# Summary

On April 15, 2000, President William J. Clinton signed the presidential proclamation (Clinton proclamation) that established the Giant Sequoia National Monument (Monument). The Monument is located in south-central California and is administered by the Forest Service through the Sequoia National Forest.

The Clinton proclamation requires the establishment of a management plan for the Monument. The April 2000 Presidential Proclamation that created the Giant Sequoia National Monument recognized that the area is a:

> ***…rich and varied landscape that holds a diverse array of scientific and historic resources. Magnificent groves of towering giant sequoias, the world's largest trees, are interspersed within a great belt of coniferous forest, jeweled with mountain meadows. Bold granitic domes, spires, and plunging gorges texture the landscape…***

The Clinton proclamation speaks to other factors that make the Monument a truly unique and special area: the extraordinary diversity of plant species and communities, the interconnected vegetation types that provide essential habitat for wildlife, and the rich history of human occupation and use over the last 8,000 years. The proclamation recognizes as well the need for ecological restoration and the outstanding opportunities that exist to study the consequences of different approaches to accomplish ecological restoration and forest resilience.

The unique and special features of the Monument—the giant sequoia groves, the ecosystems that support them, and the other objects of interest—are what make the Monument what it is: a special area that merits careful management, protection, and preservation.

A Final Environmental Impact Statement and Record of Decision were prepared and signed into effect on January 12, 2004. This 2004 plan was challenged and lawsuits were filed in the United States District Court on January 27, 2005. In October 2006, the Federal District Court remanded the plan to the Forest Service "…so that a proper Monument Plan can be developed in accordance with the Presidential Proclamation… and in compliance with the National Environmental Policy Act (NEPA)…" (*Calif. Ex rel. Lockyer v. USDA, No. C-05-00898 (N.D. Cal., Oct. 11, 2006)*).

This final environmental impact statement (FEIS) and Monument management plan (Monument Plan) have been prepared to comply with the court order. Three documents have been produced: an FEIS (in two volumes) that contains the environmental analysis of the various alternatives, a Monument Plan that includes the strategic direction for the Monument, and a record of decision (ROD) that explains the decision and the rationale behind the decision.

## Planning Rule

The 2012 Planning Rule, released January 26, 2012, is the current planning rule (36 CFR Part 219). At Section 219.17(b)(3), the rule states:

> For plan development, plan amendments, or plan revisions that were initiated before April 9, 2012, the responsible official may complete and approve the plan, plan amendment or plan revision in conformance with the provisions of the prior planning regulation, including its transition provisions (74 FR 67062, December 18, 2009), or may conform the plan, plan amendment, or plan revision to the requirements of this part...

The Notice of Intent for this amendment to the 1988 Sequoia National Forest Land and Resource Management Plan (Forest Plan) for the Monument was published in the *Federal Register* on January 25, 2008. The responsible official for this plan amendment is the Regional Forester.

The Regional Forester has decided to use the provisions of the prior 1982 planning regulation. This amendment has been prepared using the process outlined in the 1982 planning regulations, while also considering the best available science as required by the 2000 rule transition provisions (36 CFR 219.35(a) [2010]). While the Forest Service will explicitly approve this project under the 1982 rule, it has also implicitly evaluated the project under the 2000 transitional, best available science rules.

The 2000 rule, which was never invalidated by a court, is the rule that is currently in effect. The Forest Service is utilizing the transition provisions from the 2000 rule for plan revisions and amendments pending

finalization of a new rule. These transition provisions allow for the use of the procedures from the 1982 rule.

# Chapter 1. Purpose of and Need for Action

## Purpose and Need

The purpose of and need for this amendment is to create a management plan that will protect and preserve the unique features of the Monument consistent with the requirements of the Clinton Proclamation. The current management direction (No-Action, Alternative A) is a complicated mess of confusing direction that is difficult to follow and even more difficult to understand. There is a need to analyze alternative approaches to managing the Monument so that managers can be guided by a single plan. Simply stated, the purpose of this amendment is to clarify management direction. The need is for a single comprehensive management plan to protect the giant sequoia groves and the other objects of interest, while providing key resources and opportunities for public use within the Monument. The Monument management plan will describe the long-term vision and the strategic direction that will guide management over the next 10 to 15 years.

## Decision to be Made

The fundamental decision to be made is the selection of an alternative or combination of alternatives that will be the basis for the management plan for the Giant Sequoia National Monument. Within the framework of that decision the Forest Service will:

1. Identify the goals for the Monument (Desired Conditions) (36 CFR 219.11(b)).
2. Identify suitable uses for each land allocation or management area in the Monument (36 CFR 219.11(c)).
3. Establish the Strategies, Objectives, and Standards and Guidelines for management of the Monument (36 CFR 219.11(c), 219.13 to 219.27).
4. Evaluate and recommend Special Area designations (36 CFR 219.17(a), 36 CFR 297).
5. Identify the Monitoring and Evaluation requirements for the Monument (36 CFR 219.11(d)).
6. Establish a Transportation Plan for the Monument (Clinton 2000, p. 24098).

## Public Involvement

In order to fully involve people in the process of developing a management plan for the Monument, the Sequoia National Forest offered opportunities for interested people to engage in a collaborative process intended to help facilitate its development and to analyze an appropriate range of alternatives. Traditional and non-traditional approaches have been used that encourage iterative discussion, ensure that the planning process is transparent, and make certain that ideas presented for consideration are legal, fair, and practical. The collaborative process places an emphasis on understanding the complexity of the issues and the strategies that may be employed to resolve them, rather than on total agreement on the resolution of individual issues.

## Issues

Comments during the scoping period from March 18 to May 4, 2009, from interested people, the Tule River Indian Tribe, other Native American groups, and representatives from other agencies and local governments, were used to formulate issues concerning the proposed action. Many of these comments reiterated the values, interests, and beliefs shared in the many collaborative discussions that took place before the formal scoping period.

