Chapter II

Alternatives Including the Proposed Action

II. Alternatives Including the Proposed Action

This chapter describes and compares the alternatives considered for management of the Giant Sequoia National Monument. These alternatives were developed to meet the Purpose and Need and to address the issues developed during the scoping process (see Chapter I). Issues may be addressed in more than one alternative and they may be addressed in significantly different ways. An issue may be based on differences of opinion regarding what types of activities are appropriate in the Monument. For example, some people may want more of something while others may feel that would detract from the Monument. In such cases, that issue may be addressed by taking different approaches in different alternatives, such as proposing more of something in one alternative but less in another.

This chapter will provide the decision maker with a range of alternatives to consider for the Monument. It will set the stage for an analysis of each alternative and its anticipated effects (described in Chapter IV).

This chapter contains four parts: (1) a description of each alternative considered in detail, including the proposed action; (2) a description of the alternatives that were considered but eliminated from detailed study; (3) a comparison of the alternatives; and, (4) identification of the alternative currently preferred for implementation.

A. Alternatives Considered in Detail

Six alternatives, including the No Action and Proposed Action alternatives, were developed and considered in detail in the DEIS: Alternatives 1 through 6. Comments received on the DEIS were used to make modifications to the alternatives presented in the DEIS (see Appendix A for an explanation of the comment analysis process and responses to public concerns). The interdisciplinary team developed an additional alternative, Modified Alternative 6, within the range of those presented in the DEIS. This additional alternative is presented and analyzed along with the original six alternatives in this FEIS.

Each alternative was designed to respond to comments and significant issues in a different way, providing a range of possible management approaches from which to choose. This different approach is conveyed by the alternative's theme. Each alternative stands alone as a potential Monument Management Plan. Alternative 1 would continue current management direction. Alternatives 2 through 6 would amend the Forest Plan with new management direction for the Monument. One of these has been designated as the Preferred Alternative in this FEIS and as the Selected Alternative in the Record of Decision (ROD) document. The Forest Supervisor will make a final decision on the Selected Alternative for implementation and explain the rationale for his choice in the ROD.

This description of the alternatives considered in detail includes several sections: Management Direction Common to All Alternatives, Alternative 1 (No Action), Management Direction Common to All Action Alternatives, Alternative 2 (Proposed Action), Alternative 3, Alternative 4, Alternative 5, Alternative 6, and Modified Alternative 6.

Management Direction Common to All Alternatives describes the rules and guidelines that are the same in all the alternatives, including the No Action Alternative (Alternative 1) and six action alternatives (Alternatives 2 through Modified Alternative 6). This section is followed by a description of Alternative 1 (No Action). The National Environmental Policy Act requires consideration of a no action alternative. It consists of current management rules and guidelines if no action is taken to change them. It does not mean that no management activities could occur; it means there would be no change to the rules and guidelines that currently apply to the Monument. The rules and guidelines that apply to the No Action Alternative include those described in both of these first two sections: Management Direction Common to All Alternatives and Alternative 1.

Management Direction Common to All Action Alternatives describes the proposed rules and guidelines for managing the Monument that are the same in each of the action alternatives (Alternatives 2 through Modified Alternative 6). Following this, each of these action alternatives is discussed individually. These discussions include how each of the issues is addressed by that alternative and a description of what actions are proposed to meet the purpose and need. The rules and guidelines that apply to each of the action alternatives include those described in these three sections: Management Direction Common to All Alternatives, Management Direction Common to All Action Alternatives, and the individual section for each action alternative (Alternative 2, Alternative 3, etc.).

The description of alternatives does not describe the effects that might occur if the alternative is implemented. The resources that could be affected and the expected effects to that resource from the actions proposed in each alternative are discussed in Chapters III and IV.

In each alternative, there are rules and guidelines that are referred to as management direction. There is a hierarchy to the direction described for each alternative, from the broadest goals to the most specific direction. The sets of direction are:

Management Strategies. These are the approaches proposed for each alternative to address the issues and move toward desired conditions (see Chapter I). Each action alternative includes a summary of the four major strategies developed for each alternative to respond to the significant issues, as follows:

- **Restoration Strategy.** The strategy that addresses the need to restore key terrestrial and hydrologic processes and structures, especially the regeneration of giant sequoias and the re-introduction of fire to fire-dependent ecosystems.
- **Protection Strategy.** The strategy to reduce the risk of catastrophic fire to communities and the objects of interest.

- **Recreation/Human Use Strategy.** The strategy to address the need for people to interact with and enjoy the objects of interest.
- **Transportation Strategy.** The strategy to manage the road system for the proper care and management of the objects of interest.

Management Goals. These are broad statements that describe the ends that managers strive to achieve in each alternative. Some goals are common among alternatives, but some are different.

Allocations. These are land areas that are differentiated and named in the Framework or in this Monument Plan. They are areas within which different sets of standards and guidelines apply. Those retained from the Framework vary by alternative. The allocations proposed for each alternative are discussed in the individual alternative descriptions and displayed on Figures II-1, II-4, II-7, II-8, and II-9 in the Map Packet.

Standards and Guidelines. These are requirements that preclude or impose limitations on resource management activities, generally for the purpose of environmental protection, and are the primary instructions for land managers. They may apply to the entire Monument or they may apply to only specific allocations or areas.

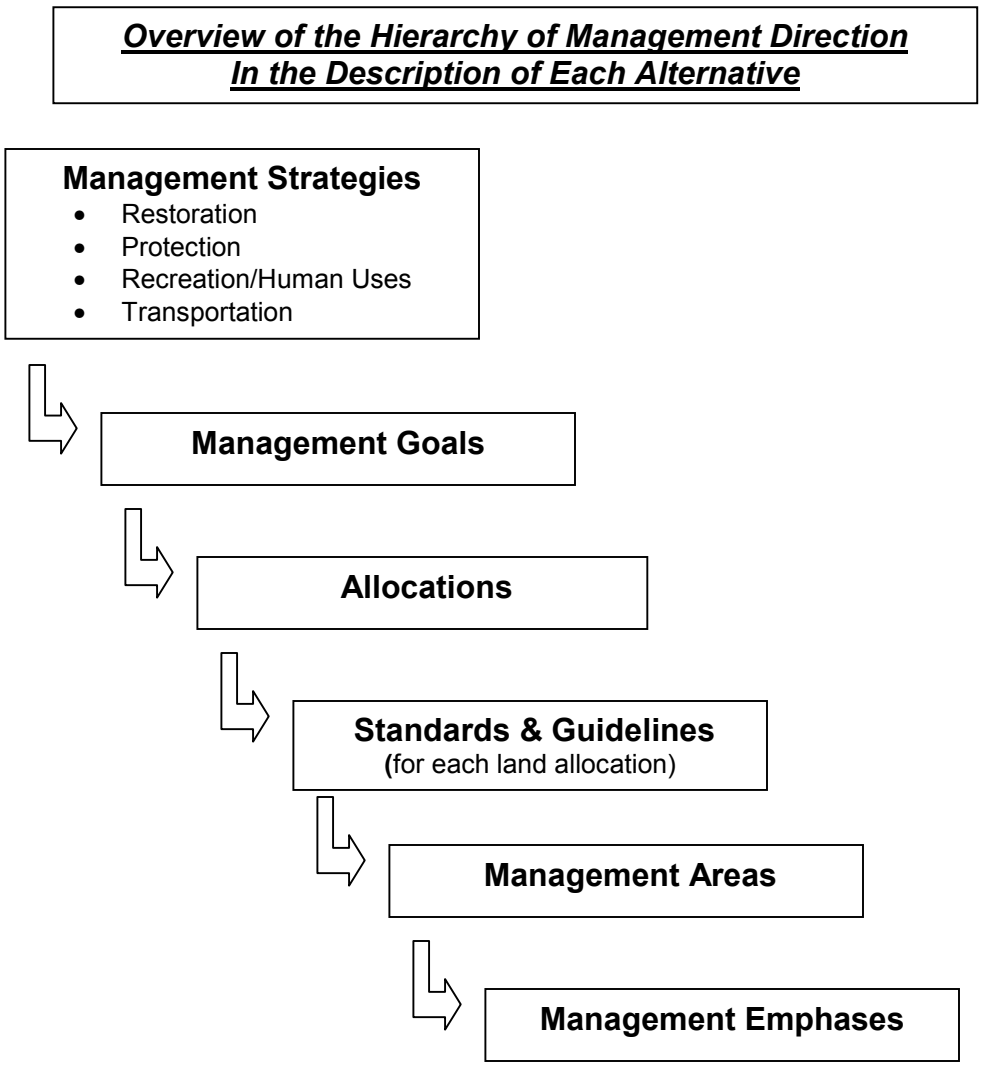
Management Areas. These are parts of the Monument that are differentiated, mapped, and named for each alternative. They are areas where separate management emphases apply. They vary by alternative and are named for ease of identification. Proposed management areas are displayed for each alternative on maps in the Map Packet.

The development of management areas is responsive to advice from the Scientific Advisory Board. Advisory V (see Appendix C) states: “Areas within the Monument must be prioritized for management action. There is value in using an explicit, quantitative scheme to identify areas most in need of management action, such as restoring pre-1875 fire regimes and forest structure (Caprio et al, 1997; Keifer et al, 2000).”

Each action alternative proposes management areas. They are named and described in the description of each alternative and are displayed on Figures II-2, II-5, II-6, and II-10 in the Map Packet.

Management Emphases. These are statements that would bring additional attention or focus to specific resources in Management Areas. They would provide additional guidance for a specific management area but not to the entire Monument. Some management emphases are common among alternatives and management areas, but most vary.

The following figure displays the order in which management direction is arranged and described for each alternative:



1. Computer Modeling and Treatments

a) Modeling

The computer modeling effort produced two main results: 1) an approximation of the kinds and amounts of treatments that would occur during the first decade of implementation for each alternative, and 2) based on these treatments, an estimate of effects. Examples of these effects are amounts over time of large trees, late seral stage old growth, and wildfire.

Modeling results are determined by: 1) land conditions such as slope, vegetation, and fuel loading, and 2) management direction specific to each alternative (the allocations with associated standards and guidelines). Each alternative provides a range of permitted activities, from Alternatives 3 and 4, which limit mechanical

treatments, to Alternative 6, which emphasizes the use of mechanical treatments combined with prescribed fire.

The range of alternatives, in concert with the "most permissive prescription" approach, provides for a sufficiently broad range of treatment mixes and effects analyses to be considered by the decision-maker. This allows the effects analysis for each specific resource (see Chapter 4) to assess a broad range of treatment mixes that reflect the least to the most disturbances. For example, effects to watersheds are greater from mechanical treatments than from prescribed fire. Alternatives 3 and 4 limit the area where mechanical treatments are permitted, whereas Alternatives 5, 6, and Modified 6 permit mechanical treatments on larger areas. Conversely, impacts to air quality are greater from prescribed fire alone than from mechanical treatments or a mix of prescribed fire and mechanical treatments. If the decision-maker chooses to evaluate Modified Alternative 6 under a scenario where more prescribed fire is used, the effects analyses for Alternatives 3 and 4 provide this scenario.

The estimated amounts and kinds of treatments can appear to be inconsistent with the management direction for Modified Alternative 6. This alternative emphasizes that prescribed fire be considered first for all protection and ecological restoration projects and that mechanical treatments and/or tree removal would be used only if clearly needed. The estimated treatment amounts in Modified Alternative 6 for the first decade based on computer modeling show a substantial amount of mechanical treatment, which seems contrary to the management direction. The modeling does not apply the "only if clearly needed" test that is embedded in the management direction and which is required as part of every project-level decision (see the ROD, Figure 1). The computer model is allowed to apply the most permissive prescription available, based on land conditions and the management direction of each alternative. For example, if mechanical treatment is permitted on slopes less than 35% and an area is within a defense zone, then the computer may apply this treatment to this area without first considering if mechanical treatments are clearly needed.

For more information on the computer modeling used, please see Appendix H of this FEIS. The computer modeling used for this FEIS was based upon the modeling protocol used by the Framework. Full documentation of the approach is found in Appendix B, Volume 4, of the Framework FEIS and is incorporated by reference.

b) Treatments

This section describes and provides examples of the types of treatments that are commonly used to protect and restore ecosystems. This information is intended to help the reader more fully understand the management strategies and resulting treatments proposed in each alternative. This is not intended to be an exhaustive list of possible treatments, but rather a list of the most common practices that would likely be used for protection and restoration projects in the Monument.

(1) Treatments Using Fire

(a) Prescribed Fire

The Sequoia National Forest has long used prescribed fire to meet objectives for structural conditions in brush, hardwood, and conifer vegetation. Prescribed fires are the controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions which allow the fire to be confined to a predetermined area and at the same time to produce the intensity of heat and spread required to attain planned and approved resource management objectives. Prescribed fires may include those ignited by resource managers or by lightning (such as those fires described under Wildland Fire Use).

Prescribed fire has been used to reduce fuels around developed areas and in mixed conifer where wildland fires have been suppressed for many years. To move toward desired conditions, many prescribed burn areas require multiple burns to meet resource objectives. The first prescribed burn typically kills understory vegetation and consumes ground fuels. A second burn cleans up fuel that is deposited from previously burned vegetation and thins the new plants that sprouted following the first burn. Subsequent burns act as maintenance burns that maintain a fire-influenced forest and reduce fuel that has built up since the last fire. Prescribed fire is thus used to keep specific areas within target conditions. Where prescribed fire alone is ineffective, infeasible, or may create unacceptable effects on other resource values, prescribed burn units may be pre-treated by using chain saws or mechanical methods to prepare the fuels for more effective burning (USDI, May 2002).

Prescribed fire typically creates favorable conditions for the establishment of patches of young vegetation. Patches of young trees will be exposed to varying degrees of prescribed fire on a regular return interval ranging from 20 to 30 years. The intent of returning with prescribed fire is to expose broad landscapes to fire, rather than to burn every acre at every return interval. Prescribed fires will burn different areas at different intensities and some areas will be missed because of the variability in burning conditions and fire behavior. This variability will allow some patches of young vegetation to completely avoid damage or experience minimal damage from subsequent fires. This will allow these patches of vegetation to contribute to long-term population sustainability.

(b) Wildland Fire Use

Wildland fire use is the practice of managing a naturally ignited (lightning) fire to accomplish resource management objectives. Resource managers allow it to burn while keeping it within a specific area. The safety of firefighters and the public is the number one concern in wildland fire use. Through pre-planning, monitoring, and holding actions as necessary, many wildland fires

can accomplish resource objectives without unacceptable risk to public safety or other natural resources. Elements of managing a wildland fire include public information and education, coordination with other agencies, and fire behavior research (USDI, May 2002).

Because fire is a natural process in the Sierra Nevada, allowing wildland fires to burn may help meet management goals for ecological restoration. Allowing natural fires to burn also helps maintain cultural resources such as landscapes and archaeological features (USDI, May 2002).

(c) Pre-treatment for Fire Protection

Pre-treatment of prescribed burn units entails rearranging or removing trees, shrubs, snags, and woody debris to help keep the fire within the designated area or to protect values. The use of mechanical equipment to rearrange or remove fuel can increase the effectiveness of a prescribed burn, especially in areas surrounding the wildland/urban interface. Where multiple burns are needed to reduce hazardous levels of fuels, pre-treatments can speed up the process by several years.

Removing the ladder fuels prior to burning significantly reduces the risk of uncontrolled burning and increases the ability of firefighters to control the burn. Some communities may need considerable pre-treatment before burning can be performed in adjacent areas on a scale large enough to protect areas from unwanted wildland fire. Areas where pre-treatment would be used prior to burning (e.g., wildland urban interface areas) have been identified in the alternatives.

The following table describes the fire treatments and their objective(s).

Table II-1: Fire Treatments

Treatments	Objective of Treatment
PRESCRIBED FIRE - BRUSH (MOSAIC): Prescribed fire in brush & chaparral and mixed oak, ignition typically via aerial or hand. Chain saws are also commonly used to prepare site for burning.	Create a mosaic of age classes by burning some portions very hot to regenerate the vegetation; reduce the risk of and the effects of catastrophic fire.
UNDERBURN: Prescribed fire with a 2-foot flame length.	Maintain current conditions for protection and restoration.
PRESCRIBED FIRE – FOREST (MOSAIC): Prescribed fire with a 4-foot flame length.	Reduce wildfire behavior and develop desired stand structure with a mosaic of tree sizes, ages, and other ecological characteristics.
WILDLAND FIRE USE: Wildfires started by lightning that are allowed to burn to accomplish resource management objectives.	Meet resource objectives for protection and/or restoration of resource values.
HAND TREATMENTS OUTSIDE PLANTATIONS: Hand treatments, generally on slopes >35%, followed by prescribed burning with a 2 to 4-foot flame length. Chainsaws are commonly used.	Reduce fire behavior by primarily thinning understory trees; re-introduce fire to ecosystem; improve stand structure and species composition.

(d) Examples of Treatments

This fire crewmember is igniting a prescribed burn, with flame lengths averaging around 4 feet.

Hand crews monitor a prescribed fire near the base of a large giant sequoia using hand tools and chain saws to keep fire under control.

The Cooney Fire, a wildfire started by lightning in August 2003, was managed to meet resource objectives.

(2) Treatments Using Mechanical Methods

(a) Mechanical Thinning

The Sequoia National Forest has long used mechanized equipment to meet objectives for structural conditions in brush, hardwood, and coniferous vegetation. In chaparral and in mixed hardwood stands, equipment such as small tractors with front-mounted metal “rakes” pushes brush into piles or rows. After the brush dries, it is burned under controlled conditions. The openings created by the piling and burning provide sites for new young brush to become established. This approach creates a mosaic of different brush species and ages, which provides more diverse wildlife habitat and modifies fire behavior. Another approach is to use a shredding or chipping device on the front of small tractors. These break up the brush into small chunks. This treatment is commonly followed by a prescribed burn to reduce the buildup of fine fuels and to encourage sprouting of young vegetation.

In conifer stands where trees are of many different sizes, trees and shrubs may be cut and piled, chipped, or removed. Trees less than 10 inches in diameter are commonly felled by chainsaws in order to reduce ladder fuels, lower the amount of understory fuel, and reduce the number of dense clumps of trees in stagnant growing conditions. Trees larger than 10 inches in diameter may be designated for cutting or removal. These trees may be felled by chainsaws and may be removed by skidding machines if necessary to meet restoration or protection objectives. The areas are then treated with a prescribed fire to reduce the fuels. By selectively removing some trees, species composition and stand densities can be carefully controlled where site conditions make the use of prescribed fire alone unacceptable or infeasible.

In stands or existing plantations where the trees are generally smaller in diameter, shredding machines could be used in lieu of manual tree cutting and removal. These shredding machines selectively remove and break up the trees into small chunks. The area is then burned to reduce the buildup of fuels.

The following table describes the mechanical treatments and their objective(s).

Table II-2: Mechanical Treatments Followed By Prescribed Fire

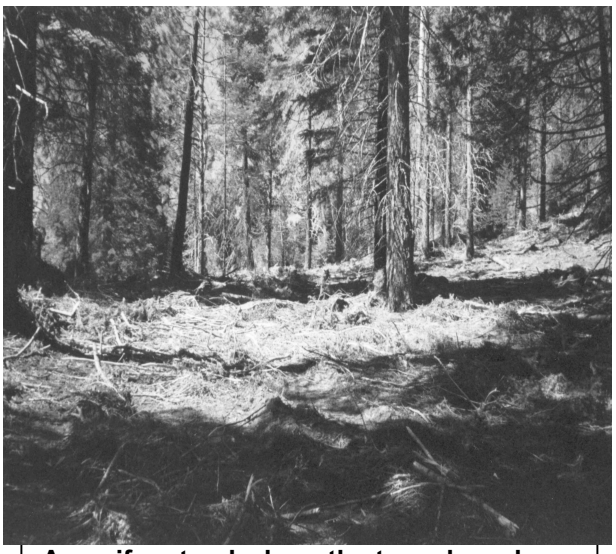
Mechanical Treatments	Objective of Treatment
MECHANICAL – BRUSH (MOSAIC): Mechanical piling/chipping/crushing in brush and chaparral followed by prescribed fire.	Create a mosaic of age classes by burning some portions very hot to regenerate the vegetation; reduce the risk of and the effects of catastrophic fire.
PLANTATIONS: Mechanical treatment (thinning of trees followed by piling, shredding, chipping) followed by prescribed fire.	Treat fuels; reduce risk of catastrophic fire and re-introduce fire to ecosystem for long-term restoration; improve stand structure and species composition.
MECHANICAL – UNDERSTORY THIN W/ Rx FIRE: Use of mechanical methods to treat primarily surface and ladder fuels, followed by prescribed fire.	Reduce risk of catastrophic fire and re-introduce fire to an ecosystem where the use of prescribed fire alone would pose unacceptable risks, be ineffective, or be infeasible; improve stand structure and species composition.
MECHANICAL -- 2-STORY THIN W/ Rx FIRE: Use of mechanical methods to treat primarily surface and ladder fuels and thinning of overstory trees, followed by prescribed fire.	Reduce risk of catastrophic fire and re-introduce fire to ecosystem, where the use of prescribed fire alone would pose unacceptable risks, be ineffective, or be infeasible; meet restoration objectives for important stand structure elements such as species composition and stand density.

(b) Examples of Treatments

A small tractor with a shredding "head" on the front, used to treat brush in a plantation or in a brush field.

An excavator machine with a thinning head on the front to selectively remove trees, commonly used to thin in plantations and stands with small diameter trees.

This shredding head chews up the small ladder fuels (trees, brush, and limbs) on the ground to prepare for a prescribed fire.



A conifer stand where the trees have been thinned and the resulting fuels shredded to create safe burning conditions.

The follow-up prescribed fire burns at a lower intensity, protecting the trunks of remaining trees.

