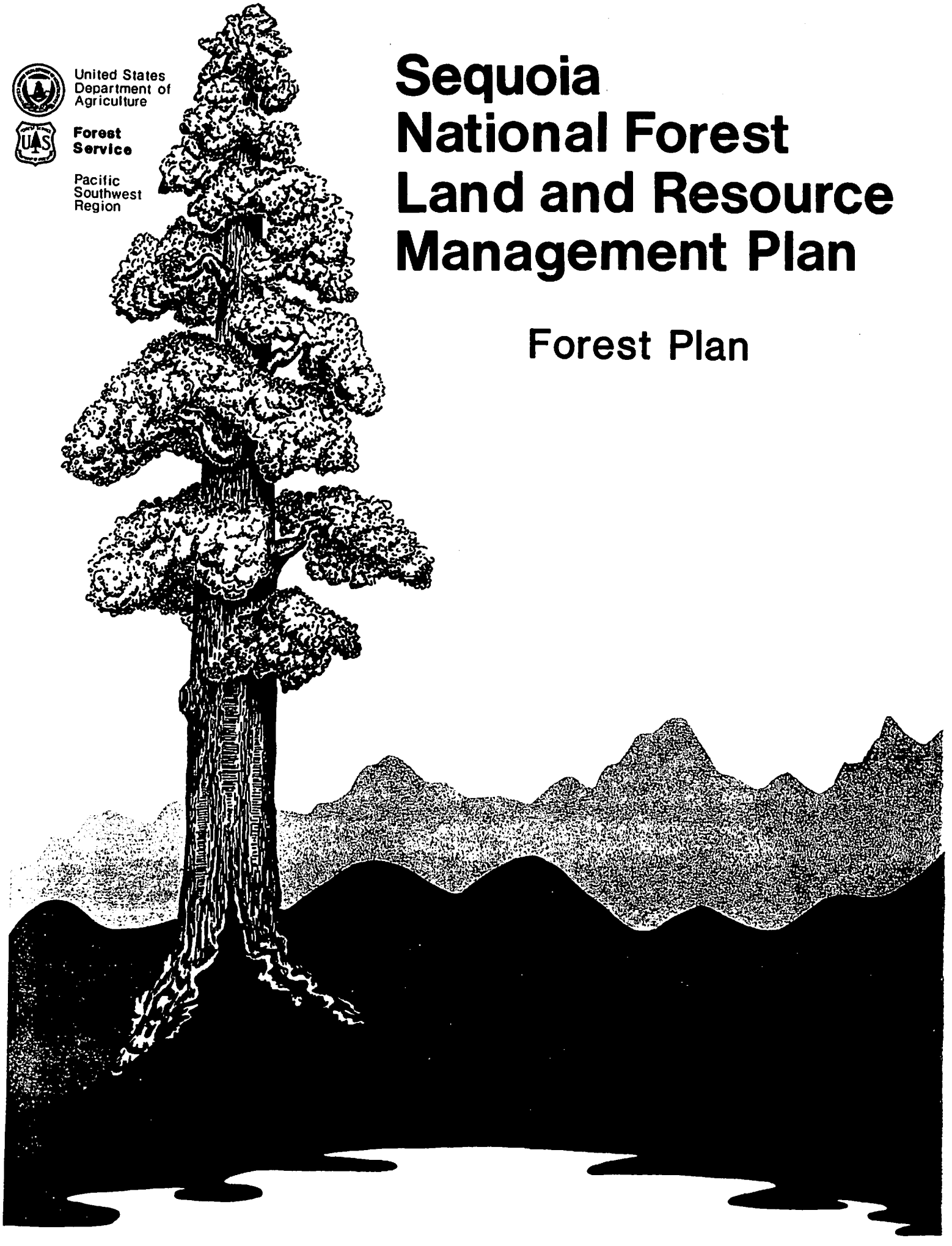
United States
Department of
Agriculture

**Forest
Service**

Pacific
Southwest
Region

Sequoia National Forest Land and Resource Management Plan

Forest Plan



SEQUOIA NATIONAL FOREST

LAND AND RESOURCE MANAGEMENT PLAN

1988

Pacific Southwest Region
USDA Forest Service

James A. Crates

Forest Supervisor

Paul F. Barker

Regional Forester

This Forest Plan establishes the management direction and associated long-range goals and objectives for the Sequoia National Forest for the next 10 - 15 years.

MISSION STATEMENT

The Forest Service provides national leadership in forest management activities such as water production, wood fiber, recreation, wildlife and range forage. National Forests comprise about 20 percent of California's land base. The Sequoia National Forest covers about 1.119 million acres in the Southern Sierra Nevadas.

Population growth in the San Joaquin Valley and Southern California is predicted to increase at a rate well above the national average. This will produce a dramatically larger demand for all Sequoia National Forest resources. The Forest Land Management Plan attempts to satisfy these demands by caring for the land and serving people.

ERRATA

SEQUOIA NATIONAL FOREST - FOREST PLAN
March 1988

Page 4-42

1. In table 4.4
   Insert above OW1 Prescription Code:

   B01 General Dispersed Recreation Blue Oak Savanna

2. Above Management Area Prescription OW1 insert:

MANAGEMENT AREA PRESCRIPTION B01

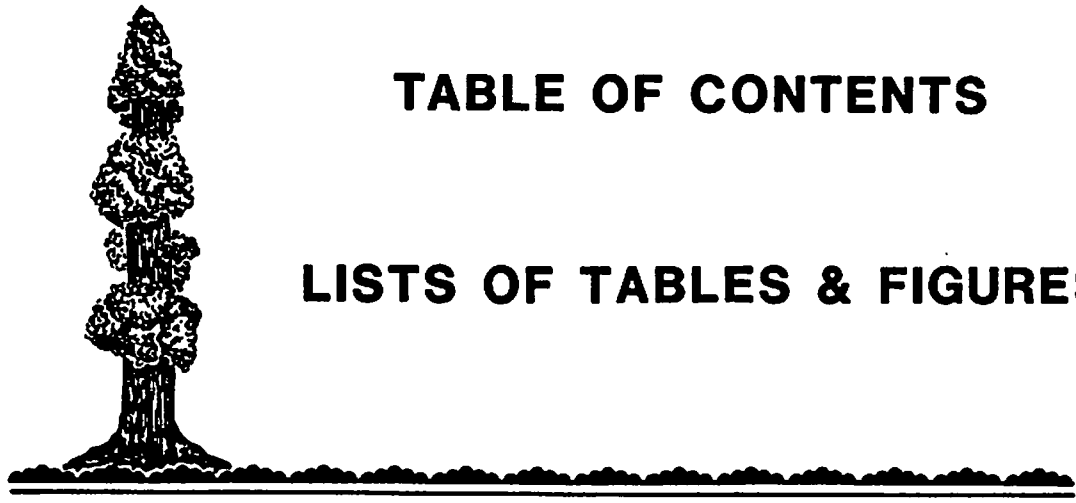
This prescription emphasizes general dispersed recreation in blue oak savanna.

Emphasis

Recreational opportunities range from Semi-Primitive Non-Motorized to Rural. Recreational activity will primarily be in Semi-Primitive Non-Motorized, Semi-Primitive Motorized, and Roaded Natural areas. A mix of activities will be permitted. OHV use, hiking, viewing scenery, and equestrian use will be the primary activities. Scenic quality will be emphasized.

Opportunities

Wood will be used for campfires only and use will be limited to dead and downed material. Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which enhance recreational opportunities will receive priority. Transportation system planning and management will favor dispersed recreation and visual needs. Wildlife habitat and diversity will be managed to enhance recreation except in those areas where concentrated OHV use occurs. Livestock management will be modified where in direct conflict with dispersed recreation.



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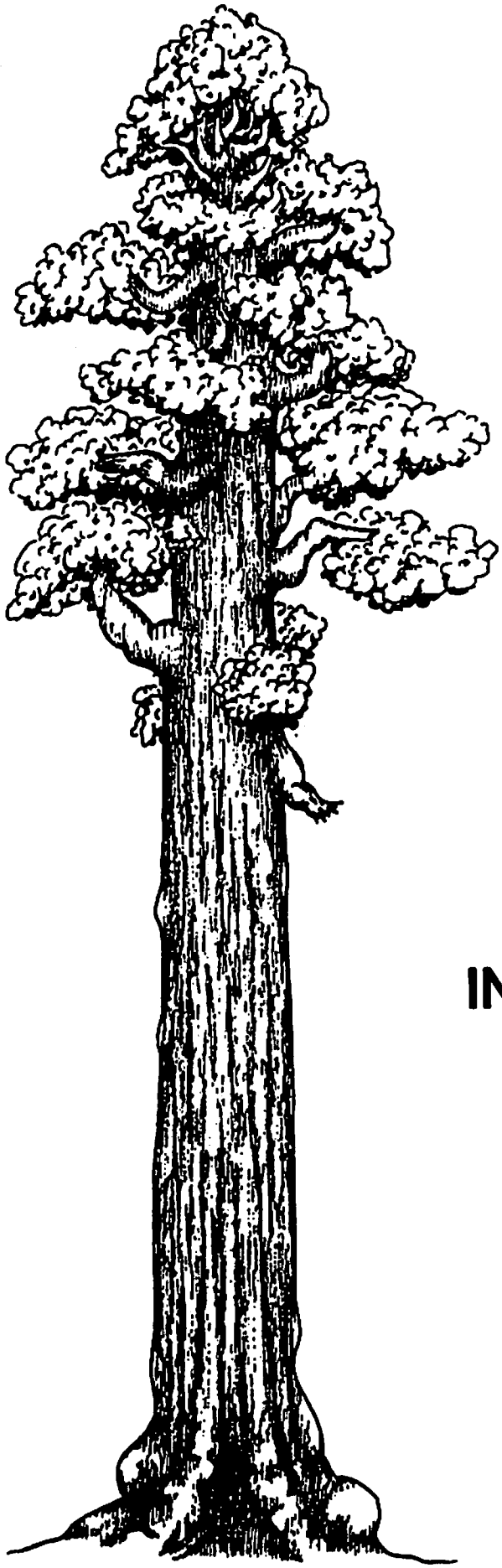


Chapter 1

INTRODUCTION

CHAPTER 1
INTRODUCTION

A. PURPOSE OF THE FOREST PLAN

This Forest Land and Resource Management Plan (Forest Plan) was developed to direct the management of the Sequoia National Forest. The goal of the Plan is to provide a management program reflecting a mix of activities which allows use and protection of Forest resources. It is to fulfill legislative requirements while addressing local, regional, and national issues. To accomplish this, the Forest Plan:

- allocates land to uses;
- establishes the management direction and associated goals and objectives for the Forest for the next 10-15 years;
- specifies the standards, approximate timing and intensity of practices necessary to achieve that direction; and,
- establishes the monitoring and evaluation requirements needed to ensure that the direction is being carried out and to determine how well outputs and effects were predicted.