The following issues were identified for the Monument:

### Issue 1—Recreation and Public Use

*Recreation use and enjoyment of the Monument is increasing, resulting in competition between different types of public use and a greater need to protect the objects of interest.*

### Issue 2—Road and Trail Access

*Maintain a road and trail system that provides safe access for a diversity of uses, while reducing impacts to sensitive resources and the objects of interest,*

*and reducing conflict between different types of use (motorized/non-motorized).*

### Issue 3—Diverse Array of Wildlife and Their Habitats

*Proposed fuel reduction and ecological restoration treatments may adversely affect the amount and distribution of wildlife species and their habitat, especially the Pacific fisher.*

### Issue 4—Fuels Management/ Community Protection

*Fuels reduction as proposed, to protect communities and the objects of interest in the Monument, may not be effective in terms of how much is treated and the kinds of treatments used.*

### Issue 5—Tree Removal

*There is considerable and meaningful debate about the conditions under which trees need to be cut, and about when and in what form a tree should be removed from the Monument, for ecological restoration.*

### Issue 6—Methods for Sequoia Regeneration

*There is ongoing debate about the methods that would successfully promote the regeneration, establishment, and growth of giant sequoias.*

### Issue 7—Fires Spreading to Tribal Lands

*A large wildfire spreading to the Tule River Indian Reservation from the Monument could result in irreversible damage to the tribe's watershed resources and community.*

### Issue 8—Obligation to Analyze MSA under NEPA

*Bring forward and implement the agreements set forth by the MSA, analyzing the effects in the NEPA process.*

### Issue 9—Manage the Monument Like Sequoia and Kings Canyon National Parks

*Since this federal land is now a national monument, it should be managed like a national park, in particular like Sequoia and Kings Canyon National Parks.*

### Issue 10—Convene a New Scientific Advisory Board

*A new Scientific Advisory Board should be convened for the current planning process as stipulated by the President Clinton proclamation.*

### Issue 11—Tribal Access to and Protection of Cultural Sites

*Resource management activities and increased public use could negatively affect tribal member access to traditional sites and the cultural resources in the Monument.*

### Issue 12—Livestock Grazing

*Grazing by livestock can be harmful to monument ecosystems and, in particular, to meadow and riparian ecosystems.*

# Chapter 2. Alternatives Including the Proposed Action

## Alternatives Considered in Detail

Six alternatives are considered in detail and analyzed for the Monument. All of the alternatives are aimed at achieving the desired vegetative conditions and explore different strategies for achieving the desired conditions. Since the alternatives are focused on ecological restoration rather than targeted resource outputs, they do not vary in the traditional sense. They do explore various strategies (including no change) to protect and care for the objects of interest and achieve desired conditions over time.

**Alternative A:** This is the No-Action Alternative that is required by NEPA. No action means no change in management direction. The effects of on-going activities reflecting the day to day operation of the Monument will be analyzed in this alternative and used as a baseline for the analysis of the effects of the rest of the alternatives.

**Alternative B:** This is the proposed action, developed to specifically comply with the presidential proclamation. Strategies are modeled and analyzed that are responsive to issues focused on recreation

and public use, fire and fuel management/community protection.

**Alternative C:** This alternative is designed to manage the Monument using strategies for ecological restoration that are employed to manage the Sequoia and Kings Canyon National Parks (SEKI).

**Alternative D:** This alternative includes strategies that focus on the use of natural disturbance processes such as wildfire to manage the Monument.

**Alternative E:** This alternative is designed to manage the Monument as guided by the Mediated Settlement Agreement (MSA).

**Alternative F:** This alternative focuses on a more flexible range of management tools to promote ecological restoration and maintenance, and forest health, and achieve the desired conditions in less time.

## Desired Conditions, Strategies, and Objectives

The Monument Plan is built around the plan component concept that has been used in many recent plan revisions. Plan compliance is based on the ability of a proposed project to move the plan toward the desired conditions, how well it achieves plan objectives, and finally, compliance with forest plan standards and guidelines. The plan components are complimentary and constitute the management direction for the Monument over the next 10-15 years.

The **desired conditions** are essentially the long-term goals for resources in the Monument. They describe the desired future state of resources and may be achievable only over a long period of time..

**Strategies** describe the general approach that may be reasonably used to achieve the desired conditions. They are not commitments nor are they decisions. Strategies establish priorities in management effort and a sense of focus for objectives.

**Objectives** are short-term measurable outcomes that mark progress toward the eventual achievement of desired conditions. Projects are designed to achieve these objectives using the strategic guidance in the Monument Plan.

