signing of the record of decision for the Sierra Nevada Forest Plan Amendment Project, survey emphasis habitat ***in active grazing allotments*** within 5 miles of the 82 known willow flycatcher sites to determine willow flycatcher occupancy."

Rationale: The intent is to survey emphasis habitat in active grazing allotments so that grazing practices can be adjusted if willow flycatchers are detected, consistent with the standards and guidelines for conserving willow flycatcher habitat.

Citation: FEIS Volume 4, Appendix D1, Page D1-13, First Standard and Guideline

7. In Appendix A on page A-62, the last sentence in the first paragraph under the heading *Willow Flycatcher Habitat: Activity-Related Standards and Guidelines* should be changed to read:

> "If willow flycatcher surveys of emphasis habitat ***in active grazing allotments*** within 5 miles of the 82 known willow flycatcher sites are not completed within **3** years, allow only late season grazing in these emphasis habitats."

Citation: FEIS Volume 4, Appendix D1, Page D1-13, First Standard and Guideline

Rationale: The additional phrase " in active grazing allotments" makes this standard and guideline consistent with the erratum above. The wording of 5 years was a typographical error. The 3-year commitment to surveying emphasis habitat in active grazing allotments is supported by the first sentence in this standard and guideline as well as pages 42 and 43 of the ROD under the section heading "Grazing standards and guidelines."

I. Introduction

This document presents my decision to amend the Pacific Southwest Regional Guide, the Intermountain Regional Guide and land and resource management plans (LRMPs) for national forests in the Sierra Nevada and Modoc Plateau. Covered are the Humboldt-Toiyabe, Modoc, Lassen, Plumas, Tahoe, Eldorado, Stanislaus, Sierra, Inyo, and Sequoia National Forests and the Lake Tahoe Basin Management Unit. The following pages summarize my reasons for choosing the Selected Alternative, directs national forests in how to implement this decision, and outlines working relationships with tribes and other agencies.

This decision has its origins in work done over the last decade aimed at protecting the California spotted owl. An environmental assessment and decision was prepared in 1993 to apply interim guidelines for protection of the spotted owl. This direction became known as the interim CASPO guidelines. A Draft Environmental Impact Statement (EIS) was prepared in 1995 to provide a comprehensive management plan to replace the interim guidelines. During the comment period on this Draft EIS, new information became available requiring a Revised Draft EIS. During the development of the Revised Draft EIS in May of 1997, the Secretary of Agriculture chartered the California Spotted Owl Federal Advisory Committee to evaluate the work and make recommendations on how to proceed. New information considered by the committee included the recently completed Sierra Nevada Ecosystem Project (SNEP) report (1996). The SNEP report had been prepared at the direction of the U.S. Congress. The federal advisory committee completed its work in the fall of 1997 and made recommendations for protection of the spotted owl. In November 1997 the Chief of the Forest Service directed the Pacific Southwest Region to develop a strategy to ensure ecological sustainability. I am making my decision after considering this previous work, scientific information and the Sierra Nevada Forest Plan Amendment Final EIS.

This decision specifically addresses five problem areas. Scientific reviews and public comments identified these as areas where national forest management needed improvements through updating Regional direction. The purposes of the Regional direction are to:

- Protect, increase, and perpetuate old forest ecosystems and provide for the viability of native plant and animal species associated with old forest ecosystems,
- Protect and restore aquatic, riparian, and meadow ecosystems and provide for the viability of native plant and animal species associated with these ecosystems,
- Manage fire and fuels in a consistent manner across the national forests, coordinate management strategies with other ownerships, integrate fire and fuels management objectives with other natural resource management objectives, address the role of wildland fire, and set priorities for fire and fuels management actions,
- Reduce and, where possible, reverse the spread of noxious weeds, and
- Maintain and enhance hardwood forest ecosystems in the lower westside of the Sierra Nevada.

The LRMP Amendments adopted with this decision represent an ecologically based approach to assessing and managing landscapes on these national forests. My decision does not represent an endpoint, but rather a commitment to continued involvement and dialogue with the full range of communities of interest engaged in the complex forum of public land use policy issues. Achievement of overall goals and objectives in this plan will require broad support and local agreement on priorities and opportunities.

An open, inclusive approach was used in the development of these LRMP amendments. My intent is to continue with this approach as the forest plan amendment is implemented. Although I make this decision considering the best information currently available, I realize there are risks and uncertainties that prevent me from accurately predicting future events, conditions , and circumstances. As a result, I fully expect that with an emphasis on monitoring and adaptive management, needed course corrections or adjustments will be made in the future.

Forest plans are part of the long-range resource planning framework required by the Forest and Rangeland Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act (NFMA). This legislation requires each Forest Supervisor to develop a plan that directs management activities on the national forest. Forest plans are to be revised when conditions have significantly changed, or at least every 15 years. This Forest Plan Amendment will guide the management of the Sierra Nevada national forests until they are revised.

Recognizing that conditions on the Sierra Nevada national forests do not remain static and that new information is constantly being developed, the Selected Alternative embraces an adaptive management approach to dealing with uncertainty and developing new information to guide future decisions. This approach is a continuous process of action-based planning, monitoring, research, evaluation, and adjustment, with the objective of improving implementation to achieve desired management goals and objectives. This adaptive management approach is consistent with the recently adopted NFMA planning regulations (65 FR 67513).

This decision is being made in conformance with the 1982 NFMA planning regulations (36 CFR 219). These regulations were recently changed (65 FR 67513), however transition language in the new regulations permits this decision to be made under the 1982 Regulations. Additionally, I have been delegated the authority from the Chief to make the decision for amending the Intermountain Regional guide and Humbolt-Toiybe National Forest Plan on behalf of the Regional Forester of the Intermountain Region.

Throughout the development of the Final EIS and the Selected Alternative, I insisted that the proposed amendments be scientifically credible, legally sufficient strategies for sustaining national forest ecosystems. In my judgment, the amendments I am making with this decision will improve environmental protection; meet legal requirements; reduce potential environmental harm from management activities; and provide a sustainable output of goods and services.

II. The Decision

The decision I am making today is to amend the land and resource management plans (LRMPs) for the Sierra Nevada national forests based on Modified Alternative 8 as described in the Final EIS.

I have made my decision after careful consideration of the scientific reviews and public comments on the Draft Environmental Impact Statement (EIS) prepared pursuant to the National Environmental Policy Act (NEPA). I have reviewed the Final EIS, including the land allocation maps, and the standards and

guidelines associated with each alternative. All site-specific projects, as required, will be subject to additional environmental analysis, which will tier to the Final EIS for this Forest Plan Amendment and the EISs for individual LRMPs. Management direction and land allocations in existing LRMPs that are not affected, modified, or in conflict with my decision will remain in effect.

The decisions being made are required by law and regulations governing forest planning. Components of the decision**s** include (1) management direction and goals, (2) desired future conditions expected over the next 50 years, (3) standards and guidelines to be used in designing and implementing future management actions, (4) a strategy for inventory, monitoring, and research to support adaptive management, (5) procedural requirements to ensure consistent and quality implementation of the decision, and (6) and institutional arrangements to further collaboration and cooperation among Federal, State, local and tribal governments.

The management prescriptions to maintain habitat for sensitive species may not necessarily represent a long term forest ecosystem management strategy. The primary objective is to conserve rare and likely important components of the landscape such as stands of mid and late seral forests with large trees, structural diversity and complexity, and moderate to high canopy cover. Thinning from below is the principal silvicultural prescription to achieve immediate objectives, but if continued indefinitely, could result in forest regeneration challenges.

I believe that this decision is fully consistent with all consent decrees relating to the Sierra Nevada national forests as they are now in effect. To the extent that any provision of this decision is prohibited by any such consent decree, the consent decree shall control.

The following is a summary of my decision for each of the five problem areas identified in the Notice of Intent and other elements of the decision:

Old forest ecosystems and associated species

The old forest and associated species conservation strategy will provide environmental conditions on National Forest System lands and within the agency's authority that will protect increase and perpetuate old forest conditions. I expect this decision to maintain habitat to support viable populations of old forest associated species well-distributed across Sierra Nevada national forests. The strategy maintains existing suitable California spotted owl habitat and helps reverse current population declines.

A landscape-scale strategy of land allocations is combined with stand-level management standards and guidelines with the goal of conserving old forest ecosystems and their associated wildlife species. The landscape strategy contributes to this goal by (1) protecting and managing old forest emphasis areas to provide high quality California spotted owl habitat, (2) protecting and managing spotted owl home range core areas to provide moderate to high levels of tree canopy cover, (3) managing general forest areas to maintain and increase amounts of suitable spotted owl habitat, and (4) addressing fire hazard and risk to old forests by strategically locating fuels treatments.

A network of old forest emphasis areas will comprise approximately 40 percent of National Forest System lands in the Sierra Nevada and Modoc Plateau. Management in old forest emphasis areas will emphasize protecting the highest quality remaining old forest landscapes, increasing old forest conditions, using prescribed fire to reduce hazardous fuel conditions, and re-introducing fire as an ecosystem process. Mechanical treatments will be avoided in old forest emphasis areas, except in areas with (1) air quality concerns, (2) high risk of prescribed fire escapes, (3) excessive surface and ladder fuels, (4) unacceptable risks to old forest characteristics, or (5) prohibitive implementation costs.

Forest carnivore conservation strategies will be implemented with this decision. The fisher conservation strategy will establish a southern Sierra fisher conservation area that encompasses the known occupied range of the fisher in the Sierra Nevada; an elevation band from 3,500 feet to 8,000 feet on the Sierra and Sequoia National Forests. One goal of this strategy is to provide for suitable habitat linkages between southern and northern Sierra Nevada fisher populations. The fisher and marten conservation strategies will provide protection for all known den sites with a buffer area of 700 acres for fisher, and 100 acres for marten, and consisting of the highest quality habitat around den sites. Fuel treatments will be avoided in fisher den site buffers, except as needed to protect human health and safety. This strategy will provide for the protection and development of suitable habitat throughout the Sierra Nevada to facilitate fisher population expansion and possible reintroductions.

Protected Activity Centers (PACs) will be established for known and discovered California Spotted Owls (300 acres), northern goshawks (200 acres), and great gray owls (50 acres) to protect breeding adults and their offspring. Limited operating periods (LOP) will be applied to these PACs and forest carnivore den sites during nesting and denning seasons. Fuel treatments will be limited to no more than 10 percent of PACs each decade across the 11 Sierra Nevada national forests, with no more than 5 percent of PACs treated during any given year.

California spotted owl home range core areas will be centered on each PAC except in the urban wildland intermix. Home range core areas include the 300-acre PAC. Home range core area sizes will vary by national forest as follows: 600 acres on the Sierra and Sequoia National Forests; 1,000 acres on the Plumas, Tahoe, Eldorado, Stanislaus, Modoc, Lake Tahoe Basin Management Unit, Humboldt-Toiyabe, and Inyo National Forests and on the Almanor Ranger District of the Lassen National Forest; and 2,400 acres on the Hat Creek and Eagle Lake Ranger Districts of the Lassen National Forest. Management objectives and standards and guidelines for California spotted owl home range core areas are identical to those described for old forest emphasis areas.

Large live trees will be retained during vegetation and fuels treatment activities across Sierra Nevada national forests as follows: westside conifers 30 inches diameter at breast height (dbh) and greater, eastside pine 24 inches dbh and greater, westside hardwoods 12 inches dbh and greater, and blue oak woodland hardwoods 8 inches dbh and greater.

With the exception of the defense zone of the urban wildland intermix zone, canopy cover reductions to achieve fuel treatment objectives will not exceed 20 percent, and will not be reduced below 50 percent on the westside, and never below 30 percent on the eastside. Canopy cover estimates do not include trees less than 6 inches dbh.

All snags 15 inches dbh and greater will be retained in the southern Sierra fisher conservation area, old forest emphasis areas, and spotted owl home range core areas. In general forest and threat zones of the urban wildland intermix zone, treatments will retain four of the largest snags per acre 15 inches dbh and greater. Exceptions may be made for health and safety reasons.

All forested stands comprised primarily of large trees (California Wildlife Habitat Relationship classes 5M, 5D, and 6) outside of the defense zone of the urban wildland intermix will be managed for perpetuation of old forest conditions.

Aquatic, riparian, and meadow ecosystems and associated species.

The aquatic, riparian and meadow conservation strategy will provide clean water, functioning aquatic ecosystems, and environmental conditions that contribute to viable populations of associated species.

Riparian Conservation Areas (RCAs) along streams and around water bodies will be established to (1) preserve, enhance and restore habitat for riparian and aquatic-dependent species, (2) ensure water quality is maintained or restored, (3) enhance habitat for species associated with the transition zone between upslope and riparian areas, and (4) provide greater connectivity of riparian habitats within watersheds.

Critical Aquatic Refuges (CARs) will be a key part of the strategy to preserve, enhance and restore habitats for sensitive or listed species and contribute to their viability and recovery. In many cases, CARs support the best remaining populations of native fish, amphibian, and plant species whose distributions have been substantially reduced elsewhere in the Sierra Nevada. CARs will be established in small sub-watersheds that contain known locations of threatened, endangered, or sensitive species; highly vulnerable populations of native plant or animal species; or localized populations of rare native riparian or aquatic-dependent plant or animal species.

National forests will review all existing activities or uses for consistency with riparian conservation objectives. My intent is to complete these reviews within five years of this decision subject to available funding.

I will coordinate with the U.S.D.I. Fish and Wildlife Service in the development of conservation assessments for the foothill and mountain yellow legged frogs, Cascades frog, Yosemite toad, northern leopard frog, and willow flycatcher. My expectation is to complete these assessments by the end of calendar year 2002.

Fuel treatments or other activities proposed within CARs and RCAs that will likely affect aquatic resources will be subject to peer review prior to implementation.

Changes in grazing utilization standards will be implemented to maintain and restore meadows and their dependent species.

Known willow flycatcher sites will be surveyed to determine occupancy and management. If surveys detect willow flycatchers, livestock grazing will be prohibited in the meadow. If surveys did not detect willow flycatchers, late season grazing could occur, with utilization levels based on habitat condition. Additional willow flycatcher surveys will be conducted, and if needed, additional habitat protected to allow for the expansion of the population.

Herbaceous meadow vegetation will be maintained at a minimum of 12 inches high in great gray owl protected activity centers.

Fire and Fuels

A strategic approach for locating fuel treatments across broad landscapes will be adopted. The treatments are linked to support one another on the landscape so that wildland fire behavior spread and intensity are reduced. The highest priority for fuels treatments is in the Urban Wildland Intermix. The Urban Wildland Intermix contains two zones; the defense zone extends out approximately .25 miles from structures (see Appendix A), and the threat zone extends approximately 1.25 miles beyond that for a total of 1.5 miles.

Fuel treatments in the defense zone will be the most intense, designed to prevent the loss of life and property by creating defensible space. Fuel treatments in the threat zone will be strategically located to interrupt wildland fire spread and reduce fire intensity. Treatments will be designed to modify behavior of wildland fires approaching the defense zone, thereby allowing firefighters to take advantage of reduced spotting, lower rates of spread and intensity to more effectively contain the fire approaching the defense zone. The Urban Wildland Intermix, its defense zone and the strategically placed fuel treatments in the threat zone are locally determined. Fuel treatments that occur outside the threat zone will be designed, to support treatments in the threat zone, to protect sensitive habitats, and to reintroduce fire into fire dependent ecosystems.

The structural change to treatment acres by mechanical methods is limited to one per decade and should be designed to be effective for at least 10 years. When subsequent entries within 10 years are needed to reduce surface fuels, prescribed fire is the preferred method. When burning opportunities are limited, mechanical treatments such as mastication and piling are allowed.

Fuel treatments will be more cautiously applied, particularly in PACs, the Southern Sierra Fisher Conservation Area, old forest emphasis areas, California spotted owl home range core areas, and stands comprised of large trees. The objective for these areas is to move them toward natural fire regimes, and return fire to fire-dependent ecosystems. This may involve mechanical, and, or prescribed fire treatments. Prescribed fire will be emphasized in PACs, old forest emphasis areas, and California spotted owl home range core areas. Mechanical treatments will be allowed in areas when prescribed burning is determined to have: 1) a high likelihood for prescribed fire escape due to excessive fuel accumulations; 2) a high potential for unacceptable smoke impacts; or 3) a high risk for prescribed fire to result in canopy structure loss due to excessive surface and ladder fuels. The mechanical treatments prescribed in these sensitive habitats are designed to reduce surface fuels and increase crown base height.

In general forest and the threat (outer) zone of the urban wildland intermix, fuel treatments will support establishment and maintenance of strategically located fuel treatment areas. Mechanical treatments could remove surface and ladder fuels up to 20 inches dbh in stands in general forest and the threat zone of the urban wildland intermix zone. Mechanical treatments could reduce canopy closure by up to 20 percent. Fuel treatments will be located to minimize their effect on sensitive wildlife habitat.

Lightning-caused wildland fires will be used when permitted by approved fire management plans (including smoke management) to achieve natural resource management objectives.

Noxious weeds

Work cooperatively with State and local agencies to prevent the introduction and establishment of noxious weed infestations and to control existing infestations.

Conduct noxious weed risk assessments as part of project planning to determine whether project activities have low, moderate, or high risk for weed spread.

Off-road equipment and vehicles used to implement Forest Service projects will be required to be weed free.

The use of weed free hay and straw will be encouraged.

Weed prevention measures will be prescribed when permits for livestock grazing, special uses, pack stock operators, and other uses are amended or reissued.

Weed prevention and treatment measures will be specified in mining plans of operation and mine reclamation plans.

Noxious weed inventories will be completed.

New, small weed infestations will be eradicated.

Lower Westside Hardwood Ecosystems

Existing vegetation conditions will be compared with desired conditions during landscape analysis to determine the need for restoring and enhancing hardwood ecosystems.

All large hardwoods will be retained during mechanical fuel treatments, salvage operations, and prescribed fire. The largest hardwood snags per acre will be retained for wildlife habitat during fuel treatment or other management activities.

Hardwood species diversity will be retained.

Livestock utilization standards will be managed to facilitate recruitment of young hardwood trees.

Existing hardwoods will be promoted after stand replacing events. Hardwoods will be encouraged in conifer plantations. Existing hardwood trees will be buffered during conifer planting.

Decision Summary

These decision elements are fully supported by the environmental analysis documented in the Final EIS, as required by law and regulation. The elements of this decision are further expanded on below. These decision elements are fully supported by the environmental analysis documented in the Final EIS, as required by law and regulation.

A. Management Direction and Goals

The Sierra Nevada national forests' management directions, goals and desired conditions amended by my decision are described in Chapter 2 of the Final EIS. The goals and objectives guide the overall management for the five problem areas and fulfill the requirements of 36 CFR 219.11(b) of the 1982 regulations implementing NFMA. The attainment of these goals and objectives will also ensure the sustainability of the Sierra Nevada national forests. Sustainability, composed of interdependent ecological, social, and economic elements, embody the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528 et seq.) without impairment to the productivity of the land and is the overall goal of management of the National Forest System. The first priority for stewardship of the national forests is to maintain or restore ecological sustainability to provide a sustainable flow of uses, values, products, and services from these lands.

The management direction and goals in Chapter 2 of the Final EIS describe the desired future mosaic of land and resource conditions for the Sierra Nevada national forests, and the planning, analysis, monitoring, and adjustment that must be done to make these goals reality. Full attainment of these goals and

objectives can be influenced by Congressional budget allocations, changed circumstances, or new information.

B. Desired Future Conditions

Desired future condition is a statement describing a common vision for a specific land area. These statements are made in the present tense indicating a condition that managment will be designed to maintain or move toward, in each land allocation. Statements of desired condition take into account the natural range of variability typical for the Sierra Nevada landscape, the uncertainty of natural disturbances, the effects of past management, the unique features or opportunities that the Sierra Nevada national forests can contribute, and human desires and uses of the land. This section describes desired conditions for the land allocations in the Selected Alternative.

Wilderness and Wild and Scenic Rivers

Wilderness is a unique and vital resource. It is an area where the earth and its community of life are untrammeled by humans, where humanity itself is a visitor who does not remain. It retains its primeval character and influence, without permanent improvements or human habitation. Natural conditions are protected and preserved. The area generally appears to have been affected primarily by the forces of nature, with the imprint of humanity's work substantially unnoticeable. It offers outstanding opportunities for solitude, or a primitive and unconfined type of recreation. Human influence does not impede or interfere with natural succession in the ecosystems.

The outstandingly remarkable values for which wild and scenic rivers have been established, are candidates for designation, or are under study, are protected and preserved for the benefit and enjoyment of present and future generations. Free-flowing conditions of wild and scenic rivers, candidate or study rivers, are preserved. Human influence may be evident, but does not interfere with, or impede the natural succession of river ecosystems

Southern Sierra Fisher Conservation Area

Fisher populations and habitats increase and the Southern Sierra Fisher Conservation Area supports a core or reservoir subpopulation that expands northward to re-establish connection with the west coast metapopulation. Within each watershed, a minimum of 50 percent of the mature forested area is at least travel or foraging quality fisher habitat, and at least an additional 20 percent is resting or denning quality habitat

Old Forest Emphasis Areas

Old forest conditions, as determined by site capability, exist and are maintained on the greatest proportion of acres in old forest emphasis areas as possible. Fuel treatments in old forest emphasis areas allow a natural range of conditions to develop.

Old forest emphasis areas provide a network of large, relatively contiguous landscapes distributed throughout the Sierra Nevada where old forest conditions and associated ecological processes predominate. These areas provide a substantial contribution of ecological conditions to maintain viable populations of old forest associated species.

General Forest

The general forest is comprised of National Forest System lands outside of the other land allocations. The amount, quality, and connectivity of old forests in the general forest areas, support replacement rate reproduction for the California spotted owl and other old forest associated species. The density of large,

old trees and the continuity and distribution of old forests across the landscape is increased. The amount of forest with late-successional characteristics (for example diverse species composition, higher canopy cover, multi-layered canopy, higher density of large diameter trees, snags and coarse woody material) is also increased.

Urban Wildland Intermix Zones – Defense (inner) and Threat (outer)

This zone is an area where human habitation is mixed with areas of flammable wildland vegetation. It extends out from the edge of developed private land into land under Federal, private, and State jurisdictions.

The highest priority has been given to fuel reduction activities in the urban wildland intermix zone. Fuel reduction treatments protect human communities from wildland fires as well as minimize the spread of fires that might originate in urban areas. Fire suppression capabilities are enhanced by modified fire behavior inside the zone and providing a safe and effective area for fire suppression activities.

The highest density and intensity of treatments will have been placed in developed areas within the urban wildland intermix zone. Fuel treatments increase the efficiency of firefighting efforts and reduce risks to firefighters, the public, facilities and structures, and natural resources. Fuel treatments provide a buffer between developed areas and wildlands.

Fuel conditions allow for efficient and safe suppression of all wildland fire ignitions. Fires are controlled through initial attack under all but the most severe weather conditions.

Under high fire weather conditions, wildland fire behavior in treated areas is characterized as follows: (1) flame lengths at the head of the fire are less than four feet, (2) the rate of spread at the head of the fire is reduced to at least 50 percent of pre-treatment levels for a minimum of five years, (3) hazards to firefighters are reduced by keeping snag levels to two per acre (outside of California spotted owl and Northern goshawk PACs and forest carnivore den site buffers), and (4) production rates for fire line construction are doubled from pre-treatment levels.

Spotted Owl Protected Activity Centers and Home Ranges Core Areas

Stands in each PAC and home range core area have (1) at least two tree canopy layers, (2) trees in the dominant and co-dominant crown classes averaging at least 24 inches diameter at breast height (dbh), (3) at least 70 percent tree canopy cover (including hardwoods), (4) a number of very large (greater than 45 inches dbh) old trees, and (5) higher than average levels of snags and down woody material.

Northern Goshawk Protected Activity Centers

Stands in each Northern goshawk PAC have (1) one to two tree canopy layers, (2) trees in the dominant and co-dominant crown classes averaging at least 24 inches dbh, (3) at least 70 percent tree canopy cover (including hardwoods), (4) a number of very large (greater than 45 inches dbh) old trees, and (5) higher than average levels of snags and down woody material.

Great Gray Owl Protected Activity Centers

Meadow vegetation in great gray owl PACs support a sufficiently large meadow vole population to provide a food source for great gray owls through the reproductive period.

Willow Flycatcher Habitat

Running water, standing water (pools), or saturated soils are present in the vicinity of willow clumps at least through late June. Meadows have large clumps of riparian shrubs (usually willows) interspersed with open spaces. Average foliar density in the lower 6.5 feet of willow clumps is 50 to 75 percent. At least 50 percent of the foliar density of shrubs is in the lower portions of the shrubs. Duff from the previous

season's growth (dead material) is available for nest material. Ground cover is dominated by grasses, rushes and sedges.

Forest Carnivore Den Sites

Areas surrounding fisher den sites include at least two large (greater than 40 inches dbh) conifers per acre, and one or more oaks (greater than 20 inches dbh) per acre with suitable denning cavities. Canopy closure exceeds 80 percent.

Areas surrounding marten den sites have (1) at least two conifers per acre greater than 24 inches dbh with suitable denning cavities, (2) canopy closures exceeding 60 percent, (3) more than 10 tons per acre of coarse woody debris in decay classes 1 and 2, and (4) an average of 6 snags per acre on the westside and 3 per acre on the eastside.

Sierra Nevada red fox denning areas have (1) large hollow logs (greater than 20 inches diameter at the largest end) distributed individually or in piles, (2) access to underground burrows, such as via uplifted root masses where large trees have fallen, and (3) where possible, areas of talus, scree, or boulder slopes.

Riparian Management Areas

Water quality meets the goals of the Clean Water Act and Safe Drinking Water Act; it is fishable, swimmable, and suitable for drinking after normal treatment.

Habitat supports viable populations of native and desired non-native plant, invertebrate, and vertebrate riparian and aquatic-dependent species. New introductions of invasive species are prevented. Where invasive species are adversely affecting the viability of native species, the appropriate State and Federal wildlife agencies have reduced impacts to native populations.

Species composition and structural diversity of plant and animal communities in riparian areas, wetlands, and meadows provide desired habitat conditions and ecological functions.

The distribution and health of biotic communities in special aquatic habitats (such as springs, seeps, vernal pools, fens, bogs, and marshes) perpetuates their unique functions and biological diversity.

Spatial and temporal connectivity for riparian and aquatic-dependent species within and between watersheds provides physically, chemically and biologically unobstructed movement for their survival, migration and reproduction.

The connections of floodplains, channels, and water tables distribute flood flows and sustain diverse habitats.

Soils with favorable infiltration characteristics and diverse vegetative cover absorb and filter precipitation and sustain favorable conditions of stream flows.

In-stream flows are sufficient to sustain desired conditions of riparian, aquatic, wetland, and meadow habitats and keep sediment regimes as close as possible to those with which aquatic and riparian biota evolved.

The physical structure and condition of stream banks and shorelines minimizes erosion and sustains desired habitat diversity.

The ecological status of meadow vegetation is late seral (50 percent or more of the relative cover of the herbaceous layer is late seral with high similarity to the potential natural community). A diversity of age classes of hardwood shrubs is present and regeneration is occurring.

Meadows are hydrologically functional. Sites of accelerated erosion, such as gullies and headcuts are stabilized or recovering. Vegetation roots occur throughout the available soil profile. Meadows with perennial and intermittent streams have the following characteristics: (1) stream energy from high flows is dissipated, reducing erosion and improving water quality, (2) streams filter sediment and capture bedload, aiding floodplain development, (3) meadow conditions enhance floodwater retention and groundwater recharge, and (4) root masses stabilize stream banks against cutting action.

Critical Aquatic Refuges
Critical aquatic refuges provide habitat for native fish, amphibian and aquatic invertebrate populations. Remnant plant and animal populations in aquatic communities are maintained and restored.

Streams in meadows, lower elevation grasslands, and hardwood ecosystems have vegetation and channel bank conditions that approach historic potential.

Water quality meets State stream standards.

C. Land Allocations, Standards and Guidelines

The mapped and unmapped land allocations are displayed in the Selected Alternative Map contained in the map packet accompanying the Final EIS. The final land allocations and standards and guidelines for the decision are in Appendix A of this Record of Decision (ROD).

D. Probable Sale Quantity

For each national forest affected by this decision, a revised allowable sale quantity (ASQ) will be established at the time of their Forest Plan Revision. Until those revisions are complete, the total annual Probable Sale Quantities (PSQ) green volume for the 11 national forests is estimated to be approximately 191 million board feet (mmbf) for the first five years, which includes approximately 137 mmbf from the pilot project for the Herger-Feinstein Quincy Library Group. The estimated annual volume for the ensuing five years is approximately 108 mmbf. An additional 91 mmbf of salvage harvest per year may also be made available. This estimated green volume is higher than that described in Modified 8 in the Final EIS due in part to refinements in the modeling process between publishing of the Final EIS and ROD.

E. Monitoring, Research and Evaluation

The monitoring plan, required by NFMA regulations, 36 CFR 219.12 (k) of the 1982 regulations, is portrayed in Appendix E of the Final EIS as part of an adaptive management strategy.

This monitoring effort will be designed and executed to assess ecological conditions throughout the Sierra Nevada region. This regional approach to monitoring will largely replace the existing monitoring efforts within the individual National Forests of the Sierra with the exception of specific monitoring commitments that may need to be continued.

Monitoring and evaluation play a central role in adaptive management and are conducted for three primary purposes: (1) to ensure appropriate implementation of standards and guidelines (implementation monitoring), (2) to track resource conditions and mark trends toward or away from desired conditions (status and change monitoring), and (3) to deal with uncertainties regarding the effectiveness and effects of land management activities (cause and effect monitoring). The latter type of monitoring consists of gathering information to determine whether the effects of various standards and guidelines are consistent with predictions. It is also used to validate key assumptions underlying various standards and guidelines, and validate projected outcomes of management. Information gained through monitoring and evaluation will be used to adjust management direction in the future, where warranted, and inform future LRMP amendments and revisions.

Full implementation of the adaptive management strategy as it appears in Appendix E of the Final EIS, will occur within 5 years of the implementation of this decision, subject to annual budget appropriations. The adaptive management strategy will be phased-in over the 5-year period, with at least some elements to be fully implemented by the second year. Implementation will be jointly executed and managed by the Pacific Southwest Region and the Pacific Southwest Research Station, in collaboration other agencies, governments, and interested parties.

The Adaptive Management Strategy will be developed and executed with the intent of assessing ecological conditions throughout the Sierra Nevada region. The sampling designs for monitoring vegetation, species, and fuel conditions, will be developed for the entire region. A monitoring team will be established to orchestrate this regional data collection effort and will collaborate closely with the Pacific Southwest Research (PSW) team dedicated to the research component of this adaptive management strategy. Monitoring data collection will be executed by the staffs on each individual National Forest under the direction and advice of the regional monitoring team and the PSW research team.

A Sierra Nevada wide monitoring and evaluation report will be produced each year, starting at the end of the first year. NFMA requires an annual monitoring and evaluation report, including the following: (1) a list or reference to monitoring required by the plan, (2) a summary of the results of monitoring and evaluation performed during the preceding fiscal year, (3) a summary of the results of monitoring performed during the previous fiscal years, as appropriate, (4) a description of trends toward desired conditions and sustainability as identified in the national forest's land and resource management plan, (5) identification of any new topics of general interest or concern arising from monitoring and evaluation, (6) a list of amendments made to the plan in the previous year, (7) a summary of outputs, outcomes, and budgetary trends related to the achievement of desired conditions, and (8) a description of the activities and results of efforts to address key information gaps.

Any changes to this decision needed in response to monitoring results will be incorporated through the forest plan amendment or revision processes.

Research issues that bear most directly on the elements of this decision resulted from identification of key information gaps in development of the Draft and Final EISs. Therefore, execution of research studies and evaluation of the results play an important role in reducing uncertainty and guiding future management adjustments. The adaptive management strategy of this decision relies on carefully designed data collection and studies that focus upon the key issues of uncertainty. With the information generated from this monitoring and research work the adaptive management loop can be joined back to the re-examination of issues that require decisions in the future.

The Forest Service will conduct an evaluation of monitoring results on an annual basis. The evaluations will be conducted in collaboration with the appropriate Federal and State agencies. Any needed changes

in this decision will be incorporated through the forest plan amendment or revision processes in response to monitoring results.

F. Other Procedural Requirements and Management Direction

In addition to standards and guidelines, and the management direction already discussed, a number of additional management requirements are important to achieve management goals, objectives and desired conditions.

Landscape Analysis

It is my intent to complete landscape analysis across the Sierra Nevada within five years of this record of decision subject to available funding. While not decision documents themselves, these landscape analyses will provide the information baseline for making subsequent project level decisions. Critical aquatic refuges and areas that contain threatened and endangered species will be given priority for landscape analysis. Analyses will be conducted at watershed scales of approximately 30,000 to 50,000 acres. Specific direction is contained in Appendix A of the ROD and Appendix T of the FEIS.

Roads Analysis

This decision will follow the national roads policy. Road management in Sierra Nevada national forests will emphasize five key components:

1) A program of decommissioning and closure of unneeded roads and roads causing unacceptable environmental impacts;
2) A program of reconstruction and maintenance of needed roads to restore watershed and ecosystem health;
3) An ecosystem analysis process that will include analysis of the transportation system, including environmental effects and needs for road access;
4) Management decisions for individual roads made at a local level using environmental analysis and public involvement as appropriate.
5) This decision will also require the Sierra Nevada national forests to conduct an integrated, interdisciplinary transportation analysis, following the national roads analysis procedures, as part of landscape analysis. Finally, each national forest will complete inventories of unclassified roads within ten years.

Fisher and Marten Surveys

I will initiate a systematic survey of fisher and marten occurrence throughout the Sierra Nevada to delineate the amount and extent of currently occupied habitat. This will be completed for fisher within two years, and for marten within four years, of this decision.

Oak Mortality

My goal is to prevent increases in oak mortality and the spread of sudden oak death. Therefore, I will work with the interagency California Oak Mortality Task Force as needed to educate employees and the public about these issues.

Non-Native Fish

I will work with the State Department of Fish and Game to assess potential effects of non-native fish on species at risk such as mountain yellow-legged frog. This will include an evaluation of the need to discontinue stocking and/or removal of non-native fish from deep lakes and adjacent resting pools.

Wildland Fire Management

My decision includes the following direction for wildland fire management:

Fire Management Plans – A fire management plan for each national forest (including each wilderness) that defines a program to manage wildland and prescribed fires will be completed. This fire management plan will include the management wildland fire ignitions with the appropriate management response or range of response tactics. The fire management plans should develop strategies and tactics that include the appropriate suppression response and apply minimum impact suppression tactics (MIST) as appropriate in sensitive habitats. National forests will determine a maximum manageable area (MMA) for each naturally caused ignition on a site-specific basis, dependent on political, social, resource and fire impacts.

Wildland Fire Management – The locations of special resource concern will be considered in initial attack, extended attack and large fire management. This will include identifying, locating, and incorporating special resource concerns, such as wilderness, heritage resource sites, threatened endangered or sensitive species, and Research Natural Areas, into the appropriate management response and the Computer-Aided Dispatch (CAD) process. A resource advisor will be provided on all wildland fires where locations of special resource concern are affected.

Wildland Fire Situation Analysis – A wildland fire situation analysis will be used to determine appropriate response once a wildland fire threatens to exceed the maximum manageable area. The baseline information used in wildland fire situation analysis will be updated as a result of the new land allocations and standards and guidelines associated with this decision. Each national forest will review and become familiar with these changes prior to the 2001 fire season.

Conservation Assessments

The Conservation Assessments described below will be completed in cooperation with the Fish and Wildlife Service. These Conservation Assessments will gather and synthesize the best available information concerning habitat relationships, population status and trends, historical and current distributions, and key risk factors likely affecting species distribution and persistence. Information from the Conservation Assessments will be used to assess the effectiveness of my decision to provide ecological conditions to maintain viable populations of these species well distributed across their range in the Sierra Nevada. I recognize that adjustments to management direction may be required to further conserve these species. Adjustments will be made in compliance with applicable Forest Service regulations.

Forest Carnivore Conservation Assessments – One goal of this decision is to protect and recover populations of fisher, marten, and Sierra Nevada red fox in the Sierra Nevada. To accomplish this, I am will cooperate with State, Federal and local agencies, and tribal governments to develop conservation assessments for fisher, marten, and Sierra Nevada red fox. My intent is to complete these assessments by the end of calendar year 2002.