While the Plan makes broad land allocations, sets Forest-wide outputs and targets, sets standards, and establishes monitoring procedures, it is not a site-specific plan. For each project undertaken as an implementation measure, a separate environmental assessment tiered to the Forest Plan will be done. Location and site-specific environmental effects will be discussed in those documents.

The Forest Plan will be reviewed and updated at least every ten to fifteen years.

B. VISION STATEMENT

The intent of this Plan is to provide increased public benefits from the Forest while maintaining the long-term productivity of the land. This will be accomplished by the following key actions listed by resource category:

- Manage the timber resource to produce a continuous supply of wood for industrial and nonindustrial purposes using a mix of even-aged and uneven-aged management techniques.
- Manage recreation to provide a quality experience and protect the area from resource damage.
- Encourage use of wildernesses by providing support facilities such as trailhead facilities and maintaining trails at higher standards.
- Increase opportunities for dispersed recreation by expanding the Forest road and trail system.

- Provide opportunities for such diversified activities as equestrian, hiking, and off-highway vehicle use while protecting the Forest resources.

- Provide whitewater floating opportunities for both individual recreationists and commercial outfitters.

- Provide expanded downhill and cross-country skiing opportunities.

- Increase opportunities for the recreational use of selected giant sequoia groves through improved access and increased public information.

- Maintain an overall natural appearance along heavily traveled routes through the Forest.

- Provide adequate fire protection at a cost that is commensurate with the resource values being protected.

- Allow for the use of prescribed fire in wildernesses to increase vegetative diversity and to reduce the threat of damaging wildfire.

- Implement an integrated cost-effective program on rangelands to provide a wide variety of benefits including forage for livestock, wildlife, diversity of plant and animal communities, and high quality water yield.

- Manage fish and wildlife habitat to insure all native species maintain adequate population levels and distribution in order to provide for their continued existence.

- Manage riparian zones to maintain a natural appearance, and to sustain habitat for wildlife and fish.

- Encourage and facilitate the orderly exploration, development, and production of mineral and energy resources.

- Continue to inform the general public as to the nature of the Forest Service mission.

Preparation of the Forest Plan is required by the Forest and Rangeland Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act (NFMA). Assessment of its environmental impacts is required by the National Environmental Policy Act (NEPA) and the implementing regulations of NFMA per Title 36 Code of Federal Regulations 219 (36 CFR 219).

C. FOREST PLAN IMPLEMENTATION PROCESS

This Plan has been approved by the Regional Forester. The Plan Standards and Guidelines will be implemented immediately. The implementation of program levels different from current levels will probably begin in FY

1989. Subject to valid existing rights, all outstanding and future permits and contracts will be brought into compliance as soon as practicable.

D. RELATIONSHIP OF THE FOREST PLAN TO OTHER PLANS

Development of a Forest Plan occurs within the framework of Forest Service regional and national planning. The RPA Program sets the national direction and output levels for National Forest system lands based on suitability and capability information from each Forest Service Region. Each Region disaggregates its share of the national production levels to the Forests of the Region. This disaggregation is based on the detailed site-specific information gathered at the Forest level.

Each Forest Plan, in turn, validates or provides a basis for changing the production levels assigned by the Regional Forester. Activities and/or projects are planned and implemented by the Forest to carry out the direction developed in the Forest Plan.

E. FOREST PLAN AMENDMENTS, REVISIONS AND APPEAL RIGHTS

The following excerpt from NFMA 36 CFR 219.10(d) provides a complete discussion of the concept of public appeal of the Plan approval decision:

> The provisions of 36 CFR 211, subpart B (Appeal of Decisions Concerning the National Forest System) apply to any administrative appeal of the Regional Forester's decision to approve a Forest Plan. Decisions to disapprove a Plan and other decisions made during the Forest planning process prior to the issuance of a Record of Decision approving the Plan are not subject to administrative appeal.

F. ORGANIZATION OF THE FOREST PLAN

The Forest Plan document is composed of several parts. Chapter 2 displays the issues, concerns and opportunities addressed by the Plan. Chapter 3 presents a summary of the management situation for economic, social, and resource elements. Chapter 4 contains the main body of Management Direction. Included are: Forest goals; Forest-wide Standards and Guidelines that collectively define where the Forest is headed over the planning period; practices, standards, and guidelines for specific areas of land; and, schedules of outputs and activities. Collectively they are the management area direction which ties directly to the management area map and the land areas represented. Chapter 5 of the Forest Plan contains the monitoring and evaluation requirements that provide checks and balances to ensure successful Plan implementation.

The analysis that supports the decision made in the Forest Plan is contained in the accompanying Final Environmental Impact Statement (FEIS). Therefore, the Forest Plan and the FEIS are combined documents; neither is complete in itself. The FEIS describes the alternative plans considered and the selected Forest Plan. It also assesses the environmental effects of implementing the Plan and the alternatives considered.

The FEIS prepared for the Forest Plan will be used as a tiered Environmental Impact Statement (40 CFR 1508.21). All environmental analyses for project implementation will use the Forest Plan direction as an umbrella. Additional detail may be required in the environmental analyses for project level decisions. Environmental assessments and decision notices will be tiered from the Forest Plan Environmental Impact Statement.

G. LOCATION

The Sequoia NF is located at the southernmost end of the Sierra Nevada range of California within Tulare (62%), Kern (26%) and Fresno (12%) Counties. Several small communities are located within the Forest boundary. The Forest lies between the Los Angeles Basin and the San Francisco Bay population centers, with driving times to the Forest ranging from 3-1/2 to 5 hours, respectively (Figure 1.1).

Within the Forest boundary, there are 1,119,045 acres of National Forest System land and 54,155 acres of other ownerships (private, county, state, etc.) (Figure 1.2). This Plan establishes direction only for National Forest System land and not for other ownerships.