# Comparison of Alternatives

**Table 1 Comparison of Alternatives by Acres of Land Allocations and Management Areas**

| Land Allocations/Management Areas | Alt. A | Alt. B | Alt. C[1] | Alt. D[1] | Alt. E | Alt. F |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Giant Sequoia Groves[2] | 34,530 | 72,300 | 27,830 | 27,830 | 34,530 | 72,300 |
| Wilderness/Wild & Scenic Rivers | 17,960 | 17,960 | 17,960 | 17,960 | 33,070 | 17,960 |
| Kings River Special Management Area (KRSMA) | 24,290 | 24,290 | 24,290 | 24,290 | 24,290 | 24,290 |
| Backcountry (Inventoried Roadless Areas) | 80,300 | 80,300 | 80,300 | 80,300 | 80,300 | 80,300 |
| Old Forest Emphasis Area | 153,760 | 153,760 | 0 | 0 | 0 | 153,760 |
| Southern Sierra Fisher Conservation Area (SSFCA) | 311,150 | 311,150 | 0 | 0 | 0 | 311,150 |
| General Monument | 5,710 | 5,710 | 5,710 | 0 | 0 | 5,710 |
| Research Natural Areas, Botanical Areas, Geological Areas | 5,830 | 9,340 | 1,640 | 1,640 | 5,830 | 9,340 |
| **Overlapping** | | | | | | |
| WUI Defense Zone | 45,340 | 45,340 | 8,300 | 4,600 | 45,340 | 45,340 |
| WUI Threat zone | 145,520 | 145,520 | 0 | 0 | 145,520 | 145,520 |
| Tribal Fuels Emphasis Treatment Area (TFETA) | 0 | 56,640 | 0 | 0 | 0 | 56,640 |
| **Dynamic** | | | | | | |
| RCAs and CARs | 178,000 | 178,000 | 0 | 178,000 | 0 | 178,000 |
| CA Spotted Owl Protected Activity Centers (PACs) | 22,620 | 22,620 | 0 | 22,620 | 0 | 22,620 |
| Goshawk PACs | 3,240 | 3,240 | 0 | 3,240 | 0 | 3,240 |
| Great Gray Owl PACs | 60 | 60 | 0 | 60 | 0 | 60 |
| Furbearer (Pacific fisher and American marten) Den Sites | 3,070 | 3,070 | 0 | 3,070 | 0 | 3,070 |
| CA Spotted Owl Home Range Core Areas (HRCAs) | 44,410 | 44,410 | 0 | 44,410 | 0 | 44,410 |
| California Spotted Owl Habitat Areas (SOHAs) | 0 | 0 | 0 | 0 | 24,710 | 0 |

1. Most of the Monument is managed as an ecosystem rather than by land allocations.
2. Using the grove allocation boundary defined for each alternative: Alternatives A and E—GIZ; Alternatives C and D—administrative boundary; Alternatives B and F—ZOI.

**Table 2 Comparison of Alternatives by Issues and Their Units of Measure**

| Units of Measure | Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|---|
| **Issue 1—Recreation and Public Use** | | | | | | |
| Recreation demand analysis | **Somewhat limited** in flexibility to respond to future recreation demand and new activities; the activities emphasized are listed in Forest Plan management emphasis area direction. | **Most flexibility** to respond to future recreation demand and new or changing activities. | Emphasizes developed recreation opportunities; **has flexibility** to respond to future demand and new or changing activities, but with **some limitations** on allowed activities; activities such as dispersed (roadside or end of the road) camping and biking on trails would not be possible. | Limits the development of new recreation facilities; **most limited** in ability to respond to future recreation demand and new or changing activities; no new roads allowed, so new picnic areas or campgrounds would be walk-in only, limiting the ability to accommodate groups. | **Somewhat limited** in flexibility to respond to future recreation demand and new activities; the activities emphasized are listed in Forest Plan management emphasis area direction. | **Most flexibility** to respond to future recreation demand and new or changing activities. |
| **Issue 2—Road and Trail Access** | | | | | | |
| 1) Roads open to public (current system is 822 miles, with 751 miles open to public) | | | | | | |
| Estimated miles of open roads as changes are made to transportation system over time (% of total miles) | 751 (91) | 597 (73) | 313 (38) | 494 (60) | 597 (73) | 597 (73) |
| Estimated percent maintenance level 2 roads closed over time | 0 | 30 | 85 | 50 | 30 | 30 |
| 2) Potential to change trail system | **Potential for increase** as decommissioned roads are converted to trails or new trails are developed. Trails for specific uses (mountain biking, | **Potential for increase** as decommissioned roads are converted to trails or new trails are developed. Trails for specific uses (mountain biking, | **Most potential for increase** as decommissioned roads are converted to trails or new trails are developed. Trails for specific uses (hiking, stock) and | **More potential for increase** as decommissioned roads are converted to trails or new trails are developed. Trails for specific uses (mountain biking, | **Potential for increase** as decommissioned roads are converted to trails or new trails are developed. Trails for specific uses (mountain biking, | **Potential for increase** as decommissioned roads are converted to trails or new trails are developed. Trails for specific uses (mountain biking, |

| Units of Measure | Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|---|
| | hiking, stock) and loop trails could be provided. | hiking, stock) and loop trails could be provided. | loop trails could be provided, but not for mountain bikes. | hiking, stock) and loop trails could be provided, but opportunities for mountain bikes could be limited. | hiking, stock) and loop trails could be provided. | hiking, stock) and loop trails could be provided. |
| **Issue 3—Diverse Array of Wildlife and Their Habitats** | | | | | | |
| 1) Percentage of Monument with land allocations designed to protect key wildlife habitat | 98 | 98 | 0[1] | 35 | 7[2] | 98[3] |
| Acres of spotted owl PACs | 22,620 | 22,620 | 0 | 22,620 | 0 SOHAs only | 22,620 |
| Acres of goshawk PACs | 3,240 | 3,240 | 0 | 3,240 | 0 | 3,240 |
| Acres of gray owl PACs | 60 | 60 | 0 | 60 | 0 | 60 |
| Acres of fisher den site buffer | 2,970 | 2,970 | 0 | 2,970 | 0 | 2,970 |
| Acres of marten den site buffer | 110 | 110 | 0 | 110 | 0 | 110 |
| Acres of CARs | 27,100 | 27,100 | 0 | 27,100 | 0 | 27,100 |
| Acres of RCAs | 150,900 | 150,900 | 0 | 150,900 | 0 | 150,900 |
| Acres of old forest emphasis[4] | 160,610 | 160,610 | 0 | 0 | 0 | 160,610 |
| Acres of SSFCA[4] | 333,540 | 333,540 | 0 | 0 | 0 | 333,540 |
| 2) Acres of wildlife habitat in WUI and TFETA (percent of Monument) | | | | | | |
| Acres in WUI defense | 45,340 (13) | 45,340 (13) | 8,300 (2) | 4,600 (1) | 45,340 (13) | 45,340 (13) |

1. Does not include land allocations for habitat protection, but relies on large areas with very little or no human intervention.
2. Standards and guideline from MSA generally provide weaker protections than 2001 SNFPA.
3. Standards and guidelines for some allocations provide reduced protection due to lack of diameter limits.
4. Gross acres inside the Monument, including FS, private, and other jurisdictions.