(3) Treatment Priorities

Treatments to Implement Protection Strategies

- Initial treatments for protection of urban areas (Wildland Urban Intermix or WUI)

- Treatments for protection of special features and critical habitat (such as giant sequoia groves, protected wildlife activity centers, and riparian areas)
- Treatments for reducing the risk of catastrophic wildfire in areas of high or moderate fire susceptibility

Treatments to Implement Restoration Strategies

- Treatments for restoring a more frequent fire return interval across the landscape outside of protection treatment areas. Restoration treatments would initially focus on areas that show the greatest departure from an historic fire return interval, since these areas commonly show high susceptibility to catastrophic fire.

When an area needs to be treated to implement protection and restoration strategies, treatments would be designed to do both, to the extent practical.

2. Management Direction Common to All Alternatives

The alternatives considered in detail all have certain things in common. All of the alternatives, Alternatives 1 through Modified 6, include all of the direction provided in the Proclamation, some of the direction found in the Framework, and some of the direction found in the Forest Plan. Applicable direction from the Proclamation, Framework, and Forest Plan are briefly summarized here. See Appendix B for a copy of the Proclamation and Appendix D for a more thorough summary of Framework direction. For a copy of the Forest Plan, contact the Sequoia National Forest Supervisor's Office.

a) Proclamation Direction

The Proclamation provides guidance for the proper care and management of the objects of interest in the Monument. It emphasizes protection and restoration of the natural resources in the Monument, including giant sequoia groves, plants and animals, geologic features, and prehistoric and historic artifacts. The Proclamation provides specific direction for dealing with some activities, such as accessing private lands and special use facilities, issuing special use permits, hunting and fishing, and limiting motorized vehicle use. The direction in the Proclamation applies to lands owned or controlled by the United States, not private land. It withdraws lands in the Monument from new mining claims, eliminates using Monument lands to provide a sustained yield of timber; permits use of motorized vehicles only on designated roads (except in the Kings River Special Management Area; see the Recreation section of Chapter III for a discussion of motorized vehicle use), maintains the jurisdiction of the State of California with respect to fish and wildlife management (including hunting and fishing), maintains the laws and regulations that apply to special use authorizations, and maintains valid existing rights.

b) Framework Direction

The following allocations and associated management strategies from the Framework apply to all alternatives: the California spotted owl protected activity centers (PACs), northern goshawk PACs, great gray owl PACs, forest carnivore den sites, California spotted owl home range core areas, aquatic management strategy, and willow flycatcher habitat (see Figure II-1 in the Map Packet and Appendix D). Standards and guidelines from the Framework that would be retained in all alternatives include those for lower Westside hardwoods, large tree retention, snags and down woody debris, incidental removal of vegetation and down woody material, noxious weeds, and grazing.

c) Forest Plan Direction

Direction from the Forest Plan that is not superseded by the Framework or the Proclamation applies to all alternatives. That direction is briefly summarized in the following goals from the Forest Plan (USDA Forest Service, Sequoia National Forest, 1988, pages 4-2 to 4-4).

(1) Recreation

- Increase the quality and variety of recreation opportunities and emphasize natural settings.
- Reduce conflict among users and establish fees that are compatible with the private sector.
- Enhance and interpret the more significant cultural resources, consistent with forest use and resource management.
- Provide and protect areas of important natural associations for non-manipulative research, observation, and study.
- Encourage location of facilities or uses not consistent with national forest purposes and goals on private land.

(2) Wilderness

- Provide for wilderness use, protection of the wilderness resource, and reduction of conflict between the uses of wilderness and the wilderness values of solitude and naturalness, and the ecological, geological, and similar features of scientific, educational, or historical value.

(3) Wildlife, Fish, and Plants

- Maintain and improve habitat for endangered and threatened plant and animal species.

- Provide well-distributed habitat diversity for indigenous wildlife species.
- Maintain or increase habitat capabilities to support viable populations of wildlife and fish species.
- Provide increased quality and quantity of opportunities for enjoyment of consumptive and non-consumptive uses of the wildlife, fish, and plant resources.
- Increase the diversity of plant and animal communities.

(4) Range

- Maintain or enhance the productivity of all forest ranges through adequate protection of the soil, water, and vegetation resources.
- Foster, then follow with action, the idea that joint stewardship is in everyone's best interest.
- Contribute to the stability of the ranching community by recognizing its value as part of our heritage, its contribution of food and fiber, and its maintenance of open space.
- Utilize improved management systems that ensure cost-effective management of suitable ranges.

(5) Timber

- Maintain and enhance the giant sequoia species and individual old growth "specimen" trees to increase recreation use and interpretive opportunities.

(6) Water, Soil, and Air

- Provide the technical services needed to comply with water quality goals as specified in the Clean Water Act.
- Maintain or improve long-term soil productivity.
- Emphasize the protection, management, and improvement of riparian areas during the planning and implementation of land and resource management activities along stream courses on the forest.

(7) Facilities

- Develop and maintain the forest transportation system to appropriate standards for management purposes, while providing efficient routes for forest users and protecting resources.

- Provide support facilities to meet forest management requirements.

(8) Rural Community and Human Resources

- Continue to support and participate in employment and training programs for youths, older Americans, and the disadvantaged in response to national employment and training needs and opportunities existing in forest surroundings.
- Increase opportunities for the use of volunteers in accomplishing forest goals.

3. Alternative 1 (No Action)

Alternative 1 is the no action alternative. It provides the baseline for the effects analysis in Chapter IV. Under this alternative, current management direction, the Forest Plan as amended by the Framework and the Proclamation, would continue to guide management of the Monument. No amendment to current direction would be made. In addition to the previous section, Management Direction Common to All Alternatives, the following additional direction applies to Alternative 1.

Alternative 1 includes all of the Framework management direction for concerns such as aquatic, riparian, and meadow management; fire and fuels management; and old forest ecosystem management. It provides strategies and standards and guidelines to address the risk of catastrophic fire, although it is not focused on the objects of interest within the Monument. The Monument contains the following land allocations as set by the Framework: southern sierra fisher conservation areas, old forest emphasis areas, general forest, urban wildland intermix defense zones, urban wildland intermix threat zones, spotted owl protected activity centers and home ranges core areas, northern goshawk protected activity centers, great gray owl protected activity centers, willow flycatcher habitat, forest carnivore den sites, riparian conservation areas, and critical aquatic refuges. See Figure II-1 for a display of the allocations proposed for Alternative 1 and see Appendix D for a summary of the allocations and standards and guidelines from the Framework. It also contains the previously determined allocations of wilderness and wild and scenic rivers. Appendix H summarizes and displays common prescriptions that could be used to apply the standards and guidelines from the Framework.

4. Management Direction Common to All Action Alternatives

a) Management Goals

Management goals are the ends that managers strive to achieve in each alternative. Some goals are common among alternatives; some are not. Management goals are

listed for Giant Sequoias and the Surrounding Ecosystems, Dispersed and Developed Recreation, the Transportation System, Historic and Prehistoric Resources, Caves, and Scientific Study. The goals listed here apply to all of the action alternatives. Each action alternative also has its own additional goals, which are included in the descriptions of the individual action alternatives later in this chapter.

(1) Giant Sequoias and the Surrounding Ecosystems

- Protect giant sequoia groves and the surrounding ecosystems by ensuring that they are resilient to natural events (e.g., wildfires, floods, epidemic outbreaks of insects and diseases) and other events that are contrary to, or disruptive of, ecological processes necessary for a healthy and sustainable ecosystem.
- Restore ecological structures and processes in groves and their surrounding ecosystems which include a fire return interval of frequent and generally low-intensity fires; a mosaic of different age and size classes of vegetation; and regeneration and recruitment of shade-intolerant species such as pines, giant sequoias, and hardwoods. Use the conditions prior to 1875 as reference conditions.
- In conifer plantations, apply the necessary vegetation management and fuels treatments to promote the re-establishment of natural processes and vegetation conditions consistent with the potential natural vegetation of the site.
- Reduce the risk of catastrophic fire in the conifer, chaparral, and lower Westside hardwoods ecosystems. Restore a more frequent fire return interval and create a diverse mix of age classes and structural diversity, using the historic conditions prior to 1875 as a reference.
- Manage the mixed brush-chaparral ecosystem to develop and maintain a broad mix of age classes and structural diversity by burning on an estimated 20 to 50-year cycle.
- Create gaps to encourage the establishment of young giant sequoias, pines, and other early seral stage vegetation.
- Adapt management strategies over time to reflect current monitoring and the best available scientific information.
- Coordinate planning and implementation of protection and restoration projects with private landowners and adjoining agencies, which include the Sequoia and Kings Canyon National Parks, Mountain Home State Forest, the Universities of California (Whitaker's Forest), and the Tule River Indian Tribe.

(2) Dispersed and Developed Recreation

- Provide safe and well-maintained facilities for public recreation.
- Manage scenic resources to maintain or enhance high scenic value. Develop scenic vistas to view special features of the Monument.
- Use a science-based method to collect visitor information, such as the National Visitor Use Monitoring System. Use these data, as well as other information, to help determine the demand and need for additional visitor facilities and services.
- Provide a wide range of trail opportunities, including accessible trails for persons with disabilities, for hiking, horseback riding, bicycling, and cross-country skiing.
- Improve recreation, interpretation, and education opportunities by connecting, linking, and coordinating facilities, services, and themes whenever feasible.

(3) Transportation System

- Provide safe and well-maintained roads for public access to national forest system lands within the Monument while minimizing adverse resource impacts.
- Maintain roads with effective road drainage and erosion controls to reduce effects to adjacent resources, especially riparian and aquatic systems.
- Allow access to private lands and facilities within the Monument.
- Consult with and provide for access needs of the Tule River Indian Tribe.
- Provide a system of well-maintained roads to allow efficient and effective fire suppression, fuels treatment, restoration work, and other management use.
- Coordinate transportation planning, management, and road decommissioning with the Sequoia and Kings Canyon National Parks; other federal, state, and county agencies; and the Tule River Indian Tribe, to reduce traffic congestion and safety hazards, especially along major travelways.

(4) Historic and Prehistoric Resources

- Protect historic and prehistoric values from impacts that could destroy them or accelerate their natural rate of deterioration.
- Manage and interpret a variety of historic and pre-historic sites for the education and enjoyment of visitors.

- Consult with the Tule River Tribal Council and confer with other Native American communities in the planning of projects in the Monument. Ensure access to culturally important sites and resources for use by Native Americans.

(5) Caves

- Locate and inventory caves, and classify them according to their most notable values.
- Protect caves and their associated resources from impacts that could damage or destroy them, including surface activities, activities within caves, and activities altering their sustaining groundwater conditions.
- Provide for public use where appropriate, including interpretation, education, and recreation.
- Work with scientific groups, volunteer organizations, and recreational clubs to help protect, preserve, and study caves and their associated resources.
- Evaluate caves for their potential to be designated as Significant, as described in the Federal Cave Resource Protection Act of 1988.

(6) Scientific Study

- Encourage and guide scientific research in the Monument that will explore a wide range of hypotheses designed to improve the care and management of the objects of interest, including the giant sequoia groves, the ecosystems that surround them, the historical landscape, the caves, and prehistoric archaeological sites.
- Cooperate with a diversity of partners, including Forest Service research stations, universities, other interested scientific organizations or agencies, tribal governments, and interested public organizations and individuals.

b) Management Emphases

Management Emphases are themes that would be emphasized in specific Management Areas. Most Management Emphases differ by Management Area, but the following Management Emphases are common to all Management Areas in all action alternatives:

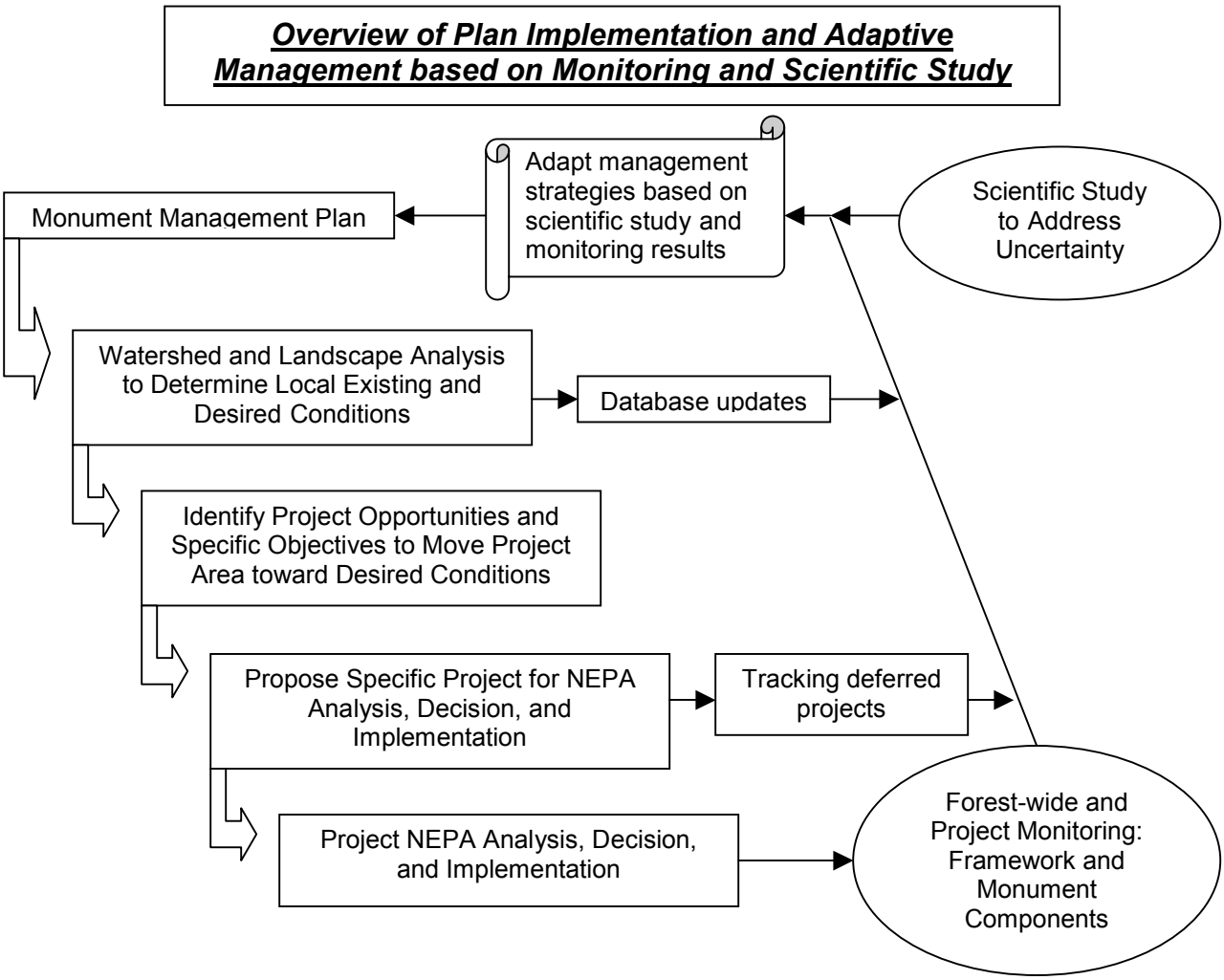
- In areas with young giant sequoia, pine, and oak reproduction, emphasize fuel treatments to protect and ensure the survival of this age class of trees. There are approximately 18,000 acres

of young seral stage mixed-conifer vegetation in the Monument, of which 1,000 acres are sequoia groves.

- When designing mechanical treatments to meet fuel objectives, emphasize treatment of surface fuels and dense suppressed and intermediate trees.
- Emphasize the following types of areas for the development of new recreation facilities or opportunities: existing travel corridors, existing sites that can tolerate additional use or development, dispersed sites that are already impacted and can tolerate additional or different types of use, and areas of special interest.
- Based on the criteria above, potential recreational opportunity areas (ROAs) have been identified and are mapped in Figure II-3 in the Map Packet. The potential recreational opportunity areas are common to all alternatives. The potential recreational opportunity areas are not the only areas where recreational opportunities could be developed. They are areas identified, for illustrative purposes, as sites that have high potential for development of future recreational facilities or opportunities. Figure II-3 also displays existing recreation sites and some potential sites for development or relocation. The potential sites were identified by Monument recreation managers, based on their experience and observations of recreational use in the Monument. These potential sites vary by alternative and are listed in the Recreation section of Chapter IV. Actual decisions on sites to be relocated or the location, size, and type of sites to be developed would be made after site-specific project analyses.

c) Monitoring, Scientific Study, and Adaptive Management

Monitoring occurs at multiple levels: the project level, the Forest Plan level, and bioregional or regional levels. The Sequoia National Forest assesses new information annually and makes a determination as to whether or not changes to current management practices are warranted. The following graphic displays the relationship of plan implementation (on the left side) and the feedback loop of monitoring and scientific study (on the right side).



The Proclamation encourages research. "These giant sequoia groves and the surrounding forest provide an excellent opportunity to understand the consequences of different approaches to forest restoration…Outstanding opportunities exist for studying the consequences of different approaches to mitigating these conditions and restoring natural forest resilience (Appendix B)." Implementation of the Monument Management Plan will include the development and execution of a research strategy for scientific study (see Appendix G). As management proceeds, Forest Service managers will require further guidance on a number of key scientific questions addressed in the research strategy.

Adaptive management is the process of continually adjusting management in response to new information, knowledge, or technologies. Adaptive management recognizes that unknowns and uncertainty exist in the course of achieving any natural resource management objectives. Knowledge gained through monitoring, scientific study, analysis, and synthesis of practical experience is central to reducing uncertainty. Using adaptive management, management practices would be adapted based upon results from monitoring and scientific study. For more information on

the monitoring, scientific research strategy, and adaptive management proposed for the Monument, please see Appendix G of this FEIS.

5. Alternative 2 (Proposed Action)

Alternative 2 is the Proposed Action as described in the Notice of Intent published in the Federal Register and the scoping letter, both dated June 8, 2001. It does not specifically address the significant issues found in Chapter I because the issues were developed largely based on public comments to this Proposed Action.

Alternative 2 applies all the direction found in the Framework (see Appendix D) and provides additional management direction for the proper care, management, and enjoyment of the objects of interest in the Monument. It places emphasis on the application of current direction specific to the objects of interest.

Alternative 2 proposes goals to meet the desired conditions (see Chapter I): to protect giant sequoias, their ecosystems, and the natural processes that sustain them; to improve developed and dispersed recreation opportunities; to protect and interpret historic and prehistoric resources; to provide a useful, safe, and environmentally acceptable transportation system; and to provide for scientific study of the Monument's resources.

Alternative 2 would primarily treat areas of the Monument that have high fire susceptibility to reduce the risk of catastrophic fire. The highest priority would be to protect communities and sensitive resources in the Monument. Approximately 41,830 acres would be treated in the first decade of implementation.

a) Management Strategies

The following strategies are intended to provide the direction necessary to meet the intent of Alternative 2.

Restoration Strategy. Alternative 2 would apply Framework standards and guidelines and use the Framework land allocations. For most of the Monument, these strategies would restore fire to the ecosystem to maintain or develop old forest characteristics. It would manage watersheds around groves (the zones of ecological influence) and the surrounding ecosystems by protecting them from catastrophic fire, restoring riparian areas, and protecting old forest habitat. Like the Framework, this alternative does not offer a long-term, monument-wide strategy for restoration of natural processes, fire return interval, or desired vegetative stand structure.

Protection Strategy. Alternative 2 would use all of the Framework strategies to protect communities, other sites occupied by people, and the objects of interest. Key strategies include the urban wildland intermix defense zones (1/4 mile), threat zones (1¼ mile), wildland fire use, and strategically placed area treatments (SPLATs) in order to reduce the risk of catastrophic fire. There are approximately 10,000 acres in defense zones around communities that would receive protection treatments in the first decade.

Recreation/Human Use Strategy. Alternative 2 would assess the increased demand for recreation in the Monument and help meet that demand for a wide variety of recreation, interpretation, and education uses. Recreation and human use would be widespread in the Monument, not concentrated or focused in specific areas.

Transportation Strategy. Alternative 2 would emphasize retaining road access for public use and for management activities similar to current access levels, with approximately 900 miles of road. For public access, emphasis would be on maintaining roads to recreation sites, dispersed areas, special use sites, and private land. An extensive road system would be available for recreation driving and off-highway vehicle use. For management access, emphasis would be on ecosystem restoration and fire protection. Roads with high risks for causing unacceptable impacts to natural resources would be repaired, relocated, closed, or decommissioned to reduce impacts. Road decommissioning would focus on unclassified roads and those classified roads producing unacceptable impacts where repair or relocation is unreasonable. New roads could be constructed to meet management goals to provide access to new recreation facilities, to provide access to administrative sites, to replace roads producing unacceptable resource impacts, or to provide access for research. The maintenance strategy would be to continue to request funds to reduce the maintenance backlog and keep the road system in acceptable condition. The transportation plans for the alternatives can be found in Appendix F.

b) Management Goals

Alternative 2 would make changes to the management goals for some of the key resources.

(1) Giant Sequoias and the Surrounding Ecosystems.

- Protect and restore the hydrologic functions and soil resources upon which the groves and surrounding ecosystems depend (common to Alternatives 2 and 3).
- Protect blue oak in the lower Westside hardwood ecosystem and improve the viability of black oak in the mixed conifer forest (common to Alternatives 2, 3, 5, 6, and Modified 6).
- Protect communities by completing fuel treatments for community protection within the first three decades of plan implementation (common to Alternatives 2, 5, and 6).

(2) Dispersed and Developed Recreation.

- Increase recreation facility capacity for overnight camping, day use, and other appropriate recreation activities. Expansions and relocations of single family and group campgrounds could

increase capacity by up to 70%. Picnic, interpretive, and educational site improvements and developments could increase capacity by 45 to 70%. Improvements and expansions of the trail system could increase capacity by up to 25%.