FIG. 1.1

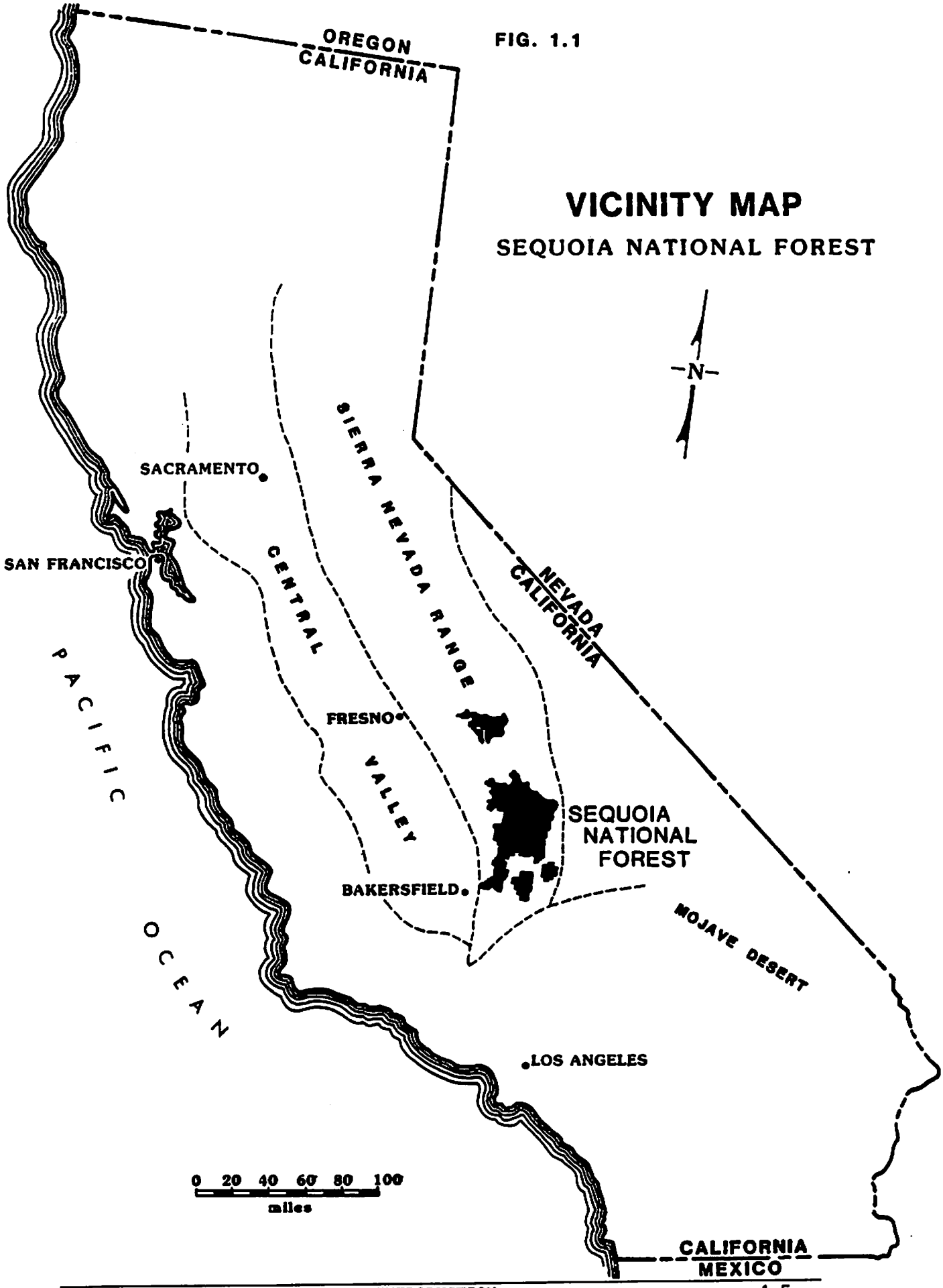
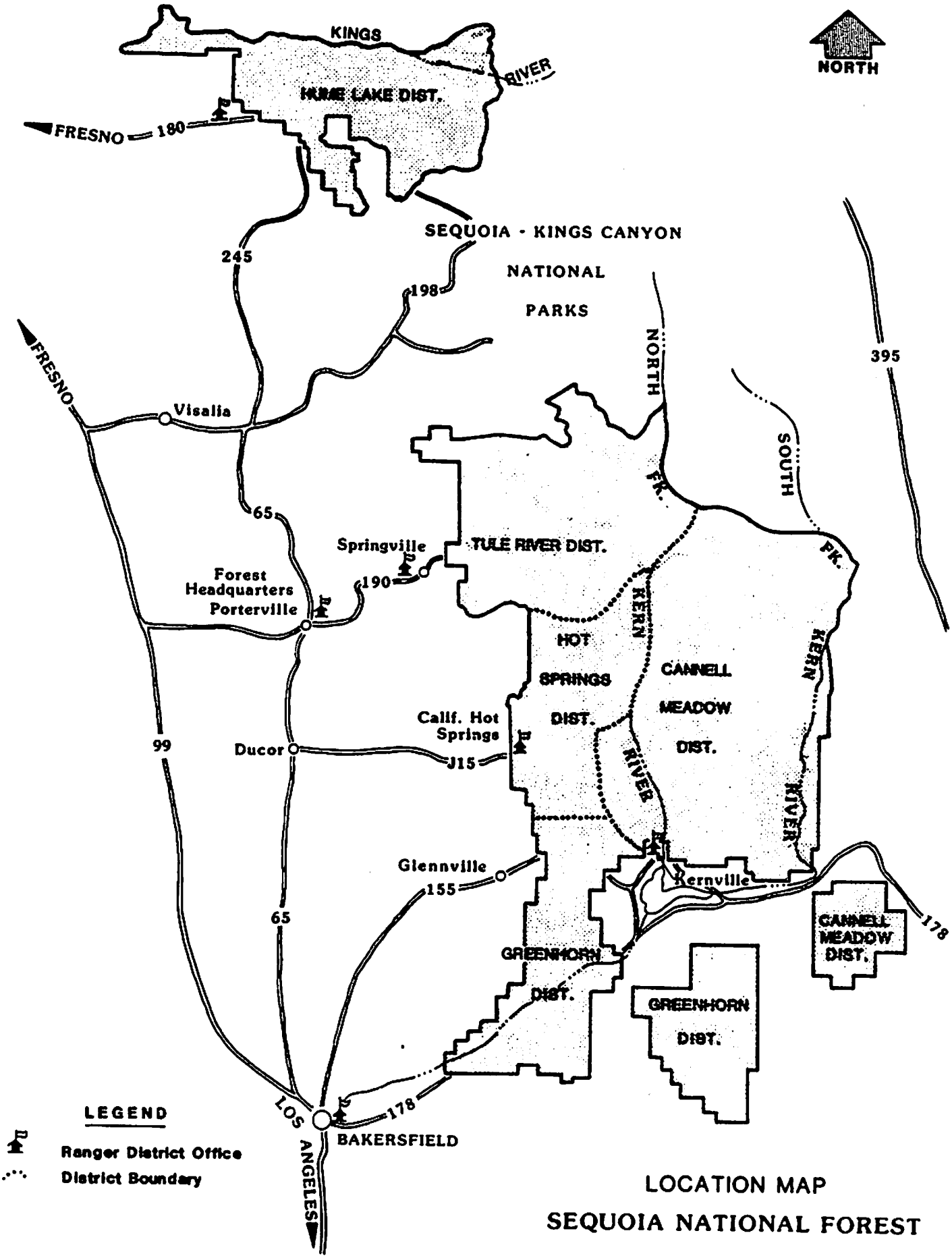
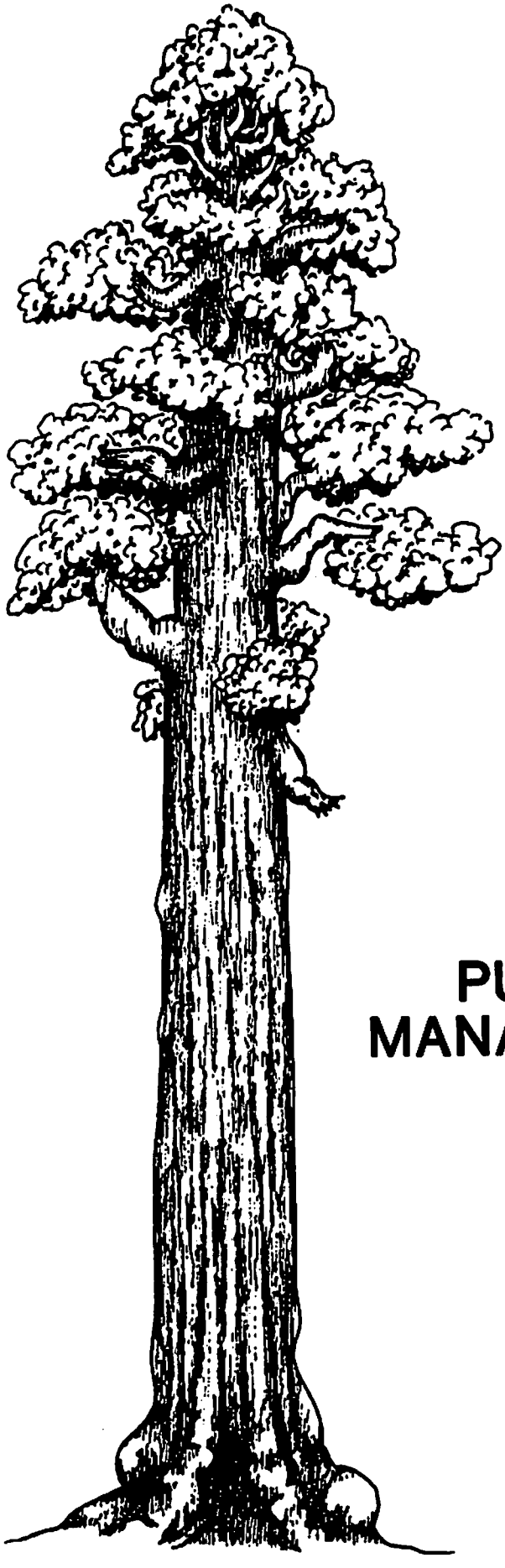

OREGON
CALIFORNIA
VICINITY MAP
SEQUOIA NATIONAL FOREST
N
SACRAMENTO
SIERRA NEVADA RANGE
SAN FRANCISCO
CENTRAL
NEVADA
CALIFORNIA
PACIFIC
FRESNO
VALLEY
SEQUOIA
NATIONAL
FOREST
BAKERSFIELD
MOJAVE DESERT
OCEAN
LOS ANGELES
0 20 40 60 80 100
miles
CALIFORNIA
MEXICO

FIG. 1.2



LOCATION MAP
SEQUOIA NATIONAL FOREST



Chapter 2

PUBLIC ISSUES AND MANAGEMENT CONCERNS

CHAPTER 2
PUBLIC ISSUES AND MANAGEMENT CONCERNS

The final list of public issues, and their level of resolution are displayed here. Information describing the scoping process and how the issues and management concerns were identified is located in Chapter 1, Section C of the Final Environmental Impact Statement. The details of the public comment on the Draft Plan and DEIS are in the Final EIS Appendix N.

Public issues and their resolutions are displayed below in two groups. The first is the initial set of issues developed through the scoping process. The second is the set of major issues developed during the public review period. While there is considerable overlap, several new issues surfaced during this time. For reader convenience, the initial set of issues are identified with Roman numerals; the second set, with Arabic numerals.

A. SCOPING ISSUES

I. WILDERNESS MANAGEMENT

Issue: How should designated wilderness be managed?

Existing wilderness management plans (Dome Land and Golden Trout) will continue to be implemented. New wilderness management plans will be prepared for wildernesses designated in 1984, (South Sierra, Jennie Lakes, and Monarch) following the NEPA process. The existing management plan for the Dome Land Wilderness will be implemented until updated to reflect changes resulting from the 1984 addition. Prescribed fire will be used in all wildernesses to enhance wilderness values by maintaining long-term plant diversity. Planned and/or unplanned ignition will be used.

II. RARE II FURTHER PLANNING AREAS[1]

Issue: How should Further Planning Areas be allocated and managed?

This plan recommends no Forest Further Planning Areas for wilderness.

Kings River Wild and Scenic River legislation enacted in November 1987, included the Kings River Further Planning Area as a Special Management Area (SMA). Direction for management will be contained in a SMA plan to be prepared.

Other Further Planning Areas will be managed for non-wilderness uses. Specific management is specified in this Plan. To maintain adjacent

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[1]Wording adjusted to be consistent with the California Wilderness Act of 1984.

lands complementary to wilderness management, the Sirretta Peak area will be managed under a Semi-primitive Non-motorized ROS classification and excluded from the timber management to meet other Forest Plan objectives.

A. How can we best coordinate allocation of Further Planning Areas with other Federal and State agencies owning adjacent lands?

Allocations of Further Planning Areas were made after considering adjacent areas in other ownerships during planning.

B. What resource trade-offs will be considered in allocating Further Planning Areas to wilderness or non-wilderness?

The resources considered in allocating Further Planning Areas are shown in the Environmental Consequences Section (Chapter 4) of the EIS.

C. With respect to each of the Further Planning Areas, what is the appropriate balance of wilderness and non-wilderness?

The wilderness recommendation and non-wilderness allocations are described under the Wilderness Issue above. Overall, 24 percent of the Forest Land Base is classified as wilderness as a result of the 1984 actions.

III. LAND OWNERSHIP ADJUSTMENT

Issue: What should be Sequoia National Forest System land ownership adjustment policy regarding adjacent lands?