*Comparison of Alternatives by Issues and Their Units of Measure, cont'd.*

| Units of Measure | Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|---|
| Acres in WUI threat | 145,520 (41) | 145,520 (41) | 0 | 0 | 145,520 (41) | 145,520 (41) |
| Acres in TFETA | 0 | 56,640 | 0 | 0 | 0 | 56,640 |
| 3) Recreation use | | | | | | |
| Approximate miles of road (all jurisdictions) | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 |
| Miles of trail for recreation | 196 | 196 | 196 | 196 | 196 | 196 |
| Acres developed recreation sites | 660 | 660 | 660 | 660 | 660 | 660 |
| Dispersed camping | Allowed | Allowed | Not allowed except by permit in certain areas | Allowed | Allowed | Allowed |
| Off-highway vehicle use | Allowed on designated roads only | Allowed on designated roads only | Limited to highway-legal vehicles | Limited to highway-legal vehicles | Allowed on designated roads only | Allowed on designated roads only |
| New recreation development | Allowed | Allowed | Allowed | Limited | Allowed | Allowed |
| Motorized vehicle traffic | Allowed on designated roads only | Allowed on designated roads only | Limited to highway-legal vehicles | Limited to highway-legal vehicles | Allowed on designated roads only | Allowed on designated roads only |
| Over-snow vehicles | Allowed on designated roads only | Allowed on designated roads only | Not allowed, except to access private property, for administrative reasons, or in emergency situations. | Limited to certain paved roads | Allowed on designated roads only | Allowed on designated roads only |
| **Issue 4—Fuels Management/Community Protection** | | | | | | |
| 1) Width of WUI zones | | | | | | |
| Defense: | 1/4 mile | 1/4 mile | 300 feet | 200 feet | 1/4 mile | 1/4 mile |
| Threat: | 1¼ mile | 1¼ mile | N/A | N/A | 1¼ mile | 1¼ mile |
| 2) Percent of Monument treated by prescribed fire and mechanical treatments per decade (as projected by the SPECTRUM Model) | | | | | | |
| Decade 1: | 6.1 | 7.1 | 3.8 | 1.1 | 6.2 | 7.7 |

***Comparison of Alternatives by Issues and Their Units of Measure, cont'd.***

| Units of Measure | Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|---|
| Decade 2: | 7.9 | 8.1 | 3.2 | 0.1 | 7.1 | 9.7 |
| Decade 3: | 10.3 | 9.3 | 4.7 | 0.1 | 8.2 | 12.1 |
| Decade 4: | 7.3 | 7.9 | 2.8 | 0.0 | 7.3 | 9.7 |
| Decade 5: | 9.4 | 9.1 | 3.8 | 0.1 | 7.2 | 10.3 |
| Decade 6: | 6.8 | 5.8 | 2.1 | 0.0 | 6.4 | 9.2 |
| Decade 7: | 8.6 | 8.6 | 3.0 | 0.1 | 6.7 | 9.1 |
| 3) Estimated acres of moderate and high fire susceptibility (in WUI zones and TFETA) | | | | | | |
| Moderate: | 140,440 ac | 182,630 ac | 5,240 ac | 2,980 ac | 140,440 ac | 182,630 ac. |
| High: | 33,240 ac | 38,390 ac | 2,900 ac | 1,560 ac | 33,240 ac | 38,390 ac. |
| **Issue 5—Tree Removal** | | | | | | |
| Percent of Monument treated by mechanical or hand treatments per decade (as projected by the SPECTRUM Model) | | | | | | |
| Decade 1: | 4.0 | 3.3 | 1.7 | 0.7 | 3.4 | 4.7 |
| Decade 2: | 4.9 | 3.6 | 1.0 | 0.0 | 3.9 | 6.1 |
| Decade 3: | 3.7 | 2.2 | 2.4 | 0.3 | 2.8 | 6.2 |
| Decade 4: | 2.1 | 2.6 | 0.8 | 0.0 | 2.6 | 4.4 |
| Decade 5: | 2.2 | 1.9 | 1.9 | 0.2 | 2.0 | 4.5 |
| Decade 6: | 1.8 | 1.9 | 0.6 | 0.0 | 2.2 | 3.8 |
| Decade 7: | 1.6 | 1.6 | 1.5 | 0.2 | 1.3 | 3.5 |
| **Issue 6—Methods for Giant Sequoia Regeneration** | | | | | | |
| Estimated acres of sequoia regeneration (based on openings likely to be created by proposed activities and the amount of defense zone treatments within giant sequoia groves) | 300 | 200 | 100 | 0 | 400 | 500 |
| **Issue 7—Fire Affecting Adjacent Tribal Lands** | | | | | | |
| Presence of TFETA | TFETA not present | TFETA present | TFETA not present | TFETA not present | TFETA not present | TFETA present |