Plant Species Conservation Assessments – This decision is designed to maintain long term viability of Forest Service sensitive species and contribute to the recovery of threatened, endangered, and proposed plant species and ensure management activities do not contribute to population declines. For the high vulnerability plant species identified in the Final EIS, at least two species conservation assessments per year will be developed. Each conservation assessment may cover one to several species, where life history characteristics, habitat and distribution, and management concerns make grouping more effective and efficient. In addition, I will cooperate with the Fish and Wildlife Service in the development and implementation of recovery plans for listed species.

Aquatic and Riparian Species Conservation Assessments – This decision is designed to maintain long term viability of Forest Service sensitive species and contribute to the recovery of threatened, endangered, and proposed riparian species dependent on riparian and aquatic ecosystems, and ensure management activities do not contribute to population declines. My intent is to complete conservation assessments, in cooperation with other State and Federal agencies, universities, and research scientists, for the following sensitive species: foothill and mountain yellow legged frogs, Cascades frog, Yosemite toad, and northern leopard frog by the end of calendar year 2002. These conservation assessments will synthesize the best available information, including life history, habitat associations, and risk factors, and identify occupied and unoccupied habitats essential for the conservation of these species. This information will be incorporated into landscape analyses. Upon completion of these landscape analyses, the Forest Service will develop, prioritize and implement restoration actions that contribute to species conservation.

Willow Flycatcher Conservation Assessment – My intent is to develop a conservation assessment for willow flycatchers by the end of calendar year 2002. This conservation assessment will include: mapping of meadows, identifying suitable willow flycatcher habitat, identifying willow flycatcher occupancy and relative abundance, identifying emphasis habitat and small wet meadows, and identifying habitats that can contribute to population expansion. I will also cooperate with the Pacific Southwest Research Station to survey a subset of suitable willow flycatcher habitat for occupancy. A re-assessment of the effectiveness of the willow flycatcher management direction will be conducted after five years.

Research

Ecosystem functions and processes, and the relationship of habitat conditions to viability of at-risk species, are high priorities for on going research. These research priorities specifically focus on the relationship of forest or riparian conditions, including successional changes towards projected forest and riparian desired conditions, to species of concern and fuels management activities. Research needs have been identified and research will be conducted through the Pacific Southwest Research Station as well as an array of resource management partners and scientists.

G. Adaptive Management and Institutional Arrangements

Adaptive management is one of the key elements of this decision. Adaptive management will allow the Forest Service to test new and innovative management techniques as part of formal research projects. To accomplish this, I will allow for variances from the standards and guidelines in Appendix A to test hypotheses in a scientifically structured manner. Projects that seek variances from the standards and guidelines will be permitted if they are part of a formal adaptive management research project or administrative study done in conjunction with the Pacific Southwest Research Station or another recognized scientific research institution. Some adaptive management projects, such as the Kings River and the Black's Mountain research areas, are already underway. Investment in these and other adaptive management projects will allow us to gain more knowledge and adjust future management techniques based on that knowledge.

Successful implementation of this decision depends on the working relationships and administrative arrangements we forge with other Federal, State, and local agencies, and tribal governments, and the partnerships we establish and maintain with various interest groups and individuals. I have decided to implement, as a part of this decision, a formal arrangement with various agencies and parties connected with implementation of this decision. Within three months of this decision, I will initiate discussions with the Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S.D.I. Bureau of Land Management, the U.S.D.I. National Park Service, the California Secretary for Resources, and the Nevada

Director of the Department of Conservation, and others to discuss the need for, and structure of, formal institutional arrangements. I will strive to put formal institutional arrangements into place within one year of this decision.

I intend this arrangement to include a Federal Advisory Committee chartered under the Federal Advisory Committee Act (FACA). Such an arrangement will be necessary to fulfill the collaborative requirements outlined by the new forest planning regulations (36 CFR 219.12 through 219.18). Before any arrangements are agreed to, I will provide ample opportunity for Federal, State, local and tribal governments to provide input and ideas. I will also provide opportunities for organizations and individuals to comment on any proposals.

Under the procedures of the adaptive management strategy in this decision, the Forest Service will cooperate with the Pacific Southwest Research Station to design and implement an administrative study to examine the relationship between management-caused changes in vegetation and their effects on spotted owl habitat and spotted owl population dynamics. I would expect the group selection provisions of the HFQLG pilot project as well as other treatments to be used in carrying out the study. The administrative study is intended to investigate the response of the California spotted owl and its habitat, particularly populations of prey species and features of their habitats, to various silvicultural treatments.

Sierra mixed conifer forests have a natural heterogeneity of seral stages, species composition, and stand structure. Natural processes such as fire, and insect and pathogen incidences, as well as edaphic or microclimate conditions result in spatial heterogeneity across the landscape. Thus at any given time even "pristine" forest would be expected to contain patches of varying size in different size and age classes. Silvicultural practices may mimic natural heterogeneity of forest landscapes. Basic forest ecological principles will be employed to design such conditions, consistent with the size and intensity of natural disturbance agents. This study will test the hypothesis that California spotted owls will not be directly, or indirectly, affected by limited levels of silvicultural treatments that mimic natural disturbance processes. Direct effects on owls include owl displacement or disruption of breeding as a consequence of timber harvest. Indirect effects on owls include changes in habitat quality mediated through changes in prey availability or abundance, or changes in the quality of prey habitat (for example, declines in hypogeous fungi as a food source for flying squirrels).

H. Application of Decision

Application to Land and Resource Management Plans

This decision amends existing national forest land and resource management plans with additional:

- Management Direction and Goals;
- Desired future conditions expected over the next 50 to 100 years;
- Standards and guidelines to be used in designing and implementing future management actions;
- A strategy for inventory, monitoring and research to support adaptive management.

The management direction set forth in this decision is incorporated upon the effective date of this decision into all existing land and resource management plans and regional guides. Management direction is established for National Forest System lands of the Modoc, Lassen, Plumas, Lake Tahoe Basin Management Unit, Tahoe, Eldorado, Stanislaus, Sequoia, Sierra, and Inyo National Forests of California, and that portion of the Humbolt-Toiyabe National Forest that is in the Sierra Nevada.

Regional Guides
This decision amends the regional guides for those portions of the Intermountain Region (Region 4) and the Pacific Southwest Region (Region 5) within the Sierra Nevada and Modoc Plateau where existing Regional Guides are in conflict with the decisions being made in this Record of Decision.

Relationship of Standards and Guidelines to Existing Plans
The existing land and resource management plans contain many standards and guidelines that are not amended by this decision. Only those existing plan standards and guidelines in conflict with this decision are replaced. This decision replaces all previous California spotted owl management direction.

Relationship to Upper Pit River Watershed Restoration Project
One of eleven national pilot projects selected to demonstrate state-of-art collaborative approaches to watershed management and restoration, this project encompasses over a half million acres of the Modoc National Forest. The project is supported by two separate NEPA decisions (described below) addressing the late successional old growth, grazing, and fuels and fire issues similar to those covered by the Sierra Nevada Forest Plan Amendments. This project will be allowed to proceed as currently planned.

Relationship to Hackamore Ecosystem Restoration and Enhancement Project
As part of the Upper Pit River Watershed Restoration Pilot Project, this project is evaluating potential acceleration and maintenance of late seral forest characteristics. It includes over 15,000 acres of thinning in pine stands to accelerate development of, and maintain and protect existing, late seral old growth habitat. Also included are over 19,000 acres of fuel treatments including prescribed fire, strategically located on a landscape scale to protect developing and existing late successional old growth stands. This project will be allowed to proceed as currently planned.

Warner Mountain Rangeland Management Planning --The Upper Pit River Watershed Restoration project also incorporates 350,000 acres of grazing management strategies and is a collaborative effort involving multiple stakeholders, including the Experimental Stewardship Project advisory group, scientists from the Pacific Southwest Research Station, grazing permittees and the Modoc national forest. The Upper Pit River Watershed Restoration Project implements Modoc national forest standards and guidelines that have been shown effectively to re-establish critical habitat for riparian dependent species and that have resulted in restoration of riparian systems. This project will be allowed to proceed as currently planned.

Experimental Stewardship Project
The Modoc National Forest and BLM's Surprise Resource Area is home to one of three Experimental Stewardship Projects established nationally. This is a multi-disciplinary, multi-agency and multi-interest committee exploring new ideas and practices and developing innovative approaches to grazing management issues and solutions to the Forest Service and Bureau of Land Management. The technical advisory work of this group will be integrated into the adaptive management process and the institutional framework outlined in this decision.

Relationship to Big Valley Sustained Yield Unit
This is one of 3 remaining Sustained Yield Units established with the objective of supplying a sustained level of forest products to local communities. The Modoc National Forest is collaborating with the local community and Big Valley Lumber to explore stewardship options and development of markets for non-traditional forest products. The continuation of this sustained yield unit is included in my decision.

Relationship to Wetlands Development and Maintenance primarily for Waterfowl and Birds of Prey

Approximately 15,000 acres of wetland development is currently underway on the Modoc Plateau through the use of heavy equipment to construct, maintain, and enhance small dikes, dams, spillways, and artificial islands. In these areas sagebrush, juniper, and dry man made meadows will be converted to wetlands through the use of heavy equipment. This is the largest wetlands development project in the National Forest System. This project will be allowed to continue under my decision.

Relationship to Sequoia National Monument

Lands within the monument are subject to the decisions made through this ROD. However, the monument management plan, and subsequent plan amendment, may modify this direction to protect the values for which the monument was created.

Lake Tahoe Basin Management Unit Presidential Commitments

Projects and processes implemented as part of the Presidential Commitments made on July 26, 1997 are consistent with this decision and will continue.

Biological Assessments of Endangered Suckers

In collaboration with the Fish and Wildlife Service, the Forest Service prepared a biological assessment addressing the endangered Lost River, short nosed and Modoc suckers. The resultant biological opinion by the Fish and Wildlife Service incorporates grazing standards and guidelines and management activities that ensure the continued existence of these species. The Forest Service monitoring in collaboration with Fish and Wildlife Service has shown these standards and guidelines are improving the habitat. I recognize that the work being done may be moving toward de-listing of one or more of the sucker species. Therefore, the permits and programs under the existing and future sucker biological opinions can progress independent of this decision.

Relationship to Other Plans and Proposals

Standards and guidelines in existing LRMPs that have been adopted for national scenic areas and wild and scenic rivers continue to apply where they are more restrictive and provide greater assurance of attaining the desired future conditions described in this document.

I expect and intend that the management direction and land allocations in this decision will constitute the Federal contribution to the recovery of all listed threatened and endangered species. I expect that future recovery plans for any listed species associated with the late-successional old-growth forest habitat in the Sierra Nevada will use the management direction adopted in this decision as a base from which to build a strategy for recovery.

Relationship to Other Lands

While the influences of activities on lands administered by the Bureau of Land Management, Fish and Wildlife Service, National Park Service, and U.S. Department of Defense were considered in the assessment of cumulative impacts in the Final EIS, this decision does not adopt new management direction for those lands. This decision does not establish direction or regulation for State, tribal, or private lands.

III. Alternatives Considered

Under each alternative, management strategies, consistent with the theme of the alternative, are proposed to address the five problem areas and incorporate the processes of adaptive management, landscape analysis, and public interaction and collaboration. Each alternative also proposes a different network of land allocations. Within each land allocation, desired conditions and standards and guidelines are specified consistent with the problem area strategies and the alternative's theme. Hence, each alternative has the following components: (1) a management theme, (2) overall management strategies, (3) a network of different land allocations, each with specific desired conditions, and (4) standards and guidelines for management.

The following is a brief overview of the alternative themes:

A. Alternatives Considered in Detail

Alternative 1: Theme - Continue management in existing national forest land and resource management plans.
Alternative 1 is the no action alternative required by the National Environmental Policy Act. Management in the planning area would continue under existing decisions and management direction in the Records of Decision for existing land and resource management plans and applicable amendments for the 11 Sierra Nevada national forests.

Alternative 2: Theme - Establish large reserves where management activities are very limited.
Alternative 2 establishes large reserves, where human management is very limited, to maintain and perpetuate old forest, aquatic, riparian, meadow, and hardwood ecosystems. Alternative 2 responds to views that ecosystems should be protected from all but minimal human-caused disturbances and conditions that “nature” delivers are desired.

Alternative 3: Theme - Actively manage to restore ecosystems. Use local analysis and collaboration.
Alternative 3 emphasizes restoration of desired ecosystem conditions and ecological processes through active management determined through landscape analysis, monitoring, and local collaboration. Management activities would promote ecosystem conditions and ecological processes expected within natural ranges of variability under prevailing climates.

Alternative 4: Theme - Develop ecosystems that are resilient to large-scale, severe disturbances.
Alternative 4 emphasizes the development of forest ecosystem conditions that anticipate and are resilient to large-scale, severe disturbances, such as drought and high intensity wildfire, common to the Sierra Nevada. The alternative is consistent with the view that ecosystems should be actively managed to meet ecological goals and socioeconomic expectations. Alternative 4 would have the greatest number of acres available for active management including timber harvest.

Alternative 5: Theme - Preserve existing undisturbed areas and restore others to achieve ecological goals.
Limit impacts from active management through range-wide management standards and guidelines.

Alternative 5 preserves existing undisturbed areas and restores others to achieve ecological goals. Alternative 5 emphasizes reintroducing fire as a natural process and using fire to reduce fire and fuel accumulations.

Unroaded areas larger than 5,000 acres, ecologically significant unroaded areas between 1,000 and 5,000 acres, and inner zones of riparian areas would be preserved and left to develop under natural processes. Other areas, including old forest emphasis areas and general forest, would be restored under a limited active management approach to increase the amount of, and enhance processes associated with, old forest conditions. Alternative 5 limits impacts from management activities by specifying range-wide management standards and guidelines.

Alternative 6: Theme - Integrate desired conditions for old forest and hardwood ecosystems with fire and fuels management goals. Reintroduce fire into Sierra Nevada forest ecosystems.

Alternative 6 integrates desired conditions for old forest and hardwood conservation with fire and fuels management. This alternative provides direction for implementing a landscape-scale strategic fuels treatment program in high-risk vegetation types across Sierra Nevada landscapes to: (a) reduce the potential for large severe wildfires, and (b) increase and perpetuate old forest and hardwood ecosystems, providing for the viability of species associated with these ecosystems.

Alternative 6 emphasizes re-introducing fire into Sierra Nevada ecosystems, particularly old forest ecosystems. It uses active management to protect and restore desired ecosystem conditions. Prescribed fire is emphasized in old forest emphasis areas, while a mix of prescribed fire and mechanical treatments may be used in general forest areas to move toward and maintain desired conditions.

Alternative 7: Theme - Actively manage entire landscapes to establish and maintain a mosaic of forest conditions approximating patterns expected under natural conditions.

Alternative 7 aims to establish and maintain a diversity of forest ages and structures over the landscape in a mosaic approximating patterns that would be expected under natural conditions, that is conditions characterized by current and expected future climates, biota, and natural processes. Ecosystems and ecological processes would be actively managed to maintain and restore them to desired conditions. Silvicultural treatments could produce timber and other forest products.

Alternative 7 relies on few land allocations, applying what is commonly termed a "whole forest approach." Most lands are designated in the "general forest" land allocation where active management is used to move landscapes toward desired conditions. Management is linked to desired conditions for California Wildlife Habitat Relationships (CWHR) stages and old forest condition goals, specific to the major Sierra Nevada forest types.

Alternative 8: Theme - Manage sensitive wildlife habitat cautiously. Develop new information to reduce uncertainty about the effects of management on sensitive species.

Alternative 8 emphasizes a cautious approach to treating fuels in sensitive wildlife habitat. New information from research and administrative studies would be developed to reduce uncertainty about the effects of management on sensitive species. Until further guidelines were developed, treatments in suitable California spotted owl habitat would retain specific levels of large trees, canopy cover, canopy layers, snags, and down woody material.

Modified Alternative 8: Theme - Manage sensitive wildlife habitat cautiously. Provide for species conservation while addressing needs to reduce the threat of wildfire.

In response to public comment, scientific review and consultation with other agencies, the Draft EIS alternatives were carefully reviewed between the publication of the Draft EIS and the Final EIS. Refinements and suggestions I judged important to bring forward to the Final EIS were used to improve Draft EIS Alternative 8 and are displayed in the Final EIS as "Modified Alternative 8 (The Preferred Alternative)."

Like Alternative 8, uncertainty about the possible effects of management activities on wildlife habitat is a dominant concern in Modified Alternative 8. Management direction is designed to address uncertainty and increase confidence that management actions will not adversely affect wildlife habitat. Modified Alternative 8 has the same basic components as Alternative 8; however, it provides more spatially explicit California spotted owl and fisher conservation strategies and better integration of these strategies with its aquatic management and fire and fuels management strategies.

Modified Alternative 8 provides for species conservation while addressing fire and fuels management. Modified Alternative 8 recognizes the need to reduce the threat of fire to human communities; it provides for more intensive fuel treatments in urban wildland intermix zones. Outside of these zones, direction for treating forest fuels is cautious, ensuring that treatments do not degrade habitat.

B. Alternatives Not Considered In Detail

An Alternative was designed to expand the use of prescribed burning to reintroduce fire at the level existing in the Sierra Nevada prior to effective fire suppression. There is extensive science literature to support increased prescribed burning, both as a means to manage fire hazard and as an essential process in Sierran ecosystems. This alternative was founded on the premise that management designed to maintain or reproduce key ecosystem components, structures and processes is the most likely management approach to sustain ecosystem health and productivity. Based on information summarized in SNEP, the amount of prescribed burning and wildland fire necessary was estimated at 400,000 to 500,000 acres per year.

This alternative was eliminated from detailed analysis both because it failed to meet the objectives of the DEIS and because of unacceptable consequences. It did not address the reduction of fire hazard in a strategic manner, because it did not target areas of highest risk and hazard. Nor did the alternative address the need for mechanical restoration in dense, homogenous vegetation, prior to reintroduction of fire. The alternative is more suited to the maintenance of desired future conditions, once achieved, than to restoration and protection of degraded ecosystems. Implementation of the alternative would also produce smoke emissions at levels likely to exceed air quality standards designed to protect human health. In addition, implementation of a prescribed burning program at this scale was clearly problematic for species in decline because they lack resilience and are sensitive to disturbance. Removal or disruption of even a few individuals could have dire consequences for the species as a whole. In light of this, as well as problems with implementation and cost, the alternative was eliminated.

C. The Environmentally Preferable Alternative

The Council on Environmental Quality (CEQ) regulations for implementing the NEPA require that the ROD specify "the alternative or alternatives which were considered to be environmentally preferable"

(40 CFR 1505.2(b)). This alternative has generally been interpreted to be the alternative that will promote the national environmental policy as expressed in NEPA's Section 101 (CEQ's "Forty Most-Asked Questions," 46 Federal Register, 18026, March 23, 1981). Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

In the short term, Alternative 5, of the Final EIS, could be considered the environmentally preferable alternative. This is defined as the alternative having the least adverse effects to the physical and biological (as opposed to the social and economic) environments. The impacts from vegetation and fuels management activities in this alternative would pose the least risk to habitat in the short term, but may result in greater impacts in the long term. Modified 8, while having greater short term effects, may result in fewer long term impacts (see FEIS Chapter 2, Comparison of Alternatives).

IV. Rationale For Decision

My decision to select Modified Alternative 8, was reached after a comprehensive review of the relevant environmental, economic, and social consequences of the alternatives in the Final EIS and is based on a number of factors. The discussion contained in Part A of this section, explains why I have selected Modified Alternative 8 from among the alternatives analyzed in the Final EIS and highlights several factors that were of primary importance to my decision. I believe Modified Alternative 8 best responds to multiple needs, including ensuring sustainable forest ecosystems, responding well to the five problem areas, and providing a sustainable supply of goods and services. Consideration of national policy issues further shapes the decision.

Chapter 3 of the Final EIS describes the environmental consequences of the alternatives in detail. This section compares the alternatives by summarizing their environmental consequences. It is organized in three sections: the five problem areas, focal species, and socio-economic concerns.

A. How the Alternatives Respond to the Five Problem Areas

This Record of Decision addresses five problem areas identified in the Notice of Intent. Four criteria were used to determine the problems addressed in the Final EIS and this decision:

1) There is new scientific data about the extent, intensity, or duration of the problem;

2) The problem occurs at broad geographic scales;

3) Environmental risk, as judged by scientists, indicates that action to address the problem should be taken now; and

4) The problem is not addressed well elsewhere.

Associated with these problems is the need to maintain viable populations of at-risk species (threatened, endangered, sensitive, and other species with declining populations and, or, distributions). Through public collaboration and scoping, many issues and concerns were identified that were beyond the purpose and need. For example, concerns surrounding the recently listed Sierra Nevada bighorn sheep can be more immediately resolved through recovery planning and within the scope of existing LRMPs for the five affected national forests in the southern Sierra Nevada. Other issues, such as water uses and instream flows or air quality, are so large and involve so many jurisdictions and interested parties that their solutions cannot be easily or immediately identified.

The following sections describe how I view the alternatives' responses to each problem area.

Old Forest Ecosystems

I have determined that all of the alternatives would maintain and enhance old forest conditions across Sierra Nevada and Modoc Plateau. However, they would have different effects on (1) potential losses of old forests to severe wildfires, (2) amounts and distribution of old forest conditions, and (3) old forest ecosystem functions and processes, including the uncertain effects of management activities on old forests. For details see Chapter 3, Part 3.2 of the Final EIS.

Potential Losses to Severe Wildland Fires. Affecting wildfire behavior will require two to three decades of treatment before we see appreciable changes in wildfire behavior except for the areas treated. By that time, predicted acres burned during wildfires would decrease 30 to 40 percent in Alternatives 3, 4, 6,7, and Modified 8; decrease slightly in Alternative 8; and, increase as much as 10 percent in Alternatives 1, 2 and 5 (see Final EIS Chapter 2, summary tables).

More important than the number of acres burned is the probability of wildfires occurring in concentrations of existing old forest and the amount of tree mortality associated with the predicted fires. Alternatives that emphasize fuel treatments in a strategic pattern, and place priority for treatment in watersheds with the highest fire hazard and risk are most likely to reduce the acres and severity of wildfires. Expected losses of old forest from severe wildfire are lowest for Alternatives 3, 4, 6, and Modified 8. Alternatives 1,2, 5, 7, and 8 are expected to experience greater loss of old forest because of high severity wildfires.

Amount and Distribution of Old Forest Conditions. The number of large, old trees throughout the landscape would increase under all alternatives. Alternatives 5, 8, and Modified 8 would provide the greatest amounts of old forest patches with high canopy closure (cover) in the short term; however, these increases could be offset by increased future losses to wildfire. Alternative 6 would have increases in old forest patches with high and moderate canopy closure (cover) and the greatest certainty that more old forest patches could be protected from wildfire losses.

Old Forest Ecosystem Functions and Processes. Alternatives 3, 6, 7, and 8 have the greatest emphasis on prescribed burning, and consequently the greatest emphasis on reintroducing fire as a process in old forest ecosystems. Alternative 6 and Modified 8 provides more explicit priority for restoring fire as a process in old forests than any other alternative. Alternatives 1,2, 4, and 5 have low to moderate amounts of prescribed burning. The alternatives with the highest likelihood of connectivity between large blocks dedicated to old forests are listed in order as follows: Alternative 2, 5, 3, 6, and 8. Alternatives 3, 4, 5, 6, 7, 8 and Modified 8 have provisions for old forest patches throughout the general forest that will contribute to connectivity and thus enhance old forest functions and processes. Estimated average distance between old forest patches is shortest in Alternatives 2, 8 and Modified 8.

Uncertainty. Limited information exists regarding the effects of management on old forest patches (or stands). Hence, alternatives with more mechanical treatments in old forests have greater uncertainty associated with their potential effects on old forest function. The relative level of uncertainty associated with management effects in old forests is as follows: Alternatives 2 and 5 have low uncertainty; Alternatives 3, 6, and Modified 8 have low to moderate uncertainty; Alternatives 4 and 7 have higher levels of uncertainty. Levels of management in old forests under Alternative 8 are limited in the immediate future, and unclear in the longer term.

Aquatic, Riparian, and Meadow Ecosystems

Aquatic conservation measures vary between the alternatives. Alternatives 3, 6, and Modified 8 would provide the greatest protection for water quality and riparian, aquatic, and meadow ecosystems. Alternatives 2, 5, and 8 would provide a reduced level of water quality protection primarily due to the likelihood of high severity wildfire impacts under this alternative. Alternatives 4 and 7 would provide less protection. All of the action alternatives would more effectively protect the aquatic, riparian, and meadow ecosystem than Alternative 1. For details see Chapter 3, Part 3.4 of the Final EIS.

Water quality. Emphasis watersheds (Alternatives 2, 6, and 8), aquatic diversity areas (Alternative 5), critical aquatic refuges (Alternatives 2, 6, 8, and Modified 8), and critical refuges (Alternative 5), reductions in road miles, and decreases in wildfire would all contribute to water quality protection. Alternatives 5, 6, 8, and Modified 8 would have the greatest potential to maintain water quality, though Alternative 3 could achieve comparable outcomes through local decisions tied to landscape analyses. Alternatives 4 and 7 follow Alternatives 2, 3, 5, 6, 8, and Modified 8 in terms of maintaining water quality. All action alternatives would have a greater potential than Alternative 1 to maintain or enhance water quality

Population viability of native species. Alternatives 2, 5, 8, and Modified 8 would have the lowest risk to aquatic species (fish and amphibians) of all alternatives considered, primarily due to the amount of area protected by special aquatic areas, such as emphasis watersheds and critical refuges. Other alternatives have greater risk, mostly due to the possibility of more treatments in riparian areas. All action alternatives would provide greater protection to native species than Alternative 1.

Plant and animal community diversity. Alternatives 2, 5, 6, 8, and Modified 8 would provide the greatest protection for riparian and meadow plant and animal communities because they limit activities adjacent to watercourses. Alternatives 3 and 7 would provide intermediate levels of protection, and Alternative 4 the lowest level of the action alternatives. All alternatives would provide greater protection to riparian and meadow associated plants and animals compared to Alternative 1.

Special habitats (springs, bogs, and fens). Alternatives 2, 4, 5, and Modified 8 are expected to provide the highest level of protection for special habitats because riparian area widths would be the greatest in these alternatives and equivalent roaded area (ERA) thresholds would limit disturbance in these areas. Alternatives 3, 6, 7, and 8 would provide intermediate levels of protection, and Alternative 1 would provide the least protection for these areas.

Fire and Fuels

Alternatives 3, 4, 6, 7, 8, and Modified 8 would reduce the acres of wildfire and provide the most protection to homes in, and adjacent to the urban wildland intermix zone. They would also employ strategically placed fuels treatments outside the urban wildland intermix zone to support or complement fire protection measures inside the zone. Alternatives 1, 2, 5, 8, and Modified 8 would increase homogenous vegetation structure across the landscape over time. This in turn would increase the potential for catastrophic effects when wildfire, drought or other disturbances occur. Alternatives 1, 3, 4, 6, 7 and Modified 8 would maintain or improve the efficiency of initial attack to suppress wildfire. For details see Chapter 3, Part 3.5 in the Final EIS.

Emissions from prescribed fire and wildfires during the first decade would be lowest under Alternatives 2 and Modified 8. The largest portion of these emissions would be from wildfires. By the third decade,

after fuels treatments begin to affect extent and severity of wildfires Alternatives 3, 4, 6, and 7 will have the lowest emissions from wildfires. For details see Chapter 3, Part 3.8 in the Final EIS.

Noxious Weeds and Invasive Nonnative Plants

The noxious weed management strategy is the same for all of the action alternatives. The strategy is a prevention-based approach to integrated weed management with high potential for reducing the number of acres infested by noxious weeds and preventing weed spread into new areas. For details see Chapter 3, Part 3.6 in the Final EIS.

Hardwood Ecosystems

I have determined that all of the alternatives would maintain and enhance hardwood ecosystems on the lower westside of the Sierra Nevada. However, they would have different effects on (1) blue oak woodlands, (2) montane hardwood forests, and (3) biodiversity in hardwood ecosystems. For details see Chapter 3, Part 3.3 of the Final EIS.

Blue Oak Woodlands. Alternatives that best address regeneration tree layers in blue oak woodlands and promote continued recruitment in these stands would be the best for maintenance and enhancement of blue oak woodlands. All alternatives would provide grazing utilization levels and management commensurate with recruitment and regeneration. All Alternatives also would provide some level of stand analysis prior to activities other than grazing, though Alternatives 3 and 5 would have the most intensive level of scrutiny, and so would make the greatest contribution toward blue oak woodlands.

Montane Hardwood Forests. Alternatives that best reintroduce disturbance into Sierra Nevada ecosystems would have the most positive effects on montane hardwood forests. All alternatives, except Alternative 1 would allow this to occur. Alternatives 3, 4, 6, and 7 are predicted to create an environment under which disturbance regimes can be reestablished sooner than other alternatives. Additional standards and guidelines in Alternatives 6 and 7 precluding type conversion of hardwood ecosystems to conifer forests, so they contribute the most toward maintaining and enhancing montane hardwood forests.

Hardwood Ecosystem Biodiversity. Alternatives 3 and 6 would contribute the most toward native plant biodiversity because they retain important wildlife attributes and large trees while allowing managers flexibility to employ tools at moderate rates that would create a diversity of stand conditions on the landscape. Alternative 3 is likely to cause the least fragmentation, while Alternative 6 would be best for understory plant biodiversity and retention of oak diversity at the stand scale.

B. How the Alternatives Address Species at Risk

The following species below are the ones considered to be at greatest risk and were specifically identified in the Notice of Intent. For detailed discussions of the consequences of the alternatives to these and other species, see Chapter 4 in the Final EIS.

California Spotted Owl

All the action alternatives protect 1,050 existing owl Protected Activity Centers (PACs), establish 260 additional PACs and show projected increases in quantity and quality of usable habitat available for the California spotted owl across its range. In addition, Modified Alternative 8 also protects a home range core area of concentrated suitable habitat surrounding the PAC. Alternatives 2, 5, and Modified 8 are most likely to provide replacement habitat for successful dispersal and mate finding. Alternatives 2 and

Modified 8 are least likely to reduce the acreage of suitable habitat because they do not call for significant amounts of heavy thinning, group selections, seed tree or regeneration harvest. Total wildfire acreage and acreage of stand replacing wildfires decreases under Alternatives 3, 4, 6, 7 and Modified 8.

Northern Goshawk

Alternatives 3, 5, 6, 8, and Modified 8 provide the greatest contribution to maintaining and enhancing habitat to support northern goshawk persistence throughout the Sierra Nevada. These alternatives would protect all northern goshawk territories and all show projected increases in overall amounts of high suitability habitat.

Willow Flycatcher

Of all the action alternatives, Alternative 2 is the most likely to support long term distribution and abundance of the willow flycatcher habitat in Sierra Nevada national forests. Alternatives 5, 8, and Modified 8 provide stringent guidelines for willow flycatcher. Alternatives 3, 4, and 7 present substantially greater risks for willow flycatchers and their habitats.

Sierra Nevada Red Fox

Alternatives 5, 2, 3, 6, 8, and Modified 8 would result in a slight improvement in habitat to support the population distribution and abundance of red foxes. Alternative 5 may provide a slightly greater benefit to Sierra Nevada red fox persistence because of its reduced density of roads and restrictions on unroaded recreation.

Marten

Alternatives 5, 6, and 8 would provide the most benefit to marten populations by protecting den sites and current and future detection locations. Modified Alternative 8 would provide slightly less benefit to martens. Marten are expected to retain a broad distribution within the planning areas under Modified Alternative 8 and Alternatives 2, 3, and 7.

Wolverine

Although there are no documented occurrences of wolverine in the Sierra Nevada, alternatives 3 and 5 were judged to best provide for wolverine habitat.

Fisher

Alternatives 5 and 8 were judged to provide the most benefit to fisher habitat and population distribution and abundance by protecting the current and future location of fishers through detection buffers. Modified Alternative 8 would also benefit population distribution and abundance by maintaining and restoring suitable fisher habitat in the Southern Sierra Fisher Conservation Area, by managing stands outside of the urban wildland intermix zone with old forest emphasis area allocations, and providing standards and guidelines within general forest that protect old forest characteristics. Modified Alternative 8 also provides some protection for den sites and the current range of the fisher, and proactive measures to encourage recovery to its historic range.

Amphibians

Alternatives 2, 5, and Modified 8 appear to be the lowest risk and the most effective management approaches for species persistence and recovery of foothill yellow-legged frog.

Alternatives 3, 5, 8, and Modified 8 pose the lowest risk to the mountain yellow-legged frog and provide the most effective management approaches for their persistence and recovery.

Alternative 8 and Modified 8 appear to pose the lowest risk and provide the most effective management approaches for species persistence and recovery of Yosemite toads. Alternative 5 was judged to substantially improve conditions for Yosemite toads, leading to significant likelihood that suitable conditions for this species would become broadly distributed in the Sierra Nevada.

Alternatives 5, 8, and Modified 8 appear to pose the lowest risk and provide the most effective protection measures for species persistence and recovery of Cascades frogs and northern leopard frog.

C. Socio-Economic Considerations

In arriving at my decision I have considered the many and varied effects on communities, economies, and cultural traditions that are associated with Federal conservation policies. California's population is projected to reach 40 million people by the end of the current decade, and 58.7 million people by 2040. Nevada's population will increase at one of the fastest paces in the nation. During the same time period, the number of people living within the Sierra Nevada is expected to triple from the 600,000 living there today, to 1.8 million. Among the considerations affecting this decision are those involving American Indians, which are described elsewhere.

Effects of the Decision on the Citizens and Economies of California and the Nation

For many citizens, water from the Sierra Nevada and recreational opportunities and use will be the dominant benefits of National Forest System land management. By protecting and restoring ecosystems, providing adequate wildlife habitat, and carrying out a strategic program of fuel treatments aimed at reducing wildlife losses, I believe future citizens of California, Nevada, and the rest of the nation, will benefit substantially from my decision.

My decision will provide an aquatic management strategy that is designed to restore, protect, and maintain aquatic, riparian, and meadow ecosystems. The intended effect is to provide flows of high quality water that: (1) provides for the needs of California's citizens and industries, (2) ensures that aquatic, riparian, and meadow ecosystems are in a healthy, sustainable condition, and (3) provides adequate habitat for the species that use those ecosystems.

Projected trends indicate recreational use of the national forests will continue to increase. Population growth and associated increases in personal income will fuel that increase. Days spent and numbers of participants in winter, water-based, and developed land activities, in general, will grow faster than the population. All of the alternatives considered for this decision provide approximately 110 million recreation visitor days on the Sierra Nevada national forests. Much of that use will be associated with developed recreation. My decision will accommodate that use, and will require adjustments or mitigations in existing uses where environmental effects are unfavorable or inconsistent with desired future conditions.

Effects of the Decision on Communities Within the Sierra Nevada

I expect the immediate economic effect of my decision to vary by location within the Sierra Nevada, and to result from effects on the industries that are directly associated with land management. Specifically, revenues, employment, and income derived from resource-related industries will be affected by my decision. Receipts from fuel treatments on national forests may also affect revenues to counties within the region, though recent Federal legislation providing assured funding to counties that include Federal land will ensure payment to counties in the Sierra Nevada totalling more than $40 million annually.

Several clusters of communities, such as those located on the Modoc Plateau, have economies that are heavily associated with resource-related industries, and will be more heavily impacted by my decision than community clusters experiencing ex-urbanization and economic and population growth that equals or exceeds the State's. I expect that the fuel management programs will to both the sawlog and biomass industries. I also expect that reduced wildfire losses and intensities will contribute positively to the lifestyles and health of citizens, and that smoke emissions from prescribed fires will be carefully managed to maintain air quality standards.

Effects on Forest Products Industries

Active, successful timber and biomass industries will be important to the success of the fuel management objectives I have identified as part of my decision. To achieve those fuel objectives, I expect that timber will flow to the region's wood products mills and biomass will flow to energy generation facilities. The total annual Probable Sale Quantities (PSQ) green volume for the 11 national forests is estimated to be approximately 191 million board feet (mmbf) for the first five years, which includes approximately 137 mmbf from the pilot project for the Herger-Feinstein Quincy Library Group. The estimated annual volume for the ensuing five years is approximately 108 mmbf. An additional 91 mmbf of salvage harvest per year may also be made available. More than 1,000 jobs in logging, hauling, and millwork will be provided over the next 10 years.