Some private lands within the Forest boundary - which are located in areas where timber, range or recreation management are being emphasized - will be acquired if they become available.

A. What are the priority considerations for exchange or purchase?

Priority will be given to those land adjustments that best support the management emphasis for the area.

IV. WATER

Issue: What management practices should be undertaken to adjust quantity, quality, and timing of water yield and uses within the Sequoia NF?

Standards and Guidelines provide necessary protection to maintain water quality. The quantity and timing is influenced by vegetative treatments which are specified in this Plan.

A. How can the Sequoia NF coordinate with others to insure that impacts are evaluated on a total watershed basis?

Managing activities on National Forest System lands provide the needed control since there are very few parcels of other ownership lands within the Forest boundary. Standards and Guidelines limit the acres treated per decade and provide the needed protection against unacceptable impacts.

B. To what extent should the Forest attempt to produce water to meet the needs of downstream users?

The amount of water produced by the Forest is specified in the FEIS Chapter 7, Appendix F. Administrative studies on small watersheds will evaluate water yield improvement in cooperation with other agencies.

C. What areas are available/suitable for storage in the future? What resource gains and losses are involved at any new storage sites?

Potential known storage sites are discussed in the Affected Environment in the FEIS, the Water Analysis of the Management Situation (AMS), and Wild and Scenic Rivers AMS. The evaluation of project sites will be completed if and when they are proposed for development by following the NEPA process.

D. How should sediment-causing activities be modified to minimize adverse impacts?

Through riparian and meadow guidelines, Best Management Practices, and other management direction, activities will be modified so the impacts will be acceptable. Specifically, activities in Streamside Management Zones have special requirements to protect soil, water, and vegetation.

E. What methods should be used to adjust quantity and adjust timing of runoff?

Timber harvest practices and other vegetation treatment which can effect quantity and timing are described in this Plan in Chapter 4. Administrative studies on small watersheds will evaluate water yield improvement.

F. What are the trade-offs involved in adjusting water quality and quantity?

Environmental trade-offs including economics were a part of the analysis process for all alternatives. The results for the Preferred Alternative are displayed in this Plan in Chapter 4.

G. What should the Sequoia NF's water management policy be with regard to consumptive and nonconsumptive water use?

According to the Regional Guide, balanced consideration is to be given to conflicts between consumptive and nonconsumptive use of additional water, while ensuring that irreversible and irretrievable impacts to consumptive and nonconsumptive uses will not occur.

H. What efforts should be made to repair damaged watersheds?

About 1,400 acres will be treated in the first decade to improve and maintain soil productivity and water quality. In addition, 20,000 acres will be inventoried to update Watershed Improvement Needs inventory and to determine cause and effect relationships.

V. RECREATION

Issue: What types of recreation and interpretive services opportunities should be provided, and where? What special area classifications should be proposed?

Resolution of the issue is described below.

A. What is the present and future demand for various recreation activities and facilities? What portion of this demand should the Forest satisfy?

The present and future demands for recreation are described in the Recreation AMS (Plan Chapter 3 under Recreation). The amount and type of recreation activities to be provided are specified in this Plan in Chapter 4.

B. How can recreation user conflicts be minimized?

Recreation user conflicts are described in the EIS Affected Environment (Chapter 3). The management which reduces these conflicts is contained in this Plan (Chapter 4). Conflicts between user groups will be minimized by a variety of management actions, including emphasis on user education, separation of uses and requiring permits to control amount of use.

C. How should recreation use be managed to protect other resource values?

Recreation Standards and Guidelines provide protection, as well as the use of management plans which are developed after considering other resource values. Examples include plans for off-highway vehicles (OHV's), Pacific Crest Trail (PCT), whitewater floating, and trails.

D. How should recreation activities be coordinated with other public agencies?

Recreation activities are coordinated with other agencies by consulting them when they could be affected. The NEPA process requires this coordination for project proposals.

E. How should dispersed recreation be managed?

The way that dispersed recreation will be managed is described in detail in this Plan (Chapter 4). Generally, recreation opportunities will be managed within the parameters established by Recreation Opportunity Spectrum classes with the more intense and potentially more

impacting activities controlled by plans or permits. Other uses which have less potential for adverse impacts are controlled very little.

F. What kinds of Visitor Interpretive Service facilities and programs are needed? Where will they be located to best serve Forest users?

Facilities which emphasize self-service will be maintained at a high level. Other facilities (such as interpretive trails, self-guided auto tours, and interpretive signs) will be provided at a moderate level. Locations of facilities will be determined on a project basis after following the NEPA process.

G. How can recreation use by the handicapped and elderly best be encouraged in developed sites and in dispersed areas and trails?

Handicapped and elderly day-use opportunities are emphasized under this Plan. During construction, rehabilitation and/or reconstruction of facilities, handicapped and elderly standards will be incorporated where practical. Additionally, barrier-free interpretive trails would be constructed at locations such as Indian Basin (Hume Lake District) and Redwood Campground (Hot Springs District).

H. Where should Special Interest Areas be recommended for classification? Where should other special designations be proposed?

The Ernest C. Twisselmann, Bald Mountain, Slate Mountain, Baker Point and Inspiration Point Botanical Areas are established.

Three Research Natural Areas (RNA's) are recommended to the Chief of the Forest Service for his approval. These represent outstanding examples of the giant sequoia, red fir and Jeffrey pine elements and will encourage research opportunities. A fourth potential RNA, representing a conifer woodland element is recommended for review by the Regional Committee.

In cooperation with the National Park Service, the Forest will conduct on-site National Natural Landmark evaluation studies on six areas for possible recommendation for establishment. (These are Moses Mountain, Long Canyon, Bald Mountain, Sirretta Peak, Inspiration Point and the Bodfish Piute Cypress Grove.)

I. Which potential alpine ski sites (including expansion sites) should be allocated for possible future development? What should be the priority and timing?

Shirley Meadow Ski Area (with expansion) will continue to provide skiing. Development of the Peppermint Ski Area will be pursued as detailed in the Final Environmental Impact Statement.

The feasibility of constructing either Mitchell-Maddox or Sherman Pass Ski Areas will be studied with potential development of one in decade two (with expansion in decade three). Both areas will be managed to maintain options for future development.

VI. OFF-HIGHWAY VEHICLES [2]

Issue: How should off-highway vehicles (OHV's) be managed?

Wheeled off-highway vehicle use of the Forest is allowed only on designated roads and trails. OHV use is described in detail in the Plan and shown on the OHV map. All routes are subject to seasonal closures to avoid physical damage and to avoid conflicts with wildlife or other uses. Designated wildernesses and the Pacific Crest Trail are closed to OHV use.

A. What is the present and future demand for various OHV uses? What portion of this demand should the Forest satisfy, and where?

Recreation demand is described in the Recreation AMS (Plan Chapter 3 under Recreation).

B. How should conflicts between OHV's and other Forest activities be managed?

The direction for management of OHV's is described in Chapter 4. Methods used to reduce conflicts with wildlife and other users, and to minimize resource disturbance are described including development of a comprehensive Forest-wide Trails Management Plan.

VII. TIMBER

Issue: How much timber should be harvested, and where?

The amount and location of timber harvest is described in this Plan (Chapter 4 and Appendix C).

A. How should lands capable of producing commercial timber be managed?

The way that commercial timber lands will be managed is described in this Plan (Chapter 4 and Appendix C). The modeling process is described in Appendix B of the EIS. The planning process follows the NEPA Planning Process.

B. How will timber harvest conflicts with other resources be minimized?

The way that timber will be harvested to reduce other resource conflicts is described in this Plan (Standards and Guidelines and other management direction) in Chapter 4.

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[2] Wording adjusted to be consistent with the State of California Vehicle code. Off-highway vehicles are commonly called off-road vehicles.

VIII. GIANT SEQUOIA

Issue: How should giant sequoia (Sierra redwoods) and associated species be managed?

A giant sequoia grove management implementation plan will be prepared. Except for emergency rehabilitation due to catastrophic events, no new timber harvesting activities affecting giant sequoia groves will be undertaken until the plan is completed. An environmental assessment will be prepared for this Plan. Giant sequoia specimen trees will not be harvested. Management of the groves will be under three management schemes. These management schemes are: Preservation, Non-intensive and Intensive. Estimated allocations are displayed in chapter 4 of this Plan.

A. What management practices should be used?

The management practices which will be used are those available for other species. The practices used in a specific location will be determined by the management emphasis for each grove. A plan specifying management emphasis for each grove will be completed within the Plan period.

IX. FISH AND WILDLIFE

Issue: What kinds and amounts of fish and wildlife habitat should be provided?

See answers to questions below.

A. What areas of what size should be managed for threatened, endangered, and sensitive fish, wildlife and plant species?

The direction for management and protection of threatened, endangered and sensitive fish, wildlife and plant species is contained in this Plan, specifically in the Forest-wide Standards and Guidelines, the descriptions of Management Indicator Species, and in the Little Kern Golden Trout Management Plan. Habitat will be managed for at least one pair of condors and 40 pairs of spotted owls. Four superior nest sites will be maintained for peregrine falcons. Recovery and/or management plans will be followed for managing these species. The amount and location of habitat managed for spotted owls may change as a result of inventories monitoring, studies and research.

B. What areas of what size should be managed as special wildlife habitat for harvest species?

About 10,000 acres of chaparral will be burned in the first decade for deer habitat improvement. Water developments will be installed on a continuing basis for upland game and deer. Management will include road closures, both seasonal and permanent, as needed to reduce disturbance to wildlife. Areas identified in deer management plans as

key or special habitat will also receive appropriate management considerations.

C. How should fish habitat be managed?

Forest Riparian Guidelines, Sale Area Improvement, and the WIN program will be utilized to restore and enhance fisheries habitat through implementation of "Rise to the Future", an action plan for the National Forest fisheries program. Streamside Management Zones emphasize activities which maintain both fish and wildlife habitat for riparian dependent species. The Little Kern Golden Trout Management Plan will continue to be implemented for the restoration and enhancement of habitat for this species.