**Table 3 Comparison of Alternatives by Environmental Effects on Resources**

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| **Vegetation, including Giant Sequoias** | | | | | |
| Promotes forest resilience with a combination of management tools that allow moderate stand density reduction and protection from severe wildfire. | Promotes forest resilience with a combination of management tools that allow moderate stand density reduction and protection from severe wildfire. | Promotes forest resilience to a lesser degree by relying mainly on fire. Less potential for stand density reduction for forest health and protection from severe wildfire. | Promotes forest resilience to a lesser degree by relying mainly on fire. Less potential for stand density reduction for forest health and protection from severe wildfire. | Promotes forest resilience with a combination of management tools that allow moderate stand density reduction and protection from severe wildfire. | Promotes forest resilience to the greatest degree with the most flexibility in treatment methods that allow more control of stand density and better protection from drought, insects, and severe wildfire. |
| Promotes heterogeneity/ vegetative diversity with a combination of management tools. | Promotes heterogeneity/ vegetative diversity with a combination of management tools. | Promotes heterogeneity/vegetative diversity the least by maintaining current seral stages. | Could result in more early seral habitat as a result of more uncharacteristically severe wildfires. | Promotes more heterogeneity/vegetative diversity due to greater management flexibility. | Promotes the most heterogeneity/vegetative diversity due to greater management flexibility. |
| Moderate area potentially treated by mechanical or hand treatments. | Most area potentially treated by mechanical or hand treatments, but no more than 10 percent of Monument. | Less area potentially treated by mechanical or hand treatments. | Least area potentially treated by mechanical or hand treatments. | Moderate area potentially treated by mechanical or hand treatments. | Most area potentially treated by mechanical or hand treatments, but no more than 10 percent of Monument. |
| Moderate acres of giant sequoia regeneration. | Some acres of giant sequoia regeneration. | Few acres of giant sequoia regeneration, greater potential dependent upon wildfire. | Least acres of giant sequoia regeneration, greater potential dependent upon wildfire. | Moderate acres of giant sequoia regeneration. | Most acres of giant sequoia regeneration. |
| **Fire and Fuels** | | | | | |
| Adheres to 2001 SNFPA priorities and direction for fire and fuels management. Includes WUI defense zone of ¼ mile (45,340 acres) and threat zone of 1¼ mile (145,520 acres). | Includes WUI defense zone of ¼ mile (45,340 acres) and threat zone of 1¼ mile (145,520 acres). Diameter limit for tree cutting of 20 inches in WUI defense zone. Adds 56,640-acre tribal fuels emphasis treatment area (TFETA). | Includes WUI defense zone of 300 feet (8,300 acres). Tree removal only allowed as by-product of fuels reduction or public safety activities. | Includes WUI defense zone of 200 feet (4,600 acres). Diameter limit for tree cutting of 12 inches in WUI defense zone. Trees cut in WUI would remain on site, chipped or masticated and turned into mulch. | Includes WUI defense zone of ¼ mile (45,340 acres) and threat zone of 1¼ mile (145,520 acres). | Includes WUI defense zone of ¼ mile (45,340 acres) and threat zone of 1¼ mile (145,520 acres). No diameter limit for tree cutting. Adds 56,640-acre TFETA. |

***Comparison of Alternatives by Environmental Effects on Resources, cont'd.***

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| Prioritizes management tools for fuels reduction as follows: (1) mechanical treatments, (2) prescribed fire, (3) managed wildfire. | Prioritizes management tools for fuels reduction as follows: (1) prescribed fire, (2) mechanical treatments, (3) managed wildfire. | Prioritizes management tools for fuels reduction as follows: (1) prescribed fire and managed wildfire, (2) mechanical treatments. | Prioritizes management tools for fuels reduction as follows: (1) managed wildfire, (2) prescribed fire, (3) mechanical treatments (only under limited circumstances in WUI defense zone). | Prioritizes management tools for fuels reduction as follows: (1) mechanical treatments, (2) prescribed fire, (3) managed wildfire. | No priorities for management tools for fuels reduction. The three tools—managed wildfire, mechanical means, and prescribed fire—would be used in combination based on site-specific analysis and existing conditions. |
| Fuel reduction activities on 12,000 acres with high fire susceptibility and 32,300 acres with moderate fire susceptibility (as projected by SPECTRUM Model). | Fuel reduction activities on 12,000 acres with high fire susceptibility and 32,300 acres with moderate fire susceptibility. Trend in prescribed fire shows increase from current program (as projected by SPECTRUM Model). | Fuel reduction activities on 2,900 acres with high fire susceptibility and 5,200 acres with moderate fire susceptibility. Greater emphasis on prescribed fire and managed wildfire as fuel treatment tools (as projected by SPECTRUM Model). | Fuel reduction activities on 1,600 acres with high fire susceptibility and 3,000 acres with moderate fire susceptibility. Greatest opportunity for natural fire processes and managed wildfire (as projected by SPECTRUM Model). | Fuel reduction activities on 12,000 acres with high fire susceptibility and 32,300 acres with moderate fire susceptibility. Trend in fuel treatments similar to the current program (as projected by SPECTRUM Model). | Fuel reduction activities on 12,000 acres with high fire susceptibility and 32,300 acres with moderate fire susceptibility. Increase in mechanical and hand treatments from current program. Increase in prescribed fire up to second decade, then a decline (based on SPECTRUM Model). |
| **Air Quality** | | | | | |
| Moderate level of emissions from wildfires. Priority of management tools for fuels reduction allows for some control of emissions effects on air quality. | Low level of emissions from wildfires. Priority of management tools for fuels reduction allows for greater control over timing of emissions, minimizing effects on air quality. | Moderately high level of emissions from wildfires due to more limited use of mechanical treatments and additional use of prescribed fire. Restoring the natural process of wildfire without changes to stand structure | High level of emissions from wildfire due to more limited use of prescribed fire and mechanical treatments. Reduces overall control over timing of emissions; maximizes total emissions released by uncontrolled fires. | Low level of emissions from wildfires due to additional use of mechanical treatments and prescribed fire. Allows for maximum control over timing of emissions from fire; minimizes total emissions from fire. | Low level of emissions from wildfire. More flexible use of management tools allows for greater control over timing of emissions. |