Effects of Aquatic Management and Species Conservation on the Grazing Industry

I expect my decision to continue the trend toward improving rangeland. The effect of habitat and ecosystem conservation measures are estimated to reduce the number of animal unit months (AUMs) in the Sierra Nevada by approximately 83,000 over the next ten years. One third of these reductions were already scheduled to occur under existing plans and policies. Employment and income from grazing are estimated to decline by about 20 percent.

Costs of Implementing the Decision

I estimate the cost of implementing the decision will require a budget of approximately $183 million annually. Additional funds would also be required for implementation of HFQLG pilot project, Sequoia National Monument and Lake Tahoe Basin Management Unit presidential deliverables. Costs of fuel treatments would rise substantially over current program funding. A slightly smaller timber management budget will be required than existing LRMPs call for, but the purpose of timber management funds will be to implement the fuel treatment program. Increases in landscape analysis, monitoring, and research activities, as available funding permits, are associated with the decision.

D. Summary of Rationale

I believe that Alternative Modified 8 strikes a balance where protection measures are utilized to respond to the issues, but are not so conservative in response to uncertainty as to unnecessarily limt management practices to achieve desired conditions. Developing this integrated alternative has been challanging because of the need to balance the treatment of excessive fuels buildups, with the need to conserve key habitats for species at risk associated with old forest ecosystems, particularly the California spotted owl. Two factors are of greatest concern to me are: (1) ensuring the long term protection and recovery of old forest conditions and the spotted owl and other species (2) being able to ensure that the risk of wildfires within the Sierra Nevada can be managed to protect ecosystems, property and communities. Along with these two overarching goals and balancing risk and uncertainty, I want my decision to provide ecological

conditions judged necessary to provide for species viability and contribute to the continued recovery of threatend and endangered species.

The Modified Alternative 8 contains standards, guidelines, and other management requirements that blend what I believe are the best aspects from all the alternatives to meet the priority objectives I have outlined above. The Modified Alternative 8 protects and restores owl habitat at multiple scales, through the use of landscape level old forest emphasis areas, home range core areas at the watershed scale, PACs and remaining high quality old forest at the stand scale. Alternative Modified 8 provides the necessary balance that I seek by allowing for mechanical fuel treatments as well as prescribed fire, thus providing for the necessary management tools while still imposing conservative habitat protection measures. Alternatives 8 and Modified 8 take relatively conservative approaches to protecting old forest dependent species and habitat while providing for activities and uses for fuels management. However, Alternative 8 is more cautious in its approach to implementing fuel treatments. Although Alternatives 2 and 5 would implement very conservative approaches to the protection of old forests, these alternatives offer less flexibility and capability to address the critical fuels management needs; something I believe is necessary. Alternatives 4, 6, and 7 provide the flexibility to intensively manage fuels, but these alternatives pose higher levels of uncertainty and risk for sustaining old forest ecosystems.

Based upon the analysis in the Final EIS, I believe that the land allocations and standards and guidelines for old forests in Alternative Modified 8 coupled with specific standards for the marten and fisher are sufficient to maintain and improve the habitat for these species. I do not believe that any of the other alternatives individually provide any better protection or reduce risk and uncertainties to these species than Alternative Modified 8. My decision strikes the best balance between (1) the uncertainty of the effects of management activities on old forest habitat caused while treating fuels in an attempt to protect old forest conditions from catastrophic wildfire, and (2) the risk of wildfire loss to areas with old forest conditions where no fuel treatments are employed in order to protect existing forest structure. These uncertainties and risks were central to my decision making process.

I believe that Alternative Modified 8 provides appropriate and necessary protection for aquatic, riparian and meadow ecosystems and associated species at risk including sensitive, threatened and endangered species. When compared against the other alternatives, Alternative Modified 8 provides as good overall protection, and restoration as any alternative.

I believe that Alternative Modified 8 responds well to providing for recovery of hardwood ecosystems and controlling the introduction and spread of noxious weeds. The recovery of hardwoods and the control of noxious weeds is addressed well in all alternatives. I do not believe that there are substantial differences among the alternatives.

I fully understand that there will be social and economic impacts from the selection of Alternative Modified 8. The quantity of goods and services, specifically timber and grazing will be affected by this decision. However, I believe the restoration and protection of old forests and restoration of aquatic, riparian, and meadow ecosystems are most important to the long term health and sustainability of Sierra Nevada ecosystems. I could have selected an alternative that would produce higher levels of measurable goods and service, but these options pose greater uncertainties and higher risks to ecosystem sustainability and species viability.

In my decision, I am reaffirming that providing recreation opportunities is one of the Forest Service's major missions, along with providing sustainable, healthy ecosystems. Many recreation experiences in the Sierra Nevada are provided under special use authorizations. Organizations, individuals and businesses operate a variety of resorts, marinas, ski areas, campgrounds, stores, outfitter and guide operations, and other businesses on California’s national forests. Many facilities, some representing investments of

hundreds of millions of dollars, have been constructed by permit holders. In other cases, the Forest Service has provided facilities for private sector operations. In many instances, the Forest Service has established relationships with permit holders spanning several generations. Authorized recreation businesses often contribute significantly to the economic base of communities and counties that rely on national forest recreation for employment, wages, and taxes. Projected population growth in the United States and increasing international tourism in this region, along with other factors, clearly contribute to increasing demand for recreation facilities and services throughout the Sierra Nevada national forests. My decision will avoid impacting recreation opportunities to the greatest extent possible.

I believe that the cost of implementing this decision is realistic and reasonable. I also believe that successful implementation will require supplemental support through volunteers, matching funds, and other methods in order to accomplish needed work. This is especially true for tasks that involve collection of monitoring and inventory information and scientific studies. I intend to work with collaborators, organizations, and individuals to see that needed work does not get deferred simply for lack of funds.

A primary concern for the basis of this decision is the quality of the scientific information upon which the facts for informing me have been developed. It is my intention that this decision be based on a thorough compilation and understanding of the best scientific information available. I am satisfied that we have developed a sound foundation of available science upon which to inform my decision for the following reasons:

a. A team of eight scientists working full-time, and several others working occasionally, from the Pacific Southwest Research Station of the Forest Service have assisted for almost two years in finding and interpreting the best available scientific information that bears on this decision,

b. We have consulted with a wide array of outside scientific expertise at all phases of development of this Sierra Nevada Forest Plan Amendment to be sure we have considered all the relevant information and that we have interpreted the available science as accurately as possible. This includes experts knowledgeable with California spotted owls, fishers, amphibians and aquatic ecology, willow flycatchers, fire and fuels management, and old forest ecology.

c. In conjunction with the direction in the newly established Forest Service planning regulations I also sought to provide independent review of the scientific information embedded in this decision through what is now known as a Science Consistency Check. Through collaboration with the Pacific Southwest Research Station, I asked that we conduct an independent evaluation of the science meant to support my decision. In November 2000 PSW convened a panel of 15 scientists with expertise on the key areas related to this decision as well as close familiarity with the Sierra Nevada region to review the draft Final EIS. The focus was on the main problem areas and whether the scientific analysis followed scientific procedures broadly accepted by the scientific community and whether development of management alternatives was consistent with that scientific understanding. We were especially concerned whether the substantial uncertainties involved were communicated effectively. To address these concerns, PSW asked each panelist to address each of 4 questions:

   - Was the breadth of available scientific information used in the preparation of the current Environmental Impact Statement document?
   - Was the available scientific information interpreted accurately and without bias?
   - Were the risks and uncertainties surrounding the scientific information acknowledged and adequately displayed?
   - Are the Projected Consequences of Management Actions Consistent with Scientific

Although there were some significant differences among reviewers in particular assessments, the panel was in substantial overall agreement on the scientific consistency and conformance to normative professional standards represented in the draft Final EIS, as presented. Several panelists suggested that the scientific bar has been raised for the Sierra Nevada Forest Plan Amendment when compared to earlier large-scale EIS efforts, and that the assessment is correspondingly more complete.

V. National Policy Considerations

Under the provisions of the Government Performance and Results Act of 1993 (GPRA) all government agencies are expected to develop a strategic plan that covers a 3 to 5-year time horizon. The Forest Service has forwarded a Draft GPRA strategic plan to the Congress for review and comment. This Draft GPRA plan will be used by the agency to develop annual performance plans linked to the budget, and enable evaluation of agency and individual performance, and year-end reporting (in escence, provide accountability). I have reviewed the Draft GPRA plan and conclude that this decision is consistent with its strategic goals.

The 1990 RPA program had four major themes for Forest Service multiple-use management: (1) enhance recreation, wildlife, and fisheries resources, (2) ensure environmentally acceptable commodity production, (3) improve scientific knowledge about natural resources, and (4) respond to global resource issues. This decision responds to these goals by (1) enhancing recreation, wildlife, and fisheries with land allocations for riparian areas, old forest emphasis areas, and protected activity centers, (2) ensuring environmentally acceptable commodity production through fuel treatments bound by forest-wide standards and guidelines for air, soil, water, and other resources, (3) improving scientific knowledge about natural resources through monitoring and evaluation, and (4) responding to global resource issues, such as climate change, by retaining the large majority of the Sierra Nevada national forests as unavailable for timber harvesting.

The draft 1995 RPA program, which was never finalized, and the new GPRA strategic plan established the following similar goals: (1) ensure sustainable ecosystems, (2) provide multiple benefits for people, within the capabilities of ecosystems, and (3) ensure organizational effectiveness. This decision respond to these goals by (1) protecting ecosystems through the creation of old forest emphasis areas, riparian buffers, and other standards and guidelines for resource protection; and restoring deteriorated ecosystems through fish habitat restoration, (2) providing multiple benefits for people through maintenance of scenic quality, providing for recreation and tourism, and providing wood products, and (3) ensuring organizational effectiveness by setting the framework for management actions; and establishing goals, objectives, standards and guidelines, and monitoring for measuring accountability.

A number of recent national policies have been finalized and could have implications to this decision as discussed in the Final EIS. These policies include the Roadless Rule, Roads Policy, Unified Federal Policy, Cohesive Fire Strategy, and Title IV of the 2001 Interior Appropriations Act. This decision is consistent with all of these policies and is particularly responsive to supporting the Cohesive Fire Strategy and Title IV of the 2001 Interior Appropriations Act.

In Title IV of the FY 2001 Appropriations Act for the Department of Interior and other Related Agencies, Congress directed the Forest Service to publish the *Cohesive Strategy for Protecting people and Sustaining Resources in Fire-Adapted Ecosystems* (Cohesive Strategy) in the Federal Register. The Forest Service was directed to explain any differences between the Cohesive Strategy and certain rulemakings and planning efforts in documentation prepared pursuant to the National Environmental Policy Act.

A complete discussion of the relationship of my decision to the Cohesive Strategy is contained in Chapter 2 of the Final EIS pages 14 and 19, and Chapter 3 of the Final EIS pages 6 and 240. The discussion below summarizes those sections.

The Cohesive Strategy established a policy framework to restore and maintain ecosystem health in fire-adapted ecosystems on lands administered by the Forest Service. The purpose of the policy is to improve the resilience and sustainability of forests and grasslands; conserve priority watersheds, species and biodiversity; reduce wildland fire costs, losses, and damages; and better ensure public and firefighter safety. Emphasis is given to restoration and maintenance of ecosystems with frequent natural fire regimes.

The development of the Sierra Nevada Forest Plan Amendment Project preceded the development of the Cohesive Strategy. Nevertheless, the direction contained in my decision is consistent with the Cohesive Strategy. There is direction to restore vegetation conditions and re-establish more characteristic fire regimes. The urban-rural-wildland interface is a focus area (for example, Objective R-O5). Maintenance of existing low risk "Condition Class 1 areas," readily accessible municipal watersheds, and threatened and endangered species habitat are addressed (for example, Objective R-O4) with a focus to "repattern succession / disturbance regimes and achieve sustainable landscape conditions." My decision also addresses restoration of the vegetation composition, structure, patch size and pattern to match the historic disturbance regime. This is consistent with the assumptions of the Cohesive Strategy for predicting outcomes in the "consequences of deferral" section.

The Cohesive Strategy recognizes these issues in a broad national context and provides policy on the purpose and focus of restoration in fire-adapted ecosystems. My decision to amend the Forest Service Plans within the Sierra Nevada contributes to implementation of the Cohesive Strategy's restoration policy.

VI. Means To Avoid Environmental Harm

A. Mitigation Measures Adopted

Extensive measures to avoid or minimize environmental harm are being adopted in this decision. These measures have been discussed previously, and include forest-wide standards and guidelines, which at a minimum meet all requirements of applicable laws, regulations, State standards, and additional standards and guidelines for each land allocation. Mitigation measures are an integral part of the standards and guidelines. Singularly and collectively, they avoid, rectify, reduce, or eliminate potential adverse environmental impacts of forest management activities.

Some more significant mitigation measures adopted are the aquatic and riparian standards that provide protection for threatened and endangered fish species and amphibians; old forest standards adopted to sustain old forest ecosystems and protect spotted owls; mitigation measures to protect forest carnivores including the marten, fisher, Sierra Nevada red fox, and wolverine; and standards adopted to protect willow flycatcher. Additional mitigations were adopted to ensure perpetuation of hardwood ecosystems and reduce the risk of introduction of noxious weeds to the national forests.

B. Mitigation Measures Not Adopted

The Final EIS discusses a number of potential mitigation measures that were designed to address the issues. Most of these measures were designed to mitigate effects on specific resources, and as such represent either varying levels of resource protection, or alternative ways of achieving a similar level of protection through mitigation. Some of the more important measures not adopted in this decision, but included in other alternatives are discussed briefly here.

Some alternatives would have prohibited timber harvesting and mechanical fuel treatments within all riparian areas. Such an approach would have ensured protected aquatic and riparian systems from these activities in the short term, but would be unlikely to provide the long term protection from stand replacing wildfire supplied by fuel treatments.

A prohibition against road construction in riparian areas unless it benefited water quality and fish was also considered. Such a prohibition would protect riparian areas and stream but would have overly restricted needed access for other management purposes.

Buffer zones around fisher detections and marten detections were also considered. This would provide greater immediate protection of habitat and provide less disruption to fishers and martens but would potentially increase long term risk though increased likelihood of stand replacing wildfire. Such a mitigation measure was not adopted because it would have prohibited fuel treatments in much of the urban wildland intermix zone. Also, the overall forest carnivore and old forest conservation strategies provided the protection of habitat and ecological conditions judged necessary to maintain viable populations of these species.

Elimination of grazing for a five mile radius around all willow flycatcher meadow habitat was also considered. This mitigation was not believed necessary to ensure protection of the willow flycatcher and would have social and economic implications.

C. Monitoring And Evaluation

This decision includes a monitoring and evaluation plan that will provide an ongoing assessment of the effectiveness of the standards and guidelines. The results of monitoring will be used to evaluate the assumptions used in developing this decision, and may be the basis for subsequent national forest LRMP amendments or revisions. Monitoring will also ensure that both forest-wide and specific land allocation standards and guidelines are being correctly applied.

The Forest Service will work with the Fish and Wildlife Service and other Federal and State agencies to further review whether the decision's old-forest strategy is adequate. If further analysis shows that adjustments are needed, the direction in this decision will be changed in accordance with NFMA, NEPA, and other applicable law.

VII. Findings Related To Other Requirements

The Forest Service manages the Sierra Nevada national forest in conformance with many Federal laws. In this section some of the more important laws pertinent to this programmatic-level decision are discussed.

A. National Environmental Policy Act (NEPA)

NEPA requires that Federal agencies prepare detailed statements on proposed actions that significantly affect the quality of the human environment. The requirement is designed to serve two major functions: (1) to provide decision makers with a detailed accounting of the likely environmental effects of a proposed action prior to its adoption, and (2) to inform the public of, and allow comment on, such efforts.

The Sierra Nevada Forest Plan Amendment Project has compiled and generated an enormous amount of information relevant to the effects of each of the alternatives considered in the Final EIS. Such information builds on the data, analysis, and public involvement set forth in the documents prior to this Final EIS, which include the 1995 Draft EIS for Conservation of California Spotted Owl Habitat, the 1996 Revised Draft EIS for Conservation of California Spotted Owl Habitat, the 1996 Sierra Nevada Ecosystem Project Reports, the 1997 Federal Advisory Committee Report, the 1998 PSW Sierra Nevada Science Review publication, the 1998 USDA Forest Service Summary of Existing Management Direction, and the 1998 California Forest EIS Review Committee Report.

All substantive comments, written and oral, made on the Draft EIS have been summarized and responded to in Volume 5 of the Final EIS. Over the course of analysis, this public involvement has lead to changes in the alternatives.

I find that the environmental analysis and public involvement process complies with each of the major elements of the requirements set forth by the CEQ for implementing NEPA (40 CFR 1500-1508).

First, the Final EIS considered a broad range of reasonable alternatives. Alternatives considered in detail represent only part of the total number of alternatives considered over the course of the 1995 Draft EIS, the 1996 Revised Draft EIS, and the 2000 Draft EIS. Additionally, numerous options within alternatives were considered as discussed in the Final EIS. Alternatives presented in the Final EIS encompass a broad range of responses to issues including (1) potential losses of old forests to severe wildfires, (2) amounts and distribution of old forest conditions, and (3) old forest ecosystem functions and processes, including the uncertain effects of management activities on old forests.

Second, the Final EIS reflects consideration of cumulative effects of the alternatives by evaluating past, present, and reasonably foreseeable future actions in the planning area. The environmental effects analysis estimates timber activities and timber associated activities, such as road building, in excess of 100 years. The analysis of effects on wildlife was based on implementation of the decision for 50 years and considers changes to vegetation both temporally and spatially. Moreover, although other Federal and non-Federal lands are outside the scope of this decision, effects from their management have been considered in the Final EIS to a degree appropriate for a programmatic NEPA document of this scale.

Third, the Final EIS makes use of the best available information. Application of a geographic information system (GIS) was used to evaluate complex spatial effects resulting from implementation of the alternatives, such as how types of wildlife habitat could change over time. The best available science was used to help estimate environmental consequences as evidenced from the 40-page bibliography (references

Chapter 2 Final EIS). Complex models were employed to better understand the relationships between management actions and impacts to wildlife and old forest conditions and distributions. A complex linear program was used to estimate the feasibility of maintaining the long term flow of goods and services from the planning area. Finally, a science consistency check concluded that in general, all the available scientific information was considered and correctly interpreted, and the management conclusions were supported by the scientific information. All of these tools, taken together, constitute use of the best available information.

This ROD does not authorize timber sales or any other specific activity on the Sierra Nevada national forests. Site-specific decisions will be made on projects in compliance with NEPA, ESA, and other environmental laws following applicable public involvement and administrative appeal procedures.

B. National Forest Management Act

My decision conforms with the 1982 planning regulations (36 CFR 219) that implement the National Forest Management Act. These regulations were recently changed (65 FR 67513). Transition language within the new rule permits plan revisions and amendments, such as the amendments that are part of my decision, to be completed under the 1982 procedures.

Diversity and Viability Provisions For Fish and Wildlife

The National Forest Management Act (NFMA) requires the Secretary of Agriculture to specify "guidelines for land management plans developed to achieve the goals of the [RPA] Program which provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives" (16 U.S.C. 1604(g)(3)(B)). In accord with this diversity provision, the Secretary promulgated a regulation that provides in part: "[f]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area" (36 CFR 219.19, 1982 edition).

The scientific community and judicial courts recognize that NFMA does not create a concrete, precise standard for diversity. The Committee of Scientists that provided scientific advice to the Forest Service on the drafting of the 1979 NFMA regulations stated that "it is impossible to write specific regulations to 'provide for' diversity" and "there remains a great deal of room for honest debate on the translation of policy into management planning requirements and into management programs" (44 Federal Register 26600-01 & 26608).

In this planning context, absolute certainty is not possible. This has led to a planning process that involves risk projections regarding the distribution and abundance of ecological conditions needed to maintain viable populations of species well distributed throughout their range, in the planning area, over the next 50 years. Numerous factors, which vary according to the characteristics of the species and ecosystems examined, are considered in evaluating risk. Some common factors include the life history of the species, the current and projected amount and distribution of habitat, the distribution of species' ranges within the planning area, and principal risk factors to the species. I am adopting conservation measures to address these risk factors to provide biological conditions for species viability and persistence. In as biologically diverse and expansive an area as the Sierra Nevada, much of this type of information is evolving. Moreover, even absent any human-induced effects, the likelihood that habitat will continue to support a species' persistence can vary among species. Some species are inherently rare, such as locally endemic plants, and despite substantial protection may remain at risk. Other species may be at risk primarily due to factors beyond the Forest Service's control such as: (1) the effects of dams and diversions on at risk aquatic species, (2) the effects of limited or intermingled National Forest System land ownership, and (3)

species only peripherally occurring on National Forest System lands. Thus, compliance with the regulation is a matter of assessing risk, which is not subject to precise numerical interpretation and cannot be fixed at any one single threshold.

In determining compliance with the NFMA fish and wildlife resource regulations, I considered existing and reasonably foreseeable conservation measures and factors under Forest Service authority or control. In addition to these land allocations and standards and guidelines that are part of my decision, other measures will affect species' conservation, including activities undertaken pursuant to internal policy directives (like the Forest Service's sensitive species program) and steps taken during project planning. Moreover, interagency efforts may identify additional conservation measures that may be discovered to be necessary as a result of the Conservation Assessments, inventory and monitoring, or other new information relative to the conservation of at risk species.

The Conservation Strategy

The conservation of biological diversity commonly requires a dual strategy addressing both entire ecosystems, (often referred to as a coarse filter approach), and individual species, (often referred to as a fine filter), whose conservation needs are not fully provided for under a coarse filter approach. The following discussion addresses the broad scale conservation measures for old forest ecosystems. For the Sierra Nevada national forests, habitat needs for sustaining viable populations of individual species are addressed by standards and guidelines for individual species at risk. This species-by-species approach can best be addressed after an ecosystem context is provided.

The Old Forest Ecosystems and Associated Species

The decision contains an integrated old forest conservation strategy that applies to three hierarchical scales: (1) landscape, (2) stand, and (3) individual tree. The Selected Alternative will maintain well-distributed old forest patches (or stands) with moderate to dense canopy cover across Sierra Nevada landscapes. The desired structure of old forest patches (or stands) varies based on forest type, slope, and aspect. My decision emphasizes reintroducing fire into old forest and other Sierra Nevada ecosystems. To accomplish this goal, we are establishing a network of land allocations and accompanying standards and guidelines that describe both desired stand structure and landscape vegetation mosaic conditions. This highlights management in key land allocations designed specifically to protect and perpetuate old forest ecosystems and habitats for old forest associated species. Management in riparian and general forest areas would also contribute to old forest conditions.

The Selected Alternative designates a network of old forest emphasis areas, comprising approximately 40 percent of National Forest System lands in the Sierra Nevada. In addition, there are other areas which will be managed to perpetuate old forest conditions such as wilderness, wild and scenic rivers, and the southern sierra fisher conservation area and a focus on maintaining old forest characteristics in the general forest. Prescribed burning would be emphasized in these areas to reduce fire hazards and meet ecological goals. Mechanical treatments would be used in areas difficult to treat with fire alone. Mechanical treatments would be limited to understory thinning (generally removing trees less than 12 inches dbh).

Desired conditions for tree size distributions, canopy cover, canopy layering, and opening sizes are described in tables presented under "Desired Conditions for the General Forest Allocation" in Chapter 2 of the Final EIS. Existing conditions for the structural elements described in the desired condition tables would then be compared with the desired landscape conditions to identify opportunities for adjusting elements within particular vegetation patches. Desired conditions vary primarily by site productivity and moisture, which are closely correlated with soil depth, slope position, and aspect.

All stands larger than one acre of California Wildlife Habitat Relationship (CWHR) class 5M, 5D, and 6, will be managed to perpetuate their old forest characteristics.

Large live conifers will be retained across all national forest lands as follows: trees greater than 30 inches dbh on the westside of the Sierra Nevada range and trees greater than 24 inches dbh in eastside pine and subalpine forest types. Montane hardwoods greater than 12 inches dbh would be retained. Medium sized trees would be retained in quantities sufficient to ensure recruitment and perpetuation of desired large tree densities.

The Selected Alternative provides habitat for old forest associated species by managing for potential natural vegetation communities, stand densities, and seral stages that would be expected to occur under natural fire regimes, within the ranges of natural variability. In all forest types, at least 50 percent of the landscape would be maintained in old forest patches; desired stand densities and large tree sizes vary by forest type.

Fuel treatments would include both prescribed fire and mechanical thinning to affect fire behavior and reduce wildland fire severity. Fuel treatments would establish and maintain strategically placed area treatments (SPLATs) described in the fire and fuels strategy for this alternative. Outside the defense zone, fuels treatments would typically be conducted on the upper two-thirds of slopes on south and west aspects. Areas of high hazard and risk in pine and mixed conifer forest types within the urban wildland intermix zone would be the first priority for treatments to achieve fire and fuels objectives. Treatments could also be conducted on north and east slopes to avoid conflicts with habitat for sensitive wildlife species. The goal would be to strategically treat fuels across 30 to 40 percent of each landscape with the overall objective of reducing uncharacteristically severe wildland fire effects across the entire landscape.

Specific Species at Risk

The conservation strategies for specific species at risk are summarized below. For more detail see Chapter 2 of the Final EIS and Appendix A of the ROD.

California Spotted Owl Conservation Strategy

The objective of the conservation strategy enacted by this decision is to provide the environmental conditions needed to establish a high likelihood of maintaining viable populations of the California spotted owl, well distributed across the national forests within the Sierra Nevada planning area.

This strategy seeks to maintain habitat capable of supporting existing owl populations, stabilize current population declines, and provide increases in owl habitat over time. This strategy is based on providing and improving fundamental components of spotted owl habitat such as: a high foliage volume and complex vegetation structure at nest sites; a high percentage of home ranges in forests with moderate to high cover that are concentrated near nest sites; and habitat for primary prey species, especially the northern flying squirrel. This is accomplished through a multi-scale landscape strategy to (1) protect and manage old forest emphasis areas to provide large area reserves of high quality spotted owl habitat, (2) protect and manage individual spotted owl home range core areas located in the general forest matrix, (3) manage the general forest outside of core areas to maintain and increase the amount of suitable spotted owl habitat, and (4) address fire hazard and risk by reducing surface and ladder fuels within strategically placed area treatments focusing upon the urban wildland intermix zone and in old forest emphasis areas of high hazard and risk.

This conservation strategy represents a balance between providing environmental conditions necessary to sustain spotted owl habitat and the need to provide treatments to protect human life and property and owl habitat from catastrophic wildfire. The intensity of vegetation treatments designed to reduce surface and ladder fuels would vary between the following land allocations:

- protected activity centers
- old forest emphasis areas
- core areas
- general forest and urban wildland intermix threat zone
- urban wildland intermix defense zone

In addition, a riparian conservation strategy will control the intensity of treatments adjacent to perennial and seasonally flowing streams, and further contribute to spotted owl habitat retention standards. Because the California spotted owl is one of the broadest ranging species at risk and is associated with the old forest ecosystem, development of this owl strategy, in combination with the old forest emphasis areas, represents a coarse filter landscape scale conservation strategy for all old forest associated species. It is anticipated that management prescriptions developed for the owls and the old forest ecosystem will contribute to the extent, productivity and resiliency of the old forest ecosystem within the Sierra Nevada and move this system in a direction that will return it to within its range of historical variability and sustain all associated components of this system.

Premises and assumptions upon which the California spotted owl strategy is constructed:

- The California spotted owl population in the Sierra Nevada is in decline. While there is some uncertainty in the calculation of these demographic trends, there is no available information suggesting a stable or increasing population. Researchers conducting long term demographic studies of the California spotted owl at four representative study sites in the Sierra Nevada have reported statistically significant declining population trends, ranging from 6 to 11 percent per year based on estimates of lambda. While lambda estimates represent the most broadly accepted method of estimating population trends among scientists, there is scientific debate that the reported trends may overstate the rate of decline in California spotted owls. Mortality of dispersing individuals could be overestimated due to the difficulty in detecting these individuals once they leave their natal sites, resulting in overstating rates of owl population declines. The predominant view among owl biologists suggests that despite uncertainties with some of the population parameter estimates, the prevailing evidence cautions that there is a concern for the viability of this species. I have determined that the current conclusions from all demographic studies suggest that the California spotted owl is at risk. The evidence suggests a population decline, but the magnitude of the decline remains uncertain. While habitat trends cannot be shown to be the exclusive cause of recent population declines, maintenance, and, or restoration of suitable habitat should be important to stabilizing population numbers range wide. Thus I have decided to implement a set of measures that will retain existing habitat and improve habitat conditions for the owl over the short term while we obtain additional scientific information on population status and the contributions of natural and human-caused actions on population status.

- To reverse the current population decline, this strategy seeks to conserve existing suitable habitat and minimize further habitat degradation. This strategy attempts to balance this against the need for effective fuels treatments to protect life, property, and owl habitat from the effects of catastrophic wildfire. The strategy also seeks to promote the reintroduction of fire into fire-adapted ecosystems and to allow mechanical treatment of excessive surface and ladder fuels with minimal reduction in suitable owl habitat.
- Forest ecologists estimate that old forest conditions have declined by approximately 50 to 90 percent, depending on forest type, when compared to the range of historical conditions. Reductions of this magnitude very likely place the long term viability of species closely associated with old forest conditions at substantial risk, especially the spotted owl.
- The habitat management prescriptions to maintain currently suitable owl habitat may not necessarily represent a long term forest management strategy. The primary objective is to conserve rare and likely important components of the landscape such as stands of mid and late seral forests with large trees, structural diversity and complexity, and moderate to high canopy cover. Thinning from below is the principle silvicultural prescription to achieve immediate objectives but if continued indefinitely, could result in forest regeneration challenges like the regeneration of shade intolerant species such as hardwoods and pines (sugar and Ponderosa).
- Weather has been implicated as a contributing causal factor in the suspected owl population decline. In the face of this uncertainty, this strategy adopts a cautious approach to habitat conservation and seeks to avoid a Type II error (false negative); that is, assume that habitat is unimportant relative to the possible overriding effects of weather, and continue to degrade habitat. This strategy assumes that improved habitat conditions may buffer the effects of adverse weather upon spotted owl populations; it thereby seeks to minimize habitat degradation.

Standards and Guidelines The specific standards and guidelines for the spotted owl strategy are contained in Appendix A of this Record of Decision. The following is a summary of those standards and guidelines.

Designation of Spotted Owl Protected Activity Centers (PACs) California spotted owl protected activity centers (PACs) will be delineated surrounding each territorial owl activity center detected on National Forest System lands since 1986. PACs are delineated, to include the known and suspected nest stands, and encompass the best available 300 acres of habitat in as compact a unit as possible. Boundaries of PACs will be reviewed and adjusted to better meet habitat needs. Surveys will be conducted to establish or confirm the location of the nest or activity center if activities are planed within or adjacent to a PAC. When Forest Service activities are planned adjacent to non-National Forest System lands, the presence of owl activity centers on private land will be accounted for and appropriate measures taken to protect habitat on National Forest System lands. PACs are maintained regardless of owl occupancy status unless habitat is rendered unsuitable by a catastrophic stand-replacing event and protocol surveys confirm non-occupancy.

Designation of Spotted Owl Home Range Core Areas Home range core area surrounding each territorial spotted owl activity center detected after 1986 will be established outside of the urban wildland intermix. The core area amounts to 20 percent of the area described by adding one standard error to the mean breeding pair home range. The size of the core area is 2,400 acres on the Hat Creek and Eagle Lake Ranger Districts of the Lassen National Forest; 1,000 acres on the Almanor Ranger District of the Lassen National Forest, Modoc, Inyo, Plumas, Tahoe, Eldorado, Lake Tahoe Basin Management Unit, portions of the Humboldt-Toiyabe and Stanislaus National Forests; and 600 acres on the Sequoia and Sierra National Forests. The home range core area is designed to encompass the best available spotted owl habitat in the

closest proximity to the owl PACs where the most concentrated owl foraging activity is likely to occur. When Forest Service activities are planned adjacent to non-National Forest System lands, the presence of owl activity centers on private land will be accounted for and appropriate measures taken to protect home range core areas on National Forest System lands.

Spotted Owl Survey Requirements Surveys will be conducted in compliance with Forest Service protocols prior to undertaking vegetation treatments in spotted owl habitat.

Avoidance of Breeding Disturbance Limited operating periods (LOP) will be maintained within approximately 0.25 mile of California spotted owl nest sites during the breeding season (March 1 through August 31).

Vegetation Treatments – Forestwide All live conifer trees with a dbh of 30 inches or greater in westside forest types and 24 inches or greater in the eastside pine forest type will be retained. Montane hardwoods with a dbh of 12 inches or greater within westside forest types will be retained. Prescribed burn prescriptions and techniques will be designed to minimize the loss of large trees and down material. The largest down logs will be retained for coarse woody debris outside of the defense zone of the urban wildland intermix. Achieve these outcomes by reducing surface and ladder fuels and adjacent crown fuels. Forested stands over five acres with the largest trees (CWHR class 5M, 5D, and 6) will be maintained to perpetuate their current conditions. Generally, in these stands no trees greater than 12 inches dbh will be removed and canopy cover will not be reduced more than 10 percent below current conditions when applying necessary fuels reduction treatments

Vegetation Treatments - Protected Activity Centers outside of the Inner Zone of the Urban Wildland Intermix Stand-altering activities in spotted owl PACs will be limited to reduction of surface and ladder fuels through prescribed fire treatments. Hand treatments, including hand line construction, tree pruning, and cutting of small trees will be conducted within a one to two acre area surrounding known nest trees prior to burning to protect the nest tree and the trees in its immediate vicinity. Vegetation treatments will occur in no more 5 percent per year and no more than 10 percent per decade of the California spotted owl PACs.

Vegetation Treatments - Old Forest Emphasis Areas and Spotted Owl Home Range Core Areas Fuel treatments will be limited to the removal of material necessary to reduce surface and ladder fuels sufficient to achieve an average flame length of six feet or less if the stand were to burn under 90th percentile fire weather conditions**.** Strategically placed landscape fuel treatments will be implemented to achieve fuels reduction objectives. These treatments should attempt to avoid placement in old forest emphasis areas where possible. However, I recognize that the placement of these strategic fuel treatments may be required within old forest emphasis areas to minimize the risks to human life and property, sensitive resources, or the old forest emphasis area from loss to wildfire. When treatments are necessary, prescribed fire is the first priority for achieve the fuels objectives within old forest emphasis areas. When prescribed fire will not achieve fuels objectives, mechanical thinning of understory trees less than 12’ dbh will be used to achieve the fuels objectives. However, in some instances those treatments will not achieve the fuels objectives due to existing stand conditions. In those situations mechanical thinning of trees up to 20” dbh and canopy reductions of up to 20% may be conducted in CWHR 4M and 4D stands to meet fuels reduction objectives.

An additional analysis of suitable owl habitat will be conducted before applying the mechanical thinning of up to 20” dbh and canopy reductions of up to 20% prescription in old forest emphasis areas. This prescription may only be utilized when sufficient suitable owl habitat exists to satisfy the requirements of a home range core area, as described in the standards and guidelines (ROD Appendix A), within one and one half miles of the nest site or activity center. This site specific analysis will be documented in the

environmental assessment. A minimum of 50 percent canopy cover will be retained on the westside and 30 percent will be retained on the eastside following any mechanical fuel treatments.

Vegetation Treatments - General Forest (outside spotted owl PACs and home range core areas) Generally, no trees greater than 20 inches dbh will be removed and canopy cover will not be reduced more than 20 percent below current conditions. A minimum of 50 percent canopy cover will be retained on the westside and 30 percent will be retained on the eastside following mechanical treatments. The four largest snags per acre over 15 inches dbh will be retained.