D. What resource trade-offs will be necessary to manage fish and wildlife habitat?

The resource trade-offs involved in managing fish and wildlife habitat in different ways was analyzed and displayed in the FEIS for each alternative. The results for the Plan are described in Chapter 4.

E. What opportunities exist to improve fish and wildlife habitat through the use of resource management practices?

Opportunities for direct fisheries habitat improvement occur under the guidance of the Little Kern Golden Trout Management Plan. Indirect fisheries habitat improvements will be accomplished through Sale Area Improvement funds from timber sales, meadow restoration projects, implementation of Riparian Area Management Guidelines, and coordination between resource specialists and other involved agencies. Wildlife habitat will be improved by prescribed burning of chaparral, silvicultural practices, maintenance of prescribed levels of hardwoods, snags and downed logs, installation of wildlife guzzlers, increased protection of valuable habitat types such as riparian areas, and improved coordination with the California Department of Fish and Game.

F. What should be the habitat management balance between harvest and non-harvest species?

Harvest species management is explained in IX. B. of this section. Management for non-harvest species will emphasize maintenance of viable population levels. Improvements in habitat will be induced from vegetative manipulation projects. Approximately 66,000 acres will be managed for spotted owl habitat according to Region 5 direction which provides a range of management alternatives. The Sequoia National Forest has chosen the "No Scheduled Timber Harvest" prescription which provides 1,000 acres of habitat per area plus approximately 650 acres of replacement habitat. A network of 40 Spotted Owl Habitat Areas has been established.

X. ROADS AND TRAILS

Issue: How should roads and trails be managed and maintained in the Forest?

The response to the questions below describes the way the issue is addressed.

A. How can Forest roads be maintained and managed to meet both the administrative needs of the Forest Service and the needs of the Forest user?

The road system will be managed to assure resource protection, provide access for public use, and resource management. Arterials and high volume collector roads will be maintained for user comfort. Passenger cars will be discouraged on collector roads with low traffic volumes. About 1,750 total miles of road will exist at the end of the first decade.

B. Under what conditions should roads be opened or closed to public use?

Roads will be closed to avoid resource damage, to protect the investment, and to save maintenance costs. About 47 percent of the roads will be open in the first decade.

C. How can roads be managed to protect other resources?

Road closure, proper maintenance, road barriers, and signs are all tools to manage for resource protection. Road closure can be used to prohibit access when mechanized equipment directly impacts a resource or when mechanized equipment threatens sensitive resources. Proper maintenance can provide a road surface that prevents erosion. Road barriers can discourage traffic to acceptable levels. Signs or absence of signs can also aid in traffic control.

D. How can the Forest trail system be maintained and managed to meet both the administrative needs of the Forest and the needs of the Forest user?

Trails will be maintained to prescribed maintenance standards. Reconstruction and maintenance will be emphasized. About 50 percent of the existing trail system will be rehabilitated or reconstructed in the first decade. Reconstruction will be done to alleviate resource damage. A comprehensive Forest-wide Trails Management Plan will be developed.

XI. ENERGY

Issue: Where and to what degree should we manage for new energy production?

The opportunities for energy production are described in the Energy AMS (Chapter 3 of this Plan). Significant increase in energy production is not anticipated in the next 10 years.

A. What types of energy production and conservation practices are feasible?

The description of feasible production and conservation practices are described in the Energy Analysis Management Situation (AMS).

B. What resource trade-offs will be necessary for energy production?

Energy production opportunities are described in the Energy AMS. If an energy proposal is received, it will be evaluated by following the NEPA process. A part of that process requires a description of the environmental consequences and could trigger a plan revision or modification.

C. What are the demands for energy production from the Sequoia NF? What portion of the energy demand will be fulfilled?

Energy opportunities and demand are described in the AMS. New energy production is not anticipated in the next 10 years, except for firewood use and possibly a few small hydroelectric power projects.

XII. GRAZING

Issue: How should the Sequoia NF manage its rangeland and forage areas?

The response to the questions below describes the way the issue is addressed.

A. What resource trade-offs and costs are involved in management of the range resource?

The costs of range management are described in the Range AMS (Chapter 3 of this Plan). The trade-offs and benefits from 69,000 Animal Unit Months (AUM) per year during the first decade are described by the Plan.

B. How should meadows used by livestock be managed?

The management of meadows is specified by Forest-wide Standards and Guidelines contained in this Plan and by allotment plans. These areas will be managed to protect water quality for downstream users as well as for fish and wildlife habitat.

C. What is the livestock carrying capacity by vegetation type?

The livestock carrying capacity by vegetation type is contained in the Range AMS and Table 3.18 of the FEIS.

D. What are the opportunities to increase livestock carrying capacity on the Sequoia NF? What methods should be used?

The opportunities to increase livestock carrying capacity, and the methods to be used are described in the Range AMS. The use of chaparral range will continue with a slight upward trend.

XIII. RIPARIAN

Issue: How should the Forest manage its streams and wetlands?

The answer to the questions below describes the way this issue was addressed.

A. How will streamside zones be defined?

Streamside Management Zones include land beyond the riparian area which is managed to protect the riparian areas and water quality. Their management is discussed in Chapter 4 of this Plan.

B. What uses and activities will be allowed in riparian zones?

The management objective for riparian areas is to protect stream courses and adjacent vegetation to maintain or improve wildlife and fish habitat, water quality, and recreational opportunity. Timber harvest and development of trails and roads are limited but not excluded. Forest Riparian Guidelines are utilized to limit effects of non-riparian dependent activities.

C. What are the trade-offs between stream and wetland protection and the production of goods and services?

Riparian areas are one of the most sensitive and valuable habitats. These areas are protected to maintain water quality for downstream users as well as for wildlife and fish habitat. These areas are essential in maintenance of the species diversity found on the Sequoia National Forest. The trade-offs for protection of this diversity is in increased costs for management activities, such as livestock grazing and timber harvest, and in the economic loss of reduced volume for timber harvest. Value of the timber for wildlife, aesthetics, and recreational opportunity is retained.

XIV. DIVERSITY

Issue: What is the desirable level of plant and animal diversity that the Forest should establish?

The response to the questions below describes the way this issue is addressed.

A. What management activities should be used to maintain or create diversity?

Diversity on the Forest is maintained or enhanced by preservation of unique or critical habitats and by the management of vegetation types to provide distribution and balance of habitat over time and geographic area.

Timber harvest and prescribed burning are the primary tools that will be used to affect both vegetative and biological diversity. Forest and rangeland management creates a mosiac of age classes and seral stages which will provide for more diversity and species richness within the managed area. This can result in a broad range of species populations that will produce a much more stable ecosystem. Other management activities such as riparian management, and implementation of management plans for Spotted Owl Habitat Areas and wilderness also help to assure species richness and diversity throughout the entire Forest.

B. How much vegetation change should occur, and where, during the 10-year planning period?

Approximately 70 percent of the Forest is in mature seral types. In the chaparral, 11,000 acres will be treated during the first decade to increase diversity. With natural and prescribed fire, the Forest objective is to maintain 35 percent of the chaparral in young seral stage, 35 percent in middle, and 30 percent in older mature seral stage.

About 2,600 acres of timber land will have a regeneration harvest per year. This will result in an increase in biological diversity as areas of younger seral stage habitat are created to balance areas preserved for mature seral stages.

C. How much old growth timber should be maintained, and where? How should it be managed?

About 374,000 acres of mature to overmature timber will remain on the Forest. Approximately one-half of this acreage will be in wilderness. The remaining acres will be distributed over the rest of the conifer zone, especially in Streamside Management Zones, giant sequoia groves, Retention and Partial Retention VQO zones, and Spotted Owl Habitat Areas.

B. PUBLIC REVIEW ISSUES

1. BUDGET

Issue: Is there too great a discrepancy between current and projected budget levels required to implement the Preferred Alternative (PRF)? Will substanially lower budgets substantially change resource programs and their priorities?

This is a Region-wide issue. The Forest Land Management Plan describes the general allocation of land, outputs, standards and guidelines. These will be implemented subject to the annual budget level.

Priorities will be determined each year by the Forest Supervisor in consultation with the Regional Forester. Appendix L to the EIS explains the budget process and priorities. Included in the discussion is information on outside funding sources (e.g., State cooperative funds, volunteers) and an illustration of the budget process drawn from the FY 1985-1986 budget. Plan implementation will focus on MMR's, MIR's, and Standards and Guidelines being met, and will distinguish among the three types of requirements by identifying actions necessary to:

1) maintain a steady state;

2) mitigate for management activities; and

3) undertake enhancements.

2. CLEARCUTTING

Issue: How should the silvicultural practice of clearcutting be applied on the Forest? Should the total number of acres clearcut be reduced?

Please see Issue VII. TIMBER for resolution of these questions.

3. FISH AND WILDLIFE

Issue: Will the management of Fish and Wildlife habitat be adequate in light of increases in Forest uses?

Please see Issue IX. FISH AND WILDLIFE for resolution of this question.

4. GIANT SEQUOIA

Issue: What should be the objectives and intensities of management activities in giant sequoia groves?

Please see Issue VII. GIANT SEQUOIA for resolution of this question.

5. OHV's

Issue: How much and where should OHV use occur?

Please see Issue VI. OFF-HIGHWAY VEHICLES for resolution of this question.

6. PESTICIDES

Issue: Are pesticides necessary to ensure long-term sustained yield? Are they safe?

The Management Team recognized these are Regional issues beyond the scope of the Forest Plan. They are currently being addressed in a Regional EIS. An additional complication is the recent California initiative, Proposition 65, that could affect the use of many pesticides. There has been information on this matter inserted in various parts of the Plan and FEIS.

The Forest will comply with direction given by the Region.

7. ROADS

Issue: Road Construction - What are the road needs for use of Forest resources?

This Plan contains additional discussion explaining how road needs are determined and their relationship to resource management objectives (See Chapter 3). Additionally, the Standards and Guidelines have been expanded to include recreation emphasis/objectives along with other resources and economics as factors in road design and management objectives (see Chapter 4).

Issue: Road Closure - What are the situations, if any, for road closure?

Please see Issue X. ROADS AND TRAILS for resolution of this issue.