- Improve visitor facilities, information, and services to help meet projected demand for recreation and visitation in cooperation with permittees; cooperators; county, state, and federal agencies; tribal governments; recreation user groups; and the business community (common to Alternatives 2, 5, 6, and Modified 6).

(3) Transportation System.

- Provide enjoyable and safe opportunities for riding off-highway vehicles, including snowmobiles, on designated roads within the Monument (common to Alternatives 2, 4, 5, 6, and Modified 6). Make approximately 640 miles of road available for riding OHVs and groom about 135 miles of road for use in the winter.

c) Allocations, Standards and Guidelines

All of the allocations and associated management strategies from the Framework would be retained in Alternative 2:

- California Spotted Owl Protected Activity Centers (PACs)
- Northern Goshawk and Great Gray Owl PACs
- Forest Carnivore Den Sites
- Old Forest Emphasis Areas
- California Spotted Owl Home Range Core Areas
- Southern Sierra Fisher Conservation Area
- Wildland Urban Intermix Defense and Threat Zones
- General Forest
- Critical Aquatic Refuges and Riparian Conservation Areas
- Willow Flycatcher Habitat
- Aquatic Management Strategy

Alternative 2 would also retain previously determined Wilderness Areas, Wild and Scenic River Areas, Inventoried Roadless Areas, and the Kings River Special Management Area (see Figure III-11, Congressionally-Designated and Roadless Areas, in Chapter III).

No new allocations or standards and guidelines were developed for this alternative. See Figure II-1 for a display of the allocations proposed for Alternative 2 and see Appendix D for a summary of the allocations and standards and guidelines from the Framework.

d) Management Areas and Emphases

Management areas are proposed to identify key areas where additional emphases can help meet the theme and goals of the alternative. Alternative 2 proposes the designation of three management areas (see Figure II-2 in the Map Packet), as follows:

Management Area ZOI-WG, Zones of Influence Including the Groves: This management area (MA) includes the ecological zones of influence for the giant sequoia groves and their surrounding ecosystems, including the groves. Generally these areas are defined by the boundaries of the watersheds where the giant sequoia groves are found. These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology.

Management Area HLHA, the Hume Lake Historic Area: This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites.

Management Area GML, General Monument Lands: This MA includes lands not included in Management Areas ZOI-WG or HLHA. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems.

(1) Direction Common to All Management Areas

(a) Management Emphases:

- Maintain current levels of access for public and administrative use consistent with protection of the objects of interest.
- Prior to decommissioning roads, consider opportunities for their use as recreation trails.

(2) Management Area ZOI-WG, Zones of Influence Including the Groves

This management area consists of the ecological zones of influence for the giant sequoia groves and their surrounding ecosystems. These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The

zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology. It contains approximately 91,040 acres.

(a) Management Emphases:

- Emphasize the recruitment, retention, and long-term protection of young giant sequoias, pines, and black oaks.
- Encourage scientific research. Focus research on potential impacts of management and human use on giant sequoia ecology, restoration and protection.

(3) Management Area HLHA, Hume Lake Historic Area.

This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. It contains approximately 15,680 acres.

(a) Management Emphases:

- Preserve and interpret this historical landscape and its associated ecosystems.
- Provide a wide range of recreational and interpretive opportunities.
- Provide interpretive and educational materials emphasizing the relevance, fragility, and values of the area's heritage resources and ecology.
- Emphasize the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.

(4) Management Area GML, General Monument Lands.

This management area consists of the part of the Monument not included in Management Area ZOI-WG or Management Area HLHA. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems. It contains approximately 219,500 acres.

(a) Management Emphases:

- Encourage scientific research. Focus research on potential impacts of management and human use on giant sequoia ecology, restoration and protection.
- Reduce fuel loads, especially down slope of the groves, and return to a more natural fire interval.

6. Alternative 3

Alternative 3 emphasizes the use of prescribed fire and associated hand treatments to reduce the risk of catastrophic fire, restore a more natural fire regime, and move resources toward their desired conditions (see Chapter I). This alternative is similar to management strategies used in the Sequoia and Kings Canyon National Parks. Determining what vegetation could be removed for protection and restoration treatments would be based on the predicted fire behavior of prescribed fires, rather than using the diameter limits and crown canopy limits in the Framework (Appendix D). Approximately half of the giant sequoia groves would be identified as high profile groves and managed for protection, ecological restoration, and concentrated recreational use. Approximately 59,000 acres would be treated in the first decade of implementation. Restoration treatments would be the priority after initial protection treatments are completed.

This alternative responds to the significant issues as follows:

Social Values Regarding Vegetation Treatments: The emphasis on prescribed fire and hand treatments responds to this issue by minimizing the area where mechanical treatments can occur. The area where mechanical methods could be used is generally limited to the community defense zones (about 200 feet around communities).

Giant Sequoia, Mixed Conifer Restoration, and Watershed: Restoration of the high profile groves would be done at a conservative pace, approximately one percent per year. The other giant sequoia groves would be managed as part of the surrounding mixed-conifer ecosystem. Road closures, road decommissioning, and elimination of some dispersed recreation sites would reduce the environmental impacts from compacted surfaces. This alternative would avoid using mechanical treatments except for community protection.

Recreation: The high profile groves would be managed for concentrated recreational use in concert with restoration and protection needs. Road closures, road decommissioning, and elimination of some dispersed recreation sites would provide more areas isolated from the effects of motorized traffic. Use of unlicensed off-highway vehicles would not be allowed on roads or trails. Recreational opportunities would increase for day use activities, education, and interpretation, but overnight and dispersed opportunities would be reduced or stay the same.

Fire and Fuels: Defense zones approximately 200 feet wide would be used to protect communities and occupied areas. Local conditions would be used to refine the actual boundaries and there would be approximately 3,600 acres in these defense zones. This approach would replace the Framework's wildland urban intermix defense and threat zone prescriptions.

a) Management Strategies

The following strategies are intended to provide the direction necessary to meet the intent of Alternative 3:

Restoration Strategy. Alternative 3 would reduce the number of roads and extent of the road system, as well as reduce the impacts from compacted areas in the Monument. Management would emphasize the use of prescribed fire and associated hand equipment (chainsaws) and limit the use of heavy equipment to protection activities around communities and on roads. New standards and guidelines would be proposed for vegetation management based on fire behavior predictions. High profile groves would be managed by treating only about one percent of their acreage per year, using prescribed fire and hand treatments to meet restoration goals. Restoration in the rest of the Monument would be accomplished using prescribed fire and hand treatments in restoration treatment areas. Treatments in these areas would be based on the fire return intervals for different vegetation types, fire susceptibility, and local conditions. Treatments outside of the high profile groves would be designed to re-introduce fire to the ecosystem and to reduce the risk of catastrophic fire.

Protection Strategy. Alternative 3 would protect communities and other sites occupied by people with a defense zone that would typically be 200 feet but could range up to ¼-mile, based on local fire behavior and terrain. Use of mechanical treatments would be allowed for protection. Prescribed fire would be the primary tool to reduce the risk of catastrophic fire in the rest of the Monument. This approach would replace the community protection strategy prescribed in the Framework. There are approximately 3,000 acres in defense zones around communities that would receive protection treatments in the first decade.

Recreation/Human Use Strategy. Alternative 3 would increase the feeling of isolation from motorized use by eliminating OHV use in the Monument. Primitive and semi-primitive recreation opportunities and trails would be increased. This alternative would concentrate human use and recreation in existing developed recreation sites, along major travel routes, and in high profile giant sequoia groves. It would increase opportunities for day use and expand or implement new interpretation and education programs and facilities. The existing capacity of developed overnight facilities for visitors would be maintained, while dispersed overnight recreation use would be reduced. Dispersed recreation sites that do not meet the aquatic management strategy in the Framework would be eliminated.

Transportation Strategy. Alternative 3 would emphasize reducing environmental impacts from roads. The current designated road system includes approximately 900 miles of road. For public access, emphasis would be on maintaining road access to recreation sites, high profile giant sequoia groves,

special use sites, and private land. Roads not needed for these purposes would be closed to public access. No off-highway vehicle use would be allowed on the road system. For management access, emphasis would be on ecosystem restoration and fire protection. Roads for restoration or fire protection would be decommissioned in areas where natural conditions are re-established. Roads with risks for causing unacceptable impacts to natural resources would be repaired, relocated, closed, or decommissioned to reduce impacts. Road decommissioning would focus on reducing road mileage and would include reductions of classified and unclassified roads with moderate to high risk for producing unacceptable resource impacts. New roads could be constructed to meet management goals to provide access to new recreation facilities, to provide access to new administrative sites, to relocate roads that produce unacceptable impacts, or to provide access for scientific research. The maintenance strategy would be to reduce maintenance costs by closing and decommissioning roads. The transportation plans for the alternatives are in Appendix F.

b) Management Goals

Alternative 3 would make changes to the management goals for some of the key resources.

(1) Giant Sequoias and the Surrounding Ecosystems.

- Protect and restore the hydrologic functions and soil resources upon which the groves and surrounding ecosystems depend (common to Alternatives 2 and 3).
- Protect blue oak in the lower Westside hardwood ecosystem, and improve the viability of black oak in the mixed conifer forest (common to Alternatives 2, 3, 5, 6, and Modified 6).
- Protect communities by completing fuel treatments for community protection within the first decade of plan implementation.
- Treat up to approximately 10% of the grove acreage per decade.

(2) Dispersed and Developed Recreation.

- Increase recreation facility capacity for day use, education and interpretation, and other appropriate recreation activities. Picnic, interpretive, and educational site improvements and developments could increase capacity by 45 to 70%.
- Improve visitor facilities, information, and services for recreation and visitation in cooperation with permittees; cooperators; county, state and federal agencies; tribal governments;

recreation user groups; and the business community (common to Alternatives 3 and 4).
- Reduce the impacts of recreation on giant sequoia groves, the surrounding ecosystems, and other objects of interest in order to protect and restore the giant sequoia groves and the natural processes on which they depend.
- Maintain the existing capacity of overnight facilities for visitors by relocating facilities that are removed from sequoia groves, riparian areas, or other areas due to conflicts with the aquatic management strategy in the Framework. Up to 45% of the campground capacity could be closed due to resource conflicts.
- Expand the trail system to connect recreation facilities and interpretive sites and increase opportunities for primitive and semi-primitive recreation experiences and isolation from the sounds and sites of motorized vehicles. Improvements and expansions of the trail system could increase capacity by 25 to 100%.

(3) Transportation System.

- Reduce impacts from roads. Approximately 45% of the current designated road system (900) could be decommissioned or closed to public use.

c) Allocations, Standards and Guidelines

The following allocations and associated management strategies from the Framework would be retained in Alternative 3 (see Appendix D for a summary of the Framework direction):

- California Spotted Owl Protected Activity Centers (PACs)
- Northern Goshawk and Great Gray Owl PACs
- Forest Carnivore Den Sites
- California Spotted Owl Home Range Core Areas
- General Forest
- Critical Aquatic Refuges and Riparian Conservation Areas
- Willow Flycatcher Habitat
- Aquatic Management Strategy

Alternative 3 would also retain previously determined Wilderness Areas, Wild and Scenic River Areas, Inventoried Roadless Areas, and the Kings River Special Management Area (see Figure III-11, Congressionally-Designated and Roadless Areas, in Chapter III).

The following allocations and associated management strategies from the Framework would not be retained in Alternative 3:

- Wildland Urban Intermix Defense and Threat Zones
- Old Forest Emphasis Areas
- Southern Sierra Fisher Conservation Areas

See Figure II-4 in the Map Packet for a display of the allocations proposed for Alternative 3.

In Alternative 3, the following forest-wide standards and guidelines from the Framework would be retained (see Appendix D for a summary of the standards and guidelines from the Framework):

- Lower Westside hardwoods
- Large tree retention
- Snags and down woody debris
- Incidental removal of vegetation and down woody material
- Noxious weeds and grazing

Additional standards and guidelines that would be used in Alternative 3 are as follows:

Intent	Standard & Guideline
Ensure restoration and protection of aquatic habitat	Eliminate dispersed recreation sites that are inconsistent with the aquatic management strategy in the Framework.
Ensure prescribed fire is the primary implementation tool with exceptions in specific circumstances only	Use heavy equipment off of roads only in the following circumstances: -To construct, reconstruct, or decommission roads. -When necessary to protect or restore aquatic habitats. -When constructing and/or maintaining defense zones around communities/facilities and areas of high value. -During fire suppression and other emergency ecological activities. -In plantations where using prescribed fire would not meet protection and restoration goals. -To construct, maintain, or enhance recreational or administrative facilities, including trails.

Intent	Standard & Guideline
Encourage public use of excess fuel loadings	Issue personal use firewood permits only for the purposes of restoration and community protection.
Minimize noise disturbance from OHV	Do not permit OHVs except for administrative or emergency use.
Provide defense zones around communities to protect from wildfire	Establish and maintain defense zones around communities to protect them from the spread of wildfire. The width of these defense zones will vary based on predicted fire behavior from approximately 200 feet to 1,300 feet. Wherever necessary and possible, incorporate existing man-made or natural fire-resistant features into these defense zones.
Meet vegetation restoration and community protection goals	To meet vegetation restoration and community protection goals, select vegetation for removal based on predicted fire behavior.
Encourage species diversity and establishment of new vegetation	Encourage establishment of new vegetation in existing openings or areas of very low stocking in coniferous forests.
Provide adequate opportunities and sites for recreation and administrative site development and maintenance	Remove necessary vegetation for the development, maintenance, or improvement of recreation and administrative sites and projects.

d) Management Areas and Emphases

Management areas are proposed to identify key areas where additional emphases can help meet the theme and goals of the alternative. Alternative 3 proposes three management areas (see Figure II-5 in the Map Packet), as follows:

Management Area HPG, the High Profile Groves: High profile giant sequoia groves that currently have or have the potential for high public use, or have special features.

Management Area HLHA, the Hume Lake Historic Area: This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. This MA remains the same for all alternatives.

Management Area GMA, General Monument Area: The rest of the Monument not included in Management Areas HPG and HLHA, including non-high profile giant sequoia groves. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems.

(1) Direction Common to All Management Areas

(a) Management Emphases:

- Emphasize natural regeneration for restoration of giant sequoia and associated species, including pines and oaks.
- Emphasize prescribed fire and associated hand treatments to meet restoration and protection goals.
- Seek to reduce areas of heavily impacted surfaces or large areas of hardened surfaces including, but not limited to, areas of overnight use, recreation residence tracts, and roadways. Approximately 150 miles of the designated roads may meet the criteria for decommissioning.
- Prior to decommissioning roads, consider opportunities for their use as recreation trails.
- Emphasize decommissioning or closing to public use those roads that do not provide access to high profile giant sequoia groves, restoration activities, recreation sites, private land, or sites under special use permit. Approximately 45% of the designated road system could be decommissioned or closed to public use.

(2) Management Area HPG, High Profile Groves

This management area consists of specific giant sequoia groves or portions of them within their established administrative boundaries. These are groves that currently have or have the potential for high public use. They are generally easily accessible by car, have special features, and existing or potential value for recreation, interpretation, and education. The high profile groves include Bearskin, approximately one-half of Belknap, Converse, Deer Creek, approximately two-thirds of Evans, Freeman Creek, Indian Basin, Long Meadow, and Packsaddle. This management area contains an estimated 14,390 acres.

(a) Management Emphases:

- Use a management approach that limits treatment methods and also limits the amount of landscape treated per decade. Prescribed fire and hand treatments are the primary management tools to achieve desired conditions (see Chapter I).
- Expand interpretation and education opportunities.
- Use fire behavior predictions to determine the amount and type of vegetation to be removed to meet restoration and protection goals.
- Emphasize restoration work in those groves with high recreation values and a high risk of catastrophic fire.

- Reduce impacts to recreation from grazing.
- Repair and maintain roads with high or moderate access needs.
- Encourage scientific research. Focus research on potential impacts of human use on giant sequoia ecology, restoration, and protection.

(3) Management Area HLHA, Hume Lake Historic Area

This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. It contains approximately 15,680 acres.

(a) Management Emphases:

- Preserve and interpret this historical landscape and its associated ecosystems.
- Provide a wide range of recreational and interpretive opportunities.
- Provide interpretive and educational materials emphasizing the relevance, fragility, and values of the area's heritage resources and ecology.
- Emphasize the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.

(4) Management Area GMA, General Monument Area

This management area consists of the part of the Monument not included in Management HPG and Management Area HLHA. It includes some of the giant sequoia groves and contains approximately 296,170 acres. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems.

(a) Management Emphases:

- Protect and restore giant sequoia groves as part of their surrounding ecosystems.
- Emphasize re-establishment of the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.
- Emphasize the use of restoration treatment areas to move towards desired conditions in giant sequoia groves and surrounding ecosystems.

7. Alternative 4

Alternative 4 was developed to respond directly to the issue of Social Values Regarding Vegetation Treatments. This alternative would manage monument lands as a broad, connected ecosystem, without separating or zoning for management emphasis. The exception to this would be areas of high amounts of human use, including all current developed recreation areas and other areas of concentrated human use. The primary method to reduce the risk of catastrophic fire, restore desirable forest characteristics, protect and restore giant sequoia groves, and restore a more natural fire regime would be prescribed fire and hand treatments. Trees over 12 inches in diameter would not be cut, with some exceptions such as public safety and emergencies. Approximately 59,000 acres would be treated in the first decade of implementation. Restoration treatments would be the priority after initial protection treatments are completed.

This alternative responds to the significant issues as follows:

Recreation: Areas of concentrated human use would be managed for recreation, interpretation, education, and community protection. Recreation demand would be assessed and opportunities expanded to help meet the demand for increased overnight facilities, interpretation, education, and dispersed recreation. The trail system would be expanded to increase dispersed recreation opportunities. The preferred methods to protect these areas from catastrophic fire would be prescribed fire, hand treatments, and mechanical thinning. The protection zones would range from 50 to 200 feet wide depending on their adjacency to communities or roads.

Giant Sequoia and Mixed Conifer Restoration: The majority of the giant sequoia groves would be managed as part of the overall ecosystem and not zoned into different management areas.

Watershed: Roads or other impacted areas would be eliminated when necessary to reduce impacts to riparian areas, wildlife habitat, or other sensitive resources.

a) Management Strategies

The following strategies are intended to provide the direction necessary to meet the intent of Alternative 4.

Restoration Strategy: Alternative 4 focuses on restoring desired fire return intervals and desired forest characteristics (such as a mosaic of tree species and age classes), restoring plantations and roads to natural conditions, and restoring or stabilizing riparian habitat that does not meet desired conditions (see Chapter I). Vegetation restoration methods would generally be limited to prescribed fire and hand treatments and would be focused within the General Forest Zone. The areas and amounts to be treated would be determined in part by desired fire intervals, site-specific conditions, and protection of key resources such as giant sequoia groves and wildlife habitat. Generally, no trees larger than

12 inches in diameter would be cut, for the purpose of ecological restoration and maintenance or public safety, subject to some exceptions (see standards and guidelines). Existing plantations would be managed to restore forest structure to desired conditions and to minimize the risk of catastrophic fire. Areas of riparian habitat that are degraded would be emphasized for stabilization and restoration.

Protection Strategy: Alternative 4 would protect communities and other sites occupied by people by establishing a 200-foot wide defense zone around communities and a 100-foot defense zone on either side of major roads. The purpose of the defense zone is to provide for human health and safety and reduce the fire hazard around existing structures, major roads, developed campgrounds, and developed public use areas within the Human Influence Zone. Prescribed fire, hand thinning, and mechanical thinning would be the preferred treatment methods. Mechanical treatments would include the removal of trees and brush using such equipment as feller-bunchers or chippers. Generally, no trees larger than 12 inches in diameter would be removed unless necessary for emergencies, for public safety, or for the development and maintenance of recreation and administrative sites. There are approximately 3,600 acres in defense zones around communities within the Human Influence Zone that would receive protection treatments. These would be the highest priority for treatment, with the goal of completing initial treatments within the first 5 to 10 years of plan implementation.

Recreation/Human Use Strategy: Alternative 4 responds to the recreation demand to increase recreation opportunities by increasing both developed and dispersed opportunities, winter use facilities, trails, and interpretive facilities and opportunities. Potential areas and projects for additional recreation development would be identified. Opportunities for non-motorized winter use would be enhanced to reduce conflicts with motorized users.

Transportation Strategy: Alternative 4 would emphasize reducing environmental impacts from roads while providing for public access. The current designated road system includes approximately 900 miles of road. For public access, emphasis would be on maintaining road access to recreation sites, special use sites, and private land. The road system would be available for recreational driving and off-highway vehicle use. For management access, emphasis would be on ecosystem restoration and fire protection. Roads with high risks for causing unacceptable impacts to natural resources would be repaired, relocated, closed, or decommissioned to reduce impacts. Road decommissioning would focus on unclassified and classified roads with high risks of producing unacceptable impacts. New roads could be constructed to meet management goals to provide access to new recreation facilities, to provide access to new administrative sites, to relocate roads producing unacceptable impacts, or to provide access for scientific research. The maintenance strategy would be to continue to request funds to reduce the maintenance backlog and keep the road system in acceptable condition. Roads that cannot be retained to acceptable standards would receive priority for

decommissioning. The transportation plans for the alternatives are in Appendix F.

b) Management Goals

Alternative 4 would change the management goals for some of the key resources.

(1) Giant Sequoias and the Surrounding Ecosystems.

- Restore and stabilize riparian and aquatic habitat that does not meet desired conditions (see Chapter I).
- Protect and restore blue oak in the lower Westside hardwood ecosystem, and improve the viability of black oak in the mixed conifer forest.
- Protect communities, recreation facilities, and other areas of concentrated human use by reducing the risk of catastrophic fire.
- Promote the restoration of natural processes, structure, and vegetation on existing permanent and temporary roads that are not necessary for the proper care of the objects of interest, public use, and management of the Monument. Maintain remaining roads with effective road drainage and erosion controls to reduce effects to adjacent riparian and aquatic systems.
- Promote coordinated and integrated scientific research through active participation with the Giant Sequoia Ecology Cooperative.