Vegetation Treatments - Threat Zone of the Urban Wildland Intermix Generally, no trees greater than 20 inches dbh will be removed and canopy cover will not be reduced more than 20 percent below current. A minimum of 50 percent canopy cover will be retained on the westside and 30 percent will be retained on the eastside. The four largest snags per acre over 15 inches dbh will be retained. Strategically placed landscape treatments will be implemented to achieve fuels objectives within the Threat Zone of the urban intermix. The owl conservation strategy designates home range core areas surrounding the PAC in the general forest to provide a higher likelihood of sustaining sufficient habitat to facilitate successful owl reproduction. In an effort to balance the need for effective fuels reductions treatments with conservation of owl habitat, standards and guidelines only establish owl PACs and not home range core areas in the Threat Zone. However, I recognize that many landscapes, particularly in areas of intermingled land ownership, may currently provide limited amounts of suitable owl habitat. In these cases I want to minimize further risk to this owl habitat. Prescription 31 will only be utilized in CWHR 4D habitat within 1.5 miles of the owl activity center when sufficient suitable habitat exists to satisfy the requirements of a home range core area within one and half miles of the nest site or activity center. Prescription 31 will not be applied in designated owl PACs. This site specific analysis will be documented in the environmental assessment.

Vegetation Treatments - Defense Zone of the Urban Wildland Intermix Fuel objectives will be achieved by thinning from below to remove surface and ladder fuels. Mechanical treatments will be prohibited within a 500-foot radius buffer around a spotted owl PAC.

Vegetation Treatments Vegetation treatments will occur on no more than 30 to 40 percent of each watershed. These vegetation treatments will result in stand conditions meeting the definition of suitable owl habitat.

Northern Goshawk Conservation Strategy

The objective of this conservation strategy is to provide the environmental conditions necessary to establish a high likelihood of maintaining viable populations of the northern goshawk well distributed across the Sierra Nevada planning area.

Standards and Guidelines The specific standards and guidelines for the northern goshawk strategy are contained in Appendix A of this Record of Decision. The majority of the stand structure requirement standards and guidelines parallel those for the California Spotted Owl and are not repeated here. The following is a summary of those standards and guidelines, which vary from those for the spotted owl:

Designation of Northern Goshawk Protected Activity Centers (PACs) Northern goshawk protected activity centers (PACs) will be delineated for all known and newly discovered breeding territories. These PACs will include all known and suspected nest stands, and encompass the best available 200-acres of forested habitat in the largest contiguous patches around them. Surveys will be conducted when activities are planned within or adjacent to a PAC to establish or confirm the location of

the nest or activity center. When Forest Service activities are planned adjacent to non-National Forest System lands, the presence of northern goshawks on private land will be accounted for and appropriate measures taken to protect them on National Forest System lands. The boundaries of PACs will be reviewed and adjusted to provide better habitat.

Northern Goshawk Survey Requirements Surveys will be conducted in compliance with protocols prior to undertaking management activities within suitable northern goshawk nesting habitat.

Avoidance of Breeding Disturbance A limited operating period (LOP) will be maintained within approximately 0.25 mile of the nest site during the breeding season (February 15 through September 15).

Aquatic Management Strategy

The fundamental principle of the Aquatic Management Strategy is to retain, restore, and protect the processes and landforms that provide habitat for aquatic and riparian-dependent organisms, and prodice and diliver high-quality waters for which the national forests were established.

Riparian conservation areas (RCAs) are designated along streams and around water bodies directed at (1) preserving, enhancing, and restoring habitat for riparian and aquatic-dependent species, (2) ensuring that water quality is maintained or restored, (3) enhancing habitat conservation for species associated with the transition zone between upslope and riparian areas, and (4) providing greater connectivity within watersheds.

In addition, critical aquatic refuges (CARs) have been designated in small sub-watersheds that contain known locations of threatened, endangered, or sensitive species; highly vulnerable populations of native plant or animal species; or localized populations of rare native aquatic or riparian-dependent plant or animal species.

Appendix A of this Record of Decision contains the standards and guidelines for the protection of riparian and meadow areas.

Willow Flycatcher Conservation Strategy

The willow flycatcher conservation strategy will maintain the current population and allow for its expansion over time. This conservation strategy for the willow flycatcher has four components: (1) protection of riparian systems and meadows, (2) modification of grazing standards and guidelines, (3) evaluation of existing uses, and (4) collection and evaluation of additional information.

Protection of Riparian and Meadows These standards and guidelines contain specific direction establishing grazing utilization standards to maintain and restore meadows and their dependent species.

Grazing standards and guidelines: The conservation strategy includes standards and guidelines for modifying grazing practices in occupied or historic flycatcher habitat. Surveys of known willow flycatcher sites to determine occupancy and management are required. If surveys detect willow flycatchers, livestock grazing would be prohibited in the entire meadow. If surveys do not detect willow flycatchers, to permit recovery of the meadow and increase the likelihood of recolonization of these historically occupied sites by flycatchers, late season grazing could occur with utilization levels based on habitat condition. Within emphasis meadows (meadows within 5 miles of historically occupied sites),

surveys for presence of flycatchers are required within the next 3 years. Where flycatchers are detected, grazing would be prohibited during the willow flycatcher breeding season (June 1 to August 31) unless multi-year monitoring data support different dates for a specific breeding location. In addition, all emphasis meadows within 5 miles of new sites where flycatchers are detected must also be surveyed for presence of flycatchers. In these emphasis meadows where flycatchers are detected, late-season grazing would be applied to enhance flycatcher productivity and contribute to continued population expansion. Beginning in 2003, livestock could not graze in unsurveyed known willow flycatcher sites. The combination of more restrictive grazing standards in meadows throughout the Sierra Nevada, and elimination or reduction of grazing intensity in occupied sites will provide habitat conditions that allow for maintaining and increasing habitat to support viable populations of flycatchers.

Evaluation of existing uses Landscape analyses will be conducted across the Sierra Nevada. My intent is to complete the landscape analysis within five years. These landscape analyses will include an evaluation of all existing uses. If existing uses are found to be having a serious and adverse effect upon willow flycatchers, recommendations for corrective action will be made and priorities will be established to assure that they are undertaken in a timely manner.

Further collection and evaluation of additional information The willow flycatcher demographic study currently underway will be continued and completed. My intent is to complete within one year a Conservation Assessment for the willow flycatcher in cooperation with the Fish and Wildlife Service. In addition, monitoring and adaptive management studies will be conducted to gather additional information on the willow flycatcher. After five years this information will be synthesized and an evaluation of the effectiveness of the standards and guidelines in protecting willow flycatchers will be completed. At that time, any additional modifications will be made to continue to provide assurance that the willow flycatcher population will be maintained and allowed to expand.

Forest Carnivore Conservation Strategy

Fisher

The conservation strategy contains four critical elements for fisher conservation: (1) it provides management direction for the Southern Sierra Fisher Conservation Area to support fisher habitat requirements, (2) it provides for suitable habitat linkages between southern and northern Sierra Nevada fisher populations, (3) it provides protection for all den sites, and (4) it provides suitable habitat for possible fisher reintroductions.

Southern Sierra Fisher Conservation Area The Southern Sierra Fisher Conservation Area (SSFCA) encompasses the known occupied range of the fisher in the Sierra Nevada. This consists of an elevational band from 4,500 to 8,000 feet on the Sierra and Sequoia National Forests. This area will be managed to support fisher habitat consistent with the standards and guidelines applied to old forest emphasis areas and general forest (see ROD Appendix A) with one exception. The effects of prescribed fire on key components of fisher habitat are uncertain and mechanical treatments are preferred over prescribed fire. However prescribed fire may be used in the SSFCA to achieve restoration and regeneration objectives for fire adapted giant sequoia.

In the SSFCA vegetation treatments will identify important wildlife structures such as large diameter snags and coarse woody debris within the treatment unit. During treatments, appropriate firing patterns, lining of snags and large logs, and other techniques will be used to minimize effects to snags and large logs. The effectiveness of these mitigation measures will be evaluated after treatment. Upon completion

of the research project specified in the Record of Decision, the use of prescribed fire in maintaining fisher habitat will be re-assessed.

Suitable Habitat Linkages Between Southern and Northern Sierra Nevada Fisher Populations Old forest habitat fragmentation will be minimized. To improve management within landscapes and facilitate fisher movement and dispersal, stand structures or ecological conditions that represent dispersal and movement barriers will be evaluated and determined. The potential impacts of fragmentation on fisher will be assessed in biological evaluations including the locations of new landings, staging areas, recreational developments, including trails, and other disturbances. Project level and landscape analyses will include considerations of general forest linkages that are connected via riparian areas and ridge top saddles, with canopy closure greater than 40 percent.

In addition I will cooperate with the Department of Fish and Game, Fish and Wildlife Service, National Park Service, and other State, Federal, and local agencies to develop a conservation assessment for fisher.

Protection for all Den Sites Verified fisher birthing and kit rearing dens will be protected from March 1 through June 30 with 700-acre buffers consisting of the highest quality habitat (CWHR size 4 or greater and canopy closure greater than 60 percent) in a compact arrangement surrounding the den site in the largest, most contiguous blocks available. Prescribed fire will be used as a fuel treatment activity only if no other reasonable alternative exists. Where den site buffers occur in the urban wildland intermix, all fuel treatments will be avoided.

Proposals for new roads, trails, off-highway vehicle (OHV) routes, recreation and other developments will be evaluated for their potential impacts to denning sites. All impacts will be mitigated where there is documented evidence of disturbance to the nest or den site from existing recreation, OHV routes, trail, and road uses (including maintenance).

Fisher Habitat Suitable habitat will be retained to allow for fisher population expansion and possible re-introductions throughout the Sierra Nevada outside of the defense zone of the urban wildland intermix.

If fishers are detected outside of the Southern Sierra Fisher Conservation Area, the habitat conditions within a typical home range area around the detection will be evaluated and appropriate mitigation measures taken to retain suitable habitat within the estimated home range and institute project level surveys over the appropriate landscape area.

My intent is to complete within two years of the ROD, a systematic survey for fishers will be completed throughout the planning area. A program to monitor trends in fisher and marten populations will be implemented as specified in the monitoring plan.

Sierra Nevada Red Fox, Marten and Wolverine

The conservation strategies contain three critical elements for Sierra Nevada red fox, marten and wolverine conservation: (1) recover and protect populations, (2) minimize fragmentation, and (3) protect den sites.

Recover and Protect Populations To recover and protect populations Sierra Nevada red fox and marten in the Sierra Nevada, I will cooperate with the Department of Fish and Game, Fish and Wildlife Service, National Park Service, and other State, Federal, and local agencies to develop a conservation assessment for marten and Sierra Nevada red fox.

Suitable habitat will be retained for Sierra Nevada Red Fox and marten throughout the Sierra Nevada outside of the defense zone of the urban wildland intermix. No forested stands in these areas will be reduced below 50 percent canopy cover.

Minimize Fragmentation Old forest habitat fragmentation will be minimized. The potential impacts of fragmentation will be assessed in biological evaluations including the locations of new landings, staging areas, recreational developments, including trails and other disturbances. Project level and landscape analyses will include a consideration of general forest linkages that are connected via riparian areas and ridge top saddles, with canopy closure greater than 40 percent.

Protect Den Sites Upon a detection (photograph, track plate, or siting verified by a wildlife biologist), an analysis will be performed to determine if activities within five miles of the detection have a potential to impact Sierra Nevada red fox. For a period of two years following the detection, activities will be restricted from January 1 through June 30 that are determined in to have an adverse impact.

Verified marten birthing and kit rearing dens will be protected with buffers consisting of 100 acres of the highest quality habitat in compact arrangement surrounding the den site in which a limited operating period (LOP) from May 1 through July 31 in employed. Existing uses will be evaluated for the appropriateness of LOP's as part of the systematic landscape analysis process to be conducted across the Sierra Nevada.

Sensitive Species

A Biological Evaluation was completed and integrated into the FEIS for the species and subspecies currently listed in the Intermountain Region's and Pacific Southwest Region's sensitive species lists that are known or are suspected to occur on the Sierra Nevada national forests. A total of 193 species, individuals or their habitats (151 plant, 35 vertebrate, and 7 invertebate) were evaluated. For one-hundred sixty-five species, impacts will not contribute to a trend toward Federal listing or cause a loss of viability to the population or species. No impact will occur to 28 species (21 plant and 7 vertebrate) because natural habitat conditions are expected to be maintained or restored to conditions tending towards or within the range of historical variability. Some sensitive species may have beneficial impacts. No sensitive species will experience impacts to its individuals or habitats with a consequence that the impact may contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

Viability Conclusion

The understanding of the biological diversity of the complex old-forest ecosystem of the Sierra Nevada national forests, including its composition, function, and structure, is continually growing. Given the complexities involved, management decisions necessarily will involve some degree of uncertainty. Based on my review of the record, including the Final EIS, I believe that the old-growth strategy and specific species management prescriptions represent a balance of wildlife habitat conservation measures that considers the best available scientific information within an acceptable level of risk inherent in projecting management effects. It will provide the fish and wildlife habitat and other ecological conditions necessary to maintain well-distributed viable populations of vertebrate species in the planning area, and maintain the diversity of plants and animals.

Regional Guide

The Regional Guides are being modified by this decision as previously discussed. Amending the Regional Guide in favor of the goals and objectives and standards and guidelines of this decision is necessary in order to reflect changes in the management situation, advances in our understandings of land and ecosystem management, and changes in applicable laws. I have determined this is a nonsignificant amendment.

Under the new NFMA planning regulations (36 CFR 219.35(e)), Regional Foresters must withdraw the Regional Guides. The Regional Foresters are to transfer guidance in Regional Guides to the Forest Service directive system or to one or more LRMPs. Therefore, all decisions made by this ROD amend national forest land and resource management plans, so when Regional Guides are withdrawn no further adjustments to LRMPs will be required for decisions made in this ROD. I have determined that the amendments to the Forest Plans are significant.

C. Endangered Species Act (ESA)

Consultation requirements under Section 7 of the ESA, as amended have been completed with the Fish and Wildlife Service and the National Marine Fisheries Service (NMFS). Both the Fish and Wildlife Service and the NMFS reviewed the Biological Assessment for the proposed threatened and endangered species under their regulatory jurisdiction. Consistent with direction in "Memorandum of Agreement, Endangered Species Act Section7 Programmatic Consultations and Coordination among Bureau of Land Management, Forest Service, National Marine Fisheries Service and Fish and Wildlife Service, August 30, 2000", the Fish and Wildlife Service included candidate species in their Biological Opinion, the Fish and Wildlife Service concluded that this decisionn is "not likely to jeopardize the continued existence of threatened and endangered species" ocurring on the Sierra Nevada national forests. The NMFS concluded that the decision is "not likely to adversely affect" listed species. Neither agency authorized incidental take of listed species, which will be addressed in required future consultations on LRMPs and projects as appropriate. Copies of correspondence with each agency are included in the administrative record.

D. Clean Water Act

Full implementation of this decision is expected to maintain and improve water quality and satisfy all State water quality requirements. This finding is based on the standards and guidelines contained in the decision, the application of State approved Best Management Practices specifically designed to protect water quality, and the discussion of water quality and beneficial uses contained in the Final EIS. Examples include (1) stream-type flexible width riparian areas, (2) critical aquatic refuges, (3) comprehensive landscape level analysis including existing uses, (4) Conservation Assessments of threatened and endangered species, and (5) incorporation of established recovery plans. Additionally, project-level analyses for activities subsequent to the decision will be required to demonstrate compliance with Clean Water Act and State water quality standards.

E. Clean Air Act

At the scale of a programmatic plan such as this, the overall level of activities proposed under this decision is not anticipated to violate ambient air quailty standards. This finding is based on information presented in the Final EIS. The Sierra, Sequoia, and Inyo National Forests are in non-attainment for PM_{10} while the

Sierra, Sequoia, Eldorado, and Tahoe National Forests are in non-attainment for Ozone. Conformity determinations will be made at subsequent levels of planning and analysis where emissions can be more accurately quantified and reasonably forecasted, and local impacts assessed.

F. Flood Plains And Wetlands (Executive Orders 11988 and 11990)

These Executive Orders require Federal agencies to avoid, to the extent possible, short- and long term effects resulting from the occupancy and modification of flood plains, and the modification or destruction of wetlands. Standards and guidelines are provided for soil, water, wetlands, and riparian areas to minimize effects to flood plains and wetlands. They incorporate the Best Management Practices of the Soil and Water Conservation Handbook. The standards and guidelines apply to all floodplains and wetlands where less restrictive management might otherwise occur.

G. Environmental Justice (Executive Order 12898)

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires that Federal agencies make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority populations and low-income populations. The issue of environmental justice is analyzed within Chapter 3, "Social Impact Analysis and Civil Rights," of the Final EIS. Rather than displaying effects by subregions or counties, this section displayed effects at a finer scale of the Sierra Nevada Region; communities. Community clusters are used to display how alternatives could affect people across the region. Community clusters are groups of communities that share a common economic history and environmental setting. The community cluster assessment section examined historic trends and potential future impacts in the following categories: (1) race, cultural heritage, employment, and income, (2) risks from catastrophic wildland fire, (3) children in poverty, (4) childhood education, (5) health of American Indians and others gathering plant materials, hunting, and fishing where herbicides are applied, (7) community needs for fuel wood, and (8) barriers to communication.

A qualitative assessment of environmental justice considerations was conducted based on the information in the Final EIS described above. My conclusion is that the risk of such disproportionate effects on minority or low-income populations from implementation of this decision would be very low.

H. Civil Rights

Civil Rights are defined as "the legal rights of United States citizens to guaranteed equal protection under the law" (USDA Forest Service Manual 1730). Civil rights impact analysis for environmental or natural resource actions is a necessary part of the social impact analysis package in environmental impact statement and is not a separate report (USDA FSH 1709.11).

The Forest Service is committed to equal treatment of all individuals and social groups in its management programs in providing services, opportunities, and jobs. Because no actual or projected violation of legal rights to equal protection under the law is foreseen for any individual or category of people, no civil rights impacts are reported in the Final EIS.

I. Magnuson Stevens Act

The Forest Service is complying with the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.) that requires Federal action agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). Consultation has occurred with the U.S. Department of Commerce, National Marine Fisheries Service (NMFS) regarding salmon species included in the Pacific Salmon Fishery Management Plan. The Forest Service will comply with the EFH Conservation Recommendations provided by NMFS.

VIII. Implementation

I am providing the following transition direction to ensure the orderly implementation of the Forest Plan amendments that are made in this Record of Decision. My intention is to provide for ecological sustainability, assure the most efficient and appropriate use of government resources, minimize costs to holders of existing government contracts and permits, avoid disruptions to local communities, and reduce the likelihood of confusion. I have considered and balanced each of these concerns in making my decision to issue this direction. The amended Sierra Nevada National Forest Land and Resource Management Plans will be effective 30 days from the date on which the Notice of Availability (NOA) for the FEIS is published in the Federal Register, the soonest time allowed by the law. In order to best achieve the balance described above, the new direction of the amended plans will apply to all projects that have decisions made on or after the effective date of the amendments. The new direction in the amended plans will not generally apply to any projects that have decisions made prior to the effective date of these amendments; consequently, projects that have decisions made within thirty days from publication of the NOA for the FEIS, or projects currently under contract, permit, or other authorizing instrument will not generally be affected by the Forest Plan amendments. However, these projects may be modified to be consistent with the new direction of the plans as amended by this decision where Forest officers deem it appropriate. Reissuance of existing authorizations will be treated as new decisions, which must be consistent with the new direction of the plan amendments adopted by this decision.

Some members of the public wanted the new direction of the plan amendments to be applied to all existing projects in the Sierra Nevada, including those that are currently under contract, permit or other authorizing instrument. Based on the environmental analysis before me, I find that such a course of action would provide negligible benefits to the environment, while causing unacceptable consequences to the Forest Service, contract purchasers and permit holders, and local communities. The Forest Service has made substantial investments in projects where decisions have already been made and has limited administrative resources to undertake revisions of those projects; timber sale contract purchasers and other permit holders have made financial obligations based upon their contracts and permits; and individuals, organizations, companies and local communities often rely on national forests for a continuous flow goods and services.

A. Transition to the Amended Plans

The amended Forest Plans provide a programmatic framework within which project level decisions are designed and implemented. As noted above, all projects for which a decision has not been made prior to the effective date of these amendments must be consistent with the new direction of the plan amendments adopted by this Record of Decision. Those projects must undergo appropriate site specific analysis, and comply with applicable requirements for public participation, environmental analysis and disclosure, and

administrative appeal prior to implementation. The amended Forest Plans themselves do not provide final authorization for any activity, nor do they compel that any contracts or permits be advertised or awarded.

Application to Vegetation Management Projects, Including Timber Sales and Fuel Treatments

As noted above, some members of the public have urged that the new direction of the plan amendments adopted by this decision be immediately applied to existing vegetation management projects, including timber sales under contract, because of potential impacts to old forests and their dependent species. After a review of these projects and this FEIS, I find that it is not necessary or appropriate to do so for the following reasons. First, these projects impact only very few acres of old forest habitat compared to the total acres of habitat available. Second, the projects are fully consistent with the CASPO Interim Guidelines, and therefore retain the largest trees on the landscape and follow strict standards regarding canopy closure, basal area retention, downed woody material, and snags. Consequently, it is my decision that allowing these projects to go forward will not reduce the overall effectiveness of the species protection strategies adopted by this decision. Allowing these projects to go forward will provide for an orderly transition for the Forest Service, contract holders, and local communities. It will also provide for a smooth transition in terms of meeting the objectives for the National Fire Strategy over the next two years.

The last day for contract awards of vegetation management projects with decisions made prior to the effective date of these plan amendments will be one year from the effective date of this decision. If, for some reason, a contract is not awarded by that date, or a contract is timely awarded but is defaulted or otherwise terminated after that date, the project cannot be reoffered until it is made consistent with the new direction adopted by this Record of Decision. When embarking on a new management scheme, tracking the status of older projects over potentially long periods of time can create confusion, extend controversy, and does not further orderly contract administration. Providing for this short transition period moves the Forest Service forward while minimizing costs and disruptions.

Application to Grazing Permits

Existing grazing permits will be reviewed as soon as practicable to determine whether modifications are necessary to conserve the willow flycatcher, Yosemite toad, great gray owl, and riparian and meadow ecosystems. When a determination is made that a willow flycatcher, Yosemite toad, great gray owl or a species listed under the ESA is occupying a site, decisions modifying permits to protect those sites in conformance with the plan amendments adopted by this decision will be made in an expeditious manner, but no later than one year after determining that a site is occupied.

B. Incorporation of Standards and Guidelines and Monitoring Requirements

Forest Supervisors will determine which of their current Forest Plan standards and guidelines are superceded by the provisions of these plan amendments and which will remain operational. In addition, the Forest Supervisors will determine which of their Forest Plan monitoring requirements are met by the Adaptive Management Strategy that is included in these plan amendments (Appendix E) and which will need to be pursued in addition to what is called for in the Sierra-wide Adaptive Management Strategy. It is my intention that the Adaptive Management Strategy developed for these plan amendments provide the coordinated foundation upon which all Sierra-wide monitoring required of the Forest Service in this ecoregion will be executed.

Application to Herger-Feinstein Quincy Library Group Pilot Project

With one exception, the plan amendments adopted by this decision will be applied to the Herger-Feinstein Quincy Library Group Forest Recovery Act (HFQLG) pilot project. The one area where the new direction will not immediately apply is in the area of riparian protection. Based on the terms of the HFQLG Act, the Scientific Analysis Team guidelines will continue to apply to the pilot project; the riparian standards contained in the plan amendments adopted by this decision will not apply to the HFQLG area until the pilot project has been completed. The willow flycatcher conservation strategy, threatened and endangered species, and amphibian standards and guidelines will apply to the HFQLG pilot project.

I have decided to allow approximately 5,000 acres of HFQLG group selection currently being planned outside of California spotted owl and fisher habitat (eastside types) to proceed. These projects would be consistent with the conservation strategies for the California spotted owl and Pacific fisher adopted by this decision. They will potentially affect existing goshawk habitat, but only one tenth of one percent of that habitat. Consequently, I have determined that this will not reduce the effectiveness of the northern goshawk conservation strategy. Therefore, to the extent the projects may be inconsistent with the northern goshawk conservation strategy, I am providing a limited transition exemption for decisions approving these projects made by September 30, 2001. Contracts to implement these decisions must be awarded within one year the effective date of this decision.

Within the constraints of the new direction adopted by this decision, I intend to carry out as much of the pilot project as possible. Many of the standards and guidelines included in the plan amendments will have no effect on the implementation of the pilot project, while others will limit the resource management activities outlined in the HFQLG decision. For example, the conservation strategy for the California spotted owl will restrict the size of trees that can be removed and the amount of canopy cover that may be reduced. Standards and guidelines intended to maintain the viability of other sensitive species may similarly limit resource management activities in the HFQLG pilot project area. I intend to have the group selection projects being planned for non-owl and non-fisher habitat to proceed without modification.

Most of the Defensible Fuel Profile Zones (DFPZs) called for in the HFQLG pilot project decision are capable of being implemented. However, it will not be possible to construct approximately ten percent of the DFPZs because they would not be consistent with elements of the California spotted owl conservation strategy. And, as noted above, canopy closure and large tree retention standards will affect the manner in which the remaining DFPZs may be constructed.

As discussed in the Adaptive Management Strategy (see ROD section II. G.), I intend to work with the Pacific Southwest Research Station to design and implement an administrative study to examine the relationship between management-caused changes in vegetation and their effects on spotted owl habitat and spotted owl population dynamics. The administrative study would be intended to investigate the response of the California spotted owl and its habitat, particularly populations of prey species and features of their habitat, to various levels of small silvicultural treatments. I would expect the group selection provisions of the HFQLG pilot project as well as other treatments to be used in carrying out the study.

The precise experimental design of this administrative study will be developed subsequent to my decision. PSW will assist in the design and execution of this study, in collaboration with Region 5 monitoring personnel and the staffs of the national forests in the Sierra. I anticipate group selections will not exceed 4,000 acres of owl habitat per year in the HFQLG pilot area. I will take every advantage of other treatments expected to be necessary to manage fuels in areas such as the defense and threat zones around populated areas throughout the Sierra. Research and monitoring specialists will have the lead, in conjunction with national forest staff, in determining the appropriate locations for treatments to test the

specific hypotheses that will be defined. Study objectives and design will be developed in consultation with appropriate scientific expertise from PSW, universities and other sources of suitable expertise and the study design will be subject to an appropriate peer review.

A California spotted owl conservation strategy has been developed for the Sierra Nevada region. This strategy addresses spotted owl habitat at multiple scales that includes old forest emphasis area landscapes, PACs and home range core areas, and microsite maintenance of large trees and high canopy closure. I believe this strategy is necessary to provide the ecological conditions to maintain viable populations of spotted owls distributed across the Sierra Nevada. The HFQLG legislation specifically provided for the application of an owl conservation strategy when it stated in part,

"*All resource management activities required be subsection (d) shall be implemented to the extent consistent with applicable Federal law and the standards and guidelines for the conservation of the California Spotted Owl Sierran Province Interim Guidelines or the subsequently issued guidelines, whichever are in effect*".

The new owl conservation strategy contained within this decision will be applied in the HFQLG area. I have attempted to apply the greatest possible amount of management activity specified in the HFQLG legislation, consistent with the new owl conservation strategy. However, the entire level of management activity specified in the HFQLG legislation cannot be implemented without degrading owl habitat without increasing risk to owl viability. The provisions for excessive canopy closure reductions, large tree removals, and substantial acreages in group selection treatments are factors contributing to this conclusion.

Incorporation of Standards and Guidelines and Monitoring Requirements

Each Forest Supervisor will assess their exisitng standards and guidelines to identify those that are superceded by the provisions of this decision and those the will remain operational. In addition, the they will determine which of their Forest Plan monitoring requirements are met by the adaptive management strategy for this Forest Plan Amendment (Appendix E) and which will need to be pursued in addition to what is called for in the Sierra-wide adaptive management strategy. It is my intention that the adaptive management strategy developed for this Forest Plan Amendment will provide the coordinated foundation upon which all Sierra-wide monitoring required of the Forest Service in this ecoregion will be executed.

C. Map Errata

The land allocations in the Final EIS and this decision were developed using small-scale Sierra Nevada wide maps similar to those included in the map packets of the Draft and Final EISs. The level of inaccuracy of a line on a map at such a scale is approximately plus or minus 500 feet. Enlargements of this map were also sometimes used in land allocation development, but these maps contained no additional detail or accuracy; they were just larger scale. This approach was appropriate for the development of the maps, which is a permissive, zoning map. It is the role of subsequent project planning to resolve, within the overall intent of the mapped land allocations, the actual location of activities on the ground.

When utilizing these maps during the development of project plans, some variation in the boundaries of the land allocations may be identified. In some situations, there is a lack of precise map correlation or registration of a land allocation boundary between two GIS maps. Most of these variations are minor and are due to the combining of map covers of varying resolutions. This situation results in remnants, or "slivers" of small acreages of land appearing on the maps between mapped polygons.

In other situations during project planning land allocation boundaries may be indefinite or illogical if located literally on the ground as depicted on the Forest Plan Amendment map. In some instances

boundaries may appear to bisect an existing or mapped harvest unit; or, while paralleling an existing or mapped road, boundaries may appear to cross and recross the road randomly.

Dealing with these types of map inconsistencies is not considered to be a "change" in the Forest Plan. These are considered to be the correction or errata on an as-needed basis when it occurs during project planning or other analyses. These situations will be fully discussed and described in the project level environmental analysis documentation.

Resolution of the occurrences discussed above will be guided by (1) following physical and other identifiable on-the-ground features, (2) considering assigning the land allocation which comes nearer to maintaining the natural setting of the area, or (3) using professional management judgement regarding the resource situation, in consultation with other agencies, with documented rationale.

D. Collaborative Stewardship

As part of implementation of these Forest Plan Amendments, the Forest Supervisors, and District Rangers will increase their efforts in collaborative stewardship within the communities of the Sierra Nevada. The Forest Plan Amendments, including land allocations, standards and guidelines, management direction, and monitoring have some flexibility. Interaction among interested people can lead to mutually acceptable resolution of resource use issues. I am hopeful that such interaction and participation will lead to better decisions and fewer appeals and cases of litigation.

The Forest Service recognizes that the success of collaborative stewardship will depend on shared commitment by all involved parties, including the State and other Federal agencies. The agency will do its best to provide the opportunities for collaborative stewardship throughout the Sierra Nevada and welcome everyone's participation in this cooperative program.

E. Native American Relations

The relationship of the Forest Service with American Indians is important in the management and restoration of ecosystems in the Sierra Nevada and Modoc Plateau. To meet our trust responsibilities and to encourage the participation of American Indians in national forest management, I am making the following commitments on behalf of the Forest Service:

- We will work with tribal governments and tribal communities to develop mutually acceptable protocols for government-to-government and tribal community consultations. These protocols will emphasize line officers' and tribal officials' roles and responsibilities.
- We will consult with appropriate tribal governments and tribal communities regarding fire protection and fuels management activities that potentially affect rancherias, reservations, and other occupied areas. We will develop fire protection plans for such areas in consultation with appropriate tribal or intertribal organizations. We will coordinate with tribes and appropriate tribal organizations regarding training, outreach and other items of mutual interest in order to support tribal and national forest fire programs.
- Traditional American Indian land use practices, tribal watershed and other ecosystem restoration practices and priorities will be considered early in national forest planning, analyses, decision making and adaptive management processes. During landscape analyses and similar activities, we will assess vegetation community conditions where a specific area has an identified importance to an affected tribe or tribal community. We will consult with affected tribes, and, or tribal

communities to consider traditional and contemporary uses and needs.

- We will consider traditional American Indian vegetation management strategies and methods, and integrate them, where appropriate, into ecosystem restoration activities. We will cooperate with tribes, tribal communities, and intertribal organizations to develop ecosystem stewardship projects.
- We will consider the relationship between fire management and plants culturally important to American Indians. Where fuels treatments may affect tribes or tribal communities, or plants culturally important to them, we will consult on the development of burn plans, and consider approaches that accommodate traditional scheduling and techniques of fire and vegetation management.
- When implementing noxious weeds management programs we intend to maintain or, if appropriate, increase the availability of plants traditionally used by American Indians. We will consult with appropriate tribes, tribal communities, or tribal organizations to identify areas of new or worsening weed infestations and develop plans for appropriate weed control.
- We will, where appropriate, include culturally significant species in monitoring protocols related to management activities.
- We will maintain appropriate access to sacred and ceremonial sites and to tribal traditional use areas. We will consult with affected tribes and tribal communities to address access to culturally important resources and culturally important areas when proposing management that may alter existing access. After appropriate assessment and consultation, we will consider proposing mineral withdrawals and other protection of inventoried sacred sites.
- We will protect all sensitive and proprietary information to the greatest extent permitted by law. We will secure permission to release information from the tribe, tribal community, or individual who provided it prior to release to others.

IX. Appeal Rights

This decision is subject to appeal in accordance with the provisions of 36 CFR 217 by filing a written notice of appeal within 90 days of the date specified in the published legal notice of this decision, as provided in 36 CFR 217.5(b) and 36 CFR 217.8(a)(3). The appeal must be filed with the Reviewing Officer:

Chief
USDA Forest Service
Attn: Appeals – Barbara Timberlake (Mail Stop 1104)
P.O. Box 96090
Washington, D.C. 20090-6090

A copy must simultaneously be sent to:

Regional Forester
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, Ca. 94592

The notice of appeal must include sufficient narrative evidence and argument to show why this decision should be changed or reversed (36 CFR 217.9). Requests to stay approval of the Forest Plans will not be granted (36 CFR 217.10(b)). For a period not to exceed 20 days following the filing of a Notice of Appeal, the Reviewing Officer shall accept requests to intervene in the appeal from any interested or potentially affected person or organization (36 CFR 217.14(a)).

Decisions on site-specific projects are not made in this document. Decisions on proposed projects will not be made until completion of environmental analyses and documentation for the specific project, in compliance with the NEPA.

X. Contact Persons

If you would like more information on the Forest Plan Amendments or the Final EIS, please contact the following official:

Steven D. Clauson
Interdisciplinary Team Leader
801 I Street
Sacramento, Ca. 95814
916-492-7554

Signatures

Bradley E Powell 1/12/01

BRADLEY E. POWELL Date
Regional Forester,
Pacific Southwest Region

for Bradley E Powell 1/12/01

JACK BLACKWELL Date
Regional Forester,
Intermountain Region

ROD

Appendix A

Land Allocations and Associated Standards and Guidelines

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Table Of Contents

Appendix A

Introduction

This document is attached to and a part of the *Record of Decision for the Sierra Nevada Forest Plan Amendment Project*, 2001. The purpose of this appendix is to provide a tool for Forest Service land managers, other agencies, and the public in implementing the direction contained in the Record of Decision (ROD).

Appendix A has two parts: Part I describes the Record of Decision's overall management strategies to address the five problem areas. These strategies are linked to the land allocations and the standards and guidelines for management in these allocations, which are presented in Part II.

I. Management Strategies to Address the Five Problem Areas

A. Conservation Strategy for Old Forest Ecosystems and Associated Species

The old forest and associated species conservation strategy in this decision aims to provide environmental conditions that are likely to maintain viable populations of old forest associated species, most specifically the California spotted owl, well-distributed across Sierra Nevada national forests. The strategy seeks to maintain existing suitable California spotted owl habitat to stabilize current population declines.

This decision applies a landscape-scale strategy of land allocations, combined with stand-level management standards and guidelines, to conserve old forest ecosystems and their associated wildlife species. The foundation of the strategy is based on providing and enhancing fundamental components of California spotted owl habitat, such as complex stand structures at nest sites, home ranges having moderate to high levels of tree canopy cover concentrated near nest sites, and habitat for primary prey species, particularly the northern flying squirrel. The landscape strategy accomplishes this goal at multiple spatial scales by: (1) protecting and managing old forest emphasis areas to provide high quality California spotted owl habitat, (2) protecting and managing spotted owl home range core areas to provide moderate to high levels of tree canopy cover, (3) managing general forest areas to maintain and increase amounts of suitable spotted owl habitat, (4) protecting all patches larger than 1 acre of high quality old forest characterized by large trees and high canopy closure (stands classified as CWHR 5M, 5D, and 6), and (5) addressing fire hazard and risk by strategically locating fuels treatments in the urban wildland intermix zone and in old forest emphasis areas characterized by high hazard and risk. This landscape strategy also includes the southern Sierra fisher conservation area, which is managed to support habitat needs of the Pacific fisher.