*Comparison of Alternatives by Environmental Effects on Resources, cont'd.*

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| | | results in increased emissions for the short term (3 decades). | | | |
| **Wildlife and Plant Habitat (including Threatened, Endangered, and Sensitive Species; Management Indicator Species; Botanical Resources; and Invasive Nonnative Species)** | | | | | |
| Moderate amount of habitat likely to be affected by fuels treatment activities. WUI defense zones cover 13 percent and threat zones cover 41 percent. | Larger amount of habitat likely to be affected by fuels treatment activities. WUI defense zones cover 13 percent and threat zones cover 41 percent. Tribal fuels emphasis area (TFETA) of 56,640 acres established. | Smaller amount of habitat likely to be affected by fuels treatment activities. WUI defense zones cover only 2 percent. No TFETA established. | Smallest amount of habitat likely to be affected by fuels treatment activities. WUI defense zones cover only 1 percent. No TFETA established. | Moderate amount of habitat likely to be affected by fuels treatment activities. WUI defense zones cover 13 percent and threat zones cover 41 percent. Larger diameter limits allow loss of larger trees. No TFETA established. | Largest amount of habitat likely to be affected by fuels treatment activities. WUI defense zones cover 13 percent and threat zones cover 41 percent. TFETA of 56,640 acres established. Lack of diameter limits allows loss of larger trees. |
| Largest amount of special management areas for wildlife. | Largest amount of special management areas for wildlife. | No special management areas for wildlife, but low level of fuels treatment to affect them. | Large amount of special management areas for wildlife, but no Southern Sierra Fisher Conservation Area (SSFCA) or old forest emphasis area. | Lowest amount of special management areas for wildlife. Only spotted owl habitat areas (SOHAs), which provide little protection. | Largest amount of special management areas for wildlife. |
| Large number of recreation sites, roads, trails, and dispersed camping sites which may affect the quality of habitat through disturbance, introduction of noxious weeds, fragmentation, or the loss of key habitat features. | Large number of recreation sites, roads, trails, and dispersed camping sites which may affect the quality of habitat through disturbance, introduction of noxious weeds, fragmentation, or the loss of key habitat features. | Lowest level of recreation effects on habitat due to the elimination of dispersed camping, restrictions on types of vehicles, and likely fewer miles of roads. | Lower level of recreation effects on habitat due to the restrictions on types of vehicles and no new roads allowed. | Large number of recreation sites, roads, trails, and dispersed camping sites which may affect the quality of habitat through disturbance, introduction of noxious weeds, fragmentation, or the loss of key habitat features. | Large number of recreation sites, roads, trails, and dispersed camping sites which may affect the quality of habitat through disturbance, introduction of noxious weeds, fragmentation, or the loss of key habitat features. |
| Likely fewer acres of stand-replacing | Likely fewer acres of stand-replacing | Likely more acres of stand-replacing fire; | Likely most acres of stand-replacing fire; | Likely moderate acres of stand- | Likely fewer acres of stand-replacing |

***Comparison of Alternatives by Environmental Effects on Resources, cont'd.***

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| fire; fewer snags in burned forest. | fire; fewer snags in burned forest. | more snags in burned forest. | most snags in burned forest. | replacing fire; fewest snags in burned forest. | fire; fewer snags in burned forest. |
| **Range** | | | | | |
| Continue current livestock management practices in 1988 Forest Plan, 1990 MSA, 2001 SNFPA.. | Use 2004 SNFPA S&Gs and portions of 1990 MSA for livestock grazing. May require additional fencing due to TFETA. | Use 2004 SNFPA S&Gs and portions of 1990 MSA for livestock grazing. | Use 2004 SNFPA S&Gs and portions of 1990 MSA for livestock grazing. | Use grazing management direction from 1988 Forest Plan, 1990 MSA. No specific S&Gs for great gray owls, willow flycatcher. Allowable use factors determined locally. | Use 2004 SNFPA S&Gs and portions of 1990 MSA for livestock grazing. May require additional fencing due to TFETA. |
| **Hydrological Resources** | | | | | |
| Adopts standards and guidelines (S&Gs) from 2001 SNFPA. Does not include refined S&Gs appropriate to the Monument: detailed streamside management zone (SMZ) direction, local conditions, ranges in natural variability for riparian conditions, water quality, and the meadow restoration strategy. | Follows riparian conservation objectives (RCOs) and S&Gs in the 2004 SNFPA. Provides more refined S&Gs consistent with SMZ direction, local conditions, ranges in natural variability for riparian conditions, water quality, and a meadow restoration strategy. | Follows riparian conservation objectives (RCOs) and S&Gs in the 2004 SNFPA. Provides moderate protection to hydrological resources (more than Alternatives E and D and less than Alternative A). | Follows riparian conservation objectives (RCOs) and S&Gs in the 2004 SNFPA. Provides the least protection to hydrological resources. Would not control wildfires in riparian and wetland areas with vegetative conditions outside the natural range of variability for fire return intervals. Inability to control fire in watersheds could lead to increases in sedimentation and effects on riparian dependent species, water quality, large woody material, shade and water temperatures, and | Provides moderate protection to hydrological resources (more than Alternative D and less than Alternatives A, B, C, and F). Adopts S&Gs of the Forest Plan and MSA. While these were scientifically valid in their time, they do not benefit from data from the SNFPA and more recent monitoring. | Follows riparian conservation objectives (RCOs) and S&Gs in the 2004 SNFPA. Provides the same protection to hydrological resources as Alternative B. Opportunity in CARs and RCAs to develop prescriptions for the management of riparian dependent species, including adjusted diameter limits. |