(2) Dispersed and Developed Recreation.

- Increase recreation facility capacity for overnight use, day use, education and interpretation, and other appropriate recreation activities. Expansions and relocations of single family and group campgrounds could increase capacity by up to 65%. Picnic, interpretive, and educational site improvements and developments could increase capacity by 30 to 45%.
- Improve visitor facilities, information, and services for recreation and visitation in cooperation with permittees; cooperators; county, state, and federal agencies; tribal governments; recreational user groups; and the business community (common to Alternatives 3 and 4).
- Expand overnight camping facilities consistent with the ecological protection of the giant sequoia groves, their ecosystems, and other objects of interest. Relocate facilities that are removed from sequoia groves, riparian areas, or other areas due to resource conflicts.

- Expand the trail system to connect recreation facilities and interpretive sites and provide opportunities for primitive and semi-primitive recreation experiences. Improvements and expansions of the trail system could increase capacity by up to 25%.
- Expand opportunities for non-motorized winter recreation.
- Restore to the extent practical the historic locations and conditions of trails that have been disturbed by past practices such as logging or road construction.
- Minimize conflicts between different types of recreational users.
- Study the need for interpretive facilities to serve both the northern and southern portions of the Monument. These facilities may be in or in close proximity to the boundaries of the Monument. Encourage the support of partners and cooperators.
- Ensure that any impacts of recreation on giant sequoia groves, their surrounding ecosystems, and other objects of interest are consistent with the proper care and management of the giant sequoia groves and other objects of interest and the natural processes on which they depend.

(3) Transportation System.

- Provide enjoyable and safe opportunities for riding off-highway vehicles, including snowmobiles, on designated roads within the Monument (common to Alternatives 2, 4, 5, 6, and Modified 6). The current designated road system includes approximately 615 miles available for riding OHVs and approximately 135 miles groomed for use in the winter.
- Reduce impacts from roads to wildlife habitat, aquatic habitat, and the soil resource. Approximately 5% of the designated road system may be decommissioned or closed to public use.

c) Allocations, Standards and Guidelines

The following allocations and associated management strategies from the Framework would be retained in Alternative 4 (see Appendix D for a summary of the Framework direction):

- California Spotted Owl Protected Activity Centers (PACs)
- Northern Goshawk and Great Gray Owl PACs
- Forest Carnivore Den Sites
- California Spotted Owl Home Range Core Areas
- General Forest
- Critical Aquatic Refuges and Riparian Conservation Areas

- Willow Flycatcher Habitat
- Aquatic Management Strategy

Alternative 4 would also retain previously determined Wilderness Areas, Wild and Scenic River Areas, Inventoried Roadless Areas, and the Kings River Special Management Area (see Figure III-11, Congressionally-Designated and Roadless Areas, in Chapter III).

The following allocations and associated management strategies from the Framework would not be retained in Alternative 4:

- Wildland Urban Intermix Defense and Threat Zones
- Old Forest Emphasis Areas
- Southern Sierra Fisher Conservation Areas

See Figure II-4 in the Map Packet for a display of the allocations proposed for Alternative 4.

In Alternative 4, the following forest-wide standards and guidelines from the Framework would be retained (see Appendix D for a summary of the standards and guidelines from the Framework):

- Lower Westside hardwoods
- Large tree retention
- Snags and down woody debris
- Incidental removal of vegetation and down woody material
- Noxious weeds and grazing

Additional standards and guidelines used in Alternative 4 would be as follows:

Intent	Standard & Guideline
Ensure retention of dead and downed material for wildlife habitat and groundcover	After fuel reduction treatments, leave material on-site to the extent that it does not conflict with fuel reduction objectives or create a hazard to human use of the site.
In Management Area HIZ	
Provide defense zones around communities to protect from wildfire	Establish and maintain defense zones by applying fuel reduction strategies within 200 feet of structures used primarily for human habitation and within 100 feet directly adjacent to major roads, developed campgrounds, and other developed public use areas.
Protect monarch giant sequoias from damage by prescribed fire	Where access and conditions allow, reduce heavy fuels around monarch giant sequoia and other key trees (such as sugar pine) to minimize the risk of damage from fire.
Promote site-specific and effective fuel reduction areas	Identify the boundaries of areas for fuel reduction based upon site-specific landscape analyses.

Intent	Standard & Guideline
Ensure prescribed fire is the primary implementation tool with exceptions in specific circumstances only	Use heavy equipment off of roads only in the following circumstances: -To construct, reconstruct, or decommission roads. -When necessary to protect or restore aquatic habitats. -When constructing and/or maintaining defense zones around communities/facilities and areas of high value. -During fire suppression and other emergency ecological restoration activities. -To construct, maintain, or enhance recreational or administrative facilities, including trails. -In existing plantations for the purposes of ecological restoration or fuel reduction.
Eliminate or minimize commercial logging incentives in protection or restoration projects	Do not remove any trees equal to or more than 12 inches in diameter except as clearly needed for emergencies, public safety, or the development, maintenance, or improvement of recreation and administrative opportunities and sites.
In Management Area GFZ	
Eliminate or minimize commercial logging incentives in protection or restoration projects	Do not remove any trees equal to or more than 12 inches in diameter except as clearly needed for emergencies, public safety, or the development, maintenance, or improvement of recreation and administrative opportunities and sites.
Minimize commercial logging incentives in hazard tree removal projects	Limit hazard tree removal along roads to those trees that are taller than their distance to the road and where the hazard to public safety is clearly demonstrated.
Protect monarch giant sequoias from damage by prescribed fire	Where access and conditions allow, reduce fuels around monarch giant sequoia trees and other key trees (such as mature sugar pine) to minimize the risk of damage from fire.

Intent	Standard & Guideline
Ensure prescribed fire is the primary implementation tool with exceptions in specific circumstances only	Use heavy equipment off of roads only in the following circumstances: -To construct, reconstruct, or decommission roads. -When necessary to protect or restore aquatic and riparian habitats. -When constructing or maintaining defense zones around communities, facilities, and areas of high value. -During fire suppression and other emergency ecological restoration activities. -To construct, maintain, or enhance recreational or administrative facilities, including trails. -In existing plantations for the purposes of ecological restoration or fuel reduction.

d) Management Areas and Emphases

Management areas are proposed to identify key areas where additional emphasis can help meet the theme and goals of the alternative. Alternative 4 proposes two management areas (see Figure II-6 in the Map Packet), as follows:

Management Area HIZ, the Human Influence Zone: This area includes communities, developed recreation sites, areas of concentrated human use, and special use sites, as well as a buffer of 50 to 200 feet around these sites.

Management Area GFZ, the General Forest Zone: The portion of the Monument not included in Management Area HIZ. This area includes most of the giant sequoia groves.

(1) Direction Common to All Management Areas

(a) Management Emphases:

- Emphasize natural regeneration for restoration of giant sequoia and associated species, including pines and oaks.
- Prior to decommissioning roads or otherwise eliminating general public access on roads, consider opportunities for their use as recreation trails or for other recreational experiences. Approximately 25 miles of the designated roads may meet the criteria for decommissioning.

- Emphasize the restoration of recreational facilities and the expansion of existing campgrounds to increase recreation opportunities consistent with the aquatic management strategy.
- Provide road access for the public and for management activities without compromising the restoration and protection of the giant sequoia groves, their associated ecosystems, and aquatic and riparian habitat.
- During initial treatments, emphasize establishment of young conifer trees and other vegetation in existing openings or where existing vegetation levels are very low, consistent with applicable management strategies for the area.
- During removal of vegetation to meet fuel reduction or restoration objectives, emphasize the use of service contracts.

(2) Management Area HIZ, Human Influence Zone

This management area is comprised of the developed areas on the Monument, including recreation sites, special use facilities, administrative sites, private lands with structures, other areas of concentrated human use, and the major roads that provide access to these areas. The purpose of this zone is to protect public health, safety, and property in a manner that minimizes adverse impacts to species and ecosystems. An additional 200 feet around each site and 50 to 100 feet adjacent to roads are included in this zone. This management area contains approximately 12,780 acres.

(a) Management Emphases

- Emphasize the protection of public health and safety by reducing fuel loadings and the risk of catastrophic fire.
- Complete protection projects within the first decade of plan implementation.
- In areas of the landscape where fuel loadings, burning conditions, and site conditions are appropriate, emphasize the use of prescribed wildland fire to meet restoration objectives, protect special resources, and continue to move toward desired conditions.
- Reduce areas of heavily impacted surfaces or large areas of hardened surfaces that are negatively impacting giant sequoia groves, their surrounding ecosystems, riparian habitat, or other special features.
- Provide additional opportunities for dispersed and developed recreation without compromising the restoration and protection of the giant sequoia groves and their associated ecosystems.
- Encourage scientific research. Focus research on the potential impacts of concentrated human use on giant sequoia ecology, restoration, and protection.

- Emphasize the protection of special features such as monarch giant sequoias.
- Identify additional suitable lands for future facility development during site-specific landscape analyses.

(3) Management Area GFZ, General Forest Zone

This management area includes all areas not in Management Area HIZ. It includes such key features as the Hume Lake Historic Area (Management Area HLHA in other action alternatives) and almost all of the giant sequoia groves. There are approximately 313,450 acres in this zone.

(a) Management Emphases:

- Emphasize re-establishment of the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.
- Use prescribed fire as the primary method to meet ecological restoration objectives and to move toward desired conditions such as species and age diversity and the re-establishment of more frequent and lower-intensity fires.
- Restore desired fuel conditions and fire return intervals in areas where current high fuel loadings are primarily a result of untreated logging slash.
- Where practical, provide protection to special features such as monarch giant sequoias and sugar pines.
- Re-establish native vegetation and natural hydrologic function on temporary roads and landings.
- Restore plantations to forested conditions that reflect the desired conditions, particularly a mixed species composition and a variety of age and size classes.
- Encourage scientific research. Focus research on protection and restoration of natural processes and the scientific value of caves.
- During removal of vegetation to meet fuel reduction or restoration objectives, emphasize the use of service contracts.
- Minimize conflicts between different types of recreational uses, such as between motorized summer or winter vehicle users and those seeking solitude or using stock.
- Emphasize non-mechanized recreational opportunities and provide for dispersed recreation consistent with restoration objectives.
- In the northern portion of the Monument, emphasize the interpretation of historical features, especially those associated with the Hume Lake historic logging area. In the southern portion of the Monument, emphasize the interpretation of

natural features and processes. Interpret restoration and protection activities as they are implemented and monitored.

8. Alternative 5

Alternative 5 was developed to respond specifically to the Giant Sequoia and Social Values Regarding Vegetation Treatments issues by prescribing a broad range of management strategies to promote conditions for giant sequoia regeneration in the groves. These grove-specific management strategies would include prescribed fire, mechanical treatments (including heavy machinery), and removal of trees up to 30 inches in diameter to create small openings, or gaps, to promote giant sequoia regeneration. Outside of the groves, Framework allocations and management strategies (Appendix D), which include both prescribed fire and mechanical methods, would be applied. This alternative acknowledges that there are areas of extreme fuel loadings or other site conditions where prescribed fire alone may not be effective in meeting management goals without unacceptable risks to other resource values. As initial treatments are completed and areas are at or approaching desired conditions (see Chapter I), prescribed fire and wildland fire use would be the primary tools used to reach and maintain desired conditions for both fire and vegetation.

Areas designated for treatments for community protection and to reduce the risk of catastrophic fire would be the first priority for treatment. Approximately 70,000 acres would be treated in the first decade of implementation.

This alternative responds to other key issues in the following ways:

Recreation: Recreation demand would be assessed and opportunities expanded to help meet the demand for increased overnight facilities, interpretation, education, and dispersed recreation, including opportunities in or near giant sequoia groves. The transportation system would provide high levels of access for public and management use, consistent with protection and restoration of the Monument.

Fire and Fuels: The Framework strategies would include the use of urban wildland intermix defense zones and threat zones and Strategically Placed Areas Treatments (SPLATs).

a) Management Strategies

The following strategies are intended to provide the direction necessary to meet the intent of Alternative 5.

Restoration Strategy. Alternative 5 provides for the systematic reintroduction of fire to the ecosystem by following a new management strategy for the groves and by following Framework strategies outside of the groves. In the groves, both prescribed fire and mechanical treatments (including heavy equipment) would be allowed to meet restoration and protection goals. This approach reflects the somewhat more predictable results that can be achieved through the judicious combination of mechanical treatments and prescribed fire to achieve desired conditions (see Chapter I). Outside of the groves, the treated areas would

reduce the risk of catastrophic fire sufficiently over the long term to allow prescribed fire and wildland fire use to act as the primary tools to move toward desired conditions. Existing plantations would be managed to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. By meeting the fuel load and fire model desired condition, fire can be safely returned to the ecosystem and allowed to remove excess ground fuels and vegetation. By using fire, we can eventually remove enough excess vegetation to meet the desired condition for vegetation stand structure. All vegetation types, including mixed conifer/sequoia, chaparral, and lower Westside hardwoods, would be included in treatment areas. Prescribed fire and wildland fire use would be used to move the area toward the desired fire return interval. The Framework's aquatic management strategy would be applied for the purpose of protecting, restoring, and stabilizing hydrologic function and structure.

Protection Strategy. Alternative 5 would protect communities, other sites occupied by people, and the objects of interest with the full range of Framework strategies. Key strategies include the urban wildland intermix threat and defense zones, SPLATs, and wildland fire use. There are approximately 9,350 acres in defense zones around communities that would receive protection treatments in the first decade.

Recreation/Human Use Strategy. Alternative 5 would assess the increased demand for recreation in the Monument and help meet that demand for a wide range of recreation uses. It would encourage the expansion of overnight camping opportunities near and in the groves. The focus of interpretation would be on historical areas on the Hume Lake District and on natural settings on the Tule River and Hot Springs Ranger Districts.

Transportation Strategy. Alternative 5 would emphasize retaining road access for public use and for management activities similar to current access levels, approximately 900 miles of road. For public access, emphasis would be on maintaining roads to recreation sites, dispersed areas, special use sites, and private land. An extensive road system would be available for recreation driving and off-highway vehicle use. For management access, emphasis would be on ecosystem restoration and fire protection. Roads with high risks for causing unacceptable impacts to natural resources would be repaired, relocated, closed, or decommissioned to reduce impacts. Road decommissioning would focus on unclassified roads and those classified roads producing unacceptable impacts where repair or relocation is unreasonable. New roads could be constructed to meet management goals to provide access to new recreation facilities, to provide access to administrative sites, to replace roads producing unacceptable resource impacts, or to provide access for research. The maintenance strategy would be to continue to request funds to reduce the maintenance backlog and keep the road system in acceptable condition. The transportation plans for the alternatives are in Appendix F.

b) Management Goals

Alternative 5 would change the management goals for some of the key resources.

(1) Giant Sequoias and the Surrounding Ecosystems

- Protect the hydrologic functions and soil resources upon which the groves and the surrounding ecosystems depend (common to Alternatives 5, 6, and Modified 6).
- Protect blue oak in the lower Westside hardwood ecosystem, and improve the viability of black oak in the mixed-conifer forest (common to Alternatives 2, 3, 5, 6, and Modified 6).
- Protect communities by completing fuel treatments for community protection within the first three decades of plan implementation (common to Alternatives 2, 5, and 6).
- Treat the majority of the landscape during the first three decades to protect against catastrophic fire, to restore desired fire return intervals, and to develop desired structural conditions for key ecological indicators.

(2) Dispersed and Developed Recreation.

- Increase recreation facility capacity for overnight camping, day use, education and interpretation, and other appropriate recreational activities (common to Alternatives 5, 6, and Modified 6). Expansions and relocations of single family and group campgrounds could increase capacity by up to 70%. Picnic, interpretive, and educational site improvements and developments could increase capacity by 45 to 70%. Improvements and expansions of the trail system could increase capacity by up to 25%.
- Improve visitor facilities, information, and services to help meet projected demand for recreation and visitation in cooperation with permittees; cooperators; county, state, and federal agencies; tribal governments; recreational user groups; and the business community (common to Alternatives 2, 5, 6, and Modified 6).
- Increase recreation opportunities, including developed sites, in or near giant sequoia groves in order to provide a varied range of recreational and educational opportunities.

(3) Transportation System.

- Provide enjoyable and safe opportunities for riding off-highway vehicles, including snowmobiles, on designated roads within

the Monument (common to Alternatives 2, 4, 5, 6, and Modified 6). The current designated road system includes approximately 640 miles available for riding OHVs and approximately 135 miles groomed for use in the winter.

c) Allocations, Standards and Guidelines

The following allocations and associated management strategies from the Framework would be retained in Alternative 5 (see Appendix D for a summary of the Framework direction):

- California Spotted Owl Protected Activity Centers (PACs)
- Northern Goshawk and Great Gray Owl PACs
- Forest Carnivore Den Sites
- Old Forest Emphasis Areas
- California Spotted Owl Home Range Core Areas
- Southern Sierra Fisher Conservation Area
- Wildland Urban Intermix Defense and Threat Zones
- General Forest
- Critical Aquatic Refuges and Riparian Conservation Areas
- Willow Flycatcher Habitat
- Aquatic Management Strategy

Alternative 5 would also retain previously determined Wilderness Areas, Wild and Scenic River Areas, Inventoried Roadless Areas, and the Kings River Special Management Area (see Figure III-11, Congressionally-Designated and Roadless Areas, in Chapter III).

Areas outside the groves that fall within the Old Forest Emphasis Areas or Southern Sierra Fisher Conservation Area allocations only (not also in one of the other allocations) would remain in those allocations, but areas within the groves that do so would become a new land allocation. This new allocation would be called Giant Sequoia Groves and its primary purposes would be the protection and restoration of the groves. New management strategies are prescribed for this allocation. See Figure II-7 in the Map Packet for a display of the allocations proposed for Alternative 5.

In Alternative 5, the following forest-wide standards and guidelines from the Framework would be retained (see Appendix D for a summary of the standards and guidelines from the Framework):

- Lower Westside hardwoods
- Large tree retention
- Snags and down woody debris
- Incidental removal of vegetation and down woody material

- Noxious weeds and grazing

Additional standards and guidelines used in Alternative 5 would be as follows:

Intent	Standard & Guideline
Promote age class diversity and reduce risk of catastrophic fire	Manage the mixed brush-chaparral ecosystem to develop and maintain a broad mix of age classes and structural diversity by burning on a 20-to-50 year cycle.
Restore desired fire return interval and fire behavior for fire-dependent vegetation	Implement restoration treatment areas across the landscape for the restoration of fire, with an annual average program based in part on the desired fire return interval by vegetation type.
In Management Area GML	
Ensure protection and restoration projects are focused on age and size classes of concern	Use restoration treatment areas in fire-dependent ecosystems to restore a more frequent fire return interval. A restoration treatment area is an area typically from 50 to 500 acres in size, where mechanical treatments and/or prescribed fire are applied for the restoration of fire to the ecosystem, rather than for protection purposes. The boundaries of restoration treatment areas are determined locally based upon landscape analysis. Overall treatment programs are based in part on the desired fire return interval for each specific vegetation type.
In Management Area GSG1	
Encourage gaps created for restoration are consistent with desired conditions	Limit removal of live trees to those equal to or less than 30 inches in diameter. Larger trees may be removed based upon site-specific landscape analyses if clearly needed for development, restoration, or maintenance of recreation and administrative sites; for emergency situations; for public health and safety; as part of a scientific study; or for the protection or restoration of special features such as monarch giant sequoia trees.
Use a cautious approach in establishing gaps	When treating stands mechanically, create gaps that are typically one acre or less in size, irregularly shaped, and no larger than two acres in size. This does not apply to openings created to expand or develop new administration or recreation facilities, such as campgrounds.
Ensure protection and restoration projects are focused on age and size classes of concern	When treating stands mechanically, limit new gaps development to approximately 5% of the area, and no more than approximately 10% of the stand area. This does not apply to openings created to expand or develop new administrative or recreation facilities, such as campgrounds.
In Management Area GSG2	

Intent	Standard & Guideline
Ensure protection and restoration projects are focused on age and size classes of concern	Limit removal of live trees to those equal to or less than 30 inches in diameter. Larger trees may be removed based upon site-specific landscape analyses if clearly needed for development, restoration, or maintenance of recreation and administrative sites; for emergency situations; for public health and safety; as part of a scientific study; or for the protection or restoration of special features such as monarch giant sequoia trees.
Encourage gaps created for restoration are consistent with desired conditions	When treating stands mechanically, create gaps that are typically one acre or less in size, irregularly shaped, and no larger than two acres in size. This does not apply to openings created to expand or develop new administrative or recreation facilities, such as campgrounds.
Use a cautious approach in establishing gaps	When treating stands mechanically, limit new gaps development to approximately 5% of the area, and no more than approximately 10% of the stand area. This does not apply to openings created to expand or develop new administrative or recreation facilities, such as campgrounds.
In Management Area GSG3	
Ensure protection and restoration projects are focused on age and size classes of concern	Limit removal of live trees to those equal to or less than 30 inches in diameter. Larger trees may be removed based upon site-specific landscape analyses if clearly needed for development, restoration, or maintenance of recreation and administrative sites; for emergency situations; for public health and safety; as part of a scientific study; or for the protection or restoration of special features such as monarch giant sequoia trees.
Encourage gaps created for restoration are consistent with desired conditions	When treating stands mechanically, create gaps that are typically one acre or less in size, irregularly shaped, and no larger than two acres in size. This does not apply to openings created to expand or develop new administrative or recreation facilities such as campgrounds.
Use a cautious approach in establishing gaps	When treating stands mechanically, limit new gaps development to approximately 5% of the area, and no more than approximately 10% of the stand area. This does not apply to openings created to expand or develop new administrative or recreation facilities, such as campgrounds.

d) Management Areas and Emphases

Management areas are proposed to identify key areas where additional emphasis can help meet the theme and goals of the alternative. Alternative 5 proposes six management areas (see Figure II-10 in the Map Packet), as follows:

Management Area ZOI-NG, Zones of Influence without the Groves: The ecological zones of influence that surround the giant sequoia groves, not

including the sequoia groves themselves. Generally these areas are defined by the boundaries of the watersheds where the giant sequoia groves are found. These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology.