The fuels management strategy is integrated with the old forest associated species conservation strategy. The sections below briefly summarize how protected activity centers (PACs), the southern Sierra fisher conservation area, old forest emphasis areas, California spotted owl home range core areas, the urban wildland intermix zone, and general forest are managed to conserve habitat for old forest associated species while addressing needs for fire and fuels management. Management direction for each land allocation is tailored to factors that consider environmental conditions believed necessary to sustain old forest associated species balanced with action necessary to reduce risk of severe wildland fire effects and the need to protect human life and property.

This old forest ecosystem and associated species conservation strategy applies a "lighter hand" in managing vegetation and fuels to reduce uncertainty associated with the impacts of these activities on old forest ecosystems and habitat for associated species. Direction for mechanical fuels treatments is designed to conserve key elements of old forest habitat and provide effective fuels reduction treatments. The land allocations and their associated standards and guidelines, as well as standards and guidelines applied forest-wide (in other words, across all land allocations), provide old forest conditions and habitat for associated species at both patch (or stand) and landscape scales.

The following sections briefly summarize management direction related to the old forest and associated species conservation strategy. A complete description of all standards and guidelines pertaining to old forest and associated species conservation is presented in Part II of this Appendix.

Forest-wide Management Direction

The decision includes standards and guidelines that pertain to fuels treatments within specific vegetation conditions across the Sierra Nevada landscape, regardless of the land allocation in which they occur (with one exception noted below). These vegetation conditions include: (1) plantations, (2) brush and shrub patches, and (3) forest stands larger than 1 acre with large overstory trees (average tree diameter 24 inches diameter at breast height (dbh) or greater) and moderate- to dense- canopy cover (identified as California Wildlife Habitat Relationships (CWHR) classes 5M, 5D, and 6) outside the defense zone of the urban wildland intermix zone. (The defense zone is the inner 0.25-mile buffer of the urban wildland intermix zone: refer to the description of the fire and fuels strategy for this alternative.)

Plantations. Direction is to apply silvicultural and fuel reduction treatments in plantations to accelerate development of old forest characteristics, increase stand heterogeneity, and reduce the risk of wildfire loss.

Brush and Shrub Patches. Direction is to design mechanical fuels treatments to remove material to minimize wildland fire effects.

Forest stands larger than 1 acre identified as CWHR Classes 5M, 5D, and 6 outside the defense zone of the urban wildland intermix zone: Management direction is to reduce fuels while maintaining the structural characteristics of these stands by limiting the intensity and extent of fuel treatments

Land Allocations

This section highlights management direction designed to protect and perpetuate old forest ecosystems and habitat for old forest associated species in each land allocation. Management in riparian areas (refer to the aquatic management strategy in Section B below) also contributes to meeting the goals of the old forest and associated species conservation strategy.

Protected Activity Centers (PACs) for California Spotted Owl, Northern Goshawk, Great Gray Owls, and Den Sites for Fisher and Marten

A specified area will be delineated to protect all known nesting, roosting, and denning sites as follows:

- **California spotted owl nest and roost sites:** 300 acres of the best available habitat surrounding each owl activity center detected since 1986, arranged in as compact a unit as possible; (Activity centers are based on documented nest sites, most recently known roost sites, or a central point based on repeated daytime detections.)

- **Northern goshawk breeding sites:** 200 acres of the best available forested habitat surrounding nest sites (or, if the nest cannot be located, the location of territorial adults or recently fledged juveniles during the fledgling dependency period) in the largest contiguous blocks possible;

- **Great gray owl nest sites:** 50 acres of the best available forested habitat plus adjacent meadow habitat surrounding nest sites;

- **Fisher den sites:** 700 acres of the highest quality habitat in a compact arrangement surrounding den sites in the largest, most contiguous blocks available; and

- **Marten den sites:** 100 acres of the highest quality habitat surrounding den sites, arranged in as compact a unit as possible.

Limited operating periods (LOPs) are applied to PACs and den sites during nesting and denning seasons to protect breeding adults and their offspring. Most vegetation management activities are prohibited during LOPs, except where surveys confirm that individual owls or goshawks are not nesting.

Fuel treatments conducted in PACs outside the nesting season or den sites are designed to enhance or maintain long-term habitat conditions. PACs in the defense zone of urban wildland intermix zone are managed to maintain suitable owl habitat while addressing the need to reduce fire hazards near human communities. PACs in areas outside the defense zone of the urban wildland intermix zone are managed to maintain existing suitable owl habitat.

Standards and guidelines limit fuel treatments to no more than 10 percent of PACs each decade across the 11 Sierra Nevada national forests, with no more than 5 percent of PACs treated during any given year. The standard would be waived for treatments associated with a formal research study developed in cooperation with the Forest Service Pacific Southwest Research Station.

Old Forest Emphasis Areas

This decision includes a network of old forest emphasis areas, comprising approximately 40 percent of national forest lands in the Sierra Nevada. Old forest emphasis areas are larger landscapes that contain the majority of existing old forest stands and they are managed to develop larger aggregations of old forest over time. Management in old forest emphasis areas emphasizes reducing hazardous fuel conditions and re-introducing fire. Prescribed fire is emphasized to reduce fuels and meet ecological goals in old forest emphasis areas. Areas of high fire hazard and risk have highest priority for prescribed fire treatments.

California Spotted Owl Home Range Core Areas

California spotted owl home range core areas surround on owl activity centers. Home range core area sizes vary by national forest as specified in the standards and guidelines (Part II of this Appendix). Home range core areas include the 300-acre PAC.

Management objectives for California spotted owl home range core areas are identical to those described in the preceding section for old forest emphasis areas. This direction applies to California spotted owl home range core areas except where home range core areas overlap with the urban wildland intermix zone. (Refer to Part II of this Appendix for details on applying standards and guidelines in overlapping land allocations.)

Southern Sierra Fisher Conservation Area

The southern Sierra fisher conservation area encompasses the known occupied range of the Pacific fisher in the Sierra Nevada. This consists of an elevational band from 4,500 feet to 8,000 feet on the Sierra and Sequoia National Forests. Direction is to manage 5,000- to 10,000-acre planning watersheds to support fisher habitat.

General Forest

The general forest is a land allocation that encompasses lands outside the allocations described in the preceding sections (and includes several other allocations in existing forest plans). The general forest is comprised of national forest lands that lie outside wilderness areas, wild and scenic river areas, PACs, den sites, southern Sierra fisher conservation area, old forest emphasis areas, California spotted owl home range core areas, and the urban wildland intermix zone. Management direction is to: (1) reduce hazardous fuels to effectively modify wildland fire behavior to reduce uncharacteristically severe wildland fire effects and (2) increase the numbers of large trees and the distribution and connectivity of old forests across landscapes.

Stand Structure

This decision includes a suite of forest-wide stand structure standards and guidelines pertaining to large trees, canopy cover, snags, and large down wood that apply in all land allocations. These stand structure standards and guidelines are detailed in Part II. Section B. *Forest-wide Standards and Guidelines* of this Appendix.

Habitat for Old Forest Associated Species at the Landscape Scale

The old forest and associated species conservation strategy in this decision is designed to maintain and develop habitat capable of supporting existing old forest associated populations (particularly the California spotted owl) at landscape scales and stabilizing current California spotted owl population declines. The strategy provides direction for managing old forest emphasis areas, California spotted owl home range core areas, and forest stands comprised of large trees and moderate to dense canopy levels to provide high quality California spotted owl habitat. The general forest is managed to provide suitable spotted owl habitat. This strategy also provides three critical elements for Pacific fisher conservation: (1) it provides management direction for the southern Sierra fisher conservation area to support fisher habitat requirements; (2) it provides for suitable habitat linkages between southern and northern Sierra Nevada Pacific fisher populations; and (3) it provides suitable habitat for possible Pacific fisher range expansion northward, allowing this species to reoccupy its historical range, and for reintroductions.

Fuel Treatments

Fuel treatments include both prescribed fire and mechanical thinning to affect fire behavior and reduce wildland fire severity. This decision has forest-wide direction to establish and maintain strategically placed area treatments described in the fire and fuels strategy. Areas of high hazard and risk in pine and mixed conifer forest types within the urban wildland intermix zone have first priority for treatments to achieve fire and fuels objectives. The goal is to strategically treat fuels across 30 to 40 percent of each landscape with the overall objective of reducing uncharacteristically severe wildland fire effects across the entire landscape.

B. Aquatic Management Strategy

An Overview

A primary purpose of the Sierra Nevada Forest Plan Amendment is to develop regional direction that will protect and restore aquatic, riparian, and meadow ecosystems and provide for the viability of native plant and animal species associated with these ecosystems. This regional direction is represented by an array features that, in their entirety, constitute an aquatic management strategy (AMS) for the Sierra Nevada. The fundamental principle of the AMS is to retain, restore, and protect the processes and landforms that provide habitat for aquatic and riparian-dependent organisms, and produce and deliver high-quality waters for which the national forests were established. Accomplishment of these objectives will be achieved through a combination of tactics and policies that are intended to work collectively.

In order for the AMS to function as a comprehensive strategy there are a suite of interrelated actions that work together to manage and conserve aquatic habitats. These actions include:

- a description of the desired condition of aquatic, riparian, and meadow habitats developed from the AMS goals;
- an array of land allocations (such as critical aquatic refuges and riparian areas) that delineate aquatic, riparian, and meadow habitats and emphasize specific actions in these areas;
- a set of standards and guidelines that specify appropriate land uses and activities within different land allocations;
- ecosystem analysis that: (1) enables managers to collect and evaluate relevant data and information over nested geographic zones (such as watersheds within river basins) for the purpose of considering current landscape conditions and (2) results in appropriate, site-specific management decisions, including restoration of degraded areas; and
- an adaptive management program that includes monitoring and research activities intended to assess planned management activities and provide information needed to adjust future management activities, as appropriate.

The AMS is intended to provide a regional framework of land management measures that will provide for improved conditions in aquatic habitats throughout the Sierra Nevada. This strategy, however, must be understood as a general regional framework that sets broad policy direction for managing aquatic habitats. It is not practical to expect a regional framework strategy to be capable of addressing site-specific issues given the wide range of variability in Sierra Nevada aquatic, riparian, and meadow habitats. Site-specific adjustments to the overarching provisions of this AMS will be provided through project level analysis and ensuing decisions that are informed by landscape analyses.

The AMS provides a comprehensive, Sierra Nevada-wide approach, based on maintaining and restoring watershed processes that form and maintain habitats and yield high-quality water. The strategy explicitly recognizes that Sierra Nevada landscapes are dynamic and subject to frequent large disturbances, such as fire and flooding. The AMS provides management direction that is intended to maintain these disturbances within natural ranges of variability at the watershed scale.

While the AMS recognizes that most Sierra Nevada watersheds are currently outside natural ranges of variability in at least some attributes, it also recognizes that many of these trends can be reversed. For some watersheds, recovery may take decades or even a century or more; some watersheds may not be

recoverable. However, implementing the AMS is expected to eventually reverse downward condition trends in most watersheds.

The Record of Decision includes core elements of the AMS, including the adaptive management strategy for aquatic and riparian ecosystems. This section presents detailed direction pertaining to the following elements of the AMS:

- aquatic management strategy (AMS) goals;
- riparian conservation areas (RCAs) and critical aquatic refuges (CARs)
- riparian conservation objectives (RCOs) and their suites of standard and guidelines for project level analysis; and
- direction pertaining to anadromous fish-producing watersheds on the Lassen National Forest.

Aquatic Management Strategy Goals

The aquatic management strategy goals (Figure I.B.1) are neither prescriptions nor standards, but endpoints toward which management will move watershed processes and functions, habitats, attributes and populations. The goals provide a broad, comprehensive framework for establishing desired future conditions for analysis at the river basin, watershed, and landscape scale (ecosystem analysis). Moving ecosystem conditions toward these goals will restore and maintain the physical, chemical and biological integrity of the region's waters as mandated by the Clean Water Act, and will support the Forest Service's mission to provide habitat for riparian- and aquatic-dependent species under the National Forest Management Act, Organic Act, Safe Drinking Water Act, Endangered Species Act, and Electric Consumers Protection Act.

Figure I.B.1. Aquatic Management Strategy Goals

1. **Water Quality**: Maintain and restore water quality to meet goals of the Clean Water Act and Safe Drinking Water Act, providing water that is fishable, swimmable, and suitable for drinking after normal treatment.
2. **Species Viability**: Maintain and restore habitat to support viable populations of native and desired non-native plant, invertebrate, and vertebrate riparian-dependent species. Prevent new introductions of invasive species. Where invasive species are adversely affecting the viability of native species, work cooperatively with appropriate State and Federal wildlife agencies to reduce impacts to native populations.
3. **Plant and Animal Community Diversity**: Maintain and restore the species composition and structural diversity of plant and animal communities in riparian areas, wetlands, and meadows to provide desired habitats and ecological functions.
4. **Special Habitats**: 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.
5. **Watershed Connectivity**: 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.
6. **Floodplains and Water Tables**: Maintain and restore the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats.
7. **Watershed Condition**: Maintain and restore soils with favorable infiltration characteristics and diverse vegetative cover to absorb and filter precipitation and to sustain favorable conditions of stream flows.
8. **Streamflow Patterns and Sediment Regimes**: Maintain and restore in-stream flows sufficient to sustain desired conditions of riparian, aquatic, wetland, and meadow habitats and keep sediment regimes as close as possible to those with which aquatic and riparian biota evolved.
9. **Stream Banks and Shorelines**: Maintain and restore the physical structure and condition of stream banks and shorelines to minimize erosion and sustain desired habitat diversity.

The Record of Decision identifies several broad scale actions to help meet the ACS goals. These actions include: (1) developing appropriate conservation plans with other State and Federal agencies for vulnerable plant and animal riparian- and aquatic-dependent species, (2) implementing relevant recovery plans for aquatic- and riparian-dependent threatened or endangered species, and (3) minimizing degradation of habitats for vulnerable species.

Riparian Conservation Areas

Riparian conservation areas (RCAs) are land allocations that are managed to maintain or restore the structure and function of aquatic, riparian and meadow ecosystems. The intent of management direction for RCAs is to (1) preserve, enhance, and restore habitat for riparian- and aquatic-dependent species; (2) ensure that water quality is maintained or restored; (3) enhance habitat conservation for species associated with the transition zone between upslope and riparian areas; and (4) provide greater connectivity within the watershed. RCAs are delineated and managed consistent with riparian conservation objectives as described in the standards and guidelines in Part II of this Appendix.

Critical Aquatic Refuges

CARs are small subwatersheds that contain either:

- known locations of threatened, endangered, or sensitive species,
- highly vulnerable populations of native plant or animal species, or
- localized populations of rare native aquatic- or riparian-dependent plant or animal species.

Vicinity maps for CARS are included in Appendix I of the Final Environmental Impact Statement (FEIS) for the Sierra Nevada Forest Plan Amendment Project. As part of landscape analysis, the boundaries of CARs may be refined based on the findings from conservation assessments or verification of the presence and condition of habitat for threatened, endangered, and sensitive species. As information is gathered through landscape analysis, additional CARs may be added by individual national forests.

The primary management goal for CARs is to preserve, enhance, restore or connect habitats distributed across the landscape for sensitive or listed species to contribute to their viability and recovery. In many cases, CARs support the best remaining populations of native fish, amphibian, and plant species with substantially reduced distributions elsewhere in the Sierra Nevada. CARs are managed as RCAs; standards and guidelines that apply to RCAs also apply in CARs.

CARs have highest priority for landscape analysis. Landscape analyses will evaluate existing activities and identify projects for preserving, enhancing, restoring, and connecting habitats for sensitive or listed species. (See Section F. *Ecosystem Analysis* of Part I of this Appendix.)

Existing activities that are determined to be inconsistent with RCOs may be mitigated or removed to ensure consistency with RCOs. New projects and activities will be consistent with RCOs. New activities, such as development of dams or diversions or mineral extraction, are generally not appropriate within CARs. CARs also have high priority for watershed restoration activities. CAR's will be evaluated and proposed for withdrawal from mineral entry, as appropriate.

Riparian Conservation Objectives

The riparian conservation objectives (RCOs) provide a checklist for evaluating whether a proposed activity is consistent with the desired conditions described by the AMS goals.

Evaluating New Projects

Site-specific project-level analyses will be conducted to determine the activities that can occur within RCAs and CARs. The analyses will assure consistency with RCOs and associated standards and guidelines. (RCOs and their associated standards and guidelines are described in Part II of this Appendix.)

RCOs and their associated standards and guidelines will be analyzed for projects located within RCAs or CARs. The analysis will consider physical factors (such as soil characteristics, geology, slope, and stream characteristics) and biological factors (such as aquatic- riparian-dependent species present, their habitat needs, and the capability of the existing environment to provide needed habitat). RCA widths (specified in the standards and guidelines in Part II of this Appendix) may be adjusted at the project level if a landscape analysis has been completed and the site-specific RCO analysis demonstrates a need for different widths.

For example, if a site-specific analysis for a fuels management project proposed that a strategically placed area treatments should cross a riparian conservation area, the local watershed/aquatic specialist(s) would conduct an assessment to determine what aspects of the AMS goals would be affected. The outcome of this project area assessment would be a recommendation regarding the appropriate type and level of activities that could occur within the RCA. The assessment would include a written description of the extent of the area considered, its link to adjoining landscapes, presence of special habitats including critical aquatic refuges, and special needs of riparian- and aquatic-dependent species or communities. The assessment would describe how the proposed management activities were consistent with the RCOs and contribute toward meeting the ACS goals. The assessment could include recommendations for modifying project activities, maintaining specific levels of ground cover, requiring specific forest stand composition and structure to provide shade or down wood, or requiring limited operating periods.

Maintenance activities for existing uses in RCAs, including maintenance of developed recreation sites, roads, trails, or administrative sites and removal of hazards to public safety, are exempt from the site-specific RCO assessment process.

Reviewing Existing Uses and Activities

All existing activities or uses will be reviewed for consistency with riparian conservation objectives within 5 years after this ROD is signed. Several concurrent processes will be used to achieve this objective:

- Conservation assessments for the foothill and mountain yellow legged frogs, Cascade frog, Yosemite toad, northern leopard frog, and willow flycatcher will be completed within 1 year after the ROD is signed.

- Activities operating under permit systems, such as grazing allotments, guide services, or ski areas, will be reviewed for consistency with riparian conservation objectives when the permit is reissued or reviewed.

- Each national forest will assess maintenance level 3, 4, and 5 roads in accordance with the national roads analysis system within the next 2 years.

- Other existing uses and activities, including recreational trails, developed and dispersed recreation sites or areas, and maintenance level 1 and 2 roads, will be reviewed during the landscape analysis process described in Section E of this Part.

Information gathered through landscape analysis will identify potential conflicts across landscapes and document the need for corrective actions or mitigation measures. Landscape analysis will be used to develop a list of possible restoration actions: existing uses will be evaluated to assess their consistency with ACS goals across the landscape and riparian conservation objectives at the project level.

Peer Review

For vegetation treatments or other activities proposed within CARs and RCAs that are likely to significantly affect aquatic resources, a peer review process will be utilized. A project will be peer reviewed if it proposes ground-disturbing activities in more than 25 percent of the RCA or more than 15 percent of a CAR.

The peer review team will consist of at least two off-forest riparian specialists. (Riparian specialists include hydrologists, fisheries biologists, botanists, wildlife biologists, and soil scientists.) Peer reviews will also be provided to scientists from the Pacific Southwest Research Station and representatives from other State or Federal agencies, such as the Environmental Protection Agency, Regional Water Quality Control Board, California Department of Fish and Game or the U.S. Fish and Wildlife Service. The peer review is designed to assure consistent interpretation and application of the standards and guidelines.

The peer review process will primarily be a "paper" review process. The local riparian specialist will prepare a report identifying the project or activity proposed within the CAR or RCA, how the riparian conservation objectives are being met, and how the project will contribute to AMS goals for the landscape. The documentation should be site-specific, identifying water quality concerns (including beneficial uses for the affected water body), species and habitat concerns within the project area, and the project's relationship to adjacent landscapes. The reviewers will review the documentation and comment on whether the proponent has adequately addressed all relevant riparian conservation objectives and if the course of action seems prudent. The reviewers will have 30 days to return their assessment. Suggestions made in the peer review may be used to modify the proposal. The peer review will become part of the environmental analysis planning record.

Long-Term Strategy for Anadromous Fish-Producing Watersheds (Lassen National Forest)

Since 1995, an interim aquatic management strategy for anadromous fish-producing watersheds (known as PACFISH; USDA and USDI 1995) has been in place on the Lassen National Forest. This interim direction applies to National Forest System lands within the watersheds of Deer, Mill, Antelope, Battle, and Butte Creeks. The long-term strategy, which is presented in Appendix I of the FEIS and is available from the Lassen National Forest, replaces the interim strategy. As part of this strategy, National Forest System lands within the five watersheds are designated and managed as key watersheds for anadromous fish. Key watersheds provide a pattern of protection across the landscape where anadromous fish habitat receives special attention and treatment.

C. Fire and Fuels Management Strategy

This decision applies a strategic approach for locating fuels treatments across broad landscapes. Urban wildland intermix zones have highest priority for fuels treatments; fuels in the inner defense zone of the urban wildland intermix zone are more intensively treated to prevent the loss of life and property. Outside the defense zone, but within the threat zone of the urban intermix, forest fuels are treated in a less intensive manner in PACs and in stands comprised of large trees with moderate to dense canopy cover (as described in the standards and guidelines specific to these areas in Part II of this Appendix). Outside the urban wildland intermix zone, old forest emphasis areas characterized by high fire hazard and risk have the next highest priority for fuels treatments, followed by general forest areas with high fire hazard and risk. Fuel treatments within sensitive habitats are approached in a more cautious manner: the intensity of treatments is limited within old forest emphasis areas and California spotted owl home range core areas (in addition to PACs and stands characterized by large trees and moderate- to dense canopy cover).

Urban Wildland Intermix Zone

The urban wildland intermix zone is an area where human habitation is mixed with areas of flammable wildland vegetation. It extends out from the edge of developed private land into Federal, private, and State jurisdictions. The urban wildland intermix zone in extends 1 ½ miles out from areas that have residences, commercial buildings or administrative sites with facilities. It is comprised of two zones: an inner ¼-mile wide buffer (the defense zone) and an outer 1¼ -mile wide buffer (the threat zone). The actual boundaries of the urban wildland intermix zone are determined locally, based on the actual distribution of structures and communities adjacent to or intermixed with national forest lands. Strategic landscape features, such as roads, changes in fuels types, and topography, are used in delineating the physical boundary of the urban wildland intermix zone.

Fuel reduction treatments are designed to protect human communities from wildland fires as well as minimize the spread of fires that might originate in urban areas. The management objective in the urban wildland intermix zone is to enhance fire suppression capabilities by modifying fire behavior inside the zone and providing a safe and effective area for possible future fire suppression activities.

Management direction for urban wildland intermix zones is to:

- design fuel treatments to provide a buffer between developed areas and wildlands;
- design and distribute treatments to increase the efficiency of firefighting efforts and reduce risks to firefighters, the public, facilities and structures, and natural resources;
- determine the distribution, schedule, and types of fuel reduction treatments through collaboration with local agencies, air regulators, groups, and individuals; and
- place the highest density and intensity of treatments in developed areas within the urban wildland intermix zone.

Within the urban wildland intermix zone, areas are treated to move toward or maintain the following desired conditions:

- Fuel conditions allow for efficient and safe suppression of all wildland fire ignitions. Fires are controlled through initial attack under all but the most severe weather conditions.
- Under high fire weather conditions, wildland fire behavior in treated areas is characterized as follows: (1) flame lengths at the head of the fire are less than four feet; (2) the rate of spread at

the head of the fire is reduced to at least 50 percent of pre-treatment levels for a minimum of five years; (3) hazards to firefighters are reduced by keeping snag levels to two per acre (outside of California spotted owl and Northern goshawk PACs and forest carnivore den site buffers); and (4) production rates for fireline construction are doubled from pre-treatment levels.

Table I.C.1. Urban wildland intermix defense zone: Treat to these desired stand conditions (over 90 percent of the stand area).

Vegetation (foliar moisture 80%)	Canopy Cover *If the canopy cover for the dominate and co-dominate trees fall range between:*	Crown Bulk Density (Kg/m3) estimates	Live Crown Base Height (Min average in feet)	Surface Fire
Timber (3S,P,4S,P)	40% or less	.05	15	Average of 4 feet or less
Timber (3P,N,4P,N)	40-70 %	.05 to .15	20	Average of 4 feet or less
Timber (3N,G,4N,G)	70%	.15	25	Average of 4 feet or less

Table I.C.2. Urban wildland intermix threat zone: Treat to these desired stand conditions (over 85 percent of the stand area).

Vegetation (foliar moisture 80%)	Canopy Cover *If the canopy cover for the dominate and co-dominate trees fall range between:*	Crown Bulk Density (Kg/m3)	Live Crown Base Height (Min average in feet)	Surface Fire
Timber	40% or less	.05	15	Average of 6 feet or less
Timber	40-70 %	.05 to .15	20	Average of 6 feet or less
Timber	70%	.15	25	Average of 6 feet or less

**Stand size is based on 100 acres. Crown base height may vary by slope and modeled fire behavior.*
***The numbers shown for live crown base height in the above tables were based on the following assumptions: 0 percent slope; mid-flame wind speed of 5 miles per hour; 3 percent fuel moisture for 1-hour fuels; 4 percent fuel moisture for 10-hour fuels; 5 percent fuel moisture for 100-hour fuels; and 70 percent live foliar moisture.*

Landscape Fuels Management

The fuels treatment strategies in this ROD are designed to reintroduce fire, reduce fuel levels, and mitigate the consequences of large damaging wildfires. These strategies allow fire managers to control fires and set priorities that protect fire fighters, the public, property, and natural resources.

A landscape fuels strategy must provide for spatial extent and temporal scale. Spatial extent is defined by the extent and intensity of wildland fires that one is attempting to influence; the temporal scale is the time frame in which one must operate to accomplish the fuels treatments. In general, landscape-level fuels treatment strategies are designed to limit wildland fire extent, modify fire behavior, and improve ecosystems (Finney 2000, Weatherspoon and Skinner 1996).

This decision defines the wildland fire problem in the Sierra Nevada as one that is caused by multiple lightning ignitions across a broad landscape. At times these events can occur over hundreds of thousands of acres, when suppression resources are over-extended and fire managers are forced to let some fires grow while others are suppressed until adequate resources arrive from outside the area. The temporal element of the fuels strategy is based on establishing priorities for planning fuel treatments, prescribing treatments, completing treatments, and maintaining treatment effectiveness over time. The time frame for accomplishing the fuels treatments in this decision is between 20 and 25 years.

Fire and fuels management relies on a combination of four primary strategies for modifying wildland fire behavior and re-introducing fire across broad landscapes:

- strategically placed area treatments,
- wildland fire use,
- defensible fuels profile zones adjacent to communities and areas of high value, and
- priority-setting mechanisms established in the national Cohesive Fire Strategy.

Strategically Placed Area Treatments (SPLATs)

Strategically placed area treatments are blocks of land, ranging anywhere from 50 to over 1,000 acres, where the vegetation has been treated to reduce fuel loading. The treatment areas are placed so that a spreading fire does not have a clear path of untreated fuels from the bottom of the slope to the ridge top. Managers consider historic fire regimes and the potential for severe wildfires (based on fuel loading, prevailing wind direction, and terrain features) in deciding where to place area treatments. The spatial pattern of the treated areas reduces rates of fire spread and reduces fire intensity at the head of the fire. The SPLAT strategy treats a relatively large proportion of the landscape, and this strategy facilitates fire reintroduction.

Strategically placed area treatments are designed to burn at lower intensities and slower rates of spread during wildfires than comparable untreated areas. Hence, wildfires are expected to have lighter impacts and be less damaging in treated areas.
The SPLAT strategy places treatments on the landscape that are linked together: treatments to protect structures in the defense (or inner) zone of the urban wildland intermix zone are effective when supported by treatments in the threat (or outer) zone of the urban wildland intermix zone, which in-turn are supported by the treatments done on the larger landscape.

Wildland Fire Use

Lightning-caused fires can be used to reduce fuel loads or to provide other resource benefits, such as conserving populations of fire-dependent species. Before wildland fires can be used, national forest managers must prepare a fire management plan that describes how prescribed fires and naturally caused wildland fires will achieve resource management objectives.

Defensible Fuel Profile Zones (DFPZs)

DFPZs are strategically located strips of land where the vegetation has been modified to a less dense fuel type. DFPZs are generally located along ridgetops and roads; these are areas where fire fighters would make a stand to contain a fire. The width is based on potential fire behavior based on available fuels, weather and wind, and topography. DFPZs are not designed to stop an oncoming wildfire by themselves, but rather to provide a safe location to facilitate fire suppression efforts and provide an anchor point for prescribed burning projects.

The DFPZ strategy initially treats a lower proportion of the landscape; treatments are located to protect specific values. DFPZs are typically placed in urban wildland intermix areas. After a network of DFPZs has been established, area fuel treatments (SPLATs) can be placed to enhance DFPZ effectiveness and increase the likelihood that the overall landscape strategy will reduce wildfire intensity and size.

Cohesive Fire Strategy

The national Cohesive Fire Strategy is an approach for reducing fuel loadings in fire-prone forests in order to protect people and sustain resources. The strategy directs fuel treatments at high-risk areas, specifically urban wildland intermix areas, readily accessible municipal (community) watersheds, and threatened and endangered species habitat. Hazardous fuels, fire regimes, and condition class are identified and mapped to develop treatment priorities. Priority-setting mechanisms, as well as criteria for identifying appropriate types of fuel treatments, are based on an iterative process, anchored in adaptive management and incremental steps that address the uncertainty associated with treating sensitive habitat areas.

Interestingly, over time, the four apparently different and unique tactics for modifying fire behavior, limiting the extent of wildfires on the landscape, and reintroducing fire to fire-dependent ecosystems come together so that it is difficult to separate them. Local fire managers will evaluate each landscape and determine how each component works together best. For example, one approach may involve developing a DFPZ strategy on the landscape first, and then following up with supporting fuels treatments in adjacent areas, based on the landscape's fire history and fire behavior characteristics. Another approach may use DFPZs in urban wildland intermix zones; treatments in DFPZs typically extend out from the urban wildland intermix areas to enhance suppression by modifying fire behavior and increasing fire control opportunities. Other additional treatments (such as SPLATs), arranged on the landscape to modify fire behavior over broader areas, can then be used to support these DFPZs.

As part of the landscape-level fuels management strategy, managers will consider areas that already contribute to fire behavior modification, such as different vegetation patterns, past management activities, burned areas, bodies of water, and barren areas, in locating strategically placed treatments. Managers will then identify the gaps in the landscape pattern where fire could spread at some undesired rate or direction. Treatments (including maintenance treatments and new fuel treatments) will be used to fill these gaps. In areas with limited access, prescribed fire and wildland fire use will be emphasized. Prescribed fires can be strategically located on the landscape to support a future wildland fire use program.

Smoke Management and Air Quality Protection

Direction is to emphasize smoke management and air quality whenever prescribed fire is used. The following documents provide guidance and direction for smoke management and air quality protection: (1) Interim Air Quality Policy on Wildland and Prescribed Fires, announced by the Environmental Protection Agency (EPA) in 1998; (2) Memorandum of Understanding between the California Air Resources Board (CARB) and the Forest Service, signed on July 13, 1999; (3) Smoke Management Guidelines for Agricultural and Prescribed Burning under Title 17, currently being revised by CARB; and (4) the Nevada Smoke Management Plan.

D. Conservation Strategy for Lower Westside Hardwood Ecosystems

Key elements of the lower westside hardwood conservation strategy include: desired condition, definitions of hardwood ecosystems, management of special habitats, and standards and guidelines pertaining to treatments in hardwood ecosystems.

Definitions of Hardwood Ecosystems

For purposes of this decision, vegetation communities dominated by California black oak, canyon live oak (tree form), Pacific madrone, or tanoak, are collectively referred to as montane hardwood forests. Ecosystems dominated by blue oak, valley oak, interior live oak (tree form), or Oregon white oak are referred to as blue oak woodlands. Collectively these are referred to as hardwood ecosystems. This standards and guidelines include direction for maintaining or enhancing the distribution of hardwood ecosystems. (See Section B. *Forest-wide Standards and Guidelines* in Part II of this Appendix.)

Desired Condition

Desired conditions in lower westside hardwood forest ecosystems include the following:

- A diversity of structural and seral conditions is present in landscapes in proportions that are ecologically sustainable at the watershed scale.
- Regeneration and recruitment of young hardwood trees is sufficient over time to replace mortality of older trees.
- Hardwood ecosystems are present in sufficient quality and quantity to provide important habitat elements for wildlife and native plant species.

Identifying Opportunities for Hardwood Ecosystem Restoration and Enhancement

During landscape analysis (See Part F. *Ecosystem Analysis* below.), managers will compare existing vegetation conditions with desired conditions to determine needs for restoring and enhancing hardwood ecosystems. Potential natural vegetation communities, which would occur if stand succession were allowed to proceed under a natural fire regime in the prevailing climate, provide the basis for desired conditions in hardwood ecosystems. Using potential natural vegetation as the desired condition highlights areas where hardwood ecosystems have been lost due to past management and changes in fire regime. Managers will then identify hardwood ecosystem enhancement or restoration projects in these areas. Desired conditions, including distributions of seral stages and stand densities, are derived from the local environmental conditions, and incorporated into the larger landscape.

Management of Special Habitats within the Blue Oak Woodland Ecosystem

Two wildlife habitats within the blue oak woodland ecosystem (valley oak woodlands and blue oak woodlands) are considered special habitats because of their limited range and ongoing decline. Research suggests that sustaining these habitats is a complicated and highly variable process best assessed at the local level. National forests will manage them by developing site-specific restoration strategies, either in a landscape analysis or as an independent project. A restoration strategy will be prepared for each stand before vegetation treatments, other than grazing, were implemented.

Vegetation Treatments in Hardwood Ecosystems

Standards and guidelines (detailed in Section B. *Forest-wide Standards and Guidelines* in Part II of this Appendix) provide direction for conducting vegetation treatments in hardwood ecosystems. Standards and guidelines contain provisions for: (1) retaining large live hardwood trees and snags, (2) maintaining

hardwood species diversity, and (3) recruiting young hardwood trees. Vegetation treatments in hardwood ecosystems will be consistent with hardwood stand maintenance and restoration goals.

E. Noxious Weeds Management Strategy

Forest-wide standards and guidelines for noxious weed management provide specific measures to be taken by the national forests to implement Forest Service Manual direction regarding noxious weeds. Appendix L of the FEIS contains specific Best Management Practices that can be used as appropriate to carry out the weed standards and guidelines. These Best Management Practices will also be appended to the Pacific Southwest Region Noxious Weed Management Strategy (signed by Regional Forester in 2000).

A project-level noxious weed risk assessment (USDA Forest Service 1995a) will serve as the primary mechanism for prescribing weed prevention measures. These risk assessments will be a standard component of the project planning process for ground-disturbing or site-altering activities. The risk assessment may be as simple as a one-page form documenting little or no risk posed by a project, or a more complex plan with contract provisions when risk is determined to be moderate to high. The risk assessment will demonstrate the need for and appropriateness of requiring contractors and permittees to take preventive measures, such as cleaning heavy equipment or obtaining certified weed-free mulch for erosion control.

The following management direction applies to this decision:

- Manage weeds using an integrated weed management approach in order of priority set forth in FSM 2081.2:

Priority 1. Prevent the introduction of new invaders
Priority 2. Conduct early treatment of new infestations
Priority 3. Contain and control established infestations

Provisions for implementing this management direction are embodied in the noxious weeds management standards and guidelines in Part II of this Appendix.

F. Ecosystem Analysis

Ecosystem analysis provides a context for managing whole ecosystems, that is all resources and situations encountered within geographic areas at various scales. These analyses are conducted to better understand how watersheds and landscapes function before projects are planned. Watersheds are particularly useful for study because every watershed is a well-defined area with unique features, recurring processes, and a distinctive collection of plants and animals. An ecosystem analysis approach provides a holistic context for subsequent discussions and decisions for planning and implementing projects.

Ecosystem analysis will be conducted at the following four spatial scales:

- river basin
- watershed,
- landscape, and
- project.

The scales are arranged in a hierarchical order: each scale is nested within the next higher scale above it. The river basin scale is the largest scale of analysis. Several watersheds are nested within each river basin. Landscapes fall within watersheds, and finally projects fall within landscapes.