***Comparison of Alternatives by Environmental Effects on Resources, cont'd.***

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| | | | watersheds that already exceed the threshold of concern. | | |
| **Groundwater** | | | | | |
| Potential for new wells | Potential for new wells | Potential for new wells | Potential for new wells | Potential for new wells | Potential for new wells |
| **Geological Resources** | | | | | |
| Highest potential for effects on caves due to open cave access. | Provides protection for caves, especially those caves in the Windy Gulch Geological Area, through development of a management plan and standards and guidelines for cave access and closure. | Protects caves similar to SEKI with development of cave management plan. | Highest potential for effects on caves due to open cave access. | Highest potential for effects on caves due to open cave access. | Provides protection for caves, especially those caves in the Windy Gulch Geological Area, through development of a management plan and standards and guidelines for cave access and closure. |
| **Paleontological Resources** | | | | | |
| Effects on paleontological resources within meadow sediments unlikely with proposed standards and guidelines for hydrological resources. | Effects on paleontological resources within meadow sediments unlikely with proposed standards and guidelines for hydrological resources. | Effects on paleontological resources within meadow sediments unlikely with proposed standards and guidelines for hydrological resources. | Effects on paleontological resources within meadow sediments unlikely with proposed standards and guidelines for hydrological resources. | Effects on paleontological resources within meadow sediments unlikely with proposed standards and guidelines for hydrological resources. | Effects on paleontological resources within meadow sediments unlikely with proposed standards and guidelines for hydrological resources. |
| **Soils** | | | | | |
| Intermediate number of acres of mechanical treatments increase the potential for direct soil disturbance. Some beneficial effects on soils from prescribed fire, by reducing surface fuel loads and future wildfire intensity. | Intermediate number of acres of mechanical treatments increase the potential for direct soil disturbance. Some beneficial effects on soils from prescribed fire, by reducing surface fuel loads and future wildfire intensity. | Fewest acres of mechanical treatments decrease the potential for direct soil disturbance. Some beneficial effects on soils from prescribed fire, by reducing surface fuel loads and future wildfire intensity. | Fewest acres of mechanical treatments decrease the potential for direct soil disturbance. Least beneficial effects on soils from prescribed fire. | Most acres of mechanical treatments increase the potential for direct soil disturbance. Some beneficial effects on soils from prescribed fire, by reducing surface fuel loads and future wildfire intensity. | Most acres of mechanical treatments increase the potential for direct soil disturbance. Most beneficial effects on soils from prescribed fire, by reducing surface fuel loads and future wildfire intensity. |

***Comparison of Alternatives by Environmental Effects on Resources, cont'd.***

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| Least risk for large, severe wildfires that could lead to increases in soil erosion. | Least risk for large, severe wildfires that could lead to increases in soil erosion. | Greatest risk for large, severe wildfires that could lead to increases in soil erosion. | Greatest risk for large, severe wildfires that could lead to increases in soil erosion. | Least risk for large, severe wildfires that could lead to increases in soil erosion. | Least risk for large, severe wildfires that could lead to increases in soil erosion. |
| **Human Use (including Recreation, Scenery, and Socioeconomic)** | | | | | |
| Somewhat limited in flexibility to respond to future recreation demand and new activities; the activities emphasized are listed in Forest Plan management emphasis area direction. | Most flexibility to respond to future recreation demand and new or changing activities. | Emphasizes developed recreation opportunities; has flexibility to respond to future demand and new or changing activities, but with some limitations on allowed activities; activities such as dispersed (roadside or end of the road) camping and biking on trails would not be possible. | Limits the development of new recreation facilities; most limited in ability to respond to future recreation demand and new or changing activities; no new roads allowed, so new picnic areas or campgrounds would be walk-in only, limiting the ability to accommodate groups and people with disabilities. | Somewhat limited in flexibility to respond to future recreation demand and new activities; the activities emphasized are listed in Forest Plan management emphasis area direction. | Most flexibility to respond to future recreation demand and new or changing activities. |
| Moderately improves and maintains scenic integrity through managing recreation effects; allows moderate amount of vegetation management; fuels management expected to reduce some risks of severe fire that would affect scenic integrity over the long term. | Moderately improves and maintains scenic integrity through managing recreation effects; allows moderate amount of vegetation management; fuels management expected to reduce more risks of severe fire that would affect scenic integrity over the long term. | Best minimizes effects to scenery from recreation. Little opportunity to pre-treat areas before prescribed burns to minimize effects to scenic integrity, reduced opportunities for vegetation management in overstocked areas, and minimal reduction in risk of severe fire that would have long-term effects on scenic integrity. | Least supportive of maintaining and improving scenic integrity because of restrictions placed on vegetation management. High risk of severe wildfire in areas valued for scenic beauty. Limited opportunities to manage increases in visitation, especially those associated with developed camping. | Moderately improves and maintains scenic integrity through managing recreation effects; allows moderate amount of vegetation management; fuels management expected to reduce some risks of severe fire that would affect scenic integrity over the long term. | Greatest potential to maintain and improve scenic integrity. Allows most vegetation management for maintenance and improvement of scenic resources. Moderate opportunity to manage recreation effects on scenery. Fuels management expected to provide the greatest amount of protection from uncharacteristically severe wildfire. |