Management Area HLHA, the Hume Lake Historic Area: This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. This MA remains the same for all alternatives.

Management Area GML, General Monument Lands: The rest of the Monument not included in Management Areas ZOI-NG, HLHA, GSG1, GSG2, or GSG3. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems.

Management Area GSG1: Giant sequoia groves that have had no significant disturbance for the last 120 years and with little regeneration.

Management Area GSG2: Giant sequoia groves that were substantially cutover during the late 1800s and early 1900s, leading to heavy stands of second growth mixed conifer-giant sequoia forests.

Management Area GSG3: Giant sequoia groves that had logging disturbances within the last 20 years, leading to well-established patches of young seral stage mixed conifer and giant sequoia vegetation.

(1) Direction Common to All Management Areas

(a) Management Emphases:

- Emphasize re-establishment of the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.
- Expand overnight recreational opportunities within or in close proximity to giant sequoia groves.
- Maintain current levels of road and trail access for public and administrative use consistent with protection of the objects of interest.
- During the first three decades, emphasize a protection strategy. Shift over time to a restoration strategy.

- During initial restoration treatments, emphasize establishment of young conifer trees and other vegetation in existing openings in the stands or where existing vegetation levels are very low, consistent with applicable management strategies for the area.
- Use natural regeneration of native species to meet long-term restoration goals.
- Prior to decommissioning roads, consider opportunities for their use as recreation trails.

(2) Management Area ZOI-NG, Zones of Influence without the Groves

This management area is a modified version of Management Area ZOI-WG in Alternative 2, the Proposed Action. It consists of the ecological zones of influence that surround the giant sequoia groves but does not include the sequoia groves themselves. Generally these areas are defined by the boundaries of the watersheds where the giant sequoia groves are found. These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology. There are approximately 64,370 acres in this management area.

(a) Management Emphases:

- Emphasize prescribed fire and associated hand treatments as the preferred vegetation management tools, consistent with the Framework management strategies.
- Encourage scientific research. Focus research on potential impacts of management and human use on giant sequoia ecology, restoration, and protection.
- In the northern portion of the Monument, emphasize interpretation of historical features. In the southern portion of the Monument, emphasize natural features and processes. Interpret restoration and protection activities as they are implemented and monitored.

(3) Management Area HLHA, Hume Lake Historic Area

This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. It contains approximately 15,680 acres.

(a) Management Emphases:

- Preserve and interpret this historical landscape and its associated ecosystems.
- Provide a wide range of recreational and interpretive opportunities.
- Provide interpretive and educational materials emphasizing the relevance, fragility, and values of the area's heritage resources and ecology.
- Emphasize the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.

(4) Management Area GML, General Monument Lands

This management area consists of the part of the Monument not included in Management Area ZOI-NG, Management Area HLHA, or Management Areas GSG1, GSG2, and GSG3, the giant sequoia groves. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems. This management area contains approximately 219,500 acres.

(a) Management Emphases:

- Reduce fuel loads, especially down slope of the groves, and return to a more natural fire interval.
- Encourage scientific research. Focus research on protection and restoration of natural processes and caves.

(5) Management Area GSG1

Giant sequoia groves dominated by trees over 150 years old and with less than 3% in other age groups. There are approximately 12,870 acres in the following groves: Agnew, Alder Creek, Belknap Complex, Burro Creek, Cunningham, Deer Creek, Deer Meadow, Dillonwood, Evans Complex (southeast portion), Freeman Creek, Maggie Mountain, Middle Tule, Monarch, Upper Tule, Mountain Home, Red Hill, Silver Creek, South Peyrone, and Wishon. These groves have had little or no regeneration of young giant sequoia or other mixed conifer vegetation in the last 120 years or more.

(a) Management Emphases:

- Re-establish a more natural fire return interval and structural conditions that promote establishment of new groups of young vegetation.

- Emphasize the use of mechanical methods in conjunction with prescribed fire to meet goals for protection and restoration.
- Use a combination of prescribed fire and mechanical methods to ensure protection and ecological restoration goals are met. Mechanical methods in advance of prescribed fire would be most appropriate where the use of prescribed fire alone poses unacceptable risks to other values (e.g., wildlife habitat, recreation, watershed). Mechanical methods immediately following prescribed fire would be appropriate to meet project objectives if prescribed fire results do not meet goals.
- Create desired structural conditions to meet ecological restoration goals for indicators such as vegetation gap and patch size, vertical structure, and species composition.

(6) Management Area GSG2

Giant sequoia groves with significant amounts of trees 20 to 150 years old. There are approximately 8,070 acres in the following groves: Converse Basin, Abbott Creek, Big Stump, Cherry Gap, Evans Complex (northeastern portion), Grant Grove, and Indian Basin.

(a) Management Emphases:

- Manage the Converse Grove as an area of focused scientific research.
- Manage existing second growth stands to move toward the desired condition (see Chapter I) of a mosaic of age classes and species.
- Study the response of second-growth giant sequoia and mixed conifer forests to different management strategies and techniques.
- Emphasize careful stocking control with prescribed burning, mechanical methods, or a combination of methods to meet protection and restoration goals and move toward desired conditions.
- Promote a return to a frequent fire return interval consistent with desired conditions.
- Use a combination of prescribed fire and mechanical methods to ensure protection and ecological restoration goals are met. Mechanical methods in advance of prescribed fire would be most appropriate where the use of prescribed fire alone poses unacceptable risks to other values (e.g., wildlife habitat, recreation, watershed). Mechanical methods immediately following prescribed fire would be appropriate to meet project objectives if prescribed fire results do not meet goals.

- Create desired structural conditions to meet ecological restoration goals for indicators such as vegetation gap and patch size, vertical structure, and species composition.

(7) Management Area GSG3

Giant sequoia groves with significant amounts of trees 10 to 20 years old. There are approximately 5,730 acres in the following groves: Bearskin, Black Mountain, Landslide, Long Meadow, Packsaddle, Peyrone, Redwood Mountain, and Starvation Complex.

(a) Management Emphases:

- Ensure the careful management of the existing age classes, especially the 10-20 year old vegetation.
- Manage the Redwood Mountain Grove as an area of focused scientific research.
- Emphasize a collaborative research program that takes advantage of the multiple ownerships and agencies that manage a portion of this area (National Park Service, UC Berkeley, USDA Forest Service, Tule River Indian Reservation).
- Study the response of generally undisturbed late seral stage giant sequoia and mixed conifer forests to prescribed fire management strategies and techniques.
- Emphasize prescribed fire as the primary tool to maintain desired conditions where these conditions already exist.
- Promote a return to a frequent fire return interval consistent with desired conditions.
- Use a combination of prescribed fire and mechanical methods to ensure protection and ecological restoration goals are met. Mechanical methods in advance of prescribed fire would be most appropriate where the use of prescribed fire alone poses unacceptable risks to other values (e.g., wildlife habitat, recreation, watershed). Mechanical methods immediately following prescribed fire would be appropriate to meet project objectives if prescribed fire results do not meet goals.
- Create desired structural conditions to meet ecological restoration goals for indicators such as gap and patch size and vegetative structure.

9. Alternative 6

Alternative 6 was developed to specifically address the significant issues of Giant Sequoia, Mixed Conifer Restoration, and Social Values Regarding Vegetation Treatments. This alternative would prescribe a broad range of management strategies to restore and protect all of the ecosystems found in the Monument, as well as promote conditions for giant sequoia regeneration in the groves. These strategies are the same as those applied to the giant sequoia groves in Alternative 5 but, in this alternative, they apply to all of the Monument ecosystems. These monument-wide management strategies would include prescribed fire, mechanical treatments (including heavy machinery), and removal of trees up to 30 inches in diameter when needed for restoration, protection, or to create small openings, or gaps, to promote giant sequoia regeneration.

The flexible mixture of treatment methods is most responsive to and acknowledges the fact that site conditions and resource objectives will vary. The Scientific Advisory Board states in Advisory III (see Appendix C) "Fire often is a useful tool for restoring giant sequoia groves and other fire-adapted ecosystems (Hardy and Amo, 1996; Stephenson 1996, 1999). However, issues such as human safety, air quality, water quality, endangered species, cumulative impacts with other management actions, current and desired forest structure, and current fuel loads mean that fire alone cannot always be used to achieve desired forest conditions, (Weatherspoon, 1996; Fule et al, 1997; Piirto and Rogers, 1999). In areas where fire alone cannot be used to achieve desired conditions (see Chapter I), mechanical thinning often proves to be a useful alternative (Weatherspoon, 1996)."

Outside of the groves, areas would be designated for ecological restoration treatments based on monument-wide strategies and site-specific analysis. This alternative acknowledges that there are sites where the use of prescribed fire in conjunction with mechanical methods can give reliable results. There are areas of extreme fuel loadings or other site conditions where prescribed fire alone may not be effective in meeting management goals without unacceptable risks to other resource values.

Areas designated for treatments for community protection and to reduce the risk of catastrophic fire would be the first priority for treatment. Approximately 79,900 acres would be treated in the first decade of implementation. In addition to areas treated to reduce the risk of fire, other areas could be treated to move toward the desired conditions for vegetation and to return fire-dependent ecosystems to a desired fire return interval. As these treatments are completed and the areas approach their desired condition, the program would maintain the treated areas and treat additional areas. Over the long term, as more areas reach their desired condition, prescribed fire and wildland fire use would provide more reliable results and would be the primary tools used to reach and maintain desired conditions for both fire and vegetation.

This alternative responds to other key issues in the following ways:

Recreation: Recreation demand would be assessed and opportunities expanded to help meet the demand for increased overnight facilities, interpretation, education, and dispersed recreation, including opportunities in or near giant sequoia groves. The transportation system would maintain high levels of access for public and management use, consistent with the protection and restoration of the Monument.

Air Quality: The flexible mixture of treatment methods would provide land managers with opportunities to treat existing high fuel loadings while minimizing impacts to air quality.

Fire and Fuels: The Framework strategies would include the use of wildland urban intermix defense zones and threat zones and Strategically Placed Areas Treatments (SPLATs).

a) Management Strategies

The following strategies are intended to provide the direction necessary to meet the intent of Alternative 6.

Restoration Strategy. Alternative 6 calls for the systematic reintroduction of fire throughout the Monument to re-establish a desired fire return interval for all fire-dependent ecosystems, including chaparral, mixed conifer-giant sequoia, and lower Westside hardwood. All vegetation types would be included in a restoration treatment area. This strategy is very similar to Alternative 5, except that this alternative would manage all of the vegetation types throughout the Monument with a combination of mechanical and prescribed fire. Existing plantations would be managed to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. The Framework's aquatic management strategy would be applied for the purpose of protecting, restoring, and stabilizing hydrologic function and structure.

Protection Strategy. Alternative 6 would protect communities, other sites occupied by people, and the objects of interest with the full range of Framework strategies. Key strategies include the urban wildland intermix threat and defense zones, SPLATs, and wildland fire use. There are approximately 8,900 acres in defense zones around communities that would receive protection treatments in the first decade.

Recreation/Human Use Strategy. Alternative 6 would assess the increased demand for recreation in the Monument and help meet that demand for a wide range of recreational uses. It would encourage the expansion of overnight camping opportunities near and in the groves. It would emphasize interpretation and education of management activities, focusing on the historical areas on the Hume Lake District and on natural settings on the Tule River and Hot Springs Ranger Districts.

Transportation Strategy. Alternative 6 would emphasize retaining road access for public use and for management activities similar to current access levels, approximately 900 miles of road. For public access, emphasis would be on maintaining roads to recreation sites, dispersed areas, special use sites, and private land. An extensive road system would be available for recreation driving and off-highway vehicle use. For management access, emphasis would be on ecosystem restoration and fire protection. Roads with high risks for causing unacceptable impacts to natural resources would be repaired, relocated, closed, or decommissioned to reduce impacts. Road decommissioning would focus on unclassified roads and those classified roads producing unacceptable impacts where repair or relocation is unreasonable. New roads could be constructed to meet management goals to provide access to new recreation facilities, to provide access to administrative sites, to replace roads producing unacceptable resource impacts, or to provide access for research. The maintenance strategy would be to continue to request funds to reduce the maintenance backlog and keep the road system in acceptable condition. The transportation plans for the alternatives are in Appendix F.

b) Management Goals

Alternative 6 would change the management goals for some of the key resources.

(1) Giant Sequoias and the Surrounding Ecosystems.

- Protect the hydrologic functions and soil resources upon which the groves and surrounding ecosystems depend (common to Alternatives 5, 6, and Modified 6).
- Protect blue oak in the lower Westside hardwood ecosystem, and improve the viability of black oak in the mixed conifer forest (common to Alternatives 2, 3, 5, 6, and Modified 6).
- Protect communities by completing fuel treatments for community protection within the first three decades of plan implementation (common to Alternatives 2, 5, and 6).
- Treat approximately 5% of the giant sequoia grove management areas per year to move toward desired future conditions and to meet protection and restoration goals.

(2) Dispersed and Developed Recreation.

- Increase recreation facility capacity for overnight camping, day use, education and interpretation, and other appropriate recreational activities (common to Alternatives 5, 6, and Modified 6). Expansions and relocations of single family and group campgrounds could increase capacity by up to 70%. Picnic, interpretive, and educational site improvements and developments could increase capacity by 45 to 70%.

Improvements and expansions of the trail system could increase capacity by up to 25%.

- Improve visitor facilities, information, and services to help meet projected demand for recreation and visitation in cooperation with permittees; cooperators; county, state, and federal agencies; tribal governments; recreational user groups; and the business community (common to Alternatives 2, 5, 6, and Modified 6).
- Increase recreation opportunities, including developed sites, in or near giant sequoia groves to provide a varied range of recreational and educational opportunities.

(3) Transportation System.

- Provide enjoyable and safe opportunities for riding off-highway vehicles, including snowmobiles, on designated roads within the Monument (common to Alternatives 2, 4, 5, 6, and Modified 6). The current designated road system includes approximately 640 miles available for riding OHVs and approximately 135 miles groomed for use in the winter.

c) Allocations, Standards and Guidelines

The following allocations and associated management strategies from the Framework would be retained in Alternative 6 (see Appendix D for a summary of the Framework direction):

- California Spotted Owl Protected Activity Centers (PACs)
- Northern Goshawk and Great Gray Owl PACs
- Forest Carnivore Den Sites
- California Spotted Owl Home Range Core Areas
- Wildland Urban Intermix Defense and Threat Zones
- Critical Aquatic Refuges and Riparian Conservation Areas
- Willow Flycatcher Habitat
- Aquatic Management Strategy

Alternative 6 would also retain previously determined Wilderness Areas, Wild and Scenic River Areas, Inventoried Roadless Areas, and the Kings River Special Management Area (see Figure III-11, Congressionally-Designated and Roadless Areas, in Chapter III).

The Old Forest Emphasis Area, Southern Sierra Fisher Conservation Area, and General Forest Allocations from the Framework would be replaced by a single allocation called Restoration and Protection. This allocation would have the primary purposes of ecological protection and restoration to move toward the desired

conditions for key resources (see Chapter I). See Figure II-8 in the Map Packet for a display of the allocations proposed for Alternative 6.

In Alternative 6, the forest-wide standards and guidelines from the Framework would be retained for the following resource areas (see Appendix D for a summary of Framework standards and guidelines):

- Lower Westside hardwoods
- Large tree retention
- Snags and down woody debris
- Incidental removal of vegetation and down woody material
- Noxious weeds and grazing

Additional standards and guidelines used in Alternative 6 would be as follows:

Intent	Standard & Guideline
Promote age class diversity and reduce risk of catastrophic fire	Manage the mixed brush-chaparral ecosystem to develop and maintain a broad mix of age classes and structural diversity by burning on an estimated 20-to-50 year cycle.
Restore desired fire return interval and fire behavior for fire-dependent vegetation	Use restoration treatment areas across the landscape for the restoration of fire, with an annual average program based on the desired fire return interval by vegetation type. Treat fire-dependent ecosystems to restore a more frequent fire return interval, using prescribed fire as the primary treatment method to reach the desired condition. A restoration treatment area is an area from 50 to 500 acres in size where mechanical treatments and/or prescribed fire are applied for the restoration of fire, rather than for protection purposes. The boundaries of restoration treatment areas are determined locally based upon landscape analysis. Overall treatment programs are based on the desired fire return interval for each specific vegetation type.
Ensure protection and restoration projects are focused on age and size classes of concern	Limit removal of live trees to those equal to or less than 30 inches in diameter. Larger trees may be removed based upon site-specific landscape analyses if clearly needed for development, restoration, or maintenance of recreation and administrative sites; for emergency situations; for public health and safety; as part of a scientific study; or for the protection or restoration of special features such as monarch giant sequoia trees.
Encourage gaps created for restoration are consistent with desired conditions	When treating stands mechanically, create gaps that are typically one acre or less in size, irregularly shaped, and no larger than two acres in size. This does not apply to openings created to expand or develop new facilities, such as campgrounds.

Intent	Standard & Guideline
Use a cautious approach in establishing gaps	When treating stands mechanically, limit new gaps development to approximately 5% of the area. This does not apply to openings created to expand or develop new administrative or recreation facilities, such as campgrounds.
In Management Area GML	
Develop and implement restoration and protection projects that are most likely to meet goals and move toward desired conditions; reduce uncertainty of project outcomes	Use a combination of prescribed fire and mechanical methods to ensure protection and ecological restoration goals are met. Mechanical methods in advance of or immediately after prescribed fire would be most appropriate where the use of prescribed fire alone poses unacceptable risks to other values (e.g., wildlife habitat, recreation, watershed) or cannot meet goals.
Protect against catastrophic fire, restore desired fire return interval, and develop desired structural conditions for key ecological indicators	Treat the majority of the landscape during the first two decades to protect against catastrophic fire, to restore a desired fire return interval, and to develop desired structural conditions for key ecological indicators.

d) Management Areas and Emphases

Alternative 6 would create three management areas within the groves (Management Areas GSG1, GSG2, and GSG3), and would therefore modify two of the three management areas in the Proposed Action (see Figure II-10 in the Map Packet), as follows:

Management Area ZOI-NG, Zones of Influence without the Groves: The ecological zones of influence that surround the giant sequoia groves, not including the sequoia groves themselves. Generally these areas are defined by the boundaries of the watersheds where the giant sequoia groves are found. These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology.

Management Area HLHA, the Hume Lake Historic Area: This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. This MA remains the same for all alternatives.

Management Area GML, General Monument Lands: The rest of the Monument not included in Management Areas ZOI-NG, HLHA, GSG1, GSG2, or GSG3. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also

includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems.

Management Area GSG1: Giant sequoia groves that have had no significant disturbance for the last 120 years and with little regeneration.

Management Area GSG2: Giant sequoia groves that were substantially cutover during the late 1800s and early 1900s, leading to heavy stands of second growth mixed conifer-giant sequoia forests.

Management Area GSG3: Giant sequoia groves that had logging disturbances within the last 20 years, leading to well-established patches of young seral stage mixed conifer and giant sequoia vegetation.

(1) Direction Common to All Management Areas

(a) Management Emphases:

- Emphasize natural regeneration for restoration of giant sequoia and associated species, including pines and oaks.
- Emphasize re-establishment of the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.
- Expand overnight recreational opportunities within or in close proximity to giant sequoia groves.
- Maintain current levels of road and trail access for public and administrative use consistent with protection of the objects of interest.
- During the first three decades, emphasize a protection strategy. Shift over time to a restoration strategy.
- During initial treatments, emphasize establishment of young conifer trees and other vegetation in existing openings in the stands or where existing vegetation levels are very low, consistent with applicable management strategies for the area.
- Prior to decommissioning roads, consider opportunities for their use as recreation trails.
- Use a combination of prescribed fire and mechanical methods to ensure protection and ecological restoration goals are met. Mechanical methods in advance of or immediately after prescribed fire would be most appropriate where the use of prescribed fire alone poses unacceptable risks to other values (e.g., urban areas, wildlife habitat, recreation, watershed) or will not achieve protection or restoration goals when used alone.
- Create desired structural conditions to meet ecological restoration goals for indicators such as gap and patch size and vegetative structure.

(2) Management Area ZOI-NG, Zones of Influence without the Groves

This management area is a modified version of Management Area ZOI-WG in Alternative 2, the Proposed Action. It consists of the ecological zones of influence for the giant sequoia groves and their surrounding ecosystems, *outside* of the boundaries of the groves themselves (Management Area 4 in this alternative). These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology. There are approximately 64,370 acres in this management area.

(a) Management Emphasis:

- Encourage scientific research. Focus research on potential impacts of management and human use on giant sequoia ecology, restoration, and protection.

(3) Management Area HLHA, Hume Lake Historic Area

This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. It contains approximately 15,680 acres.

(a) Management Emphases:

- Preserve and interpret this historical landscape and its associated ecosystems.
- Provide a wide range of recreational and interpretive opportunities.
- Provide interpretive and educational materials emphasizing the relevance, fragility, and values of the area's heritage resources and ecology.
- Emphasize the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.

(4) Management Area GML, General Monument Lands.

This management area consists of the part of the Monument not included in Management Areas ZOI-NG, HLHA, GSG1, GSG2, or GSG3. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with

mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems. This management area contains approximately 219,500 acres.

(a) Management Emphases:

- Emphasize the use of mechanical methods in conjunction with prescribed fire to meet goals for protection and restoration.
- Reduce fuel loads, especially down slope of the groves, and return to a more natural fire return interval.
- Encourage scientific research. Focus research on protection and restoration of natural processes and caves.