8. TRAILS

Issue: Do the DEIS and Plan have enough emphasis on the total trail system, including construction and trail maintenance?

Please see Issue X. ROADS AND TRAILS for resolution of this question.

9. VISUAL RESOURCES

Issue: How can management practices best maintain visual resources, especially in areas of high visual interest?

Please see Issue VII. TIMBER for resolution of this question.

10. VOLUME OF HARVEST

Issue: What should the Allowable Sale Quantity (ASQ) be for the Forest?

Please see Issue VII. TIMBER for resolution of this question.

11. WILD AND SCENIC RIVERS - KINGS RIVER

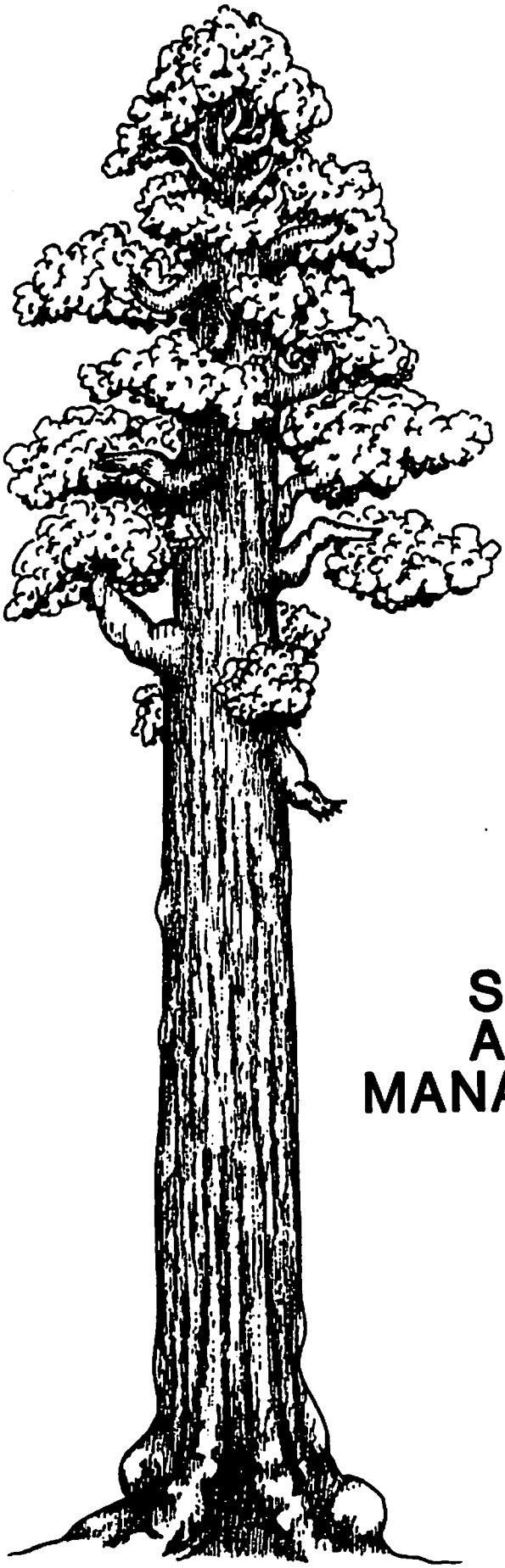
Issue: Should Segment 1 of the Kings River receive a recommendation for Wild and Scenic River classification?

Enactment of Kings River Wild and Scenic River Legislation in November 1987, included this segment of river within a special management area. This Legislation was specific in not designating this portion of the river as Wild and Scenic rather, future direction will be established in a management plan to be developed.

12. WILDERNESS

Issue: What are the recommendations for wilderness classification?

Please see Issue II. FURTHER PLANNING AREAS for resolution of this question.



Chapter 3

SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

CHAPTER 3

ANALYSIS OF THE MANAGEMENT SITUATION - SUMMARY

A. INTRODUCTION

This chapter of the Plan presents summary statements for economic, social and resource elements. The summary statements for each resource or program area address: the existing situation; supply and demand situation focusing on past, current and future trends; how the Plan addresses production potentials; and how the Plan addresses resource uses and opportunities.

B. SOCIOECONOMIC ENVIRONMENT

1. Introduction

Generally a National Forest's immediate sphere of influence is defined as those counties within which the Forest lies. It is the residents of these counties that are most affected by Forest management activities in their daily lives. Although the Sequoia NF lies within Fresno, Kern, and Tulare Counties, only Kern and Tulare Counties are considered to be in the immediate sphere of influence. Only a small portion of the Sequoia NF, the Hume Lake District, is located in Fresno County. Although County residents make up a high percentage of users of the Hume Lake District, this is only a small portion of the Fresno County population. Relative to Sequoia and Kings Canyon National Parks and the Sierra National Forest, the Forest exerts negligible influence on the County. The only direct contribution to the County appears to be the Forest Reserve Funds. This is the only variable discussed below for Fresno County.

In addition to describing Kern and Tulare Counties as a whole, the foothill social groups within the three counties that are particularly affected by Forest management activities are described. These groups include the ranchers, retirees, working families, and second home owners in the foothill areas and the Kern River Valley adjacent to the Sequoia NF. Finally, the characteristics and concerns of several special populations potentially affected by Forest management activities are described.

2. Tulare County

a. Population

For over 30 years, the population of Tulare County has grown steadily from 149,000 in 1950 to 259,300 in 1982. Until the seventies the County's growth rate substantially lagged behind that of the State as a whole. During the seventies the State's growth rate decreased while Tulare County's doubled. In-migration from Southern California urban areas, and to a lesser extent from Fresno County and other states, is behind this spurt in the growth rate. These new residents are apparently attracted by a steadily diversifying economy, the slower paced lifestyle of a rural county, and relatively low housing prices.

Looking toward the future, Tulare County's population is expected to grow but at somewhat reduced rates. By 1990, the population is expected to reach 312,000 people; by 2000, 387,000 people.

b. Economic Base

Agriculture has been and remains the dominant sector of Tulare County's economy. Despite recent gains in manufacturing and services, Tulare County's economy is directly and indirectly tied to the growing, harvesting, processing, and distribution of agricultural commodities. For the last 20 years Tulare County has placed as one of the top three counties nationwide in agricultural output. Since 1979, the annual dollar value of agricultural output exceeded $1 billion.

For the present and looking toward the future, Tulare County's economy is expanding and diversifying. While agriculture will remain the dominant sector for some time, agricultural employment is decreasing both relatively and absolutely. In contrast, employment in the manufacturing, trade, and services sectors is increasing both relatively and absolutely. Looking to the future, these trends are expected to continue. Resource-based activities alone cannot support a growing population. For growth to continue, the diversification that began in the seventies must continue.

Employment and Unemployment

Over the 10-year period 1970 to 1980, the number of jobs in Tulare County rose from 83,000 to 107,300 (an increase of 29 pcercent). Unemployment rates have varied from 7.9 percent in 1976 to 8.3 percent in 1978. In 1980, unemployment stood at 8.0 percent, which is somewhat above the ratio for the state as a whole.

Assuming that present trends in economic growth and labor force participation continue, employment is expected to reach 118,600 to 124,800 in 1990, and 147,000 to 154,800 in the year 2000.

Local Dependence on Sequoia National Forest Timber

Employment in Tulare County's timber industry in 1979, the most recent year for which data are available, totalled 1,080 workers. Of these, 700 (or two-thirds of the total) worked in sawmills or planing mills. The rest were employed in logging camps and various wood manufacturing operations.

Tourism Related Employment

From 1978 to 1981, employment in tourism related businesses grew steadily. By 1981, 1,300 workers were employed in jobs directly related to tourism and recreation. Recreation related services alone grew 4.4 percent from 1981 to 1982. While tourism related employment is only about one percent of total County employment it is an expanding sector.

Forest Reserve Funds

In lieu of property taxes the Forest Service remits 25 percent of its receipts to counties within which National Forests are located. These

"25% Funds" must be evenly divided between roads and schools. Over the last five years, Tulare County's share has ranged from $500,000 to one million dollars averaging $715,000. Relative to the total road and school budgets, this is a very small amount. However, in this era of restricted budgets, the County feels that every source of revenue is important to County government.

c. Social Characteristics

Lifestyle

In Tulare County's urban and nonurban areas alike, there is a rural, outdoors orientation to work and leisure activities. Tulare County residents are not generally "uptown"; they prefer a simple life lived at a relatively slow pace and in some relation to the land. Open space and mountainous, scenic backdrops are taken for granted but greatly enhance community identity. During those times of year the mountains are visible, they are a directional point of reference as well as a scenic backdrop. Since the Sequoia NF is within a 1-1/2- to 2-hour drive of most residents of the county, the Forest affords many opportunities for use. For some ranchers in the foothills, the Sequoia assists directly in the continuance of their livelihood and lifestyle by providing forage.

Attitudes, Beliefs, Values

The values of Tulare County residents can be described as conservative in the best traditional sense. High value is placed on self-sufficiency even though many are on some form of public assistance. Economic growth and wise use of land - both public and private - are viewed as good for the County. Much effort has gone into insuring the productive status of prime farm lands and developing lands of marginal agricultural value for human habitation. The Rural Valley Lands Plan and Foothill Growth Management Plan are the tangible results of these efforts. The in-migration of urban residents with somewhat more preservationist attitudes toward development is only partly responsible for the existence of these policies and plans. It is mainly the long time residents that have pushed for responsible land use policies and have served on the planning committees that developed them.

3. Kern County

a. Population

Over the 20-year period 1960-1980, Kern County's population grew from 291,984 to 403,089 (an increase of 40 percent or 2 percent per year). Growth has been evenly divided between in-migration and natural increase. Both rate and pattern of growth are similar to those for the State as a whole. The county's population is expected to increase substantially, ranging from 476,900 to 595,000 by the year 2000. Because of its relative isolation from other centers of employment, Kern County's growth will depend primarily on development of new employment opportunities and, to a lesser degree, on the extent to which it becomes an attractive retirement community.

b. Economic Base

The economic base of Kern County, as measured by employment, has and will continue to center on agriculture, oil and gas production, and military bases. Compared to the State as a whole, employment in these sectors is and has been proportionately high. In contrast to the State as a whole, Kern County's trade and service sectors are relatively small. Analysis indicates that the County's economy is relatively stable and not undergoing any major structural change. Rather it appears to be increasing its competitive edge in its traditionally dominant basic industries. Over time, however, projected levels of growth cannot be supported by these industries alone. Continued growth will necessitate growth in the trade and service sectors as well as expansion of new manufacturing industries. Given proximity of raw materials, food processing and manufacture of petroleum products are logical future additions to the County economy.