***Comparison of Alternatives by Environmental Effects on Resources, cont'd.***

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| Least likely to change Forest Service contribution to the economy. | Less likely to change Forest Service contribution to the economy. More emphasis on promoting tourism. Encourages gateway community development. | Most likely to decrease Forest Service contribution to the economy. More emphasis on promoting tourism. | Most likely to decrease Forest Service contribution to the economy. Likely attract different type of tourism, with most services outside of the Monument. | Less likely to change Forest Service contribution to the economy. | Less likely to change Forest Service contribution to the economy. More emphasis on promoting tourism. Encourages gateway community development. |
| **Cultural Resources** | | | | | |
| No change from current level of effects. | Least potential to affect cultural resources due to larger WUI, TFETA, stable transportation system, and most balanced cultural resource management program. | Less potential to affect cultural resources due to reduction in dispersed camping, but more potential to affect cultural resources without TFETA. | Greatest potential to affect cultural resources due to reliance on wildfires and lack of ability to pre-plan mitigation measures. | Potential to affect cultural resources due to the proposal of additional designated wilderness and less planned fuels reduction. | Least potential to affect cultural resources due to larger WUI, TFETA, stable transportation, and most balanced cultural resource management program. |
| **Tribal and Native American Interests** | | | | | |
| No change from current level. | Greatest potential for positive effects due to TFETA, large WUI, and large transportation system. | Less potential for positive effects due to reduced transportation system, smaller WUI, and lack of TFETA. | Least potential for positive effects due to greatest reduction in transportation system, smallest WUI, and no TFETA. | Less potential for positive effects due to lack of TFETA. | Greatest potential for positive effects due to TFETA, large WUI, and large transportation system. |
| **Transportation System** | | | | | |
| Current road system 822 miles. Allows off-highway vehicles (OHV) and over-snow vehicles (OSV) on designated roads. Non-motorized mechanized vehicles (mountain bikes) allowed on | Road system 822 miles. Allows OHV and OSV on designated roads. Non-motorized mechanized vehicles (mountain bikes) allowed on designated roads and trails. Emphasizes | Road system 822 miles. Allows street-legal OHV on designated roads. Allows OSV only to access private property or for administrative or emergency purposes. Non-motorized | Road system 822 miles. Allows street-legal OHV on designated roads. Allows OSV only on paved roads. Non-motorized mechanized vehicles (mountain bikes) allowed on | Road system 822 miles. Allows OHV and OSV on designated roads. Non-motorized mechanized vehicles (mountain bikes) allowed on designated roads and trails. Emphasizes | Road system 822 miles. Allows OHV and OSV on designated roads. Non-motorized mechanized vehicles (mountain bikes) allowed on designated roads and trails. Emphasizes |

***Comparison of Alternatives by Environmental Effects on Resources, cont'd.***

| Alt. A | Alt. B | Alt. C | Alt. D | Alt. E | Alt. F |
|---|---|---|---|---|---|
| designated roads and trails. | opportunities for creating loop trails and roads. | mechanized vehicles (mountain bikes) allowed only on designated roads, not trails. | designated roads and trails. No new roads proposed. | opportunities for creating loop trails and roads. | opportunities for creating loop trails and roads. |
| Expect minor reduction in maintenance level (ML) 1 and 2 roads over time as roads not needed for resource management or dispersed recreation are closed or decommissioned. Roads to be decommissioned could be converted to trails. Potential construction of new roads for developed recreation facilities and loop driving opportunities. | Expect minor reduction in ML 1 and 2 roads over time as roads not needed for resource management or dispersed recreation are closed or decommissioned. Roads to be decommissioned could be converted to trails. Emphasizes opportunities for creating loop trails and roads. Potential construction of new roads for developed recreation facilities and loop driving opportunities. | Expect substantial reduction in ML 1 and 2 roads over time (closure or decommissioning) due to reduced dispersed recreation. Roads to be decommissioned could be converted to trails. Potential construction of new roads for developed recreation facilities and loop driving opportunities. | Expect substantial reduction in ML 1 and 2 roads over time (closure or decommissioning) due to reduced vegetation management projects. Roads to be decommissioned could be converted to trails. | Expect minor reduction in ML 1 and 2 roads over time as roads not needed for resource management or dispersed recreation are closed or decommissioned. Roads to be decommissioned could be converted to trails. Emphasizes opportunities for creating loop trails and roads. Potential construction of new roads for developed recreation facilities and loop driving opportunities. | Expect minor reduction in ML 1 and 2 roads over time as roads not needed for resource management or dispersed recreation are closed or decommissioned. Roads to be decommissioned could be converted to trails. Emphasizes opportunities for creating loop trails and roads. Potential construction of new roads for developed recreation facilities and loop driving opportunities. |
| **Special Areas, including Special Interest Areas** | | | | | |
| Addition of Freeman Creek Botanical Area. | Addition of Freeman Creek Botanical Area and Windy Gulch Geological Area. | No additional special areas. | No additional special areas. | Addition of Freeman Creek Botanical Area. Recommendation of Moses Wilderness. | Addition of Freeman Creek Botanical Area and Windy Gulch Geological Area. |

## Alternatives Considered but Eliminated from Detailed Study

Comments received on the proposed action during public scoping suggested alternatives to manage the Monument. Most of the suggestions covered only specific resource areas and not the full range of resource areas an alternative contains. Others either failed to meet the purpose and need, were duplicates of alternatives already being considered in detail, or had components that would cause unnecessary environmental harm. Where feasible, the suggested alternative components were brought into one or more of the alternatives considered in detail. Therefore, a number of alternatives were considered, but dismissed from detailed consideration.

1. Develop at least two vegetation management alternatives that limit tree felling and removal to eight-ten (8-10) and twelve (12) inches.
2. Non-logging alternatives as practical, feasible ways to achieve goals of fuels reduction.
3. Non-logging alternative.
4. Include a public transportation alternative for the most heavily used areas of the Monument.

# Chapter 3. Affected Environment

Chapter 3 discusses the affected environment or existing condition by resource area, as each is currently managed, in the following order:

- Scientific Study and Adaptive Management
- Vegetation, including Giant Sequoia Groves
- Fire and Fuels
- Air Quality
- Wildlife and Plant Habitat (including Management Indicator Species; Threatened, Endangered, and Sensitive Species; Invasive Nonnative Species; Rare and Endemic Species; and Botanical Resources)
- Hydrological Resources
- Groundwater
- Geological Resources
- Paleontological Resources
- Soils
- Human Use (including Recreation, Scenery, and Socioeconomics)
- Transportation (including the Transportation System and Trails and Motorized Recreation)

# Chapter 4. Environmental Consequences

Chapter 4 discusses the environmental effects analysis. It is organized by resource area, in the same order as Chapter 3. Effects are displayed for specific resources in terms of the direct, indirect and cumulative effects associated with the six alternatives considered in detail from Chapter 2. These effects use the metrics developed to address how the different alternatives respond to the significant issues. This chapter also discusses the unavoidable adverse effects, the relationship between short-term uses and long-term productivity, and any irreversible and irretrievable commitments of resources.

For a summary of the environmental effects by resource area, see the Comparison of Alternatives by Environmental Consequences table displayed in Chapter 2.