(5) Management Area GSG1

Giant sequoia groves dominated by trees over 150 years old and with less than 3% in other age groups. There are approximately 12,870 acres in the following groves: Agnew, Alder Creek, Belknap Complex, Burro Creek, Cunningham, Deer Creek, Deer Meadow, Dillonwood, Evans Complex (southeast portion), Freeman Creek, Maggie Mountain, Middle Tule, Monarch, Upper Tule, Mountain Home, Red Hill, Silver Creek, South Peyrone, and Wishon. These groves have had little or no regeneration of young giant sequoia or other mixed conifer vegetation in the last 120 years or more.

(a) Management Emphases:

- Re-establish a more natural fire return interval and structural conditions that promote establishment of new groups of young vegetation.
- Emphasize protection measures to reduce the risk of catastrophic fire.

(6) Management Area GSG2

Giant sequoia groves with significant amounts of trees 20 to 150 years old. There are approximately 8,070 acres in the following groves: Converse Basin, Abbott Creek, Big Stump, Cherry Gap, Evans Complex (northeastern portion), Grant Grove, and Indian Basin.

(a) Management Emphases:

- Protect groves from catastrophic fire.
- Manage existing second growth stands to move toward the desired condition (see Chapter I) of a mosaic of age classes and species.

- Manage the Converse Grove as an area of focused scientific research.
- Study the response of second-growth giant sequoia and mixed conifer forests to different management strategies and techniques.
- Emphasize careful stocking control with prescribed burning, mechanical methods, or a combination of methods to meet protection and restoration goals and move toward desired condition.

(7) Management Area GSG3

Giant sequoia groves with significant amounts (more than 3% of their area) of trees 10 to 20 years old. There are approximately 5,730 acres in the following groves: Bearskin, Black Mountain, Landslide, Long Meadow, Packsaddle, Peyrone, Redwood Mountain, and Starvation Complex.

(a) Management Emphases:

- Ensure the careful management of the existing age classes.
- Protect the groves from catastrophic fire.
- Manage the Redwood Mountain Grove as an area of focused scientific research.
- Study the response of generally undisturbed late seral stage giant sequoia and mixed conifer forests to prescribed fire management strategies and techniques.
- Emphasize a collaborative research program that takes advantage of the multiple ownerships and agencies that manage portions of this area (National Park Service, UC Berkeley, USDA Forest Service, Tule River Indian Reservation).
- Emphasize mechanical treatments to control stocking and to move toward desired conditions until vegetation conditions allow the stand to be resilient to prescribed fire, then use fire as the primary method for moving toward desired conditions.

10. Modified Alternative 6 (The Preferred Alternative)

The preferred alternative is a modification of Alternative 6. As a result of public comment and scientific review, the DEIS alternatives were carefully reviewed between publication of the DEIS and this FEIS. Refinements and suggestions the Forest Service judged important to bring forward to the FEIS were collected into a modification of DEIS Alternative 6, and are displayed here as Modified Alternative 6. Modified Alternative 6 responds to the concerns raised as follows:

- The need to take immediate action to protect communities and other valuable resources from catastrophic fire and to begin ecological restoration of plantations created as a result of past wildfires and harvesting. The Protection Strategy for Modified Alternative 6 makes the completion of treatments in the Wildland Urban Intermix Defense and Threat Zones and in areas around the giant sequoia groves the highest priorities for the first two decades. The Restoration Strategy sets the restoration of recent wildfires, logged areas, and associated roads, landings, and skid trails as the highest priority for that time period.
- A more clear description of the conservation strategy for old forest habitat, one that balances the immediate short-term need to protect communities and resources from catastrophic wildfire with the need to protect and sustain critical old forest habitat. The conservation strategy for both short-term and long-term protection and restoration of critical late seral stage habitat is embedded in and consistent with the Protection and Restoration Strategies for Modified Alternative 6.
- There is uncertainty regarding the efficacy and ecological effects of using mechanical methods and prescribed fire to implement the protection and restoration strategies and move toward desired conditions (see Chapter I). Modified Alternative 6 emphasizes prescribed fire as the preferred treatment method to reach ecological restoration and public safety objectives, including the need to promote giant sequoia regeneration. While prescribed fire would be the preferred method, either fire or mechanical methods could be used for vegetation management treatments. The choice of method would be based on a site-specific project analysis to determine if prescribed fire alone could be used to meet objectives or if mechanical treatments and/or tree removal are clearly needed for ecological restoration and maintenance or public safety.
- There is considerable lack of trust on the part of some members of the public that the management of the Monument will truly embrace the spirit and intent of the Presidential Proclamation, given the controversial history of logging and wood production on the Sequoia National Forest. In Modified Alternative 6, prescribed fire would be used for vegetation management treatments unless a site-specific project analysis clearly shows that mechanical treatments and/or tree removal are clearly needed

for ecological restoration and maintenance or public safety. The Restoration Strategy sets the restoration of recent wildfires, logged areas and associated roads, landings, and skid trails as the highest priorities for the first two decades.

Approximately 63,840 acres would be treated in the first decade of implementation in Modified Alternative 6. Prescribed fire would be used for vegetation management treatments unless a site-specific project analysis clearly shows that mechanical treatments and/or tree removal are clearly needed for ecological restoration and maintenance or public safety. Wildland fire use (allowing some naturally ignited fires to burn) would be included. When mechanical treatments are necessary, removal of trees up to 30 inches in diameter would be allowed. This diameter limit is based upon analysis of local information for the vegetation in the Monument. This analysis indicates that most of the trees contributing to overly dense stand conditions and presenting a fuels problem are less than 130 years old and less than 30 inches in diameter.

This alternative responds to other key issues in the following ways:

Social Values Regarding Vegetation Treatments: There is a clearer commitment to restoration of past plantations created by wildfires and harvesting. Site-specific project analyses would be used to ensure that any removal of trees is clearly needed, as required by the Presidential Proclamation. Site-specific analyses would evaluate prescribed fire first for its effectiveness, risk to other resources, and feasibility.

Fire and Fuels: The protection strategy from the Framework is proposed to ensure protection of communities. This strategy is expanded to ensure that giant sequoia groves are less susceptible to catastrophic fire, and the treatments would be accomplished in the first 20 years of implementation.

Recreation: Recreation demand would be assessed and opportunities expanded to help meet the demand for increased overnight facilities, interpretation, education, and dispersed recreation, including opportunities in or near giant sequoia groves. The transportation system would maintain high levels of access for public and management use, consistent with the protection and restoration of the Monument. New roads could be constructed to meet management goals such as to provide access to new recreation facilities, to provide access to new administrative sites, to replace roads that have unacceptable resource impacts, or to provide access for research.

Giant Sequoia and Mixed Conifer Restoration: The Restoration Strategy sets the restoration of logged areas and associated roads, landings, and skid trails as the highest priorities for the first two decades. Fire will be re-introduced into portions of groves during the first two decades of implementation as part of the protection strategy, and all fire-dependent ecosystems will have fire restored within approximately 50 years of implementation.

a) Management Strategies

The following strategies are intended to provide the direction necessary to meet the intent of Modified Alternative 6.

Restoration Strategy. Modified Alternative 6 calls for the systematic reintroduction of fire throughout the Monument to re-establish a desired fire return interval for all fire-dependent ecosystems, including chaparral, mixed conifer-giant sequoia, and lower Westside hardwood. It would reduce the excessive fuel loads caused by long-term fire exclusion. During the first two decades, it would emphasize the restoration of plantations in the Monument, primarily those started in the last 50 years to restore logged or burned areas. These plantations (including those in giant sequoia groves) would be managed to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. Roads associated with these plantations would also be evaluated for restoration. In other areas of the Monument, more natural structural conditions such as stand densities, species composition, and new patches of young vegetation (especially giant sequoias, pines, and black oaks) would be re-established. Prescribed fire (including wildland fire use) would be the primary treatment method.

Restoration treatment areas would be located across the Monument and in different vegetation types, ranging from 50 to 500 acres in size. Management in these areas would focus on the restoration of fire to the ecosystem and re-establishing more natural structural conditions, rather than protection. Prescribed fire (including wildland fire use) would be the preferred treatment method. The Framework's aquatic management strategy would be applied for the purpose of protecting, restoring, and stabilizing hydrologic function and structure. The boundaries of restoration treatment areas would be determined during landscape analyses.

Protection Strategy. Modified Alternative 6 would protect communities, other sites occupied by people, the objects of interest, and other important resources such as aquatic or wildlife habitat with the full range of Framework strategies. Key strategies include the urban wildland intermix threat and defense zones, SPLATs, and wildland fire use. Additional management direction is provided to protect old forest habitat. Protection treatments would be implemented within the first two decades. There are approximately 12,250 acres in defense zones around communities that would receive protection treatments in the first decade.

Recreation/Human Use Strategy. Modified Alternative 6 encourages and focuses the development of recreation facilities to meet the increased demand for recreation in the Monument. It encourages the expansion of overnight camping, picnicking, trailheads, and interpretive opportunities. It would emphasize interpretation and education, focusing on the historical areas on the Hume Lake District and on natural settings on the Tule River and Hot Springs

Ranger Districts. The current road system would be maintained to allow visitors to explore the Monument and choose dispersed, primitive recreation sites as an alternative to developed camping or picnicking sites.

Transportation Strategy. Modified Alternative 6 would emphasize retaining road access for public use and for management activities similar to current access levels, approximately 900 miles of road. For public access, emphasis would be on maintaining roads to recreation sites, dispersed areas, special use sites, and private land. An extensive road system would be available for dispersed camping, recreational driving, and off-highway vehicle use. For management access, emphasis would be on ecosystem restoration and fire protection. Roads with high risks for causing unacceptable impacts to natural resources would be repaired, relocated, closed, or decommissioned to reduce impacts. Road decommissioning would focus on unclassified roads and those classified roads producing unacceptable impacts where repair or relocation is unreasonable. New roads could be constructed to meet management goals to provide access to new recreation facilities, to provide access to administrative sites, to replace roads producing unacceptable resource impacts, or to provide access for research. The maintenance strategy would be to continue to request funds to reduce the maintenance backlog and keep the road system in acceptable condition. Roads that cannot be maintained in acceptable condition would be closed or decommissioned. The transportation plans for the alternatives are in Appendix F.

In Modified Alternative 6, treatment priorities address the need to take immediate action to protect communities and the objects of interest, as well as restoring more natural conditions in the Monument. The treatment priorities implementing protection strategies would be slightly different than the other alternatives in that additional emphasis would be placed on protecting giant sequoia groves. The treatment priority to implement restoration strategies would be to treat the plantations created by wildfires and past harvesting practices, followed by restoration of a more frequent fire return interval. These treatment priorities are consistent with the National Fire Plan. As the Monument Management Plan is implemented, scientific studies would be initiated and help improve our understanding of different management approaches to achieve ecosystem restoration. Initial treatment priorities would be:

A. Protection Strategy

- Wildland Urban Intermix Defense Zones
- Wildland Urban Intermix Threat Zones, Strategically Placed Area Treatments (SPLATs)
- SPLATs to protect giant sequoia groves and other key resources (e.g., PACs, den sites)
- SPLATs in areas of moderate and high susceptibility to fire

B. Restoration Strategy

- Plantations created primarily from recent wildfires and logging from the 1960s to the 1980s
- Non-system roads and landings associated with past logging
- Giant sequoia groves and other stands to re-introduce fire and improve structural conditions

b) Management Goals

Modified Alternative 6 would change the management goals for some of the key resources.

(1) Giant Sequoias and the Surrounding Ecosystems.

- Protect the hydrologic functions and soil resources upon which the groves and surrounding ecosystems depend (common to Alternatives 5, 6, and Modified 6).
- Protect blue oak in the lower Westside hardwood ecosystem, and improve the viability of black oak in the mixed conifer forest (common to Alternatives 2, 3, 5, 6, and Modified 6).
- Protect communities by completing fuel treatments for community protection within the first two decades of plan implementation.
- Use prescribed fire (including wildland fire use) as the primary treatment method to meet protection and restoration objectives.
- Over the long term, maintain a minimum of 50% of potential old forest habitat with canopy cover greater than 60% and dominated by large trees (California Wildlife Habitat Relationship size classes 5 and 6, greater than 24 inches in diameter, and cover class D).
- Treat conifer plantations within the first two decades of plan implementation, applying the necessary vegetation and fuels treatments to re-establish natural processes and conditions.

(2) Dispersed and Developed Recreation.

- Increase recreation facility capacity for overnight camping, day use, education and interpretation, and other appropriate recreational activities (common to Alternatives 5, 6, and Modified 6). Expansions and relocations of single family and group campgrounds could increase capacity by up to 70%. Picnic, interpretive, and educational site improvements and developments could increase capacity by 45 to 70%.

Improvements and expansions of the trail system could increase capacity by up to 25%.

- Improve visitor facilities, information, and services to help meet projected demand for recreation and visitation in cooperation with permittees; cooperators; county, state, and federal agencies; tribal governments; recreational user groups; and the business community (common to Alternatives 2, 5, 6, and Modified 6).
- Increase recreation opportunities, including developed sites, near giant sequoia groves to provide a varied range of recreational and educational opportunities.

(3) Transportation System.

- Provide enjoyable and safe opportunities for riding off-highway vehicles, including snowmobiles, on designated roads within the Monument (common to Alternatives 2, 4, 5, 6, and Modified 6). The current designated road system includes approximately 640 miles available for riding OHVs and approximately 135 miles groomed for use in the winter.

c) Allocations, Standards and Guidelines

The following allocations and associated management strategies from the Framework would be retained in Modified Alternative 6 (see Appendix D for a summary of the Framework direction):

- California Spotted Owl Protected Activity Centers (PACs)
- Northern Goshawk and Great Gray Owl PACs
- Forest Carnivore Den Sites
- California Spotted Owl Home Range Core Areas
- Wildland Urban Intermix Defense and Threat Zones
- Critical Aquatic Refuges and Riparian Conservation Areas
- Willow Flycatcher Habitat
- Aquatic Management Strategy

Modified Alternative 6 would also retain previously determined Wilderness Areas, Wild and Scenic River Areas, Inventoried Roadless Areas, and the Kings River Special Management Area (see Figure III-11, Congressionally-Designated and Roadless Areas, in Chapter III).

The Old Forest Emphasis Area, Southern Sierra Fisher Conservation Area, and General Forest Allocations from the Framework would be replaced by a single allocation called the Fisher/Old Forest Allocation. This allocation is proposed to provide integrated management for old forest-dependent species. See Figure II-9 in the Map Packet for a display of the allocations proposed for Modified Alternative 6.

In Modified Alternative 6, the following forest-wide standards and guidelines from the Framework would be retained (see Appendix D for a summary of the Framework standards and guidelines):

- Lower Westside hardwoods
- Large tree retention
- Snags and down woody debris
- Incidental removal of vegetation and down woody material
- Noxious weeds and grazing

Additional standards and guidelines used in Modified Alternative 6 would be as follows:

Intent	Standard & Guideline
Emphasize the use of prescribed fire alone for vegetation treatments.	Consider using prescribed fire alone, without mechanical treatment, for vegetation treatments designed to implement wildfire protection ad ecological restoration strategies. Complete a site-specific project analysis to determine if use of mechanical equipment and/or removal of trees are clearly needed. Document the analysis if use of fire alone is determined to be unacceptable.
Protection of giant sequoia ecological process and structure.	Within the zones of influence for giant sequoia groves, evaluate the potential effects of all ground-disturbing activities on giant sequoia ecology.
Reduce size and severity of wildland fires	In plantations apply the necessary silvicultural and fuels reduction treatments to: (1) accelerate the development of key habitats and 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 2 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 10 years. Maintenance of fuels treatments in these areas should ensure that flame lengths remain non-lethal to the species identified above in developing future habitats and old forest.

Intent	Standard & Guideline
To encourage establishment and protection of young giant sequoias and other shade-intolerant species consistent with desired conditions.	When it has been determined that creating gaps by hand cutting or mechanical treatment is clearly needed, create gaps that are typically one-tenth to one acre in size, irregularly shaped, and no larger than two acres in size. This size limitation does not apply to openings created for scientific study or to expand or develop new facilities, such as campgrounds.
	When it has been determined that creating gaps by hand cutting or mechanical treatment is clearly needed, limit new gaps created by hand cutting or mechanical treatment to less than 5% of any stand. This does not apply to openings created for scientific study, to expand or develop new administrative or recreation facilities, such as campgrounds.
Ensure the genetic integrity of giant sequoia groves and mixed conifer stands.	If planted trees are considered in any treatment for restoration in groves or other areas, ensure that the seedlings are grown from seed collected from the local grove and other stands that are adapted to local growing conditions.
Ensure that giant sequoias and other tree species of concern are protected from vegetation treatments.	During initial treatments and in follow-up maintenance treatments, design projects to minimize damage to giant sequoias and other shade-intolerant species.
Protect the roots and trunks of monarch giant sequoias and sugar pines.	In project areas within giant sequoia groves, minimize concentrations of heavy fuels from the bases of giant sequoias and sugar pines. When it has been determined that mechanical treatment is clearly needed, do not allow heavy machinery under drip lines of monarch giant sequoias.
Maintain and develop old forest habitat conditions by leaving the largest trees on site.	When it has been determined that hand cutting of trees is clearly needed, limit cutting of trees to those equal to or less than 30 inches in diameter. Larger trees may be cut based upon site-specific analysis if clearly needed for development, restoration, or maintenance of recreation and administrative sites; for emergency situations; for public health and safety; as part of a scientific or administrative study.
Balancing community protection treatments with long-term management of high-quality fisher habitat.	Develop fuels treatment and restoration strategies during the landscape analysis process (HUC 6 or comparable size landscape) that provides for the protection of communities in concert with meeting the long-term goal of developing and/or maintaining 50% of the overall potential fisher habitat in CWHR 4D, 5D, and 6 This guideline is intended to ensure that fuels treatments and ecological restoration strategies also address short-term protection and long-term sustainability of fisher habitat.

Intent	Standard & Guideline
Maintain canopy closure conditions suitable for dispersal and foraging for California spotted owls while also allowing for effective fuels treatments.	During landscape analysis, assume that high quality fisher habitat is occupied unless surveys conducted with R5 protocol indicate otherwise. Occupancy is based upon surveys consistent with this protocol.
Maintain high canopy cover in fisher habitat.	In high quality occupied fisher habitat (CWHR 4D, 5D, and 6), treat no more than 10 percent of the habitat in the first project of plan implementation. This applies to projects expected to reduce the existing canopy cover by more than 10% within any subwatershed (HUC 7 or similar-sized area). A project is defined as the set of actions covered in a project-level NEPA decision. Post-project monitoring will be conducted to evaluate continued use of the treated area by fisher (see below – Monitoring).
Adapt management of fisher habitat based on monitoring and new information.	After initial projects have occurred in high quality fisher habitat, conduct monitoring to document habitat changes and population responses (see Monitoring Plan in Appendix G). Additional projects may occur, however management direction and project planning must be evaluated and adapted if necessary to reflect current monitoring data and applicable science.
Ensure that protection and restoration strategies are scientifically sound and consistent with habitat protection.	A peer review process (see below) will be utilized if protection and restoration strategies are developed during landscape analysis that 1) would reduce currently occupied high quality (CWHR 4D, 5D, and 6) habitat below 50% of potential habitat in identified fisher den site buffers (or in their absence, HUC 7 subwatersheds) or 2) current occupied high quality habitat is less than 50% of potential habitat in any HUC 7 subwatershed or 3) >10% of high quality unoccupied habitat is proposed for treatment that reduces canopy cover >10% in any HUC 7 subwatershed or similar-sized area. Peer Review Process: During landscape analysis, the wildlife specialist prepares a report that addresses the following: status of currently suitable habitat at the HUC6 level, results of surveys and monitoring of past projects, scheduling and proportion of proposed projects, and how these projects will contribute to short-term and long-term management goals for the landscape. For example, community protection or ecological restoration treatments in unoccupied or isolated fisher habitat may enhance short-term protection and provide for long-term high quality habitat. The report will be reviewed by a team of three off-forest specialists: a wildlife specialist, a fuels specialist, and a silviculturist. The results of the peer review will be provided to scientists from the PSW Research Station and representatives from other

Intent	Standard & Guideline
	State or Federal agencies (e.g. California Department of Fish & Game, U.S. Fish & Wildlife Service). The results of the peer review process will be documented in the landscape analysis.
Maintain legacy features for species dependent upon old forest wildlife habitat	Prior to vegetation treatments, identify and design measures to protect important wildlife structures within the treatment unit (e.g. large diameter snags and oaks, patches of dense large trees typically ¼ to 2 acres in size, large trees with cavities for nesting, clumps of small understory trees, and coarse woody debris). Prior to vegetation treatments, identify and design measures to protect important wildlife structures such as large diameter snags and oaks, large trees particularly with cavities for nesting, clumps of small trees, and coarse woody debris within the treatment unit. For example, use firing patterns, place fire lines around snags and large logs, and other prescribed fire techniques to minimize effects to these attributes. Encourage the use of mechanical methods where the use of prescribed fire alone would create unacceptable impacts to important fisher habitat. During implementation, retain a mosaic of multi-storied, high density, areas with higher canopy cover to provide potential rest sites.
Avoid large changes in canopy density	For mechanical treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Design projects to avoid reducing pre-existing canopy cover by more than 30 percent within the treatment unit. Percent is measured in absolute terms (for example, do not reduce 80 percent canopy closure to less than 50 percent).
Maintain high levels of canopy cover whenever it is possible to do so and still meet project objectives	For mechanical treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) outside defense zones: Where vegetative conditions permit, design projects to retain 50 percent canopy cover after treatment within the treatment unit, except where site-specific project objectives cannot be met (for example, to achieve adequate height to live crown, provide sufficient spacing for equipment operation, minimize re-entry, or design cost efficient treatments). Where 50 percent canopy cover retention cannot be met as described above, design projects to retain a minimum of 40 percent canopy cover within the treatment unit.
Restore wildland fires	Emphasize the ecological restoration of large stand-replacing events. Restoration in disturbed sites of 10 acres or less is usually not appropriate because small forest openings are an important component of old-growth forests.