Employment and Unemployment

Over the 10-year period 1972 to 1981, the number of jobs in Kern County increased 50 percent from 111,600 to 167,400 jobs. Over the same period, population increased only 40 percent. The increase in labor force participation rate is attributed to the entrance of more women and "baby boom" adults into the workforce. By the year 2000, assuming expected levels of economic and population growth and a similar rate of participation in the labor force, from 190,800 to 238,000 people will be employed in Kern County.

Over the 10-year period from 1972 to 1981, unemployment varied from 5.8 percent at the beginning of the period to 8.8 percent at the end (hitting a high of 9.3 percent during 1976 - a recession year). These rates are somewhat higher than those for the State as a whole. In recent recession years, however, Kern County has not been hit harder than the State as a whole.

Forest Reserve Funds

In lieu of property taxes, the Forest Service remits 25 percent of its receipts to counties within which National Forests are located. These "25 percent Funds" must be evenly divided between roads and schools. Over the last five years, Kern County's share has ranged from $189,000 to $470,000 averaging $285,000. Relative to total road and school budgets, this is a very small sum. However, in this time of restricted budgets, the County feels that every source of revenue is important to County Government.

c. Social Characteristics

The following social characteristics of Kern County residents are considered relevant to Forest Planning:

Lifestyle

Reflecting its relatively rural status, resource based economy, and the ready availability of outdoor recreation opportunities, many Kern County resident's lifestyle--both work and leisure aspects--is oriented toward the

outdoors. The Sequoia, being within a one- or two-hour drive for most residents, functions much as a regional park, providing a great deal of daytime recreation and some overnight opportunities for County residents. The Sequoia provides an increasing amount of firewood and a scenic backdrop for many as well. Additionally, the Sequoia assists the continuance of local ranching as a livelihood and lifestyle by providing livestock forage.

Attitudes, Beliefs and Values

Attitudes toward government regulation, growth and resource development, and proper uses of public land are central to understanding Kern County's culture and its relation to the Sequoia.

As a County, Kern County has resisted any but the most necessary government regulation. It has placed the protection of private property rights high on its list of principles. The County drafted its first zoning ordinance in 1957.

Though Kern County residents oppose what they see as unnecessary governmental intervention, government is sometimes seen as a positive tool that can better the quality of life. However, local control of local matters is all important; federal government policies and programs may be viewed with some suspicion. This suspicion may stem from the feeling that "the Feds" have no real, long-term interest in the community itself.

Generally, growth and development of land and natural resources are regarded as good for the County. Reflecting a positive attitude in these areas, County residents tend to look favorably on development of resources on public land and on the traditional concept of multiple-use. Residents value their communities and take responsibility for them. In almost all areas, rural and urban, the number of civic and service organizations is large. While these groups meet ambitious objectives for their communities, they also serve a social function.

4. Fresno County

In lieu of property taxes the Forest Service remits 25 percent of its receipts to counties within which National Forests are located. These "25% Funds" must be evenly divided between roads and schools. Over the past five years Fresno County's share has ranged from $81,825 to $213,055, averaging $126,930. Relative to total road and school budgets this is a very small amount. However, in this era of restricted revenue basis, the County feels that every source of revenue is important to County government.

5. Social Groups in Foothill Communities and Their Relation to the Sequoia National Forest

In order to round out the broad and largely statistical county profiles presented above, descriptions of social groups located in all three counties and particularly those affected by Forest management activities are presented below. These groups constitute the foothill communities adjacent to and along access routes into the Forest. They include communities along and near Highway 180 such as Dunlap; Springville, and

Camp Nelson in the Highway 190 corridor; California Hot Springs, Pine Flat, and Poso along County Road M56 and M9; Glennville and Alta Sierra along Highway 155; and the Kern River Valley communities. The Tule River Indian Reservation is also a foothill community but will be dealt with in a later section.

a. Social Groups in Foothill Communities

The lifestyle, values, and relationship to the Forest will be described separately for each major group in the foothill communities.

1) Ranchers

The institution central to ranching in the foothills is the family. Most ranch families have run cattle in the hills for generations. They feel tied to the land by long family histories as well as by the present day ranching operation. In some ways the ranch symbolizes the family. Keeping the ranch means keeping the family together. Keeping the family together on the land is requisite to maintaining the traditional ranching community held together by ties of kinship, friendship, and history, and perpetuated to maintain family ranching as a lifestyle. The traditional ranching community, however, is in a state of change.

Some ranchers are range permittees on the Sequoia NF. They have a direct economic interest in range management policies on the Forest. For most permittees, grazing cattle on the Forest makes the difference between barely breaking even and breaking even. For most, grazing cattle in the mountains is a part of their family history as well. Many feel as though the Forest were an extension of the home ranch. With this proprietary feeling comes concern and care for maintenance of resource integrity, especially range, watershed, and wildlife habitat. This concern is firmly founded on the concepts of productivity of Forest lands. However, "productivity" does not necessarily extend to increased recreational use. Many ranchers feel that more recreational useage can mean more difficulty for the range permittee. In addition, some permittees feel that while the Forest Service holds them to a proper standard of range resource management, a similar standard is not demanded of recreational users.

2) Retirees

People retire to the foothills for a tranquil, slow paced life in attractive natural surroundings. In the foothill communities, compared to the state as a whole, they also get housing at reasonable cost, an additional attraction to folks on fixed incomes. Some retirees become active in community affairs. Generally they are politically conservative.

Retirees relate to the Forest as a source of affordable energy (firewood), as a recreation opportunity, and as a scenic backdrop for the communities in which they live.

3) Working Families

Like retirees, families come to or stay in the foothills drawn by the natural environment and relaxed lifestyle. They choose the hills over an

urban area as a desirable place to raise children. To support their lifestyle, some commute to jobs in urban areas. Others are employed locally as ranch hands, construction workers, woods workers, or in such tourist oriented businesses as restaurants, lodges, and retail stores. Some are self-employed in various cottage or, home industries.

Like retirees, working families relate to the Forest as an important source of affordable energy in the form of firewood, as a recreation opportunity, and as a scenic backdrop for their communities.

4) Second Home Owners

Second home owners come to the foothills from both inside and outside of Kern, Tulare, and Fresno Counties. They generally do not work in the area nor are they especially active in local community affairs. They come to the hills for the beauty of the natural environment; they come to "drop out" of many community, familial and social ties. Some pick up those ties if they move to their second home after retirement. Second homeowners relate to the Forest mainly as a source of recreation opportunity and as a scenic backdrop.

b. Old Timers, Newcomers, and Foothill Community Cohesion

Cutting across all major social groups in the foothill communities is the old timer/newcomer split. The old time families from all the groups defined above have been in the hills for a generation or more and tend to share a slow growth, conservation oriented land ethic. Since they were "there first", they feel their vision of community should take precedence over that of the new people.

The values of newcomers, mostly from urban areas, tend in directions different from those of the old timers. Some newcomers are little more than land speculators following the influx of population into the foothills. They tend to pressure for accelerated residential and commercial growth, sometimes at the cost of existing community character. On the other hand, many of the people who have recently moved to the foothills are "urban refugees" looking for a nonurban environment in which to retire or establish a business and raise children. Although they generally desire a higher level of services, and although they may not be community action oriented; they see themselves as having a large interest in the preservation of the environmental and social values that drew them to the area in the first place.

These two new divergent concepts of community destiny have strained the old homogeneity of attitude toward growth as a relatively slow, organic process consistent with community character and values. In many foothill communities, the old timer/newcomer split, which in turn is divided between developer and preservationist, has led to higher levels of community conflict. Often this conflict must be arbitrated at the County level resulting in some loss of a sense of community autonomy.
These social changes are well launched in most foothill communities. Little in the way of Forest management activities will alter the direction of these changes. The rate of change, on the other hand, can be affected by varying levels of Forest management activities.

6. Special Populations

a. Native American Populations

1) Tule River Indian Reservation

The Tule Indian Council, representing the Tule River Indians, considers the watershed of the South Fork Tule River its sole link to the Sequoia National Forest. The South Fork of the Tule River drains much of the Reservation and is a major source of water. The Council's primary interest lies in maintaining the integrity of that watershed.

2) Tubatulabal Indian Group

Members of the Tubatulabal group are scattered from Bakersfield through the Kern River Valley and north toward Bishop. A number of sacred and burial sites are located within the Sequoia's boundaries. In addition, they look to the forest as a source of fish, meat, and on the east side, as a source of pinyon nuts.

3) Western Mono Indians

The Western Mono Indians have traditionally lived near the present town of Dunlap. They have also occupied portions of the Kings River drainage. Some members of this group have worked in logging operations; some in sawmills. Others see the Forest as a source of raw materials for such traditional activities as basketmaking. Currently, the western Mono people are pursuing Federal recognition of their tribal status.

4) Kawaiisu Indians

The Kawaiisu Indians represent a very small population of Native Americans whose traditional homeland is centered in Kelso Canyon, Walker Basin, and at Lorraine. As with other local native groups, the Forest represents a source of both traditional foods and employment.

b. Hispanic Americans

In Tulare and Kern Counties, the Hispanic population comprises a significant proportion of those counties' population (30 percent and 22 percent, respectively). Most are of Mexican background. Seventy to eighty percent speak English well. Educational attainment lags that of the counties as a whole. In Tulare and Kern Counties (57 percent and 63 percent, respectively) have at least high school educations. The corresponding figures for the Hispanic populations in these two counties are 20 and 32 percent. Mean family incomes are somewhat lower as well. While the county-wide family income figures for Tulare and Kern Counties are $20,051 and $22,069, the corresponding figures for the Hispanic populations are $14,055 and $16,164, respectively.
While some Hispanics recreate in dispersed areas, most choose developed picnic sites along Highways 190 and 178 and above Kernville on the Kern River, that is, mainly the sites in the most accessible regions of the "front country". Most recreate in large extended family groups or as

members of large groups of young people. The purpose is just to get out, socialize, and share a picnic.

c. Residents of Porterville State Hospital

Porterville State Hospital is a long term care and treatment facility for the developmentally disabled who are mentally retarded. Although residents come from all over the State, most are from the 20 central California counties. The hospital accommodates about 1,600 residents served by a similar number of employees. While the age of residents ranges from several months to 80 years, most are under 25. Virtually all residents are moderately to profoundly retarded with over 70 percent in the latter category.