Data Relationships in Ecosystem Analysis

At the river basin and watershed scale, ecosystem analysis considers broad, general processes and ecosystem elements that provide context for smaller scale analyses. The analysis at these two scales relies on existing information from regional and national forest databases. These analyses do not require on-the-ground data collection or analysis.

At the landscape scale, generally 30,000 to 50,000 acres, existing condition information is gathered from local databases or aerial photo analysis. Landscape analysis does not require collecting plot data in the field. The information assembled during landscape analysis provides the basis for identifying opportunities at the project scale to move the landscape toward desired conditions.

Data used river basin and watershed scale analyses will be brought forward to the landscape level. This data will help provide the context for the landscape and determine the need for connectivity between adjacent landscapes. For example, a specific landscape may not contain a sensitive species that is found in an adjacent landscape within the watershed. However, the unoccupied landscape may provide suitable habitat for that species. Without consideration of the larger watershed scale, the landscape analysis might not recognize the need to document the presence of the suitable habitat. Landscape analysis could proceed without a previously completed river basin or watershed analysis; however, the landscape analysis would consider and apply appropriate information from these larger scales.

Information gathered through other analyses, such as grazing allotment management plans, wilderness management plans, or roads analysis, may be conducted at different scales and times than landscape analyses. Since there are separate schedules for completing grazing allotment management plans, wilderness management plans, and roads analysis, information gained from these planning and analysis efforts will be incorporated into landscape analysis.

Information gathered through all scales of ecosystem analysis will be used to identify potential conflicts between existing uses and resource objectives across the landscape and document the need for corrective

actions or mitigation measures. A schedule of restoration actions will be developed so that existing uses are consistent with resource objectives at the landscape scale.

River Basin Analysis

There are 45 major river basins in the Sierra Nevada Forest Plan Amendment Project planning area as described in Appendix I of the FEIS. River basins range in size from approximately 46,000 acres to almost 1,800,000 acres, with an average size of about 550,000 acres.

Analyses conducted at the river basin scale will summarize spatial information to provide the context for smaller scale analyses. River basin analyses use existing information in regional and national forest databases to identify the following:

- the location of each watershed in the river basin;
- the provisional watershed condition assessment rating (Appendix I of the FEIS);
- locations of water quality limited (303(d)) stream segments;
- Category I-IV Watersheds identified through the Unified Watershed Assessment;
- land allocations in existing forest plans, such as wilderness areas, roadless areas, research natural areas;
- land allocations included in this decision, such as old forest emphasis areas, critical aquatic refuges, urban wildland intermix zones, protected activity centers, and willow flycatcher habitat;
- emphasis species and the location of known or potential habitat for these species from wildlife habitat relationships (WHR) data or conservation assessments;
- locations of active grazing allotments;
- locations of historic wildfires and date of occurrence;
- locations of developed recreation sites and facilities;
- maintenance level 3 ,4, and 5 road locations and condition information from roads analysis; and
- land ownership patterns.

The information assembled during river basin analysis is primarily used to identify priority watersheds for further analysis. The river basin analysis provides a means for determining potential links and relationships that must be maintained or established between watersheds. This scale of analysis also identifies needs for collaboration across ownership or national forest boundaries. Because river basins are often located in more than one national forest, managers across national forests will need to coordinate data analysis.

Watershed Analysis

Watersheds are nested within river basins. They are mapped as 5^{th} or 6^{th} code hydrologic units, ranging in size from about 100,000 to 150,000 acres. There are 150 watersheds of this scale in the Sierra Nevada Forest Plan Amendment Project planning area. (See Appendix I of the FEIS.)

Unlike river basins, watersheds are more likely to be contained within a single national forest; however, many do cross national forest boundaries. Like river basin analysis, the product at this scale is also a map and database, but the watershed analysis shows more localized information and potential areas of conflict.

Like river basin analyses, watershed scale analyses summarize spatial information to provide the context for smaller scale analyses. Watershed analyses further clarify information developed at the river basin scale. Analyses at this scale may be used to refine watershed condition characteristics, identify specific linkages between watersheds, refine locations of species and habitat, and refine locations of urban wildland intermix zones and administrative areas. Watershed analysis includes:

- refinement of watershed condition assessment characteristics, if needed;
- locations of linkages between watersheds to provide habitat connectivity;
- locations of known threatened, endangered, and sensitive plant and animal species and suitable or historic habitat;
- den sites for fisher and marten;
- location of wildland urban intermix threat and defense zones;
- locations of special aquatic features, such as bogs, fens, springs, and meadows;
- locations of mining claims or areas open to mineral extraction;
- locations of known dispersed camping areas; and
- locations of developed OHV trails or areas.

Landscape Analysis

Landscape analysis is a key component of the conservation and management strategies in this decision. Landscape analysis characterizes historic conditions, current status, and future trends of an area. These analyses should identify opportunities and priorities for correcting problems.

Landscapes are nested within watersheds. The scale at which these analyses are conducted ranges between 13,000 and 130,000 acres, with most landscape analyses conducted at the 30,000- to 50,000-acre scale. Analysis at the landscape scale determines key existing forest characteristics related to wildlife habitat and fire and fuels management, aquatic and riparian restoration priorities, and road management priorities.

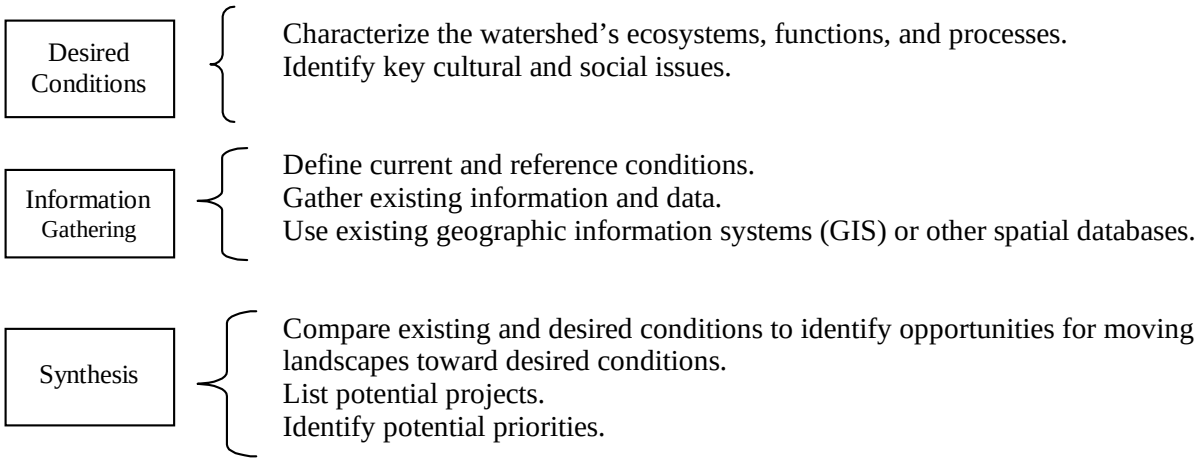
The results of landscape analysis are used to:

- establish a consistent, landscape-wide context for maintaining or restoring ecological conditions that provide the desired levels of resources, such as clean water, clean air, plant and animal community diversity, and species viability, consistent with regulatory requirements and ongoing policies;
- identify opportunities in a watershed landscape context for site-specific environmental analysis;
- identify opportunities for reducing risks and hazards, such as those associated with catastrophic wildland fires in the Sierra Nevada; and
- facilitate program and budget development by identifying priorities for cultural, social, economic, and ecological needs in watersheds.

During landscape analysis, existing uses or activities are reviewed to identify compatibility of the use with local species, particularly threatened, endangered, and sensitive species, and to determine if any corrective actions are needed to bring the activity or use into consistency with riparian conservation objectives. (See Riparian Conservation Objectives under Section B. *Aquatic Management Strategy* of this part).

Elements of a Landscape Analysis

Several guides are available for conducting landscape analysis. The intent is to streamline landscape analysis, and to sensibly use it for collaboratively arriving at land management strategies that are tailored to local conditions, capabilities, and restoration needs. Landscape analysis generally includes the following elements:



By themselves, landscape analyses do not result in decisions; the analyses identify opportunities for needed projects, monitoring, ecosystem restoration, and research. Project level planning (described below) results in Forest Service decisions that are subject to National Environmental Policy Act (NEPA) requirements of notice and review and administrative appeal.

Partnerships and collaborative interaction involving local communities, agencies, American Indian tribes, and the public at large are essential for arriving at realistic solutions for sustaining desired ecosystem conditions while balancing cultural and social values and needs. The direction in this Record of Decision for the Sierra Nevada Forest Plan Amendment Project provides desired conditions for Sierra Nevada national forest ecosystems. Desired ecosystem conditions are provided by the direction in Involving all interests in a particular landscape analysis increases the likelihood that the Forest Service will identify realistic, well-informed opportunities for moving landscape toward desired conditions.

Types of Data Used in Landscape Analysis

Landscape analysis is a dynamic process; the analysis is continually updated as more is learned and more information is obtained about a particular landscape. The following list represents key components of a typical landscape analysis; however, the specific data collected during landscape analysis will be based on local issues associated with a particular landscape. In some instances, these issues could be addressed by analyzing a partial list of the components described below.

Vegetation Analysis: The following data is collected from existing records and verified through aerial photo interpretation. It does not require field verification of the characteristic. Field verification occurs at the project level. Forested patches or stands classified during this process must be at least five acres in size.

- Update and refine vegetation strata labels and polygons.
- Map canopy cover by the following classes: 0 to 40 percent; 40 to 70 percent; and greater than 70 percent.
- Where possible, cross walk timber strata to CWHR types.
- Map existing and potential natural (FSH 2090) hardwood distributions.
- Transfer information on the location of high hazard and risk areas for insect and disease from the regional database.

Physical landscape: This information is collected from existing records, maps, and aerial photo interpretation.

- Map areas with high geologic risk or instability,
- Identify areas with high soil erosion potential,
- Identify preliminary stream types following standard protocol such as Rosgen stream typing

Species Data: Based on the data collected from the vegetation analysis, identify potential home range core areas for California spotted owls and willow flycatcher habitat within the landscape. Final home range core areas will be delineated at the project level.

Identify specific areas within the landscape that provide suitable habitat based on aerial photo interpretation, soil maps, or local knowledge for other threatened, endangered, and sensitive plant and animal species.

Fire and Fuels Management: Document the following characteristics across the landscape:

- historic fire regimes,
- fire and fuel hazards, risk of ignition,
- location of wildland urban intermix defense and threat zone,
- values at risk and the consequences of wildland fire under current and expected future conditions.

Include a description of how wildland fire could influence the landscape and surrounding watershed as well as potential fire effects, fuel loading, expected fire behavior, fire occurrence, and smoke emissions calculations.

Determine the potential layout for strategically placed area treatments (SPLATS) on the landscape. Treatment blocks should be placed so that a spreading fire does not have a clear path of untreated fuels from the bottom of the slope to the ridgetop. Consider historic fire regimes and the potential for severe wildfires in deciding where to place area treatments.

Roads Management: Inventory maintenance level 1 and 2 roads (including unclassified roads) to augment the arterial and collector road inventory. Identify potential conflicts with water quality objectives or conflicts with threatened, endangered, and sensitive species. Identify a full range of road system management options, including road improvements, decommissioning, seasonal or multi-year road closures, and new road construction, based on social and environmental effects as well as administrative needs, such as fire access.

Existing Uses: Inventory "existing uses" (power lines, campgrounds, designated OHV trails and areas) within the landscape. Identify conflicts with threatened, endangered, and sensitive species or water quality objectives.

Project Analysis

Potential projects arise from opportunities identified during landscape analysis. (Opportunities describe what needs to be done to achieve or maintain desired conditions.) Projects selected for implementation must be analyzed and their potential environmental impacts disclosed, as required by NEPA. The NEPA process includes public involvement. Ecosystem analyses should lead to stronger and broader public involvement efforts that include conservation partnerships, traditional cultural groups, and collaboration.

Project level planning requires analysis of cumulative effects. The hierarchical framework of ecosystem analysis will facilitate cumulative effects analysis by providing information at multiple scales. Where landscape analyses have been done, project planning can proceed more efficiently. In cases where landscape analyses have not been completed for an area, project analysis will not trigger the initiation of a landscape analysis.

Time frame and Priority for Conducting Ecosystem Analyses

River basin and watershed analyses should be completed within 2 years after completion of the ROD, focusing first on areas either occupied by threatened, endangered, and sensitive species or containing historic habitat for these species as shown in Tables T.1 and T.2. in Appendix T of the FEIS.

Landscape analyses will be completed first in landscapes containing known, occupied, or historic habitat for threatened, endangered, and sensitive aquatic species. (These landscapes are identified as critical aquatic refuges.) The intent is to complete landscape analyses for all national forest lands in the Sierra Nevada Forest Plan Amendment Project area within 5 years after the ROD is signed.

II. Standards and Guidelines

A. Hierarchy of Standards and Guidelines

The decision for the Sierra Nevada Forest Plan Amendment Project includes a network of land allocations. Each land allocation has a set of standards and guidelines that determine how management is to proceed within the allocation. The allocations and standards and guidelines form a comprehensive strategy for addressing the purpose and need for the Sierra Nevada Forest Plan Amendment Project.

Broad-scale land allocations, such as old forest emphasis areas, are delineated on the Modified Alternative 8 map in the FEIS while smaller-scale land allocations, such as California spotted owl protected activity centers (PACs), are not shown on the map. (These small-scale land allocations will be delineated by each national forest.) Land allocations shown on the FEIS Modified Alternative 8 map are referred to as mapped allocations; land allocations that do not appear on the map are referred to as unmapped allocations.

Certain land allocations overlap with one another to varying degrees; however, this decision establishes a priority ordering of land allocations. Management direction for higher priority allocations pre-empts management direction for lower priority allocations. Generally, land allocations that have more restrictive management direction pre-empt those with less restrictive direction. This decision conveys the concept of priority ordering of land allocations in two ways, depending on whether a land allocation is mapped or unmapped.

For mapped allocations (including existing and proposed wilderness areas, wild and scenic river areas, southern Sierra fisher conservation area, old forest emphasis areas, urban wildland intermix zone, and general forest), land allocations with more restrictive standards and guidelines mask other mapped allocations that are lower in the priority ordering. For example, wilderness and wild and scenic river areas pre-empt all other land allocations because of priorities conveyed by their legal status: the full extent of these areas is shown on the map. Old forest emphasis areas pre-empt general forest areas, and this priority ordering is clearly displayed on the map. Mapped allocations do not overlap with one another, with two notable exceptions: inventoried roadless areas and urban wildland intermix zones. Inventoried roadless areas are managed consistent with recent national direction regardless of the land allocation in which they fall. The map shows urban wildland intermix zones overlapping with other mapped land allocations. However, the fuel treatment standards and guidelines for the urban wildland intermix zone (outside of wilderness areas and wild and scenic river areas) take precedence over fuel treatment standards and guidelines for underlying land allocations (with specific exceptions for protected activity centers, den sites, and riparian areas described below).

The unmapped allocations overlap with the mapped allocations. The standards and guidelines for the unmapped allocations convey their priority ordering relative to other land allocations. Land allocations with standards and guidelines that protect special habitats or species are placed higher in the priority ordering, while land allocations that call for more active management are placed lower in the ordering. For example, California spotted owl protected activity centers (PACs) have standards and guidelines that protect owl habitat and breeding by limiting the types and intensities of fuels treatments that can be conducted within their boundaries. Therefore, where PACs overlap with old forest emphasis areas, standards and guidelines for California spotted owl PACs take precedence over standards and guidelines for old forest emphasis areas (where some mechanical fuels treatments are permitted).

Riparian conservation areas and critical aquatic refuges overlap all land allocations. The standards and guidelines for riparian conservation areas apply in these areas except in cases where the standards and guidelines of the underlying land allocation place greater restrictions on management activities. For example, riparian conservation area standards and guidelines allow mechanical treatments (based on consistency with riparian conservation objectives). However, where a riparian conservation area overlaps with a California spotted owl PAC (outside the defense zone of the urban wildland intermix zone), treatments are limited to prescribed burning only, consistent with the more restrictive standards and guidelines for fuel treatments in PACs.

Table II.A.1 illustrates the relationship between standards and guidelines for overlapping land allocations. The following narrative sections of this part describe where each land allocation fits into the overall land allocation hierarchy of this decision.

Table II.A.1. Relationships between standards and guidelines for overlapping land allocations. Cells in the table summarize management direction for overlapping areas.

	Existing and Proposed Wilderness, Wild and Scenic Rivers	**Southern Sierra Fisher Conservation Area**	**Old Forest Emphasis Area**	**Urban Wildland Intermix: Defense Zone**	**Urban Wildland Intermix: Threat Zone**	**General Forest**
California Spotted Owl PACs	Apply direction consistent with wilderness and wild and scenic river area direction	Apply direction for PACs	Apply direction for PACs	Apply special management direction for PACs in these areas	Apply direction for PACs	Apply direction for PACs
Northern Goshawk PACs	Apply direction consistent with wilderness and wild and scenic river area direction	Apply direction for PACs	Apply direction for PACs	Apply special management direction for PACs in these areas	Apply direction for PACs	Apply direction for PACs
Great Gray Owl Protected Activity Centers	Apply direction consistent with wilderness and wild and scenic river area direction	Apply direction for PACs	Apply direction for PACs	Apply direction for PACs	Apply direction for PACs	Apply direction for PACs
Forest Carnivore Den Site Buffers	Apply direction consistent with wilderness and wild and scenic river area direction	Apply direction for den sites	Apply direction for den sites	Apply special management direction for den sites in these areas.	Apply special management direction for den sites in these areas.	Apply direction for den sites
California Spotted Owl Home Range Core Areas	Apply direction for wilderness and wild and scenic river areas	Apply direction for home range core areas.	Identical standards and guidelines	Core area standards and guidelines do not apply.	Core area standards and guidelines do not apply.	Apply direction for core areas
Riparian Conservation Areas and Critical Aquatic Refuges	Apply direction consistent with wilderness and wild and scenic river area direction	Apply direction for both allocations.	Apply direction for both allocations.	Apply direction for both allocations.	Apply direction for both allocations.	Apply direction for both allocations.

B. Forest-wide Standards and Guidelines

The standards and guidelines described in this section apply to all land allocations (other than wilderness areas and wild and scenic river areas), unless stated otherwise in these standards and guidelines. Standards and guidelines in existing forest plans that are not amended by this Record of Decision still apply.

Fuel Reduction Treatments

Strategically place fuel treatments across the landscape to achieve fuel conditions that reduce the size and severity of wildland fires. Maintain 30 to 40 percent of each landscape (outside the defense zone of the urban wildland intermix zone) in a condition that meets fuel management objectives.

Locate fuel treatments to interrupt wildland fire spread and reduce fire severity. Typically locate treatment areas on the upper two-thirds of the slope, on south and west aspects, in mid- and lower elevation vegetation types. Conduct fuel treatments in areas of high fire hazard and risk in the following priority order: (1) urban wildland intermix zone, (2) old forest emphasis areas where fire hazard and risk is greatest, (3) sensitive species habitats, and (4) general forest.

Incorporate fuel treatment and protection planning into reforestation plans. Ensure that tree stocking levels and silvicultural goals are consistent with fuel reduction objectives in plantations located in high and moderate fire hazard and risk areas.

The structural change to treatment acres by mechanical methods is limited to one per decade. Treatments should be designed to be effective for at least 10 years. When subsequent entries within 10 years are needed to reduce surface fuels, prescribed fire is the preferred method. When burning opportunities are limited, mechanical treatments such as mastication and piling, are allowed.

Vegetation and Fuels Treatments in Plantations

In plantations (timber strata classifications 0x, 1x, 2x, and 3x), apply the necessary silvicultural and fuels reduction treatments to: (1) accelerate the development of old forest characteristics, (2) increase stand heterogeneity, (3) promote hardwoods, and (4) reduce risk of loss to wildland fire. Use mechanical fuels treatments to remove the material necessary to achieve the following outcomes if the treated plantation was to burn under 90th percentile fire weather conditions: (1) wildland fire would burn with average flame lengths of 6 feet or less, (2) the rate of fire spread would be less than 50 percent of the pre-treatment rate of spread, and (3) fire line production rates would be doubled. Achieve these outcomes by reducing surface and ladder fuels and adjacent crown fuels. Treatments should be effective for more than 5 years.

Vegetation and Fuels Treatments in Shrubfields

Design mechanical treatments in brush and shrub patches to remove the material necessary to achieve the following outcomes from wildland fire under 90th percentile fire weather conditions: (1) wildland fires would burn with an average flame length of 8 feet or less; (2) the fire's rate of spread would be less than 50 percent of the pre-treatment rate of spread; and (3) fire line production rates would be doubled. Treatments should be effective for more than 5 years.

Fuel Treatments in Forested Stands of Large Trees with Moderate to Dense Canopy Cover

Identify stands larger than 1 acre classified as California Wildlife Habitat Relationships (CWHR) 5M, 5D, and 6.

The following standards and guidelines apply to forested patches or stands larger than 1 acre identified as CWHR 5M, 5D, and 6 that are located outside the defense zone of the urban wildland intermix zone:

Design mechanical fuel treatments to remove the material necessary to achieve the following outcomes:

- *Stands with less than 40 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 15 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with 40 to 70 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 20 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with greater than 70 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 25 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

To enhance stand heterogeneity and to maintain intact biological processes, particularly soil biota that may be affected by mechanical treatments, do not mechanically treat the remaining 25 percent of the stand area.

Design mechanical treatments to achieve or approach the fuels outcomes described above by removing surface and ladder fuels less than 12 inches dbh. Allow incidental felling of trees between 12 and 20 inches dbh where required for operability. Retain felled trees on the ground where needed to achieve down woody material standards of 10 to 20 tons per acre in logs greater than 12 inches diameter at midpoint.

Do not reduce canopy cover in dominant and co-dominant trees by more than 10 percent across a stand following mechanical treatments. (For example, if canopy cover in a stand's dominant and co-dominant trees is 80 percent, retain at least 70 percent canopy cover in dominant and co-dominant trees following mechanical treatment.)

In westside forest types, where pre-treatment canopy cover is between 50 and 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover in dominant and co-dominant trees. Do not reduce canopy cover in stands that currently have between 40 and 50 percent canopy cover, except where canopy cover reductions result from removing shade-tolerant trees less than 6 inches dbh. In the eastside pine forest type, retain a minimum of 30 percent canopy cover.

For prescribed fire treatments, use multiple entries as needed to achieve fuels management objectives, up to two burns per decade and four burns over 20 years.

Hardwood Management

Where possible, create openings around existing California black oak and canyon live oak to stimulate natural regeneration.

Manage hardwood ecosystems for a diversity of hardwood tree size classes within a stand such that seedlings, saplings, and pole-sized trees are sufficiently abundant to replace large trees that die.

Retain the mix of mast-producing species where they exist within a stand.

Retain all blue oak and valley oak trees except: (1) stand restoration strategies call for tree removal; (2) trees are lost to fire; or (3) where tree removal is needed for public health and safety.

When planning prescribed fire or mechanical treatments in hardwood ecosystems: (1) consider the risk of noxious weed spread and (2) minimize impacts to hardwood ecosystem structure and biodiversity.

During mechanical vegetation treatments, prescribed fire, and salvage operations, retain all large hardwoods on the westside except where: (1) large trees pose an immediate threat to human life or property or (2) losses of large trees are incurred due to prescribed or wildland fire. Large montane hardwoods are trees with a dbh of 12 inches or greater. Large blue oak woodland hardwoods are trees with a dbh of 8 inches or greater. Allow removal of larger hardwood trees (up to 20 inches dbh) if research supports the need to remove larger trees to maintain and enhance the hardwood stand.

Prior to commercial and noncommercial hardwood and fuelwood removal in hardwood ecosystems, pre-mark or pre-cut hardwood trees to ensure that stand goals are met. Retain a diverse distribution of stand cover classes.

During or prior to landscape analysis, spatially determine distributions of existing and potential natural hardwood ecosystems (Forest Service Handbook (FSH) 2090.11). Assume pre-1850 disturbance levels for potential natural community distribution. Work with province ecologists or other qualified personnel to map and/or model hardwood ecosystems at a landscape scale (approximately 30,000 to 50,000 acres). Include the following steps in the analysis: (1) compare distributions of potential natural hardwood ecosystems with existing hardwood ecosystems; (2) identify locations where existing hardwood ecosystems are outside the natural range of variability for potential natural hardwood ecosystem distribution; and (3) identify hardwood restoration and enhancement projects.

Include hardwoods in stand examinations. Encourage hardwoods in plantations. Promote hardwoods after stand-replacing events. Retain buffers around existing hardwood trees by not planting conifers within 20 feet of the edge of hardwood tree crowns.

Vegetation Management Related to Habitat Connectivity for Old Forest Associated Species

Minimize old forest habitat fragmentation. Assess potential impacts of fragmentation on old forest associated species (particularly fisher and marten) in biological evaluations. Evaluate locations of new landings, staging areas, and recreational developments, including trails and other disturbances.

Assess the potential impact of projects on the connectivity of habitat for old forest associated species.

Consider forested linkages (with canopy cover greater than 40 percent) that are interconnected via riparian areas and ridgetop saddles during landscape-level and project-level analysis.

During landscape analysis, identify areas for acquisition, exchange, or conservation easements to enhance connectivity of habitat for old forest associated species. Assign a priority order for these areas.

If fishers are detected outside the southern Sierra fisher conservation area, evaluate habitat conditions and implement appropriate mitigation measures to retain suitable habitat within the estimated home range. Institute project-level surveys over the appropriate landscape area.

Large Tree Retention

When implementing vegetation and fuels treatments, retain all live conifer trees with a dbh of 30 inches or greater in westside forest types and 24 inches or greater in the eastside pine forest type. Retain montane hardwoods with a dbh of 12 inches or larger in westside forest types. Occasional mortality of larger trees is expected to occur; however, design prescribed burn prescriptions and techniques to minimize the loss of large trees and large down material.

Tree Species Composition

Promote shade intolerant pine species (sugar pine and ponderosa pine) and hardwoods in westside forest types.

Snags and Down Woody Material

Within westside vegetation types, beginning with the largest down logs, sequentially retain pieces of down wood until at least 10 to 20 tons per acre are retained over a treatment unit. Within eastside vegetation types, retain at least three large logs per acre. Do not retain pieces smaller than 12 inches diameter at midpoint to meet this standard. Treatment units in the defense zone of the urban wildland intermix zone are exempt from this standard.

As special use permits for areas larger than 40 acres are issued or re-issued, consider site-specific measures to maintain coarse woody material. Permits for areas less than 40 acres are exempt from this standard and guideline.

Following stand-replacing events (as a result of wildland fire, insects, or diseases), do not conduct salvage harvest in at least 10 percent of the total area affected by the stand-replacing event. This unsalvaged acreage should be comprised of stands classified as California Wildlife Habitat Relationship (CWHR) size class 5 or 6 (average dbh of overstory trees (snags) greater than 24 inches). As needed, use stands classified as CWHR size class 4 (average dbh of overstory trees (snags) between 11 and 24 inches) to reach the 10-percent level. This standard and guideline does not apply to the defense zone of the urban wildland intermix zone.

Retain the following numbers of large snags after fuels treatments except where: (1) snag removal is needed to address imminent safety hazards and (2) snag levels are reduced as a result of incidental loss to prescribed fire. In westside mixed conifer and ponderosa pine forest types, retain four of the largest snags per acre. In the red fir forest type, retain six of the largest snags per acre. In eastside pine and eastside mixed conifer forest types, retain three of the largest snags per acre. In westside hardwood ecosystems, retain four of the largest snags (hardwood or conifer) per acre. Where standing live hardwood trees lack dead branches, retain six of the largest snags per acre, where they exist, to supplement wildlife needs for dead material. Use snags larger than 15 inches dbh to meet this standard. Evaluate snag density on a 10-acre basis. The defense zone of the urban wildland intermix zone and developed recreation sites are exempt from this standard and guideline.

Incidental Removal of Vegetation and Down Woody Material

Incidental removal of vegetation and down woody material for activities such as administering special use permits; maintaining recreation developments; constructing, reconstructing, and maintaining roads, trails, and rights of way; expanding resorts based on approved development plans; and removing trees that present imminent safety hazards may deviate from vegetation management standards and guidelines. Exceptions to vegetation management standards and guidelines may also include restoration activities, such as regenerating aspen, managing sugar pine, and regenerating giant sequoia.

Fall and remove hazard trees along maintenance level 3, 4, and 5 roads and within or immediately adjacent (tree falling distance) to administrative sites. Review by an appropriate resource specialist is required prior to falling hazard trees along maintenance level 1 and 2 roads. Retain felled trees where needed to meet down woody material standards.

Wolverine and Sierra Nevada Red Fox Detections

Upon a detection (photograph, track plate, or sighting verified by a wildlife biologist) of a wolverine or Sierra Nevada red fox, conduct an analysis to determine if activities within 5 miles of the detection have a potential to affect the species. For a 2-year period following the detection, restrict activities that are determined in the analysis to have an adverse impact from January 1 to June 30.

Surveys in Suitable California Spotted Owl Habitat

Prior to undertaking vegetation treatments in suitable California spotted owl habitat with unknown occupancy, conduct surveys in accordance with Pacific Southwest Region survey protocol. Designate California spotted owl protected activity centers (PACs) where appropriate based on survey results.

Surveys in Suitable Northern Goshawk Nesting Habitat

Prior to undertaking vegetation treatments in suitable northern goshawk nesting habitat that is not within an existing California spotted owl or northern goshawk PAC, conduct surveys using Pacific Southwest Region survey protocols. Suitable northern goshawk nesting habitat is defined as follows: (1) in the eastside pine forest type, suitable nesting habitat is stands with an average tree size of 11 inches dbh or greater and at least 20 percent canopy cover; and (2) in other forest types, suitable nesting habitat is stands with an average tree size of 11 inches dbh or greater and at least 40 percent canopy cover. Delineate PACs surrounding all known and newly discovered northern goshawk breeding territories detected on National Forest System lands. (Refer to the section on northern goshawk PACs for detailed standards and guidelines.)

Threatened, Endangered, Proposed, and Sensitive Plant Species

Conduct field surveys for threatened, endangered, proposed, and sensitive (TEPS) plant species early enough in the project planning process so that the project can be designed to conserve or enhance TEPS plants and their habitat. Conduct surveys according to procedures outlined in the Forest Service Handbook (FSH 2609.25.11). If additional field surveys are conducted as part of project implementation, document the survey results in the project file.

Minimize or eliminate direct and indirect impacts from management activities on TEPS plants unless the activity is designed to maintain or improve plant populations (Forest Service Manual 2670).

Ensure that all projects involving revegetation (planting or seeding) adhere to regional native plant policies.

Noxious Weed Management

Follow Forest Service Manual (FSM 2080) direction pertaining to integrated weed management when planning weed control projects.

Inform forest users, local agencies, special use permittees, groups, and organizations in communities near national forests about noxious weed prevention and management.

Work cooperatively with California and Nevada State agencies and individual counties (for example, Cooperative Weed Management Areas) to: (1) prevent the introduction and establishment of noxious weed infestations and (2) control existing infestations.

As part of project planning, conduct a noxious weed risk assessment 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.

When prescribed in project-level noxious weed risk assessments, require off-road equipment and vehicles (both Forest Service and contracted) used for project implementation to be weed free. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy.

Minimize weed spread by incorporating weed prevention and control measures into ongoing management or maintenance activities that involve ground disturbance or the possibility of spreading weeds. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy.

Conduct follow-up inspections of ground disturbing activities to ensure adherence to the Regional Noxious Weed Management Strategy.

Encourage use of certified weed free hay and straw. Cooperate with other agencies and the public in developing a certification program for weed free hay and straw. Phase in the program as certified weed free hay and straw becomes available. This standard and guideline applies to pack and saddle stock used by the public, livestock permittees, outfitter guide permittees, and local, State, and Federal agencies.

Include weed prevention measures, as necessary, when amending or re-issuing permits (including, but not limited to, livestock grazing, special uses, and pack stock operator permits).

Include weed prevention measures and weed control treatments in mining plans of operation and reclamation plans. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy. Monitor for weeds, as appropriate, for 2 years after project implementation (assuming no weed introductions have occurred).

Conduct a risk analysis for weed spread associated with burned area emergency rehabilitation (BAER) treatments. The BAER team is responsible for conducting this analysis. Monitor and treat weed infestations for 3 years after the fire.

During landscape analysis or project-level planning, consider restoring or revegetating degraded ecosystems to minimize the potential for noxious weed reinfestations. Adhere to regional native plant policies for revegetation.

Consult with American Indians to determine priority areas for weed prevention and control where traditional gathering areas are threatened by weed infestations.

Complete noxious weed inventories, based on a regional protocol, within 3 years of the signing of the record of decision for the Sierra Nevada Forest Plan Amendment Project. Review and update these inventories on an annual basis.

As outlined in the Regional Noxious Weed Management Strategy, when new, small weed infestations are detected, emphasize eradication of these infestations while providing for the safety of field personnel.

Routinely monitor noxious weed control projects to determine success and to evaluate the need for follow-up treatments or different control methods. Monitor known weed infestations, as appropriate, to determine changes in weed population density and rate of spread.

Grazing

To protect hardwood regeneration in grazing allotments, allow livestock browse on no more than 20 percent of annual growth of hardwood seedlings and advanced regeneration. Alter grazing plans if hardwood regeneration and recruitment needs are not being met.

Grazing utilization in annual grasslands will maintain a minimum of 60 percent cover. Where grasslands are in satisfactory condition and annual precipitation is greater than 10 inches, manage for 700 pounds residual dry matter (RDM) per acre. Where grasslands are in satisfactory condition and annual precipitation is less than 10 inches, manage for 400 pounds RDM per acre. Where grasslands are in unsatisfactory condition and annual precipitation is greater than 10 inches, manage for 1,000 pounds RDM per acre; manage for 700 pounds RDM per acre where grasslands are in unsatisfactory condition and precipitation is less than 10 inches. Adjust these standards, as needed, based on grassland condition. This standard and guideline only applies to grazing utilization.

Mining

Ensure that plans of operation, reclamation plans, and reclamation bonds address the costs of: (1) removing facilities, equipment, and materials; (2) isolating and neutralizing or removing toxic or potentially toxic materials; (3) salvaging and replacing topsoil; and (4) preparing the seed bed and revegetating to meet the objectives of the land allocation in which the operation is located.

Ensure that mine owners and operators limit new road construction, decommission unnecessary roads, and maintain needed roads consistent with Forest Service roads policy and management direction for the land allocation.

Require mine reclamation to be conducted in a timely manner.

Inspect and monitor mining-related activities on a regular basis to ensure compliance with laws, regulations, and operating plans. Base the frequency of inspections and monitoring on the potential severity of mining activity-related impacts.

During mining-related activities, limit the clearing of trees and other vegetation to the minimum necessary. Clearing of vegetation should be pertinent to the approved phase of mineral exploration and development.

Wheeled Vehicles

Allow wheeled vehicle travel on designated routes, trails, and off highway vehicle (OHV) areas. Each national forest may designate where OHV use is allowed. Unless otherwise restricted by existing forest plans or other area-specific standards and guidelines, allow cross-country travel by over snow vehicles.

Road Construction, Reconstruction, and Relocation

To protect watershed resources, meet the following standards for road construction, road reconstruction, and road relocation: (1) design new stream crossings and replacement stream crossings for at least the 100-year flood, including bedload and debris; (2) design stream crossings to minimize the diversion of streamflow out of the channel and down the road in the event of a crossing failure; (3) design stream crossings to minimize disruption of natural hydrologic flow paths, including minimizing diversion of streamflow and interception of surface and subsurface water; (4) avoid wetlands or minimize effects to natural flow patterns in wetlands; and (5) avoid road construction in meadows.

Conduct an integrated interdisciplinary transportation analysis, following the national roads analysis procedures, as part of landscape analysis. Complete unclassified road inventories for each national forest within 10 years.

Air Quality

Coordinate and cooperate with other agencies and the public to manage air quality. Conduct prescribed burns when conditions for smoke dispersal are favorable, especially away from sensitive or Class I Areas. Use smoke modeling tools to predict smoke dispersion.

Minimize smoke emissions by following Best Available Control Measures (BACMs). Avoid burning on high visitor days. Notify the public before burning.