Intent	Standard & Guideline
Provide for effective fuel treatments in FOF (outside spotted owl PACs and Home Range Core Areas) for forested stands other than plantations and CWHR 4M, 4D, 5M, 5D, and 6.	When conducting treatments in dense stands with uniform tree size and spacing, introduce heterogeneity into the stand by creating small, irregularly spaced openings.
	Canopy cover reductions may be needed to meet fuels objectives, but will not exceed 30 percent reduction (e.g. 80 percent to 50 percent). Where pre-treatment canopy cover is between 50 to 59 percent, design mechanical fuel treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands currently between 40 and 50 percent canopy cover during fuels treatments except where this occurs from treatment of primarily shade tolerant trees less than six inches in diameter.
Provide for effective fuel treatments in the FOF in Threat zones of the Wildland Urban Intermix (outside of spotted owl PACs) for forested stands other than plantations and CWHR 4M, 4D, 5M, 5D, and 6	Canopy cover reductions may be needed to meet fuels objectives, but will not exceed a 30 percent reduction (i.e., 80 percent to 50 percent). Where pre-treatment canopy cover is between 50 to 59 percent, design mechanical treatments to retain a minimum of 50 percent canopy cover. Do not reduce canopy cover in stands currently between 40 to 50 percent canopy cover except where this occurs from removal of primarily shade tolerant trees less than six inches in diameter.
Protect and manage Significant caves within the Monument.	Develop cave management plans for Significant caves.
Protect occupied willow flycatcher sites.	In meadows with occupied willow flycatcher sites, only allow late-season grazing (after August 15) in the entire meadow unless a site-specific meadow management strategy is developed and implemented in partnership with the affected grazing permittee. The strategy objectives must focus on protecting habitat during the breeding season and the long-term sustainability of suitable habitat at breeding sites. It may use a mix of management tools, including grazing systems, structural improvements, and other exclusion by management techniques to protect willow flycatcher habitat.
Ensure protection of PACS during mechanical fuel treatments in PACs in the Defense and Threat Zones of the Urban Wildland Intermix	Mechanical treatments are prohibited within a 500-foot radius buffer around a spotted owl activity center within the designated PAC. 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 remainder of the PAC may be mechanically treated to achieve fuels reduction outcomes for FOF.

Intent	Standard & Guideline
Protect all known fisher and marten den sites (birthing and kit rearing), and any located in the future.	Identify a 700 acre den site buffer for each known fisher known den sites and a 100 acre den site buffer for each known marten den site, using the best available habitat. Use the den sites as a focal point of the habitat delineation. With the buffer, avoid vegetation treatments where logical and practical by treating the surrounding areas to meet fuels management objectives. Where treatment is necessary in the buffer in order to provide effective fuels treatments, emphasize where possible mechanical treatments in lieu of prescribed fire. Also avoid treatments (LOP) in fisher buffers from March 1 through June 30 as long as the habitat remains suitable. Avoid treatments (LOP) in marten buffers from May 1 through July 31 as long as the habitat remains suitable. The LOP may be waived for new individual projects of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.
Protect den sites from disturbance due to roads, trails, off highway vehicle routes, recreational developments, and other developments	Evaluate proposals for new roads, trails, and recreational and other development for their potential to disturb den sites. Mitigate impacts where there is documented evidence of disturbance to the den site from existing recreation, trail, and road uses (including road maintenance).

d) Management Areas and Emphases

Modified Alternative 6 would create three management areas within the groves (Management Areas GSG1, GSG2, and GSG3), and would therefore modify two of the three management areas in the Proposed Action (see Figure II-10 in the Map Packet), as follows:

Management Area ZOI-NG, Zones of Influence without the Groves: The ecological zones of influence that surround the giant sequoia groves, not including the sequoia groves themselves. Generally these areas are defined by the boundaries of the watersheds where the giant sequoia groves are found. These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology.

Management Area HLHA, the Hume Lake Historic Area: This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the

Millwood, Abbott Mill, and Lower Abbott Mill sites. This MA remains the same for all alternatives.

Management Area GML, General Monument Lands: The rest of the Monument not included in Management Areas ZOI-NG, HLHA, GSG1, GSG2, or GSG3. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems.

Management Area GSG1: Giant sequoia groves that have had no significant disturbance for the last 120 years and with little regeneration.

Management Area GSG2: Giant sequoia groves that were substantially cutover during the late 1800s and early 1900s, leading to heavy stands of second growth mixed conifer-giant sequoia forests.

Management Area GSG3: Giant sequoia groves that had logging disturbances within the last 20 years, leading to well-established patches of young seral stage mixed conifer and giant sequoia vegetation.

(1) Direction Common to All Management Areas

(a) Management Emphases:

- Emphasize natural regeneration for restoration of giant sequoia and associated species, including pines and oaks.
- Emphasize prescribed fire (including wildland fire use) as the primary treatment method for meeting protection and restoration objectives. Mechanical methods in advance of or immediately after prescribed fire would be appropriate only where the use of prescribed fire alone poses unacceptable risks to other values (e.g., urban areas, wildlife habitat, recreation, watershed), would not effectively meet protection or restoration objectives, or would be infeasible.
- Emphasize re-establishment of the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.
- Maintain current levels of road and trail access for public and administrative use consistent with protection of the objects of interest.
- During the first two decades, emphasize a protection strategy. Shift over time to a restoration strategy.
- During initial treatments, emphasize establishment of young conifer trees and other vegetation. Locate small openings for new vegetation in existing openings in the stands, where existing vegetation levels are very low, or in overly dense

stands treated to reduce stocking levels, consistent with applicable management strategies for the area.
- Prior to decommissioning roads, consider opportunities for their use as recreation trails.
- Create desired structural conditions to meet ecological restoration goals for indicators such as gap and patch size, forest density, and species composition.

(2) Management Area ZOI-NG, Zones of Influence without the Groves

This management area is a modified version of Management Area ZOI-WG in Alternative 2, the Proposed Action. It consists of the ecological zones of influence for the giant sequoia groves and their surrounding ecosystems, *outside* of the boundaries of the groves themselves (Management Area 4 in this alternative). These boundaries are described in the Forest Service draft report entitled "Defining Ecological Zones of Influence for Giant Sequoia Groves on the Sequoia National Forest." The zones of influence are the areas within which management activities could both directly and indirectly affect grove ecology. There are approximately 64,370 acres in this management area.

(a) Management Emphasis:

- Encourage scientific research. Focus research on potential impacts of management and human use on giant sequoia ecology, restoration, and protection.

(3) Management Area HLHA, Hume Lake Historic Area

This area of extraordinary historical and cultural value is the general site of the logging operations of the early 1900s. Private logging companies harvested the sequoias from the surrounding areas and established a mill site, a dam, and a small town now known as Hume Lake. This management area also includes the Millwood, Abbott Mill, and Lower Abbott Mill sites. It contains approximately 15,680 acres.

(a) Management Emphases:

- Preserve and interpret this historical landscape and its associated ecosystems.
- Provide a wide range of recreational and interpretive opportunities.
- Provide interpretive and educational materials emphasizing the relevance, fragility, and values of the area's heritage resources and ecology.

- Emphasize the desired fire return interval by vegetation type in developing annual and long-range prescribed burning programs.

(4) Management Area GML, General Monument Lands.

This management area consists of the part of the Monument not included in Management Areas ZOI-NG, HLHA, GSG1, GSG2, or GSG3. It includes a wide variety of vegetation types and ecological zones. Much of it is covered with mixed conifer stands but this management area also includes low elevation chaparral, lower Westside hardwood, and red fir ecosystems. This management area contains approximately 219,500 acres.

(a) Management Emphases:

- Emphasize the use of prescribed fire to meet objectives for protection and restoration.
- Reduce fuel loads, especially down slope of the groves, and return to a more natural fire return interval.
- Encourage scientific research. Focus research on protection and restoration of natural processes and caves.

(5) Management Area GSG1

Giant sequoia groves dominated by trees over 150 years old and with less than 3% in other age groups. There are approximately 12,870 acres in the following groves: Agnew, Alder Creek, Belknap Complex, Burro Creek, Cunningham, Deer Creek, Deer Meadow, Dillonwood, Evans Complex (southeast portion), Freeman Creek, Maggie Mountain, Middle Tule, Monarch, Upper Tule, Mountain Home, Red Hill, Silver Creek, South Peyrone, and Wishon. These groves have had little or no regeneration of young giant sequoia or other mixed conifer vegetation in the last 120 years or more.

(a) Management Emphases:

- Re-establish a more natural fire return interval and structural conditions that promote establishment of new groups of young vegetation.
- Emphasize protection measures to reduce the risk of catastrophic fire.

(6) Management Area GSG2

Giant sequoia groves with significant amounts of trees 20 to 150 years old. There are approximately 8,070 acres in the following groves: Converse Basin,

Abbott Creek, Big Stump, Cherry Gap, Evans Complex (northeastern portion), Grant Grove, and Indian Basin.

(a) Management Emphases:

- Protect groves from catastrophic fire.
- Manage existing second growth stands to move toward the desired condition of a mosaic of age classes and species.
- Study the response of second-growth giant sequoia and mixed conifer forests to different management strategies and techniques.
- Emphasize careful stocking control to meet protection and restoration objectives and move toward desired conditions.

(7) Management Area GSG3

Giant sequoia groves with significant amounts (more than 3% of their area) of trees 10 to 20 years old. There are approximately 5,730 acres in the following groves: Bearskin, Black Mountain, Landslide, Long Meadow, Packsaddle, Peyrone, Redwood Mountain, and Starvation Complex. There are approximately 1,000 acres of young seral stage vegetation in this management area.

(a) Management Emphases:

- Ensure the careful management of the existing age classes, particularly the young giant sequoia reproduction.
- Protect the groves from catastrophic fire.
- Study the response of generally undisturbed late seral stage giant sequoia and mixed conifer forests to prescribed fire management strategies and techniques.
- Emphasize a collaborative research program that takes advantage of the multiple ownerships and agencies that manage portions of this area (National Park Service, UC Berkeley, USDA Forest Service, Tule River Indian Reservation).

B. Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to explore and objectively evaluate a range of reasonable alternatives and to briefly discuss the reasons for eliminating alternatives that were not considered in detail (40 CFR 1502.14). The alternatives not considered in detail may be illegal, may not meet the purpose and need as established by the Proclamation, may be technologically infeasible, may be clearly infeasible, may be a duplication of an alternative considered in detail, may be one on which a decision has already been made,

may be determined to cause unreasonable environmental harm, may be impossible to implement, or may be remote or speculative. Therefore, some alternatives were considered but dismissed from detailed consideration for reasons summarized below.

The Forest Service considered, but did not develop in detail, an alternative that would have included a mass transit system for the Monument. To help determine the need and feasibility for mass transit, it was discussed with managers of the adjacent Kings Canyon and Sequoia National Parks, along with members of the National Park Service Alternative Transportation Program (ATP). The discussion revealed the complexity, difficulty, and high costs of planning, developing, and managing mass transit systems in remote, forested settings. The advice from the ATP members during the discussion was that it is not a good idea to build a mass transit system based on speculation that the system may be needed or useful in the future. Mass transit systems should be developed based on known data on visitor use, including volume, location, and use patterns. At this time there are no data to suggest current visitor use would support a mass transit system. None of the alternatives preclude development of mass transit systems if they become necessary and feasible, but including an alternative with a mass transit system would be speculative at this time.

The Forest Service considered, but did not develop in detail, an alternative that would have managed the giant sequoia groves using only prescribed fire and hand treatments. Mechanical equipment would not have been used in the groves and no trees greater than 10 inches in diameter would have been cut inside the groves. Outside of the groves, the direction for vegetative treatments would have been the same as Alternatives 2 and 5. Management areas in this alternative would have been the same as the management areas in Alternative 5. Recreation opportunities would have been limited to maintaining current overnight capacity and increasing the day use opportunities within the Monument. This alternative was eliminated from detailed study because it was very similar to other alternatives and therefore did not add to the range of alternatives that were considered in detail.

C. Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information displayed in Table II-3, Comparison of Alternatives by Issues and Indicators, is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives. Also included are Tables II-4, Comparison of Alternatives by Treatment Methods, and II-5, Comparison of Alternatives by Strategy.

Table II-3: Comparison of Alternatives by Issues and Indicators

Alternative	**Air Quality Issue** PM-10 emissions (tons) generated by underburning and pile burning in the first decade.	**Fire Issue** a. Acres treated to move the fire susceptibility rating from moderate or high toward low. b. Acres treated to move toward historic fire return intervals.
Alternative 1	445	a. & b. approximately 42,500 acres (in the first decade).
Alternative 2	380	a. & b. approximately 42,000 acres (in the first decade).
Alternative 3	855	a. & b. approximately 59,000 acres (in the first decade).
Alternative 4	890	a. & b. approximately 59,000 acres (in the first decade).
Alternative 5	1,100	a. & b. approximately 70,000 acres (in the first decade).
Alternative 6	1,040	a. & b. approximately 80,000 acres (in the first decade).
Modified Alternative 6	437	a. & b. approximately 64,000 acres (in the first decade).

Table II-3: Comparison of Alternatives by Issues and Indicators (continued)

Alternative	**Giant Sequoia and Mixed Conifer Restoration Issue** The amount of predicted change in conditions and trends to the following key ecological indicators (Piirto and Rogers, 1999) as compared to the desired condition: a. gap and patch size b. plant community c. risk from severe fires d. fire return interval (this last indicator is discussed under Fire and Fuels)
Alternative 1	No major restoration of desired fire return interval or other key ecological components (gaps, tree density) outside of SPLATs and wildland urban intermix zones (approximately 50% of area has no planned treatment). Current trends and conditions continue in these untreated areas. Gaps created in groves from prescribed fire. Alts 1 and 2 treat approximately 40,000 acres of mixed conifer forest in first 10 years leading to patches of new vegetation and reduced stand densities. Amounts of gaps are uncertain. a. Gap size probably meeting desired condition. . b. Giant sequoia and pines increase in understory in gaps, however new vegetation outside of WUI areas would be primarily in response to natural events, such as wildfire, insects, or drought. Fewest amount of gaps created than all alternatives except Alternative 2. c. Within 3 decades, almost all groves meet desired condition for fire severity.
Alternative 2	No major restoration of fire or other key ecological components (gaps, tree density) outside of SPLATs and urban wildland intermix zones (approximately 50% of area has no planned treatment). Current trends and conditions continue in these untreated areas. Gaps created in groves from prescribed fire. . Alts 1 and 2 treat approximately 40,000 acres of mixed conifer forest in first 10 years leading to patches of new vegetation and reduced stand densities. Amounts of gaps are uncertain. a. Gap size probably meeting desired condition b. Giant sequoia and pines increase in understory in gaps, however new vegetation outside of WUI areas would be in response to natural events, such as wildfire, insects, or drought. Fewer amounts of gaps created than all alternatives except for Alternative 2. c. Within 3 decades, almost all groves meet desired condition for fire severity.
Alternative 3	Emphasis on grove management in high profile groves. Rest of groves treated as part of mixed conifer ecosystem, using prescribed fire. Approximately 58,000 acres of mixed conifer forest treated in first 10 years, leading to patches of new vegetation and reduced stand densities. a. Gap sizes less likely to meet desired conditions (More gaps larger than 2 acres are likely as compared to all alternatives except Alt 4). Amounts of gaps are uncertain b. Giant sequoias and pines increase in understory in gaps. c. Unknown when groves will meet desired condition for fire severity. No focused protection strategy planned for groves outside of HIZ. Least short-term protection to groves (limited to defense zones around communities).
Alternative 4	No emphasis on grove restoration or protection except as part of mixed conifer ecosystem. Prescribed fire on approximately 54,000 acres of mixed conifer forest treated in first 10 years, leading to patches of new vegetation and reduced stand densities... a. Gap sizes least likely to meet desired condition (More gaps larger than 2 acres are likely as compared to any other alternative). Amounts of gaps are uncertain b. Giant sequoias and pines increase in understory in gaps. c. Unknown when groves will meet desired condition for fire severity. No focused protection strategy planned for groves outside of HIZ. Least short-term protection to groves (limited to defense zones around communities).
Alternative 5	Within GS groves, approximately 550 acres treated in 1st decade with gap creation, thinning, and prescribed fire, leading to an estimated 60 acres of new gaps in small openings usually around 1 acre or less in size, consistent with desired condition. . Approximately 55,000 acres of mixed conifer forest in total treated in first 10 years, leading to patches of new vegetation and reduced stand densities. a. Gap size probably meeting desired condition. . Some gap sizes larger than ¼ to 2 acres in size, but not as much as Alts 3 & 4. b. Giant sequoia and pines increasing in understory in gaps. c. Almost all groves meet desired condition for reduced risk from severe wildfires in 3 decades.

Alternative	**Giant Sequoia and Mixed Conifer Restoration Issue** The amount of predicted change in conditions and trends to the following key ecological indicators (Piirto and Rogers, 1999) as compared to the desired condition: a. gap and patch size b. plant community c. risk from severe fires d. fire return interval (this last indicator is discussed under Fire and Fuels)
Alternative 6	Within groves, approximately 1,700 acres treated in 1st decade with gap creation, thinning, and prescribed fire, leading to an estimated 170 acres of new gaps in small openings usually around 1 acre or less in size, consistent with desired conditions. Approximately 72,000 acres of mixed conifer forest in total treated in first 10 years, leading to patches of new vegetation and reduced stand densities. Outside of groves, prescribed fire on approx. 19,000 acres creates additional gaps – amount is uncertain. a. Some gap sizes larger than 2 acres. Frequency is less than all other alts. Gap development and new vegetation more consistent with desired condition than all other alternatives. b. Giant sequoia and pines increasing in understory in gaps. c. Almost all groves meet desired condition for reduced risk from severe wildfires in 3 decades.
Modified Alternative 6	Approximately 62,000 acres of mixed conifer forest in total treated in first 10 years, leading to patches of new vegetation and reduced stand densities. Approximately 11,500 acres treated in 1st twenty years in groves, primarily with understory thinning, prescribed burning, or hand treatments a. Some gap sizes larger than 2 acres. Amount of gaps and young trees greater than Alts 1-5; less than Alt 6. Gap development and new vegetation more consistent with desired condition than Alts 3 & 4. b. Giant sequoia and pines increasing in understory in gaps. c. Almost all groves meet desired condition for reduced risk from severe wildfires in 3 decades.

Table II-3: Comparison of Alternatives by Issues and Indicators (continued)

Alternative	Recreation Issue a. Change in People at One Time (PAOT) that can be served by recreational, interpretive, and educational facilities. b. Estimated capacity of dispersed recreation. c. Predicted mileage of roads and trails available for public use.
Alternative 1	a. There are no specific goals or plans for development of additional recreation sites. No expected change in capacity for People At One Time (PAOT) in the next decade at developed recreation facilities. b. There would be no expected change in the capacity for dispersed recreation. c. Approximately 900 miles of roads and 160 miles of trails available. Additional trails may be developed, but there are not goals or plans for expansion.
Alternative 2	a. Expansion of single-family campgrounds, group campgrounds, and picnic sites has the potential to increase capacity for these types of facilities by up to 70%, from 3225 People At One Time (PAOT) to 5525 PAOT. Expansion of interpretive and educational sites could expand the capacity of interpretive facilities by up to 45%. b. There would be no expected change in the capacity for dispersed recreation that is accessed by automobile along the road system. The combined increase in trail mileage, trailheads, and parking could be up to 25% of current availability. c. Approximately 900 miles of roads and 180 miles of trails for public use.
Alternative 3	a. Maintain current capacity for overnight camping (2960 PAOT). Picnic sites could increase by 185 PAOTs. Expansion of interpretive and educational sites could expand the capacity of interpretive facilities by up to 45%. b. Lands and roads within the Monument would be limited for dispersed recreation use. No OHV use in the Monument. No camping outside of developed recreation sites in the High Profile Grove Management Area. 45% expected reduction in the capacity for dispersed recreation accessible by automobile along the road system. The combined increase in trail mileage, trailheads, and parking could be from 25-100% of current availability. c. Approximately 500 miles of roads and 180 miles of trails plus 150 miles of road may be available for conversion from roads to trails.
Alternative 4	a. Expansion of single-family campgrounds, group campgrounds, and picnic sites has the potential to increase capacity for these types of facilities by up to 60%, from 3225 People At One Time (PAOT) to 5225 PAOT. Expansion of interpretive and educational sites could expand the capacity of interpretive facilities by up to 45%. b. 5% expected reduction in the capacity for dispersed recreation accessible by automobile along the road system. The combined increase in trail mileage, trailheads, and parking could be up to 25% of current availability. c. Approximately 875 miles of roads and 180 miles of trails plus 25 miles of road may be available for conversion from roads to trails.
Alternative 5	a. Expansion of single-family campgrounds, group campgrounds, and picnic sites has the potential to increase capacity for these types of facilities by up to 70%, from 3225 People At One Time (PAOT) to 5525 PAOT. Expansion of interpretive and educational sites could expand the capacity of interpretive facilities by up to 45%. b. There would be no expected change in the capacity for dispersed recreation that is accessed by automobile along the road system. The combined increase in trail mileage, trailheads, and parking could be up to 25% of current availability. c. Approximately 900 miles of roads and 180 miles of trails for public use.