Use the following documents for guidance and direction for smoke management and air quality protection: (1) Interim Air Quality Policy on Wildland and Prescribed Fires, announced by the Environmental Protection Agency (EPA) in 1998; (2) Memorandum of Understanding between the California Air Resources Board (CARB) and the Forest Service, signed on July 13, 1999; (3) Smoke Management Guidelines for Agricultural and Prescribed Burning under Title 17, currently being revised by CARB; and (4) the Nevada Smoke Management Plan.

Soil Quality

Implement the soil quality standards outlined in Appendix F of the FEIS. Attain standards for ground cover, compaction, and ground disturbance to minimize the risk of sediment delivery to aquatic systems from management activities.

C. Land Allocation Standards and Guidelines

The standards and guidelines in this part apply to specific land allocations.

1. Wilderness Areas and Wild and Scenic River Areas

Wilderness Areas and Wild and Scenic River Areas are shown on the Modified Alternative 8 map for the FEIS.

Management of these lands follows written direction in applicable legislation and plans. Direction from the standards and guidelines in this decision also applies where it is more restrictive or provides greater benefits to at-risk species, unless application of these standards and guidelines are contrary to legislative or regulatory language or intent.

2. Inventoried Roadless Areas

Inventoried roadless areas are shown on the Modified Alternative 8 map for the FEIS.

National management direction from the decision for the Roadless Rule Final EIS prohibits road construction and reconstruction in inventoried roadless areas and limits timber harvesting to projects designed for stewardship purposes. This includes timber harvests designed to protect habitat for threatened and endangered species, reduce the risk of uncharacteristically severe fires, or restore ecological structure, function, processes, or composition. Fuel treatments in inventoried roadless areas may be considered stewardship treatments and therefore permissible under the Roadless Rule.

3. California Spotted Owl Protected Activity Centers

California spotted owl protected activity centers (PACs) are unmapped land allocations. The standards and guidelines in this section provide direction for designating and managing California spotted owl PACs. PACs overlap other land allocations: standards and guidelines for PACs supercede standards and guidelines for land allocations in which PACs are located. Riparian conservation area standards and guidelines apply to PACs (or portions of PACs) in riparian areas and critical aquatic refuges except where the standards and guidelines for PACs place greater restrictions on management activities. Special management direction (see below) applies to fuel treatments in PACs located in the defense zone of the urban wildland intermix zone.

Designating California Spotted Owl PACs

Delineate California spotted owl protected activity centers (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: (1) the most recent documented nest site, (2) the most recent known roost site when a nest location remains unknown, and (3) a central point based on repeated daytime detections when neither nest or roost locations are known.

Delineate PACs to: (1) include known and suspected nest stands and (2) encompass the best available 300 acres of habitat in as compact a unit as possible. Select the best available habitat for PACs to incorporate: (1) two or more tree canopy layers; (2) trees in the dominant and co-dominant crown classes averaging 24 inches dbh or greater; (3) at least 70 percent tree canopy cover (including hardwoods); and (4) in

descending order of priority, CWHR classes 6, 5D, 5M, 4D, and 4M and other stands with at least 50 percent canopy cover (including hardwoods). Use aerial photography interpretation and field verification as needed to delineate PACs.

As additional nest location and habitat data become available, review boundaries of PACs and make adjustments as necessary to better include known and suspected nest stands and to encompass the best available 300 acres of habitat.

When activities are planned adjacent to non-national forest lands, check available databases for the presence of nearby California spotted owl activity centers on non-national forest lands. Delineate a 300-acre circular area centered on the activity center. Designate and manage any part of the circular 300-acre area that lies on national forest lands as a California spotted owl PAC.

As described under the forest-wide standards and guidelines, prior to undertaking vegetation treatments in California spotted owl habitat with unknown occupancy, conduct surveys in accordance with Pacific Southwest Region survey protocol. Designate California spotted owl protected activity centers where appropriate based on survey results.

When activities are planned within or adjacent to a PAC and the location of the nest site or activity center is uncertain, conduct surveys to establish or confirm the location of the nest or activity center.

Maintain PACs regardless of California spotted owl occupancy status, unless habitat is rendered unsuitable by a catastrophic stand-replacing event and surveys conducted to protocol confirm non-occupancy.

California Spotted Owl PACs: Activity-Related Standards and Guidelines

Limited Operating Period

Maintain a limited operating period (LOP), prohibiting activities within approximately ¼ mile of the nest site during the breeding season (March 1 through August 31) unless surveys confirm that California spotted owls are not nesting. The LOP does not apply to existing road and trail use and maintenance or continuing recreation use, except where analysis of proposed projects or activities determines that either existing or proposed activities are likely to result in nest disturbance.

The LOP may be waived for individual projects or activities of limited scope and duration or when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biological evaluation determines that a nest site will be shielded from planned activities by topographic features that minimize disturbance, the LOP buffer distance may be reduced.

The LOP may be waived where necessary to allow for early season prescribed burning in up to 5 percent of the California spotted owl PACs on a national forest per year.

The LOP may be modified or waived to assess the effects of prescribed fire and mechanical treatments on breeding owls as a formal adaptive management study developed in cooperation with the Pacific Southwest Research Station.

Fuel Treatments

In PACs located outside the defense zone of the urban wildland intermix zone: Limit stand-altering activities to reducing surface and ladder fuels through prescribed fire treatments. In forested stands with overstory trees 11 inches dbh and greater, design prescribed fire treatments that have an average flame length of 4 feet or less. Prior to burning, conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), within a 1- to 2-acre area surrounding known nest trees as needed to protect nest trees and trees in their immediate vicinity.

In PACs located inside the defense zone of the urban wildland intermix zone: Prohibit mechanical treatments within a 500-foot radius buffer around the California spotted owl activity center. Allow prescribed burning within the 500-foot radius buffer. Prior to burning, conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), within a 1- to 2-acre area surrounding known nest trees as needed to protect nest trees and trees in their immediate vicinity. The remaining area of the PAC may be mechanically treated to achieve the fuels reduction outcomes described for the general forest land allocation.

Conduct vegetation treatments in no more than 5 percent per year and 10 percent per decade of the California spotted owl PACs in the 11 Sierra Nevada national forests until a formal monitoring and adaptive management approach is developed in coordination with the Pacific Southwest Research Station. Monitor the number of PACs treated at a bio-regional scale. Update the total number of PACs to account for losses of PACs due to catastrophic events.

New Roads, Trails, Off Highway Vehicle Routes, Recreational Developments, and Other Developments

Evaluate proposals for new roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb nest sites. Mitigate impacts where there is documented evidence of disturbance to the nest site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance).

4. Northern Goshawk Protected Activity Centers (PACs)

Northern goshawk protected activity centers (PACs) are unmapped land allocations. The standards and guidelines in this section provide direction for designating and managing northern goshawk PACs. PACs overlap other land allocations: standards and guidelines for PACs supercede standards and guidelines for land allocations in which PACs are located. Riparian conservation area standards and guidelines apply to PACs (or portions of PACs) in riparian areas and critical aquatic refuges except where the standards and guidelines for PACs place greater restrictions on management activities. Special management direction (see below) applies to fuel treatments in northern goshawk PACs located in the defense zone of the urban wildland intermix zone.

Designating Northern Goshawk PACs

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

Delineate PACs to: (1) include known and suspected nest stands and (2) encompass the best available 200 acres of forested habitat in the largest contiguous patches possible, based on aerial photography. Where suitable nesting habitat occurs in small patches, define PACs as multiple blocks in the largest best available patches within 0.5 miles of one another. Best available forested stands for PACs have the following characteristics: (1) trees in the dominant and co-dominant crown classes average 24 inches dbh or greater; (2) in westside conifer and eastside mixed conifer forest types, stands have at least 70 percent tree canopy cover; and (3) in eastside pine forest types, stands have at least 60 percent tree canopy cover. 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, review boundaries of PACs and make adjustments as necessary to better include known and suspected nest stands and to encompass the best available 200 acres of forested habitat.

When activities are planned adjacent to non-national forest lands, check available databases for the presence of nearby northern goshawk activity centers on non-national forest lands. Delineate a 200-acre circular area centered on the activity center. Designate and manage any part of the circular 200-acre area that lies on national forest lands as a northern goshawk PAC.

When activities are planned within or adjacent to a PAC and the location of the nest site or activity center is uncertain, conduct surveys to establish or confirm the location of the nest or activity center.

Maintain PACs regardless of northern goshawk occupancy status, unless habitat is rendered unsuitable by a catastrophic stand-replacing event and surveys conducted to protocol confirm non-occupancy.

Northern Goshawk PACs: Activity-Related Standards and Guidelines

Limited Operating Period

Maintain a limited operating period (LOP), prohibiting activities within approximately ¼ mile of the nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting. If the nest stand is unknown, either apply the LOP to a ¼-mile area surrounding the PAC or survey to determine the nest stand location. The LOP does not apply to existing road and trail use and maintenance or continuing recreation use, except where analysis of proposed projects or activities determines that either existing or proposed activities are likely to result in nest disturbance.

The LOP may be waived for individual projects or activities of limited scope and duration or when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biological evaluation determines that a nest site will be shielded from planned activities by topographic features that minimize disturbance, the LOP buffer distance may be reduced.

The LOP may be waived where necessary to allow for early season prescribed burning in up to 5 percent of the northern goshawk PACs on a national forest per year.

New Roads, Trails, Off Highway Vehicle Routes, Recreational Developments, and Other Developments

Evaluate proposals for new roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb nest sites. Mitigate impacts where there is documented evidence of disturbance to the nest site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance).

Fuel Treatments

In PACs located outside the defense zone of the urban wildland intermix zone: Limit stand-altering activities to reducing surface and ladder fuels through prescribed fire treatments. In forested stands with overstory trees 11 inches dbh and greater, design prescribed fire treatments that have an average flame length of 4 feet or less. Prior to burning, conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), within a 1- to 2-acre area surrounding known nest trees as needed to protect nest trees and trees in their immediate vicinity.

In PACs located inside the defense zone of the urban wildland intermix zone: Prohibit mechanical treatments within a 500-foot radius buffer around nest trees. Allow prescribed burning within the 500-foot radius buffer. Prior to burning, conduct hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6 inches dbh), within a 1- to 2-acre area surrounding known nest trees as needed to protect nest trees and trees in their immediate vicinity. The remaining area of the PAC may be mechanically treated to achieve the fuels reduction outcomes described for the general forest land allocation.

Conduct mechanical treatments in no more than 5 percent per year and 10 percent per decade of the northern goshawk PACs in the 11 Sierra Nevada national forests until a formal monitoring and adaptive management study is developed in coordination with the Pacific Southwest Research Station.

5. Great Gray Owl Protected Activity Centers (PACs)

Great gray owl protected activity centers (PACs) are unmapped land allocations. The standards and guidelines in this section provide direction for designating and managing great gray owl PACs. PACs overlap other land allocations: standards and guidelines for PACs supercede standards and guidelines for land allocations in which PACs are located. Riparian conservation area standards and guidelines apply to PACs (or portions of PACs) in riparian areas and critical aquatic refuges except where the standards and guidelines for PACs place greater restrictions on management activities.

Designating Great Gray Owl PACs

Establish and maintain a protected activity center (PAC) that includes the forested area and adjacent meadow around all known great gray owl nest stands. Delineate at least 50 acres of the highest quality nesting habitat (CWHR types 6, 5D, and 5M) available in the forested area surrounding the nest. Also include the meadow or meadow complex that supports the prey base for nesting owls.

Conduct additional surveys to established protocols to follow up reliable sightings of great gray owls.

Great Gray Owl PACs: Activity-Related Standards and Guidelines

Limited Operating Period

Apply a limited operating period (LOP), prohibiting vegetation management activities and road construction within ¼ mile of active great gray owl nest stands during the nesting period (typically March 1 to August 15). The LOP does not apply to: (1) existing road traffic and road maintenance, (2) trail uses, and (3) other recreational uses and activities, unless a biological evaluation documents that these activities will result in nest disturbance. The LOP may also be waived for projects of limited scope and duration.

New Roads, Trails, Off Highway Vehicle Routes, Recreational Developments, and Other Developments

Evaluate proposals for new roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb nest sites. Mitigate impacts where there is documented evidence of disturbance to the nest site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance).

Grazing

In meadow areas of great gray owl PACs, maintain herbaceous meadow vegetation at least 12 inches in height and covering at least 90 percent of the meadow.

6. Forest Carnivore Den Sites

Forest carnivore den site buffers are unmapped land allocations. The standards and guidelines in this section provide direction for designating and managing forest carnivore den site buffers. Forest carnivore den site buffers overlap other land allocations: standards and guidelines for den site buffers supercede standards and guidelines for land allocations in which den sites are located. Riparian conservation area standards and guidelines apply to den site buffers (or portions of den site buffers) in riparian areas and critical aquatic refuges except where the standards and guidelines for den site buffers place greater restrictions on management activities. Special management direction (see below) applies to fuel treatments in den sites located in the urban wildland intermix zone.

Designating Forest Carnivore Den Sites

Fisher den sites are 700-acre buffers consisting of the highest quality habitat (CWHR size class 4 or greater and canopy cover greater than 60 percent) in a compact arrangement surrounding verified fisher birthing and kit rearing dens in the largest, most contiguous blocks available.

Marten den sites are 100-acre buffers consisting of the highest quality habitat in a compact arrangement surrounding the den site. CWHR types 6, 5D, 5M, 4D, and 4M in descending order of priority, based on availability, provide highest quality habitat for the marten.

Forest Carnivore Den Sites: Activity-Related Standards and Guidelines

Limited Operating Periods

Protect fisher den site buffers from disturbance with a limited operating period (LOP) from March 1 through June 30 for all new projects as long as habitat remains suitable or until another Regionally-approved management strategy is implemented. The LOP may be waived for individual projects of limited scope and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.

Protect marten den site buffers from disturbance with a limited operating period (LOP) from May 1 through July 31 for all new projects as long as habitat remains suitable or until another Regionally-approved management strategy is implemented.

Evaluate the appropriateness of LOPs for existing uses in fisher and marten den site buffers during environmental analysis.

Fuel Treatments

Avoid fuel treatments in den site buffers to the extent possible. If areas within den site buffers must be treated to achieve fuels objectives for the urban wildland intermix zone, limit treatments to mechanical clearing of fuels. Treat ladder and surface fuels over 85 percent of the treatment unit to achieve fuels objectives. Use piling or mastication to treat surface fuels during initial treatment. Burning of piled debris is allowed. Prescribed fire may be used to treat fuels if no other reasonable alternative exists.

Roads, Trails, Off Highway Vehicle Routes, Recreational Developments, and Other Developments

Evaluate proposals for new roads, trails, off highway vehicle routes, and recreational and other developments for their potential to disturb den sites. Mitigate impacts where there is documented evidence of disturbance to the den site from existing recreation, off highway vehicle route, trail, and road uses (including road maintenance).

7. Old Forest Emphasis Areas

Old forest emphasis areas are mapped land allocations. The standards and guidelines in this section provide direction for managing old forest emphasis areas. Unmapped land allocations (such as PACs, den site buffers, riparian areas, and meadows) and the urban wildland intermix zone overlap old forest emphasis areas. Management standards and guidelines for PACs and den site buffers supercede standards and guidelines for old forest emphasis areas. Standards and guidelines for California spotted owl home range core areas are identical to those for old forest emphasis areas. Old forest emphasis area standards and guidelines apply to areas where the southern Sierra fisher conservation area overlaps with old forest emphasis areas. Where the urban wildland intermix zone overlaps with old forest emphasis areas, urban wildland intermix fuel treatment standards and guidelines supercede fuel treatment standards and guidelines for old forest emphasis areas. Management direction for overlapping riparian conservation areas, critical aquatic refuges, and meadows complements old forest emphasis area management direction; in these overlaps, the standards and guidelines of both allocations apply.

Description

Old forest emphasis areas are mapped land allocations shown on the Modified Alternative 8 map included in the FEIS. The record of decision has provisions for making minor adjustments to correct the boundaries of mapped land allocations, including old forest emphasis areas. (See Section C. *Map Errata* under Part VIII. *Implementation* in the Record Of Decision.)

Old Forest Emphasis Areas: Activity-Related Standards and Guidelines

Fuel Treatments

Give priority to restoring historic fire return intervals where possible. Emphasize fire restoration in pine and mixed conifer forests. In mixed conifer forests, fire return intervals vary by aspect and topographic position, with most frequent burning on south- and west-facing aspects.

Emphasize fuel treatments in stands at lower elevations with high fire hazard in the pine, mixed conifer, eastside pine, and eastside mixed conifer forest types. Emphasize fuel treatments on the upper two-thirds of south- and west-facing aspects near roads. Use mechanical treatments where fire managers determine a high potential for: (1) prescribed fire escape due to excessive fuel accumulations; (2) unacceptable smoke impacts; or (3) canopy cover and old forest structure loss due to excessive surface and ladder fuels.

Design mechanical fuel treatments to remove the material necessary to achieve the following outcomes:

- *Stands with less than 40 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 15 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with 40 to 70 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 20 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with greater than 70 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 25 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

To enhance stand heterogeneity and to maintain intact biological processes, particularly soil biota that may be affected by mechanical treatments, do not mechanically treat the remaining 25 percent of the stand area.

Where mechanical treatments are necessary, design treatments to achieve or approach the fuels outcomes described above by reducing surface and ladder fuels less than 12 inches dbh. Apply treatments to enhance stand heterogeneity. Allow incidental felling of trees between 12 and 20 inches dbh where required for operability. Retain felled trees on the ground where needed to achieve down woody material standards of 10 to 20 tons per acre in logs greater than 12 inches diameter at midpoint.

Do not reduce canopy cover in dominant and co-dominant trees by more than 10 percent across a stand following mechanical treatments. (For example, if canopy cover in a stand's dominant and co-dominant trees is 80 percent, retain at least 70 percent canopy cover in dominant and co-dominant trees following mechanical treatment.)

In westside forest types, where pre-treatment canopy cover in dominant and co-dominant trees is between 50 and 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands that currently have between 40 and 50 percent canopy cover in dominant and co-dominant trees, except where canopy cover reductions result from removing primarily shade-tolerant trees less than 6 inches dbh. In the eastside pine forest type, retain a minimum of 30 percent canopy cover.

Strategically placed area fuel treatments may be needed in old forest emphasis areas to minimize risks to human life and property, sensitive resources, or the old forest emphasis area from loss to wildfire. When treatments are necessary, prescribed fire is the first priority for achieving the fuels objectives. When prescribed fire will not achieve fuels objectives, use mechanical thinning as described in the preceding paragraphs to achieve the fuels objectives. When this treatment will not achieve the fuels objectives due to existing stand conditions, mechanical thinning of trees up to 20 inches dbh and canopy reductions of up to 20 percent (refer to mechanical treatment standards and guidelines for the threat zone) may be conducted in CWHR 4M and 4D stands to meet fuels reduction objectives.

Conduct an analysis of suitable owl habitat before applying mechanical treatments that remove trees up to 20 inches dbh and reduce canopy cover up to 20 percent in old forest emphasis areas. This type of treatment may only be used when sufficient suitable owl habitat exists within 1½ miles of a California spotted owl nest site or activity center to satisfy the requirements of a home range core area, as described

in the standards and guidelines for delineating California spotted owl home range core areas. This type of treatment may not be applied within 1½ miles of the nest site or activity center if the requirements for delineating a home range core area cannot be met. Document this site-specific analysis in the environmental analysis.

Retain all snags 15 inches or greater following stand-replacing events except to address imminent hazards to human safety. Following stand-replacing events, dead trees may be removed to the extent that project analysis recommends removal to benefit landscape conditions for old forest structure and function. Conduct the project analysis to determine varying snag retention levels, considering landscape position and site conditions (such as riparian areas and ridgetops), avoiding uniformity across large areas.

8. California Spotted Owl Home Range Core Areas

California spotted owl home range core areas are unmapped forest-wide land allocations. The standards and guidelines in this section provide direction for designating and managing California spotted owl home range core areas.

Home range core areas include California spotted owl PACs and overlap other mapped and unmapped land allocations. Where home range core areas overlap with northern goshawk PACs or den site buffers, standards and guidelines for northern goshawk PACs and den site buffers supercede standards and guidelines for California spotted owl home range core areas. Standards and guidelines for California spotted owl home range core areas are identical to those for old forest emphasis areas. Where home range core areas overlap with the southern Sierra fisher conservation area, standards and guidelines for California spotted owl home range core areas apply. Management direction for overlapping riparian conservation areas, meadows, and critical aquatic refuges complements California spotted owl home range core area management direction; in these overlaps, the standards and guidelines of both allocations apply.

Fuel treatment standards and guidelines for the defense zone (outside of wilderness areas and wild and scenic river areas) of the urban wildland intermix zone supercede fuel treatment standards and guidelines for California spotted owl home range core areas where these allocations overlap. Fuel treatment standards and guidelines for the threat zone (outside of wilderness areas and wild and scenic river areas) of the urban wildland intermix zone usually supercede fuel treatment standards and guidelines for California spotted owl home range core areas where these allocations overlap. However, fuel treatments within the threat zone must satisfy specific habitat requirements for home range core areas (refer to standards and guidelines for the threat zone).

Designating California Spotted Owl Home Range Core Areas

Establish a home range core area surrounding each territorial spotted owl activity center detected after 1986. The core area amounts to 20 percent of the area described by the sum of the average breeding pair home range plus one standard error. Home range core area sizes are as follows: 2,400 acres on the Hat Creek and Eagle Lake Ranger Districts of the Lassen National Forest, 1,000 acres on the Modoc, Inyo, Humboldt-Toiyabe, Plumas, Tahoe, Eldorado, Lake Tahoe Basin Management Unit and Stanislaus National Forests and on the Almanor Ranger District of Lassen National Forest, and 600 acres of the Sequoia and Sierra National Forests.

Use aerial photography to delineate the core area. Identify acreage for the entire core area on national forest lands. Delineate core areas to encompass the best available California spotted owl habitat in the closest proximity to the owl activity center. Select the best available contiguous habitat to incorporate: (1) two or more tree canopy layers; (2) trees in the dominant and co-dominant crown classes averaging 24 inches dbh or greater; and (3) in descending order of priority, CWHR classes 6, 5D, 5M, 4D and 4M and other stands with at least 50 percent tree canopy cover (including hardwoods). The acreage in the 300-acre PAC counts toward the total home range core area. Delineate core areas within 1.5 miles of the activity center.

When activities are planned adjacent to non-national forest lands, delineate circular core areas around California spotted owl activity centers on non-national forest lands. Using the best available habitat as described above, designate and manage any part of the circular core area that lies on national forest lands as a California spotted owl home range core area.

California Spotted Owl Home Range Core Areas: Activity-Related Standards and Guidelines

Fuel Treatments

Fuel treatment standards and guidelines for California spotted owl home range core areas are identical to those presented for old forest emphasis areas above, except for the urban wildland intermix.

9. Southern Sierra Fisher Conservation Area

The southern Sierra fisher conservation area is a mapped land allocation. The standards and guidelines in this section provide direction for managing the southern Sierra fisher conservation area. Unmapped allocations (such as PACs, den site buffers, riparian areas, and meadows) overlap the southern Sierra fisher conservation area. Standards and guidelines for PACs, den site buffers, and California spotted owl home range core areas supercede standards and guidelines for the southern Sierra fisher conservation area. Management direction for overlapping riparian conservation areas, meadows, and critical aquatic refuges complements southern Sierra fisher conservation area management direction; in these overlaps, the standards and guidelines of both allocations apply.

Fuel treatment standards and guidelines for the defense and threat zones (outside of wilderness areas and wild and scenic river areas) of the urban wildland intermix zone supercede standards and guidelines for the southern Sierra fisher conservation area where these allocations overlap.

Description

The southern Sierra fisher conservation area encompasses the known occupied range of the Pacific fisher in the Sierra Nevada. This consists of an elevational band from 4,500 feet to 8,000 feet on the Sierra and Sequoia National Forests.

The southern Sierra fisher conservation area is a mapped land allocations shown on the Modified Alternative 8 map included in the FEIS. The record of decision has provisions for making minor adjustments to correct the boundaries of mapped land allocations, including the southern Sierra fisher conservation area. (See Section C. *Map Errata* under Part VIII. *Implementation* in the Record Of Decision.)

Southern Sierra Fisher Conservation Area: Activity-Related Standards and Guideline

Manage the portions of the southern Sierra fisher conservation area that overlap with old forest emphasis areas (as mapped for Modified Alternative 8 of the FEIS: the map layer is available upon request) according to the standards and guidelines for old forest emphasis areas. Manage portions of the southern Sierra fisher conservation area that do not overlap with old forest emphasis areas according to the standards and guidelines for the general forest allocation. Because the effects of prescribed fire on key components of fisher habitat are uncertain, give preference to mechanical treatments over prescribed fire. However, prescribed fire may be applied to achieve restoration and regeneration objectives for fire-adapted giant sequoia.

In areas outside the urban wildland intermix zone, manage each planning watershed to support fisher habitat requirements. Retain 60 percent of each 5,000- to 10,000-acre watershed in CWHR size class 4 (average dbh of overstory trees between 11 and 24 inches) or greater and canopy cover greater than or equal to 60 percent.

Prior to vegetation treatments, identify important wildlife structures, such as large diameter snags and coarse woody material within the treatment unit. For prescribed fire treatments, use firing patterns, fire lines around snags and large logs, and other techniques to minimize effects on snags and large logs. Evaluate the effectiveness of these mitigation measures after treatment. Upon completion of the research project specified in the ROD, re-assess the use of prescribed fire in maintaining fisher habitat.

10. Urban Wildland Intermix Zone: Defense Zone

The defense zone of the urban wildland intermix zone overlaps with all other land allocations. The standards and guidelines in this section provide direction for treating fuels in the defense zone to prevent the loss of life and property from wildland fire by creating defensible space. Special standards and guidelines for California spotted owl and northern goshawk PACs and den site buffers apply in the defense zone to allow for fuels treatments. Standards and guidelines for the defense zone supercede standards and guidelines for old forest emphasis areas, California spotted owl home range core areas, and the southern Sierra fisher management area where these allocations overlap. Management direction for overlapping riparian areas, meadows, and critical aquatic refuges does not conflict with defense zone management direction; in these overlaps, the standards and guidelines of both allocations apply.

Designating the Defense Zone

The urban wildland intermix zone is shown on the Modified Alternative 8 map included in the FEIS. While this map displays an approximate location for the defense zone, each national forest is responsible for locally delineating the actual boundaries of the defense zone. Defense zones extend approximately ¼ mile from areas that have a high density (approximately one structure per 5 acres) of residences, commercial buildings, and administrative sites with facilities.

Defense Zone of the Urban Wildland Intermix Zone: Activity-Related Standards and Guidelines

Fuel Treatments

Design mechanical fuel treatments to remove the material necessary to achieve the following outcomes:

- *Stands with less than 40 percent canopy cover*: Over 90 percent of the stand area, achieve an average live crown base height of 15 feet and an average flame length of 4 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with 40 to 70 percent canopy cover*: Over 90 percent of the stand area, achieve an average live crown base height of 20 feet and an average flame length of 4 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with greater than 70 percent canopy cover*: Over 90 percent of the stand area, achieve an average live crown base height of 25 feet and an average flame length of 4 feet or less if the stand was to burn under 90th percentile fire weather conditions.

To enhance stand heterogeneity, do not mechanically treat the remaining 10 percent of the stand area.

Achieve the fuels outcomes described above through thinning from below to remove surface and ladder fuels.

11. Urban Wildland Intermix Zone: Threat Zone

The threat zone of the urban wildland intermix zone overlaps with all other land allocations. The standards and guidelines in this section provide direction for treating fuels in the threat zone to interrupt wildland fire spread and reduce fire intensity. Standards and guidelines for California spotted owl and northern goshawk PACs and den site buffers supercede standards and guidelines for the threat zone. Standards and guidelines for the threat zone supercede standards and guidelines for old forest emphasis areas, California spotted owl home range core areas, and the southern Sierra fisher management area where these allocations overlap. Management direction for overlapping riparian areas, meadows, and critical aquatic refuges does not conflict with threat zone management direction; in these overlaps, the standards and guidelines of both allocations apply.

Designating the Threat Zone

A threat zone of the urban wildland intermix zone is shown on the Modified Alternative 8 map included in the FEIS. While this map displays an approximate location for the threat zone, each national forest is responsible for locally delineating the actual boundaries of the threat zone. The threat zone normally buffers the defense zone: it extends approximately 1¼ mile out from the defense zone. In some cases, where structure density is less than one structure per 5 acres and greater than one structure per 40 acres, a threat zone may be delineated in the absence of a defense zone. The actual width of the threat zone is based on local fuel conditions, weather, topography, and existing barriers to fire spread.

Threat Zone of the Urban Wildland Intermix Zone: Activity-Related Standards and Guidelines

Fuel Treatments

Design mechanical fuel treatments to remove the material necessary to achieve the following outcomes:

- *Stands with less than 40 percent canopy cover*: Over 85 percent of the stand area, achieve an average live crown base height of 15 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with 40 to 70 percent canopy cover*: Over 85 percent of the stand area, achieve an average live crown base height of 20 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with greater than 70 percent canopy cover*: Over 85 percent of the stand area, achieve an average live crown base height of 25 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

To enhance stand heterogeneity, do not mechanically treat the remaining 15 percent of the stand area.

Design mechanical treatments to achieve the fuels outcomes described above through understory thinning to remove surface and ladder fuels up to 20 inches dbh. Focus treatments on removing suppressed and intermediate trees. Apply treatments to enhance stand heterogeneity. When conducting treatments in dense stands with uniform tree size and spacing, introduce heterogeneity into such stands by creating small (typically less than 1 acre), irregularly-spaced openings. Canopy cover reductions may be needed

to meet fuels objectives, but do not exceed a 20 percent reduction in the dominant and co-dominate trees. (For example, a stand's canopy cover may be reduced from a pre-treatment level of 70 percent down to 50 percent to meet fuels objectives.)

In westside forest types, where pre-treatment canopy cover is between 50 and 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover in dominant and co-dominant trees. In stands that currently have between 40 and 50 percent canopy cover, do not reduce canopy cover except where canopy cover reductions result from removing primarily shade-tolerant trees less than 6 inches dbh. In the eastside pine forest type, retain a minimum of 30 percent canopy cover.

For prescribed fire treatments, use multiple entries as needed to achieve fuels management objectives, up to two burns per decade and four burns over 20 years.

Conduct an analysis of suitable owl habitat around activity centers before applying the mechanical treatments described above. If sufficient suitable owl habitat exists within 1½ miles of the activity center to satisfy the home range core area delineation standards and guidelines, the area outside the PAC may be treated as described above. The mechanical treatments described above may not be applied within 1½ miles of the nest site or activity center where the requirements of a home range core area cannot be met; however, these areas may be treated according to the mechanical fuel treatment standards and guidelines for old forest emphasis areas. Document this site-specific analysis in the environmental analysis.

12. General Forest

The general forest land allocation lies outside all of the land allocations described above. Standards and guidelines for all other allocations supercede general forest standards and guidelines where overlaps occur. Also note that forest-wide standards for vegetation and fuels treatments in plantations, shrub lands, and forested stands classified as CWHR 5M, 5D, and 6 apply in the general forest.

Description

The general forest is a mapped land allocations shown on the Modified Alternative 8 map included in the FEIS. The record of decision has provisions for making minor adjustments to correct the boundaries of mapped land allocations, including the general forest. (See Section C. *Map Errata* under Part VIII. *Implementation* in the record of decision.)

Activity-Related Standards and Guidelines

Fuel Treatments

Design mechanical fuel treatments to removing the material necessary to achieve the following outcomes:

- *Stands with less than 40 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 15 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with 40 to 70 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 20 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

- *Stands with greater than 70 percent canopy cover*: Over 75 percent of the stand area, achieve an average live crown base height of 25 feet and an average flame length of 6 feet or less if the stand was to burn under 90th percentile fire weather conditions.

To enhance stand heterogeneity, do not mechanically treat the remaining 25 percent of the stand area.

Design mechanical treatments to achieve the fuels outcomes described above through understory thinning to remove surface and ladder fuels up to 20 inches dbh. Focus treatments on removing suppressed and intermediate conifer trees. Apply treatments to enhance stand heterogeneity. When conducting treatments in dense stands with uniform tree size and spacing, introduce heterogeneity into such stands by creating small (typically less than one acre), irregularly-spaced openings. Canopy cover reductions may be needed to meet fuels objectives, but do not exceed a 20 percent reduction in dominant and co-dominant trees. (For example, a stand's canopy cover may be reduced from a pre-treatment level of 70 percent down to 50 percent to meet fuels objectives.)

In westside forest types, where pre-treatment canopy cover is between 50 and 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover in dominant and co-dominant trees. In stands that currently have between 40 and 50 percent canopy cover, do not reduce canopy cover of the dominant and co-dominant trees during fuels treatments, except where canopy cover reductions

result from removing primarily shade-tolerant trees less than 6 inches dbh. In the eastside pine forest type, retain a minimum of 30 percent canopy cover.

For prescribed fire treatments, use multiple entries as needed to achieve fuels management objectives, up to two burns per decade and four burns over 20 years.

13. Critical Aquatic Refuges

Critical aquatic refuges overlap with other land allocations. The standards and guidelines for riparian conservation areas apply in critical aquatic refuges (see section 14. below) except in cases where the standards and guidelines of the overlapping land allocation place greater restrictions on management activities. For example, standards and guidelines for critical aquatic refuges allow mechanical treatments (based on consistency with riparian conservation objectives). However, fuel treatments in a California spotted owl PAC (outside the defense zone of the urban wildland intermix zone) in a critical aquatic refuge are limited to prescribed burning only, consistent with the more restrictive standards and guidelines for fuel treatments in PACs.

Description

Critical aquatic refuges (CARs) are subwatersheds, generally ranging between 10,000 to 40,000 acres, with some as small 500 acres and some as large as 100,000 acres, that contain either:

- known locations of threatened, endangered, or sensitive species,
- highly vulnerable populations of native plant or animal species, or
- localized populations of rare native aquatic- or riparian-dependent plant or animal species.

Critical aquatic refuges are shown on maps in Appendix I of the FEIS. They are generally too small to be displayed on the Modified Alternative 8 map included in the FEIS.

As part of landscape analysis, the boundaries of CARs could be refined based on the findings from conservation assessments or verification of the presence and condition of habitat for threatened, endangered, and sensitive species. Additional CARs could be added by individual national forests.

Critical Aquatic Refuges: Activity-Related Standards and Guidelines

Standards and guidelines for critical aquatic refuges are identical to those presented for riparian conservation areas below but apply to the entire mapped area.

Mining Standards and Guidelines Specific to Critical Aquatic Refuges

Determine which critical aquatic refuges or areas within critical aquatic refuges are suitable for mineral withdrawal. Propose these areas for withdrawal from location and entry under U.S. mining laws, subject to valid existing rights, for a term of 20 years.

Approve mining-related plans of operation if measures are implemented that contribute toward the attainment or maintenance of aquatic management strategy goals.

14. Riparian Conservation Areas

Riparian conservation areas overlap all land allocations. The standards and guidelines for riparian conservation areas apply in these areas except in cases where the standards and guidelines of the overlapping land allocation place greater restrictions on management activities. For example, riparian conservation area standards and guidelines allow mechanical treatments (based on consistency with riparian conservation objectives). However, where a riparian conservation area overlaps with a California spotted owl PAC (outside the defense zone of the urban wildland intermix zone), treatments are limited to prescribed burning only, consistent with the more restrictive standards and guidelines for fuel treatments in PACs.

Designating Riparian Conservation Areas

Designate riparian conservation area (RCA) widths as listed in Table II.C.1 below. RCA widths shown in Table II.C.1 may be adjusted at the project level if a landscape analysis has been completed and a site-specific RCO analysis demonstrates a need for different widths.

Use a peer review process for vegetation treatments or other activities proposed within CARs and RCAs that are likely to significantly affect aquatic resources. (The peer review process is described in detail in Part I of this Appendix.) Conduct peer reviews for projects that propose ground-disturbing activities in more than 25 percent of the RCA or more than 15 percent of a CAR.

Table II.C.1. Riparian conservation area widths by stream type.