Alternative	Recreation Issue a. Change in People at One Time (PAOT) that can be served by recreational, interpretive, and educational facilities. b. Estimated capacity of dispersed recreation. c. Predicted mileage of roads and trails available for public use.
Alternative 6	a. Expansion of single-family campgrounds, group campgrounds, and picnic sites has the potential to increase capacity for these types of facilities by up to 70%, from 3225 People At One Time (PAOT) to 5525 PAOT. Expansion of interpretive and educational sites could expand the capacity of interpretive facilities by up to 45%. b. There would be no expected change in the capacity for dispersed recreation that is accessed by automobile along the road system. The combined increase in trail mileage, trailheads, and parking could be up to 25% of current availability. c. Approximately 900 miles of roads and 180 miles of trails for public use.
Modified Alternative 6	a. Expansion of single-family campgrounds, group campgrounds, and picnic sites has the potential to increase capacity for these types of facilities by up to 70%, from 3225 People At One Time (PAOT) to 5525 PAOT. Expansion of interpretive and educational sites could expand the capacity of interpretive facilities by up to 45%. b. There would be no expected change in the capacity for dispersed recreation that is accessed by automobile along the road system. The combined increase in trail mileage, trailheads, and parking could be up to 25% of current availability. c. Approximately 900 miles of roads and 180 miles of trails for public use.

Table II-3: Comparison of Alternatives by Issues and Indicators (continued)

Alternative	Social Values Regarding Vegetation Treatments Issue a. Wood products available from protection and restoration treatments. b. Acres of mechanical treatments per year.
Alternative 1	a. 1 million cubic feet (5 million board feet) per year, first decade. b. 2,105 acres per year, first decade.
Alternative 2	a. 1 million cubic feet (5 million board feet) per year, first decade. b. 1,950 acres per year.
Alternative 3	a. 0.2 million cubic feet (1 million board feet) per year, first decade. b. 560 acres per year.
Alternative 4	a. None. b. 330 acres per year.
Alternative 5	a. 1 million cubic feet (5 million board feet) per year, first decade. b. 3,810 acres per year.
Alternative 6	a. 2.1 million cubic feet (10.5 million board feet) per year, first decade. b. 3,510 acres per year.
Modified Alternative 6	a. 1.5 million cubic feet (7.5 million board feet) per year, first decade. b. 4,050 acres per year. *

*Although Modified Alternative 6 is estimated by computer modeling to treat more acres than any other alternative, the predicted volume is less than Alternative 6 because:

1) there is no “gap thin” prescription

2) Modified Alternative 6 emphasizes mechanical treatments in existing plantations, where prescribed fire alone is likely to produce unacceptable damage to the young trees. Generally, trees in the plantations range from 8 to 12 inches in diameter, producing less volume when removed.

Table II-3: Comparison of Alternatives by Issues and Indicators (continued)

Alternative	Watershed Issue a. Acres with a prescription that would move the fire susceptibility rating toward low and reduce effects from catastrophic wildfire. b. Potential risk of cumulative effects within the total acres of watersheds that contain Monument lands: -- Percent of ground-based treatment -- Percent of non-ground-based treatment (burning). -- Total system road miles open for public use.
Alternative 1	a. Approximately 42,500 acres (in the first decade) b. 5.8 % total treatment. -- 50% ground-based treatment -- 50% non-ground-based treatment -- 900 miles
Alternative 2	a. Approximately 42,000 acres (in the first decade). b. 5.8% total treatment. -- 47% ground-based treatment -- 53% non-ground-based treatment -- 900 miles
Alternative 3	a. Approximately 59,000 acres (in the first decade). b. 7.5% total treatment. -- 10% ground-based treatment -- 90% non-ground-based treatment -- 515 miles
Alternative 4	a. Approximately 59,000 acres (in the first decade b. 7.5% total treatment. -- 6% ground-based treatment -- 94% non-ground-based treatment -- 875 miles
Alternative 5	a. Approximately 70,000 acres (in the first decade). b. 9.6% total treatment. -- 54% ground-based treatment -- 46% non-ground based treatment -- 900 miles
Alternative 6	a. Approximately 80,000 acres (in the first decade). b. 10.9% total treatment. -- 44% ground-based treatment -- 56% non-ground-based treatment -- 900 miles
Modified Alternative 6	a. Approximately 64,000 acres (in the first decade). b. 9.8% total treatment. -- 63% ground-based treatment -- 37% non-ground-based treatment -- 900 miles

Table II-3: Comparison of Alternatives by Issues and Indicators (continued)

Alternative	**Wildlife Issue** Predicted change in the acres of late seral/old growth habitat (LSOG, as defined in the Sierra Nevada Ecosystem Report) by the following habitat elements: a. Number of large trees over 30" per acre b. Changes in spotted owl habitat c. Number of snags over 15" per acre
Alternative 1	LSOG ranks 4 and 5 acres increase steadily to approx. 190,000 acres over next 150 years. a. Large trees increase from <6 per acre to >7 per acre over next 20 years. b. Spotted owl nesting habitat increases by approximately 35% in the next 20 years. c. Snags over 15" increase from >3 per acre to >5 per acre in the next 20 years.
Alternative 2	LSOG ranks 4 and 5 acres increase steadily to approx. 190,000 acres over next 150 years. a. Large trees increase from <6 per acre to >7 per acre over next 20 years. . b. Spotted owl nesting habitat increases by approximately 35% in the next 20 years. c. Snags over 15" increase from >3 per acre to >5 per acre in the next 20 years.
Alternative 3	LSOG ranks 4 and 5 acres increase steadily to just over 160,000 acres in next 150 years. a. Large trees lost to fire in the short term. Large trees increase from <6 per acre to >7 per acre over next 20 years. b. Spotted owl nesting habitat suffers in the short term but increases approximately 39% in the next 20 years. c. Large snags over 15" increase. from >3 per acre to >5 per acre in the next 20 years.
Alternative 4	LSOG ranks 4 and 5 acres increase steadily to just over 160,000 acres in next 150 years. a. Large trees lost to fire in the short term. Large trees increase from <6 per acre to >7 per acre over next 20 years. b. Spotted owl nesting habitat suffers in the short term but increases approximately 41% in the next 20 years. c. Large snags over 15" increase from >3 per acre to >5 per acre in the next 20 years.
Alternative 5	LSOG ranks 4 and 5 acres increase steadily to approx. 180,000 acres over next 150 years. a. Large trees increase from <6 per acre to >7 per acre over next 20 years. b. Spotted owl nesting habitat increases by approximately 36% in the next 20 years. c. Snags over 15" increase from >3 per acre to >5 per acre in the next 20 years.
Alternative 6	LSOG ranks 4 and 5 acres increase steadily to approx. 200,000 acre over next 150 years. a. Large trees increase from <6 per acre to >7 per acre over next 20 years. b. Spotted owl nesting habitat increases by approximately 30% in the next 20 years. c. Large snags over 15" increase from >3 per acre to >5 per acre in the next 20 years.
Modified Alternative 6	LSOG ranks 4 and 5 acres increase steadily to approx. 230,000 acre over next 150 years. a. Large trees increase from <6 per acre to >7 per acre over next 20 years. b. Spotted owl nesting habitat increases by approximately 38% in the next 20 years. c. Large snags over 15" increase from >3 per acre to >5 per acre in the next 20 years.

The following acreages were developed for use in the analysis of effects of implementing the alternatives. They were developed using the Spectrum computer modeling system and applying the management direction and standards and guidelines for each alternative. These figures are estimates of treatments for the first decade of implementation and are not intended to be site-specific. The actual amount of area treated would vary as landscape and site-specific project analyses are conducted.

Table II-4: Comparison of Alternatives by Treatment Methods for the First Decade
(Approximate Acres and Costs)

Treatment Method	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Modified Alt 6
Prescribed Burning - Chaparral/Hardwood	1,840 acres ($643,200)	1,840 acres ($643,200)	930 acres ($324,600)	3,700 acres ($1,293,000)	4,350 acres ($1,516,400)	6,510 acres ($2,271,300)	350 acres ($122,500)
Prescribed Burning – 2-foot flame length – Conifer	0 acres	0 acres	17,770 acres ($6,202,800)	22,270 acres ($7,770,800)	9,880 acres ($3,449,200)	28,450 acres ($9,927,300)	9,170 acres ($3,209,500)
Prescribed Burning – 4-foot flame length - Conifer	19,480 acres ($6,798,200)	20,500 acres ($7,155,500)	34,670 acres ($12,099,500)	29,700 acres ($10,363,600)	17,690 acres ($6,173,500)	9,900 acres ($3,454,800)	2,380 acres ($833,000)
Mechanical Treatment – Chaparral	0 acres	0 acres	0 acres	0 acres	10,760 acres ($5,304,200)	1,800 acres ($885,400)	1,870 acres ($918,564)
Mechanical Thinning - Conifer	11,130 acres ($5,417,100)	9,500 acres ($4,630,800)	2,630 acres ($1,296,100)	3,330 acres ($1,643,700)	17,400 acres ($8,524,000)	22,550 acres ($9,762,000)	28,450 acres ($13,994,000)
Mechanical Thinning with Gap Creation – Giant Sequoia Groves	0 acres	0 acres	0 acres	0 acres	575 acres ($456,800)	1,800 acres ($683,000)	0 acres
Hand Treatments outside Plantations	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	11,410 acres ($9,698,500)
Plantations: Mechanical with prescribed fire	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	10,200 acres ($5,610,000)
Fuels Treatments in Defense Zones	9,920 acres ($5,249,800)	9,980 acres ($5,278,900)	3,000 acres ($1,275,000)	3,600 acres ($1,530,000)	9,350 acres ($4,944,000)	8,900 acres ($4,708,100)	12,250 acres ($5,206,250)
TOTAL TREATMENTS	**42,370 acres ($18,108,300)**	**41,820 acres ($17,708,400)**	**59,000 acres ($21,198,000)**	**58,990 acres ($21,071,100)**	**70,000 acres ($30,368,100)**	**79,900 acres ($31,691,900)**	**63,830 acres ($34,386,100)**

*The estimated treatment acres and costs for these fuels treatments in defense zones are already reflected in the amounts for other treatment methods.

Table II-5: Comparison of Alternatives by Strategy

Alternative	Allocations/Management Areas
Alternative 1	Apply all Framework allocations:
Alternative 2	Apply all Framework allocations and the following management areas: -- ZOI-WG (Zones of Influence with Groves) -- HLHA (Hume Lake Historic Area) -- GML (General Monument Lands)
Alternative 3	Apply some Framework allocations and the following management areas: -- HPG (High Profile Groves) -- HLHA (Hume Lake Historic Area) -- GMA (General Monument Area)
Alternative 4	Apply some Framework allocations and the following management areas: -- HIZ (Human Influence Zone) -- GFZ (General Forest Zone)
Alternative 5	Apply most Framework allocations and the following management areas: -- ZOI-NG (Zones of Influence without the Groves) -- HLHA (Hume Lake Historic Area) -- GML (General Monument Lands) -- GSG1 (groves dominated by trees>150 years old, with less than 3% other age groups) -- GSG2 (groves with trees 20 to 150 years old) -- GSG3 (groves with trees 10 to 20 years old)
Alternative 6	Apply some Framework allocations and the following management areas: -- ZOI-NG (Zones of Influence without the Groves) -- HLHA (Hume Lake Historic Area) -- GML (General Monument Lands) -- GSG1 (groves dominated by trees>150 years old, with less than 3% other age groups) -- GSG2 (groves with trees 20 to 150 years old) -- GSG3 (groves with trees 10 to 20 years old)

Alternative	Allocations/Management Areas
Modified Alternative 6	Apply some Framework allocations and the following management areas: -- ZOI-NG (Zones of Influence without the Groves) -- HLHA (Hume Lake Historic Area) -- GML (General Monument Lands) -- GSG1 (groves dominated by trees>150 years old, with less than 3% other age groups) -- GSG2 (groves with trees 20 to 150 years old) -- GSG3 (groves with trees 10 to 20 years old) Establish a new allocation: Fisher/Old Forest, to replace the Old Forest Emphasis and Southern Sierra Fisher Conservation Area allocations.

Table II-5: Comparison of Alternatives by Strategy (continued)

Alternative	Restoration Strategy (The strategy that addresses the need to restore key terrestrial and hydrologic processes and structures, especially the regeneration of giant sequoias and the re-introduction of fire to fire-dependent ecosystems.)
Alternative 1	No explicit management strategy to restore fire to Monument ecosystems. Manage watersheds to protect them from catastrophic fire, restore riparian areas, and protect old forest habitat. Apply aquatic management strategy from Framework. Manage plantations to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. Generally don't remove trees larger than 30".
Alternative 2	No explicit management strategy to restore fire to Monument ecosystems. Manage watersheds to protect them from catastrophic fire, restore riparian areas, and protect old forest habitat. Apply aquatic management strategy from Framework. Manage plantations to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. Generally don't remove trees larger than 30".
Alternative 3	Re-introduce fire, restore desired fire return intervals and forest/aquatic characteristics in general monument area, using prescribed fire and hand treatments. Specific fire restoration strategy to treat 1% of high profile groves per year. Treatment rate in general monument area based on desired fire return intervals. Base standards and guidelines for vegetation management on fire behavior predictions. Treat one percent of the acres in high profile groves each year. Emphasize the use of prescribed fire and associated hand treatments (chainsaws). Reduce impacts from compacted areas. Limit heavy equipment use to protection activities around communities and on roads.
Alternative 4	Re-introduce fire, restore desired fire return intervals and forest/aquatic characteristics in general forest zone, using fire and hand treatments. Specific fire restoration strategy proposed; treatment rate based on desired fire return intervals. Manage plantations to restore forest structure and minimize risk of catastrophic fire. Restore plantations and roads to natural conditions. Restore or stabilize riparian habitat. Focus vegetation restoration in general forest zone, using prescribed fire and hand treatments. Generally, don't remove any trees larger than 12".
Alternative 5	Systematically re-introduce fire to ecosystems using new management strategy for the groves and the Framework outside the groves. Specific fire restoration strategy established. Outside of urban wildland intermix, treatment rates based on desired fire return intervals. Allow both prescribed fire and mechanical treatments (including heavy equipment) in groves. Outside of groves, follow Framework. Reduce risk of catastrophic fire to allow prescribed fire and wildland fire use to be primary tools to maintain desired conditions. Manage plantations to restore forest structure, hydrologic conditions, and minimize risk from catastrophic fire. Apply aquatic management strategy from Framework. Generally, don't remove trees larger than 30".
Alternative 6	Systematically re-introduce fire to re-establish desired fire return interval for all fire-dependent ecosystems. Specific fire restoration strategy established. Outside of urban wildland intermix, treatment rates based on desired fire return intervals. Allow both prescribed fire and mechanical treatments (including heavy equipment) in entire Monument and allow most flexibility with treatment methods. Include all vegetation types in restoration treatment areas. Apply a combination of mechanical and prescribed fire. Manage plantations to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. Apply aquatic management strategy from Framework. Generally, don't remove trees larger than 30".
Modified Alternative 6	Systematically re-introduce fire to re-establish desired fire return interval for all fire-dependent ecosystems. Specific fire restoration strategy established. Outside of urban wildland intermix, treatment rates based on desired fire return intervals. Consider prescribed fire first as treatment method. Utilize tree cutting and/or mechanical treatments only when clearly needed for ecological restoration or public safety. . Include all vegetation types in restoration treatment areas. Make plantations the first priority for restoration, and manage them to restore forest structure, hydrologic conditions, and minimize risks from catastrophic fire. Apply aquatic management strategy from Framework. Generally, don't remove trees larger than 30" and focus treatments on vegetation less than 130 years old (smaller diameter trees).

Table II-5: Comparison of Alternatives by Strategy (continued)

Alternative	Protection Strategy (The strategy to reduce the risk of catastrophic fire to communities and the objects of interest.
Alternative 1	Use Framework strategies to protect communities, other sites occupied by people, and the objects of interest. Use the urban wildland intermix defense and threat zones, wildland fire use, and SPLATs to reduce risk of catastrophic fire.
Alternative 2	Use Framework strategies to protect communities, other sites occupied by people, and the objects of interest. Use the urban wildland intermix defense and threat zones, wildland fire use, and SPLATs to reduce risk of catastrophic fire.
Alternative 3	Protect communities and other sites occupied by people with a defense zone that would typically be 200 feet but could range up to ¼-mile, based on local fire behavior and terrain. Use prescribed fire as primary tool to reduce the risk of catastrophic fire in the rest of the Monument.
Alternative 4	Protect communities and other sites occupied by people by establishing a 200-foot wide defense zone around communities and a 100-foot defense zone on either side of major roads within the human influence zone. Use prescribed fire, hand thinning, and mechanical thinning. Remove trees and brush along roads. Limit roadside trees removed in the general forest zone to those less than 12 inches in diameter that pose a risk to public health and safety.
Alternative 5	Use Framework strategies to protect communities, other sites occupied by people, and the objects of interest. Use the urban wildland intermix defense and threat zones, wildland fire use, and SPLATs to reduce risk of catastrophic fire.
Alternative 6	Use Framework strategies to protect communities, other sites occupied by people, and the objects of interest. Use the urban wildland intermix defense and threat zones, wildland fire use, and SPLATs to reduce risk of catastrophic fire.
Modified Alternative 6	Use Framework strategies to protect communities, other sites occupied by people, and the objects of interest. Use the urban wildland intermix defense and threat zones, wildland fire use, and SPLATs to reduce risk of catastrophic fire. Also design SPLATs for the protection of giant sequoia groves.

Table II-5: Comparison of Alternatives by Strategy (continued)

Alternative	Recreation/Human Use Strategy (The strategy to address the need for people to interact with and enjoy the objects of interest.)
Alternative 1	Apply direction from the Forest Plan. The Framework did not develop a recreation and human use strategy. The Proclamation limited OHV use to designated roads in the Monument.
Alternative 2	Assess increased demand for recreation in the Monument and help meet that demand for a wide variety of recreation, interpretation, and education uses. Spread recreation and human use through the Monument.
Alternative 3	Increased feeling of isolation due to eliminating OHV use. Increase primitive recreation and trails. Concentrate human use and recreation in high profile groves. Increase opportunities for day use and expand or implement new interpretation and education programs and facilities. Maintain existing capacity of developed overnight facilities; reduce dispersed overnight recreation use. Eliminate dispersed sites that don't meet aquatic management strategy of the Framework.
Alternative 4	Increase both developed and dispersed opportunities, winter use facilities, trails, and interpretative facilities and opportunities. Identify potential areas and projects for additional recreation development. Enhance opportunities for non-motorized winter use to reduce conflicts with motorized users.
Alternative 5	Assess increased demand for recreation in the Monument and help meet that demand for a wide variety of recreation uses. Encourage the expansion of overnight camping facilities in and near groves. Focus interpretation on historical areas on the Hume Lake Ranger District and on natural setting s on the Tule River and Hot Springs Ranger Districts.
Alternative 6	Assess increased demand for recreation in the Monument and help meet that demand for a wide variety of recreation uses. Encourage the expansion of overnight camping facilities in and near groves. Emphasize interpretation and education of management activities, focusing on historical areas on the Hume Lake Ranger District and on natural settings on the Tule River and Hot Springs Ranger Districts.
Modified Alternative 6	Assess increased demand for recreation in the Monument and help meet that demand for a wide variety of recreation uses. Emphasize interpretation and education of management activities, focusing on historical areas on the Hume Lake Ranger District and on natural settings on the Tule River and Hot Springs Ranger Districts.

Table II-5: Comparison of Alternatives by Strategy (continued)

Alternative	Transportation Strategy (The strategy to manage the road system for the proper care and management of the objects of interest.)
Alternative 1	Apply current direction until Monument Plan is developed.
Alternative 2	Retain road access for both public and management use. Repair, relocate, close, or decommission roads to reduce impacts to natural resources. Construct new roads to provide access to new recreation facilities, administrative sites, or research, or to replace roads producing impacts. Continue to request funds to reduce maintenance backlog and keep system in acceptable condition.
Alternative 3	Reduce environmental impacts from roads. Repair, relocate, close, or decommission roads to reduce impacts to natural resources. Do not allow OHV use on road system. Emphasize public access to recreation sites, high profile groves, special use sites, and private land. Close other roads to public access. Emphasize mgmt. access for ecosystem restoration and fire protection. Decommission roads where natural conditions are re-established. Construct new roads to provide access to new recreation facilities, admin sites, or research, or to replace roads producing impacts.
Alternative 4	Reduce environmental impacts from roads while providing for public access. Repair, relocate, close, or decommission roads to reduce impacts to natural resources. Road system available for recreational driving and OHV use. Emphasize public access to recreation sites, special use sites, and private land. Emphasize mgmt. access for ecosystem restoration and fire protection. Construct new roads to provide access to new recreation facilities, administrative sites, or research, or to replace roads producing impacts. Continue to request funds to reduce maintenance backlog and keep system in acceptable condition.
Alternative 5	Retain road access for both public and management use. Repair, relocate, close, or decommission roads to reduce impacts to natural resources. Road system available for recreational driving and OHV use. Emphasize public access to recreation sites, special use sites, and private land. Emphasize mgmt. access for ecosystem restoration and fire protection. Construct new roads to provide access to new recreation facilities, administrative sites, or research, or to replace roads producing impacts. Continue to request funds to reduce maintenance backlog and keep system in acceptable condition.
Alternative 6	Retain road access for both public and management use. Repair, relocate, close, or decommission roads to reduce impacts to natural resources. Road system available for recreational driving and OHV use. Emphasize public access to recreation sites, special use sites, and private land. Emphasize mgmt. access for ecosystem restoration and fire protection. Construct new roads to provide access to new recreation facilities, administrative sites, or research, or to replace roads producing impacts. Continue to request funds to reduce maintenance backlog and keep system in acceptable condition.
Modified Alternative 6	Retain road access for both public and management use. Repair, relocate, close, or decommission roads to reduce impacts to natural resources. Road system available for recreational driving and OHV use. Emphasize public access to recreation sites, special use sites, and private land. Emphasize mgmt. access for ecosystem restoration and fire protection. Construct new roads to provide access to new recreation facilities, administrative sites, or research, or to replace roads producing impacts. Continue to request funds to reduce maintenance backlog and keep system in acceptable condition.

D. Preferred Alternative

The preferred alternative is Modified Alternative 6. The alternative selected for implementation is identified and discussed in the Record of Decision.