STREAM TYPE	WIDTH OF THE RIPARIAN CONSERVATION AREA
Perennial Streams	300 feet on each side of the stream, measured from the bank full edge of the stream
Seasonally Flowing Streams (includes ephemerals with defined stream channel or evidence of scour)	150 feet on each side of the stream, measured from the bank full edge of the stream
Streams In Inner Gorge[1]	Top of inner gorge
Special Aquatic Features[2] **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.	RCA width and protection measures determined through project level analysis

1. Inner gorge is defined by stream adjacent slopes greater than 70 percent gradient
2. Special Aquatic Features include: lakes, meadows, bogs, fens, wetlands, vernal pools, and springs

Riparian Conservation Areas: Activity-Related Standards and Guidelines

By their nature, the Aquatic Management Strategy (AMS) goals (detailed in Part I of this Appendix) do not provide the necessary detail for prescribing management practices at a site-specific scale. Where a proposed project encompasses a riparian conservation area (or critical aquatic refuge), conduct a site-specific project area analysis to determine the appropriate level of management within the riparian conservation area (RCA) (or critical aquatic refuge, CAR). Determine the type and level of allowable management activities by assessing how proposed activities measure against the riparian conservation objectives (RCOs) and their associated standards and guidelines. Implement other related standards and guidelines appropriate to the project and include them in documentation of meeting RCOs. These may include standards and guidelines for road management, grazing management, mining, or vegetation management presented in other parts of this Appendix or existing forest plans. Consider the protection of human life and property in implementing the AMS.

The RCOs serve as a checklist for evaluating management prescriptions to determine if a proposed activity will move an area toward the desired conditions described by the AMS goals. Analyze all RCOs and their associated standards and guidelines for projects in RCAs or CARs. As part of the analysis, consider physical factors, such as soil characteristics, geology, slope, stream characteristics, and biological factors, such as aquatic- and riparian-dependent species present, their habitat needs, and the ability of the existing environment to provide needed habitat.

RIPARIAN CONSERVATION OBJECTIVE #1: Ensure that identified beneficial uses for the water body are adequately protected. Identify the specific beneficial uses for the project area, water quality goals from the Regional Basin Plan, and the manner in which the standards and guidelines will protect the beneficial uses.

(RCO #1 is linked to the following AMS goals: #1:Water Quality; #2: Species Viability; #7: Watershed Condition)

Standards and Guidelines Associated with RCO #1:

Implement project appropriate Best Management Practices and monitor their effectiveness following protocols outlined in "Investigating Water Quality in the Pacific Southwest Region: Best Management Practices Evaluation Program" (USDA-FS, PSW Region 1992).

For waters designated as "Water Quality Limited" (Clean Water Act Section 303(d)), implement appropriate State mandates for the water body, such as Total Maximum Daily Load (TMDL) protocols.

Conduct project-specific cumulative watershed effects analysis following Regional procedures or other appropriate scientific methodology to meet NEPA requirements.

Implement soil quality standards for soil loss, detrimental soil compaction, and organic matter retention to minimize the risk of sediment delivery to aquatic systems from management activities. Ensure that management-related activities, including roads, skid trails, landings, trails, or other activities, do not result in detrimental soil compaction on more than 5 percent of the RCA or 10 percent of the area in CARs. Measure compaction using the procedures outlined in Appendix F of the FEIS.

Identify existing and potential sources of sediment delivery to aquatic systems. Implement preventive and restoration measures, such as modifying management activities, increasing ground cover, reducing

the extent of compacted surfaces, or revegetating disturbed sites to reduce or eliminate sediment delivery from these sources to aquatic systems.

Evaluate new proposed management activities within CARs and RCAs during environmental analysis to determine consistency with the riparian conservation objectives at the project level and the AMS goals for the landscape. Ensure that appropriate mitigation measures are implemented to (1) minimize the risk of activity-related sediment entering aquatic systems, and (2) minimize impacts to habitat for aquatic- or riparian-dependent plant and animal species.

Identify existing uses and activities in CARs and RCAs during landscape analysis. Evaluate existing management activities to determine consistency with RCOs during project-level analysis. Develop and implement actions needed for consistency with RCOs.

Ensure that management activities do not adversely affect water temperatures necessary for local aquatic- and riparian-dependent species assemblages.

Limit pesticide applications to cases where project level analysis indicates that pesticide applications are consistent with riparian conservation objectives. Prohibit application of pesticides to livestock in RCAs and CARs.

Avoid pesticide applications within 500 feet of known occupied sites for the California red-legged frog, Cascade frog, Yosemite toad, foothill yellow-legged frog, mountain yellow-legged frog, and northern leopard frog unless environmental analysis documents that pesticides are needed to restore or enhance habitat for these amphibian species.

Prohibit storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites. Prohibit refueling within RCAs and CARs unless there are no other alternatives. Ensure that spill plans are reviewed and up-to-date.

RIPARIAN CONSERVATION OBJECTIVE #2: Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.

(RCO #2 is linked to the following AMS Goals: #2: Species Viability; #3: Plant and Animal Community Diversity; #4: Special Habitats; #5: Watershed Connectivity; #6: Floodplains and Water Tables; #8: Streamflow Patterns and Sediment Regimes; #9: Streambanks and Shorelines)

Standards and Guidelines Associated with RCO #2:

Maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features by identifying roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore connectivity.

Ensure that culverts or other stream crossings do not create barriers to upstream or downstream passage for aquatic-dependent species. Locate water drafting sites to avoid adverse effects to in stream flows and depletion of pool habitat. Where possible, maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows, wetlands, and other special aquatic features.

Prior to activities that could affect streams, determine if relevant geomorphic characteristics, including bank angle, channel bank stability, bank full width-to-depth ratio, embeddedness, channel-floodplain connectivity, residual pool depth, or channel substrate, are within the range of natural variability for the reference stream type as described in the Pacific Southwest Region Stream Condition Inventory protocol. If properties are outside the range of natural variability, implement restoration actions that will result in an upward trend.

Prevent disturbance to meadow-associated streambanks and natural lake and pond shorelines caused by resource activities (for example, livestock, off-highway vehicles, and dispersed recreation) from exceeding 20 percent of stream reach or 20 percent of natural lake and pond shorelines. Disturbance includes bank sloughing, chiseling, trampling, and other means of exposing bare soil or cutting plant roots. This standard does not apply to developed recreation sites and designated off-highway vehicle routes.

In stream reaches occupied by, or identified as "essential habitat" in the conservation assessment for, the Lahonton and Paiute cutthroat trout and the Little Kern golden trout, limit streambank disturbance from livestock to 10 percent of the occupied or "essential habitat" stream reach. (Conservation assessments are described in the record of decision.) Cooperate with State and Federal agencies to develop streambank disturbance standards for threatened, endangered, and sensitive species. Use the regional streambank assessment protocol. Implement corrective action where disturbance limits have been exceeded.

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 outside the range of natural variability, implement 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.

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. Maintain in stream flows to protect aquatic systems to which species are uniquely adapted. Minimize the effects of stream diversions or other flow modifications from hydroelectric projects on threatened, endangered, and sensitive species and essential habitat as identified in conservation assessments. (Conservation assessments are described in the record of decision.)

During relicensing of Federal Energy Regulatory Commission (FERC) hydroelectric projects, evaluate modifications by the project to the natural hydrograph. 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 fish passage. Provide written and timely license conditions to FERC. Coordinate relicensing projects with the appropriate State and Federal agencies.

For exempt hydroelectric facilities on national forest lands, ensure that special use permit language provides adequate in stream flow requirements to maintain, restore, or recover favorable ecological conditions for local riparian- and aquatic-dependent species.

RIPARIAN CONSERVATION OBJECTIVE #3: Ensure a renewable supply of large down logs that: (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to the RCA.

(RCO #3 is linked to the following AMS goals: #2: Species Viability; #3: Plant and Animal Community Diversity)

Standards and Guidelines Associated with RCO #3:

Determine if the level of coarse large woody debris (CWD) is within the range of natural conditions in terms of frequency and distribution and is sufficient to sustain stream channel physical complexity and stability. If CWD levels are deficient, ensure proposed management activities, when appropriate, contribute to the recruitment of CWD. Burning prescriptions should be designed to retain CWD; however short-term reductions below either the soil quality standards or standards in species management plans may result from prescribed burning within strategically placed treatment areas or the urban wildland intermix zone.

In plantations within RCAs or CARs**,** determine if the plantation will be able to provide a sufficient supply of standing trees suitable for large wood recruitment. If there is not sufficient wood for recruitment, develop a restoration program that will provide standing trees of the appropriate size in the RCA or CAR. In developing the restoration program, ensure that proposed activities are consistent with the riparian conservation objectives.

RIPARIAN CONSERVATION OBJECTIVE #4: Ensure that management activities, including fuels reduction actions, within RCAs and CARs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.

(RCO #4 is linked to the following AMS Goals: #2: Species Viability, #7: Watershed Condition)

Standards and Guidelines Associated with RCO #4:

Within CARs, in occupied habitat or "essential habitat" as identified in conservation assessments for threatened, endangered, or sensitive species, evaluate the appropriate role, timing, and extent of prescribed fire. Avoid direct lighting within riparian vegetation; prescribed fires may back into riparian vegetation areas. Develop mitigation measures to avoid impacts to these species whenever ground-disturbing equipment is used.

Use screening devices for water drafting pumps. (Fire suppression activities are exempt). Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats.

Design prescribed fire treatments to minimize disturbance of ground cover and riparian vegetation in RCAs. In burn plans for project areas that include, or are adjacent to RCAs, identify mitigation measures to minimize the spread of fire into riparian vegetation. In determining which mitigation measures to adopt, weigh the potential harm of mitigation measures, for example fire lines, against the risks and benefits of prescribed fire entering riparian vegetation. Strategies 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.

Where catastrophic events, such as drought, fire, flooding, wind, or insect damage, result in degraded stand conditions, allow salvage harvesting and fuelwood cutting in RCAs and CARs consistent with the assessment of the RCOs for the area. Ensure that present and future woody debris needs are met.

Post-wildfire management activities in RCAs and CARs should emphasize enhancing native vegetation cover, stabilizing channels by non-structural means, minimizing adverse effects from the existing road network, and carrying out activities identified in landscape analyses. Post-wildfire operations shall minimize the exposure of bare soil.

Allow mechanical ground disturbing fuels treatments, hazard tree removal, salvage harvest, or commercial fuelwood cutting within RCAs or CARs when the activity is consistent with RCOs. Projects providing for public health and safety, such as the felling of hazard trees or fuel reduction activities within the defense zone of the urban wildland intermix zones, are permitted. Utilize low ground pressure equipment, helicopters, over the snow logging, or other non-ground disturbing actions to operate off of existing roads when needed to achieve RCOs. Prior to removing trees within RCAs or CARs, determine if existing down wood is sufficient to sustain the stream channel physical complexity and stability required to maintain or enhance the aquatic- and riparian-dependent community. Ensure that existing roads, landings, and skid trails meet Best Management Practices. Minimize the construction of new skid trails or roads for access into RCAs for fuel treatments, salvage harvest, commercial fuelwood cutting, or hazard tree removal.

Prior to implementing ground disturbing activities within suitable habitat for the California red-legged frog, Cascade frog, Yosemite toad, foothill yellow-legged frog, mountain yellow-legged frog, and northern leopard frog:

- assess and document aquatic conditions using the Pacific Southwest Region Stream Condition Inventory protocol, and

- develop mitigation measures (such as timing of activities, limited operating seasons, avoidance) to avoid impacting these species.

During fire suppression activities, consider impacts to aquatic- and riparian-dependent resources. Where possible, locate incident bases, camps, helibases, staging areas, helispots, and other centers for incident activities outside of RCAs or CARs. During presuppression planning, determine guidelines for suppression activities, including avoidance of potential adverse effects to aquatic- and riparian-dependent species as a goal.

Assess roads, trails, OHV trails and staging areas, developed recreation sites, dispersed campgrounds, special use permits, grazing permits, and day use sites during landscape analysis. Identify conditions that degrade water quality or habitat for aquatic- and riparian-dependent species. At the project level, determine if use is consistent with other standards and guidelines or desired conditions. If inconsistent, modify the use through redesign, rehabilitation, relocation, closure, or re-directing the use to a more suitable location.

Require solid waste facilities (such as waste rock and tailings dumps) to be located outside riparian conservation areas. Where no reasonable alternative to locating these mine waste facilities in riparian conservation areas exists, locate and design them with the goal of ensuring mine waste facility stability and preventing potentially toxic releases. Ensure the following measures are applied: (1) analyze mine waste material using the best conventional sampling methods and analytical techniques to determine its chemical and physical stability characteristics; (2) locate and design mine waste facilities using best conventional techniques to ensure mass stability and prevent acid or toxic material releases; (3) ensure

that reclamation and reclamation bonds are sufficient to ensure long-term chemical and physical stability of mine waste facilities; and (4) monitor mine waste facilities after operations have ceased to ensure that chemical and physical conditions are consistent with aquatic management strategy goals.

Allow saleable mineral activities, such as sand and gravel mining and extraction, in riparian conservation areas only if measures that protect the integrity of aquatic, riparian meadow ecosystems are implemented.

RIPARIAN CONSERVATION OBJECTIVE #5: Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.

(RCO #5 is linked to the following AMS goals: #1: Water Quality, #2 Species Viability, #3 Plant and Animal Community Diversity, #4 Special Habitats; #7: Watershed Condition; #9: Stream Banks and Shorelines)

Standards and Guidelines Associated with RCO #5:

Assess the hydrologic function of meadow habitats and other special aquatic features during range management analysis. Ensure that characteristics of special features are, at a minimum, at Proper Functioning Condition, as defined in the appropriate Technical Reports: (1) "Process for Assessing PFC" TR 1737-9 (1993), "PFC for Lotic Areas" USDI TR 1737-15 (1998) or (2) "PFC for Lentic Riparian-Wetland Areas" USDI TR 1737-11 (1994).

Prohibit or mitigate ground-disturbing activities that adversely affect hydrologic processes that maintain water flow, water quality, or water temperature critical to sustaining bog and fen ecosystems and plant species that depend on these ecosystems. During project analysis, survey, map, and develop measures to protect bogs and fens from such activities as trampling by livestock, pack stock, humans, and wheeled vehicles. Criteria for defining bogs and fens include, but are not limited to, presence of: (1) sphagnum moss (*Spagnum spp*.), (2) mosses belonging to the genus *Meessia*, and (3) sundew (*Drosera spp*.) Complete initial plant inventories of bogs and fens within active grazing allotments prior to re-issuing permits.

Locate new facilities for gathering livestock and pack stock outside of meadows and riparian conservation areas. During landscape analysis, evaluate and consider relocating existing livestock facilities outside of meadows and riparian areas (RCA42). Prior to re-issuing grazing permits, assess the compatibility of livestock management facilities located in riparian conservation areas with riparian conservation objectives.

Under season-long grazing:

- For meadows in early seral status: limit livestock utilization of grass and grass-like plants to 30 percent (or minimum 6-inch stubble height).

- For meadows in late seral status: limit livestock utilization of grass and grass-like plants to a maximum of 40 percent (or minimum 4-inch stubble height).

Determine ecological status on all key areas monitored for grazing utilization prior to establishing utilization levels. Use Regional ecological scorecards and range plant list in regional range handbooks to determine ecological status. Analyze meadow ecological status every 3 to 5 years. If meadow ecological

status is determined to be moving in a downward trend, modify or suspend grazing. Include ecological status data in a spatially explicit Geographical Information System database.

Under intensive grazing systems (such as rest-rotation and deferred rotation) where meadows are receiving a period of rest, utilization levels can be higher than the levels described above if the meadow is maintained in late seral status and meadow-associated species are not being impacted. Degraded meadows (such as those in early seral status with greater than 10 percent of the meadow area in bare soil and active erosion) require total rest from grazing until they have recovered and have moved to mid- or late seral status.

The grazing standards specified in standard and guideline FW-G04B (above) may be modified to assess the effects of grazing intensity and frequency on willow flycatcher site occupancy or demography. Such modifications must be part of a formal management study developed in cooperation with the Pacific Southwest Research Station.

Limit browsing to no more than 20 percent of the annual leader growth of mature riparian shrubs (including willow and aspen) and no more than 20 percent of individual seedlings. Remove livestock from any area of an allotment when browsing indicates a change in livestock preference from grazing herbaceous vegetation to browsing woody riparian vegetation. Herd sheep away from woody riparian vegetation at all times.

RIPARIAN CONSERVATION OBJECTIVE #6: Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.

(RCO # 6 is linked to all AMS goals.)

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

Reclaim abandoned mine sites that are degrading aquatic riparian and meadow ecosystems. First priority is to reclaim sites with hazardous or toxic substances located within CARs and RCAs.

15. Yosemite Toad Habitat

Activity-Related Standards and Guidelines

Exclude livestock (including pack stock and saddle stock) from standing water and saturated soils in wet meadows and associated streams and springs occupied by Yosemite toads or identified as "essential habitat" in the conservation assessment for the Yosemite toad during the breeding and rearing season (as determined locally). If physical exclusion of livestock, such as fencing, is impractical, then exclude grazing from the entire meadow until the meadow has been dry for 2 weeks. Wet meadows are defined as relatively open meadows with low to moderate amounts of woody vegetation that have standing water on June 1 or for more than 2 weeks following snow melt. Determine if the meadow has standing water and saturated soils after June 1st; if these conditions do not persist in the meadow for more than 2 weeks, allow grazing only in those portions of the meadow where dry conditions exist.

Monitor a sample of occupied Yosemite toad sites to: (1) assess habitat conditions and (2) assess Yosemite toad occupancy and population dynamics. Based on the monitoring data, modify or suspend grazing if Yosemite toad conservation is not being accomplished. These grazing restrictions may be modified through formal adaptive management studies, developed in cooperation with the Pacific Southwest Research Station, designed to assess the effects of grazing intensity and frequency on Yosemite toad habitat conditions and site occupancy.

Conduct surveys of unoccupied suitable habitat for the Yosemite toad within this species' historic range to determine presence of Yosemite toads. Complete surveys of these areas within 3 years of this record of decision. If surveys are not completed within the 3- year period, consider unsurveyed meadows as occupied habitat and apply the restrictions for excluding livestock described in the preceding paragraph.

16. Willow Flycatcher Habitat

Description

Standards and guidelines for conserving the willow flycatcher are based on: (1) the 82 known willow flycatcher sites in the Sierra Nevada national forests, (2) occupied willow flycatcher habitat, and (3) emphasis habitat. Occupied habitats are meadows or riparian sites with documented willow flycatcher occupancy, unless: (1) multiple surveys, completed to protocol, document a lack of occupancy; (2) all documented occurrences are outside the regional survey protocol for determining willow flycatcher occupancy during the breeding season; or (3) habitat type conversion has occurred. Emphasis habitat is defined as meadows larger than 15 acres that have standing water on June 1 and a deciduous shrub component.

Willow Flycatcher Habitat: Activity-Related Standards and Guidelines

Evaluate proposals for new concentrated stock areas (for example, livestock handling and management facilities, pack stations, equestrian stations, and corrals) located within 5 miles of occupied willow flycatcher habitat. Apply a broad landscape-level analysis in the biological evaluation for the project to determine if such action will increase brood parasitism pressure by the brown-headed cowbird.

As part of landscape analysis, give priority to meadow restoration opportunities near or adjacent to known willow flycatcher sites.

To the extent possible, construct no new roads in potential willow flycatcher habitat. Potential willow flycatcher habitat includes: (1) occupied willow flycatcher habitat, (2) known willow flycatcher sites, (3) emphasis habitat, and (4) small, wet woody meadows (meadows less than 15 acres that have standing water on June 1 and a deciduous shrub component.

Beginning in 2001, initiate a 4-year cycle for conducting willow flycatcher surveys in all 82 known willow flycatcher sites. In the first year, conduct willow flycatcher surveys to established protocols in all 82 known willow flycatcher sites. In the second year, conduct surveys in the known sites where willow flycatchers were not found in the first-year survey. Surveys are not conducted in the third and fourth years of the cycle of all known sites. After the fourth year, repeat the 4-year survey cycle of all known sites.

If willow flycatchers are detected during the surveys of known willow flycatcher sites, eliminate livestock grazing in the entire meadow (to the forested or other upland vegetation edge), beginning 1 calendar year after the detection in this occupied known site. Use permanent or electrical fencing or otherwise ensure that livestock avoid these sites. If willow flycatchers are not detected during the surveys of known willow flycatcher sites, allow late season grazing at utilization levels based on habitat condition of these unoccupied known sites. Beginning in 2003, prohibit livestock grazing in meadows of the 82 known willow flycatcher sites where surveys have not been completed.

In unoccupied known willow flycatcher sites where late-season grazing is allowed, annually monitor utilization of riparian vegetation using regional range analysis and planning guides. Every 3 years, monitor willow flycatcher habitat using the following criteria: (1) rooting depth cores for meadow condition, (2) point intercepts for shrub foliar density, and (3) strip transects for shrub recruitment and

cover. Include meadow condition assessments in geographical information systems (GIS) coverages. If habitat conditions in unoccupied known willow flycatcher sites are not supporting the willow flycatcher or are trending downward, modify or suspend grazing in these areas.

Within 3 years of signing of the record of decision for the Sierra Nevada Forest Plan Amendment Project, survey emphasis habitat within 5 miles of the 82 known willow flycatcher sites to determine willow flycatcher occupancy. Use established protocols to conduct these surveys. If these surveys detect willow flycatchers, only allow late season grazing at utilization levels assessed according to habitat condition in these occupied emphasis sites. Subsequently include these occupied emphasis sites in the 4-year survey cycle for known willow flycatcher sites described above. In addition, survey emphasis habitat within 5 miles of these new occupied sites. In emphasis habitats where these surveys do not detect willow flycatchers, apply the grazing standard and guideline for meadows (the fourth standard and guideline described under RCO #5 in section 14. *Riparian Conservation Areas*), and repeat the surveys in these areas every 3 years. If willow flycatcher surveys of emphasis habitat within 5 miles of the 82 known willow flycatcher sites are not completed within 5 years, only allow late season grazing in these emphasis habitats.

Apply late-season grazing in known willow flycatcher sites where flycatchers are not detected and in occupied willow flycatcher emphasis sites during the willow flycatcher breeding season, which extends from June 1 to August 31. These dates may be modified when multi-year monitoring data support different dates for a particular breeding location.

Evaluate site condition of known sites and emphasis habitat. Those sites that no longer contain water on June 1 and lack a deciduous shrub component may be removed from the conservation network.

The grazing standards and guidelines described in this section may be modified under a formal management study, developed in cooperation with the Pacific Southwest Region Research Station, to assess the effects of grazing intensity and frequency on willow flycatcher site occupancy or demography.

Appendix B

Glossary

advanced regeneration: seedling sized trees that are multiple years in age, or arise from root crowns that are multiple years in age. Advanced regeneration generally does not include sprouts arising from tree stumps.

canopy cover: Aerial photography interpretation serves as the basis for determining canopy cover associated with the standards and guidelines, and provides a basis against which other methods must be calibrated. Because canopy cover is difficult to estimate with precision, monitoring the implementation of a canopy cover standard using stand measurements must anticipate a degree of variation form the standard. Variation is acceptable provided that treatments have been planned and implemented using reasonable methods for estimating pre-treatment and projecting post-treatment canopy cover. Pre- and post-treatment canopy cover estimates from the ground should attempt to exclude trees less than 6 inches dbh since these trees contribute little useable canopy cover for old forest associated species (including California spotted owls) but may substantially contribute to ladder fuels. Canopy cover estimates may be averaged over 20 to 40-acre treatment areas unless treated stands are smaller.

cooperative weed management area: a local organization that brings together all interested landowners, land managers (private, city, county, State and Federal), special districts and the public in a county, or other geographical area for the purpose of coordinating and combining their actions and expertise to deal with their common weed control problems. The organization functions under the authority of a mutually developed memorandum of understanding and is subject to statutory and regulatory requirements. A weed management area may be voluntarily governed by a chairperson or a steering committee.

crown base height: the distance from the top of the surface fuels, to the bottom of live tree crowns. Figures 3.5 and 3.5r in the Final EIS illustrate and provide examples of the crown base height.

early seral status: an early stage of succession in a plant community or vegetation type, generally characterized by plant species that are adapted to colonizing disturbed areas with a high proportion of bare soil.

eastside vegetation types: at the broadest scale, eastside vegetation types include: sagebrush scrub, pinyon pine-juniper woodland, eastside pine forests (including mixed conifer forests), sub-alpine forests, lodgepole pine-red fir forests, and alpine vegetation.

ground disturbing activities: activities that result in detrimental soil compaction or loss of organic matter beyond the thresholds identified in the soil quality standards. (See Appendix F of the Final EIS.)

high hazard and risk: High hazard and risk index is defined in Figures 3.5h and 3.5i of the Final EIS. Local modification can occur through the landscape analysis process.

key areas monitored for grazing utilization: Key areas are a portion of the range that, because of their locations, grazing or browsing values, and, or uses serve as an indicative location to sample range conditions, trends, or degree of use. A key area guides the general management of the entire area of which it is part.

meadows in late seral condition: 50 percent or more of the relative cover of the herbaceous layer is late seral with high similarity to the potential natural community. A diversity of age classes of hardwood shrubs is present and regeneration is occurring.

mechanical treatments: Mechanical Treatments are defined in Section 3.5 Fire and Fuels (Fuel Treatment Prescriptions, Silviculture Tools) in the Final EIS. Mechanical treatments include: pre-commercial thinning, biomass thinning, commercial thinning, salvage harvesting, forest gap regeneration, piling, hand felling and piling, crushing, and mastication. It does not include chemical, and, or livestock grazing.

mid and lower elevation vegetation types: For westside forest types, these include: chaparral shrub, montane hardwoods, blue oak woodlands, ponderosa pine, mixed conifer pine/fir and giant sequoia forests. Eastside vegetation includes sagebrush shrub, juniper pine woodlands, eastside pine, mixed conifer and lodgepole pine. The Lake Tahoe Basin Management Unit is considered eastside.

range plant list: A table displaying all native and non-native plants known to occur in the rangelands of Pacific Southwest Region national forests, along with the ecological status for each plant (early, mid or late seral), and the vegetation types the plant occurs in. The range plant list is appended to the Range Analysis and Planning Guide (USDA 1997) R5-EM-TP-004.

satisfactory condition of annual grasslands: A condition in which the soil is adequately protected and the forage species composition and production meets forest plan objectives; or the condition that represents a trend in forage species composition and production that is acceptable.

suitable habitat for the California red-legged frog, Cascade frog, Yosemite toad, foothill yellow-legged frog, mountain yellow-legged frog, and northern leopard frog: Suitable habitats for the sensitive amphibian species are described in the *Sensitive Aquatic Species Notebook* (Pacific Southwest Region Ecosystem Conservation Staff). Suitable habitat for the California red-legged frog is described in the *Final Draft Recovery Plan for the California Red-legged Frog*, January 2000.

understory thinning: understory thinning is the removal of smaller trees and other woody vegetation to favor the remaining larger trees. See Section 3.5 Fire and Fuels (Fuel Treatment Prescriptions, Silviculture Tools) of this Final EIS for more detail.

vegetation treatments: Vegetation treatments include mechanical treatments, prescribed burning, chemical treatments, and livestock grazing.

westside vegetation types: At the broadest scale westside vegetation types include: valley grassland, foothill woodlands, chaparral, yellow pine forests (including mixed conifer forests), lodgepole pine-red fir forests, sub-alpine forests, and alpine vegetation.

The CWHR System

The University of California, Berkeley, and the California Department of Fish and Game developed the California Wildlife Habitat Relationships System (CWHR) (Airola 1988, Mayer and Laudenslayer 1988, Zeiner et al. 1990) CWHR system cooperatively. It contains information relating the habitat preferences of 643 terrestrial vertebrate species found in California. It allows a user to predict the occurrence and habitat quality for any of these species based upon the presence of specific habitat types and habitat elements. It includes species notes for each species including life history, range maps, legal status, habitat requirements, etc. In addition, it contains ARC/INFO GRID habitat suitability models for more than 30 species, a dBase compatible database and data-query system, and a series of books describing the system. The WHR habitat system, like many other vegetation classification systems, uses the combination of plant species, size, and density to classify habitats. The CWHR system then uses this habitat classification to identify habitat relationships between the vegetation found in an area and wildlife which is likely to be found in that area.

Table B.1. Summary and comparison of CWHR and Region 5 size class and density codes

CWHR Size Class	R5 Size Class	CWHR and (R5) Density Class	Description	CWHR Tree Sizes (average)	R5 Tree Sizes (average)	CWHR Tree Canopy Cover (%)	R5 Tree Canopy Cover (%)
1	0		Seedlings, but definite forest habitat	<1" dbh	<1" dbh	<10	<10
2	1	S (S)	Sapling, sparse cover	1-6" dbh	1-4.9" dbh	10-24	10-19
2	1	P (P)	Sapling, open cover	1-6" dbh	1-4.9" dbh	25-39	20-39
2	1	M (N)	Sapling, moderate cover	1-6" dbh	1-4.9" dbh	40-59	40-69
2	1	D (G)	Sapling, dense cover	1-6" dbh	1-4.9" dbh	>60	>70
3	2	S (S)	Pole tree, sparse cover	6-11" dbh	5-12" dbh	10-24	10-19
3	2	P (P)	Pole tree, open cover	6-11" dbh	5-12" dbh	25-39	20-39
3	2	M (N)	Pole tree, moderate cover	6-11" dbh	5-12" dbh	40-59	40-69
3	2	D (G)	Pole tree, dense cover	6-11" dbh	5-12" dbh	>60	>70
4	3	S (S)	Small tree, sparse cover	11-24" dbh	12-24" dbh	10-24	10-19
4	3	P (P)	Small tree, open cover	11-24" dbh	12-24" dbh	25-39	20-39
4	3	M (N)	Small tree, moderate cover	11-24" dbh	12-24" dbh	40-59	40-69
4	3	D (G)	Small tree, dense cover	11-24" dbh	12-24" dbh	>60	>70
5	4	S (S)	Medium/large tree, sparse cover	>24" dbh	24-40" dbh	10-24	10-19
5	4	P (P)	Medium/large tree, open cover	>24" dbh	24-40" dbh	25-39	20-39
5	4	M (N)	Medium/large tree, moderate cover	>24" dbh	24-40" dbh	40-59	40-69
5	4	D (G)	Medium/large tree, dense cover	>24" dbh	24-40" dbh	>60	>70
	5	S	Large tree		>40" dbh		10-19
	5	P	Large tree		>40" dbh		20-39
	5	N	Large tree		>40" dbh		40-69
	5	G	Large tree		>40" dbh		>70
6	6		Multilayered canopy with dense cover	>24" dbh	>40" dbh	>60	>70

return to the ROD

SIERRA NEVADA FOREST PLAN AMENDMENT

Record Of Decision

ERRATA

(January 2001, additions August 2001)

The narrative in the Record of Decision (ROD) for the Sierra Nevada Forest Plan Amendment Project Environmental Impact Statement summarizes management standards and guidelines for national forests in the Sierra Nevada and Modoc Plateau. Appendix A of the ROD presents the final land allocations and standards and guidelines for the decision. There are some discrepancies between the summarized standards and guidelines in the narrative of the ROD and the detailed standards and guidelines in Appendix A. Where there are discrepancies between the two, the standards & guidelines in Appendix A govern.

(March 2001)

1. In the ROD on page 43, the second sentence under the heading *Further collection and evaluation of additional information* should read:

> "My intent is to complete ***by the end of calendar year 2002*** a Conservation Assessment for the willow flycatcher in cooperation with the Fish and Wildlife Service."

Rationale: This timeframe is consistent with the timeframes specified for this Conservation Assessment in other parts of the ROD (pages 5 and 15).

Citation: Record of Decision, pages 5 & 15

2. In the ROD on page 43, change the second sentence under the heading *Southern Sierra Fisher Conservation Area* to read:

> "This consists of an elevational band from ***3,500*** to 8,000 feet on the Sierra and Sequoia National Forests."

Rationale: The 3,500 foot elevational level reflects the actual elevational band of the Southern Sierra Fisher Conservation Area on the westside of the Sierra Nevada.

Citation: Record of Decision, Page 4

3. In Appendix A on page A-4, change the second sentence under the heading *Southern Sierra Fisher Conservation Area* to read:

> "This consists of an elevational band from ***3,500*** to 8,000 feet on the Sierra and Sequoia National Forests."

Rationale: The 3,500 foot elevational level reflects the actual elevational band of the Southern Sierra Fisher Conservation Area on the westside of the Sierra Nevada.

Citation: Record of Decision, Page 4

4. In Appendix A on page A-42, first paragraph, change the first sentence to read:

> "Retain all snags 15 inches or greater ***except*** following stand-replacing events ***and*** except to address imminent hazards to human safety."

Rationale: The inserted words were unintentionally omitted during the final edits of this standard and guideline. The other sentences in this standard and guideline imply the intent to allow the removal of snags larger than 15 inches following large stand-replacing events. Inserting these three words in the first sentence makes this standard and guideline clearer.

Citations: FEIS Volume 1, Chapter 2, page 172 under the heading "snags"
FEIS Volume 4, Appendix D1, Page D1-24, S&G FW-FC-25

5. In Appendix A on page A-45, change the second sentence under the heading *Description* to read:

> "This consists of an elevational band from ***3,500*** to 8,000 feet on the Sierra and Sequoia National Forests."

Rationale: The 3,500 foot elevational level reflects the actual elevational band of the Southern Sierra Fisher Conservation Area on the westside of the Sierra Nevada.

Citation: Record of Decision, Page 4

6. In Appendix A on page A-62, change the first sentence in the first paragraph under the heading *Willow Flycatcher Habitat: Activity-Related Standards and Guidelines* to read:

> "Within 3 years of signing of the record of decision for the Sierra Nevada Forest Plan Amendment Project, survey emphasis habitat ***in active grazing allotments*** within 5 miles of the 82 known willow flycatcher sites to determine willow flycatcher occupancy."

Rationale: The intent is to survey emphasis habitat in active grazing allotments so that grazing practices can be adjusted if willow flycatchers are detected, consistent with the standards and guidelines for conserving willow flycatcher habitat.

Citation: FEIS Volume 4, Appendix D1, Page D1-13, First Standard and Guideline

7. In Appendix A on page A-62, the last sentence in the first paragraph under the heading *Willow Flycatcher Habitat: Activity-Related Standards and Guidelines* should be changed to read:

> "If willow flycatcher surveys of emphasis habitat ***in active grazing allotments*** within 5 miles of the 82 known willow flycatcher sites are not completed within **3** years, allow only late season grazing in these emphasis habitats."

Citation: FEIS Volume 4, Appendix D1, Page D1-13, First Standard and Guideline

Rationale: The additional phrase " in active grazing allotments" makes this standard and guideline consistent with the erratum above. The wording of 5 years was a typographical error. The 3-year commitment to surveying emphasis habitat in active grazing allotments is supported by the first sentence in this standard and guideline as well as pages 42 and 43 of the ROD under the section heading "Grazing standards and guidelines."

August 18, 2001

SIERRA NEVADA FOREST PLAN AMENDMENT
RECORD OF DECISION

ERRATUM

The standard and guideline for retaining canopy cover appears in Appendix A of the Record of Decision (ROD) in the following sections:

- forest-wide direction for California Wildlife Habitat Relationships (CWHR) types 5M, 5D, and 6 (page A-26),
- old forest emphasis areas (page A-41),
- California spotted owl home range core areas (page A-44),
- threat zone of the urban wildland intermix zone (page A-48), and
- general forest (pages A-49 and A-50).

The words "in dominant and co-dominant trees" should be removed from this standard and guideline. This standard and guideline should read as follows:

> "In westside forest types, where pre-treatment canopy cover is between 50 and 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands that currently have between 40 and 50 percent canopy cover, except where canopy cover reductions result from removing primarily shade-tolerant trees less than 6 inches dbh. In the eastside pine forest type, retain a minimum of 30 percent canopy cover."

Rationale: The words "in dominant and co-dominant trees" are placed differently in this standard and guideline throughout Appendix A of the ROD. These words do not appear in the canopy cover standard and guideline in Modified Alternative 8 in the FEIS.

Citations: *FEIS, Volume 1, Chapter 2 – page 172, "Stand Structure. Canopy Cover."*
FEIS Volume 4, Appendix D1, page D1-31, standard and guideline ID number FW-RX31H
FEIS Volume 4, Appendix D1, page D1-33, standard and guideline ID number FW-RX21F
FEIS Volume 4, Appendix D1, page D1-34, standard and guideline ID number FW-RX21I