Of the theraputic services available to residents, Diversional/Leisure Services periodically offers trips to the Forest. At this time an average of about 20 to 30 residents per week are taken on day trips to Coffee Camp. During the summer from 80 to 100 residents recreate there. Also, once a week during the winter months, residents are bused to the Quaking Aspen area for snow play activities. About 15 residents at a time participate in these trips. The staff feels these trips are very good for the residents. They cite no conflicts or problems with other user groups. Parking during the winter is the only problem identified.

C. RESOURCE ELEMENTS

1. Air Quality

Air quality has been deteriorating in the San Joaquin Valley and Planning Area since the 1940's. In addition to pollutants produced locally, the region is subject to those generated primarily in the San Francisco Bay Area and transported southeast by the prevailing winds. Strong upcanyon winds draw the pollutants into the Sierra.

The Clean Air Act mandates that Federal land managers have the responsibility to protect the air quality related values of Class I areas. The Dome Land Wilderness is the only Class I area on the Sequoia NF. The basin-like character of the Dome Land could be a potential collector for pollutants. The Sequoia NF will take an active role in addressing impacts from proposed facilities outside the Forest and manage internal activities to assure the protection of air quality. In response to the accountability mandated by the Clean Air Act, it will be necessary to monitor visibility in the Dome Land and identify sensitive indicators to high pollution concentrations.

2. Cultural Resources

The lands of the Sequoia NF are rich from a cultural resource standpoint and of interest to a wide segment of people. As documented in the Cultural Resources Overview of the Southern Sierra Nevada (1984), the Forest occupies transition zones between desert cultures to the east and Central Valley cultures to the west. Yokuts, Kawaiisu, Tubatulabal, and Mono Indian groups all utilized portions of the Forest. In historic times,

large scale redwood logging, gold mining, ranching, and farming brought new settlers into this area.

Three types of cultural and historical resources are represented in the Planning Area. One group is prehistoric and historic Native American properties. These include lithic scatters, food processing sites with midden, lithic material or bedrock mortars, rock art sites, and quarries.

Another group is related to the practice of Indian religion. These may or may not include tangible remains. Native Americans continue to receive permits for collecting foodstuffs and performing traditional ceremonies on public lands.

The third group is historic properties including old Forest Service administrative sites, log cabins, lookouts, mining sites, remains of railroad logging, or old homestead properties.

Objectives for the Cultural Resources Management (CRM) Program are contained in Forest Service Manuals. The focus of these objectives is development and implementation of a long-term program to inventory, evaluate, protect, and enhance cultural resources on National Forest System lands.

The current Cultural Resources Management Program on the Forest is the carrying out of inventories and evaluations of significance in accordance with the 36 CFR 800 process prior to initiation of project actions. The current program is not a comprehensive program which would also involve protection, interpretation, ethnography and history objectives.

Over the last few years, the Sequoia NF has surveyed an average of 10,000 acres per year in order to discover and evaluate properties in project areas. To date, approximately 20 percent of the Forest has been inventoried and about 1,100 prehistoric and historic properties have been recorded. Of these, approximately 235 have been evaluated for significance. Roughly two-thirds of these were judged eligible for nomination to the National Register of Historic Places. Criteria for evaluation of site significance are those contained in 36 CFR 60.4. These are supplemented with consideration for a properties historic, scientific, ethnic, public and geographic significance.

The physical quality of the cultural resources present on the Forest is degenerating over time as the use of the Forest increases. The potential conflict between cultural resources and other land uses is also increasing. Vandalism is an ongoing problem which affects both the physical and intrinsic quality of the resource. This situation was validated in the overview, which identified data base needs in the areas of ethnography, archaeology, recording methods and history.

3. Diversity

Diversity is "the distribution and abundance of different plant and animal communities and species within the are covered by a land and resource management plan" (36 CFR 219.3). The maintenance of diversity on the

Sequoia NF is important for the provision and maintenance of: ecosystem stability, biological variety, and aesthetic value.

The maintenance of diversity over the Sequoia NF is important for many reasons. It provides and maintains ecosystem stability, biological variety, fish and wildlife habitats, and aesthetic values. Current direction is to provide diversity over the Forest to sustain the natural variety of plant and animal communities.

Diversity encompasses three primary elements: richness, relative abundance, and distribution. These elements are measured in time and geographic scale.

Richness of diversity on the Sequoia National Forest is represented in the 17 major ecotypes, each with its own unique niches of talus slopes, caves, and meadows; 339 vertebrate species; and over 2,000 plant species found on the Forest. Management of the Forest is intended to insure that no species or plant community present on the Forest will be reduced from its current range or eliminated. This intent is monitored through the use of Management Indicator Species which represent plant and animal communities. Special management programs have been implemented to insure survival of threatened, rare, endangered, and sensitive species. Special and unique habitats are preserved in SIA Botanical Areas, Research Natural Areas, wilderness and sequoia groves designated for preservation.

Relative abundance is reflected in proportions of habitat types, seral stages, and animal populations found on the Forest. Habitat types on the Forest are heavily weighted toward old mature seral stages. Timber harvest and prescribed burning can enhance diversity by providing a balanced mosiac of age classes and seral types, and by increasing edge.

Mature seral stages are preserved in wilderness, Special Interest Areas, Research Natural Areas, view zones, riparian areas, Spotted Owl Habitat Areas, preserved sequoia groves, and areas unsuitable for commercial harvest. Approximately 50 percent of the Forest is managed in a manner which complements species dependent on old growth, mature seral stages.

Distribution or patterns of diversity are difficult to quantify. This element reflects site, shape and complexity of plant and animal communities. Guidelines which increase distribution and complexity of habitat in managed areas include: Standards and Guidelines; limitations on the size of clearcuts; retention of snags, down logs and oaks in timber harvest areas; inclusion of aggregations of mature timber in snag retention areas; and management of five percent of the Forest outside of wilderness specifically for wildlife in the mature, seral stage habitat.

When large ecosystems include a balance of young and old seral stages, they support a higher level of diversity, provide a great variety of resources for human use, and are more stable.

4. Earth Resources

a. Soil Resource

Most of the soils on the Forest are developed from weathered granitic rock and range from deep to shallow. They have a thin surface layer and slightly developed subsoil horizons. Textures are generally coarse sandy loam. These soils have low moisture and nutrient holding capacities. The many areas of rock outcrop reduce the productive land base and increase logging and road construction costs. Soil productivity is relatively low and erosion potential is relatively high. The soils have the capability to maintain their present productivity over the long-term if the soil surface layer is maintained and there is a continuing supply of forest humus.

b. Surface Water Resource

Ninety-nine percent of the Forest is situated in the headwaters of the Tulare Lake Basin, at the southern end of the San Joaquin Valley. The Forest is a major source of runoff entering the Basin. The main rivers draining the Forest are the Kings, Tule, and Kern, which most of the time terminate in ancient lakebeds. Forest average annual water yield is estimated at 736,000 acre-feet.

The need for water in the Tulare Basin is so large that it is unlikely the Forest could ever meet the demand. Tulare Basin groundwater overdraft (using more than is being recharged) currently averages 1.4 million acre-feet per year. Increasing yield and improving the timing of water flowing off the Forest could meet a small part of the demand and reduce costs.

The greatest potential to adjust water yield by land management is in the mixed chaparral and conifer ecosystems. Clearcutting of timber, type conversion of mixed chaparral to grass, and burning or mechanical treatment of mixed chaparral increase water yield. Snowmelt can be delayed by locating strip and small patch timber cuts to produce the most shade. Water yield increases occur as a by-product of timber, range, and wildlife vegetative management.

With the current and projected demand for water, securing water rights for consumptive (e.g., drinking water) and nonconsumptive (e.g., flow for fisheries) uses is important. The Forest Service applies for surface rights for consumptive uses. Nonconsumptive uses and needs are only known for a few streams where project studies have been done.

The Forest Service has sampled water quality in the past, but currently only monitors it on a limited project basis. Water on the Forest has been of good quality. Water quality is protected by applying Best Management Practices (BMP's) in accordance with a cooperative agreement with the California State Water Resources Control Board.

While BMP's mitigate major project effects, minor effects of individual projects may accumulate to produce off-site Cumulative Watershed Effects downstream. A Forest-wide Cumulative Watershed Effects (CWE) analysis was done for Forest planning and individual project CWE analysis is done during

project environmental analysis employing an Equivalent Road Acre (ERA) concept methodology.

Presently, a total of 32 percent of the available Forest ERA's are used up by past management activity and are not available for planning. The ERA's associated with timber harvesting account for 31 percent of this total.

c. Groundwater Resource

Water within the earth that supplies wells and springs is termed groundwater. Information on groundwater supplies is currently only sought when drilling wells at existing facilities. Attempts have not been made to inventory or map groundwater availability and quality. Drinkable groundwater has been found within 305 feet of the earth's surface on the Forest and typically at the surface in the form of springs. Twenty-four wells and 35 springs provide water for campground and administrative site use.

The current groundwater demand from these wells and springs consists of drawing over 15 million gallons of water annually for campground and administrative site uses. Four of these systems have experienced shortages. Groundwater will be needed to supply water for potential campgrounds, potential ski area developments, or an expanded range and wildlife program.

d. Geologic Hazards

In the past, seismic and volcanic activity have been minor. Only small earthquakes with magnitudes equal to or less than 5.0 on the Richter scale have occurred since 1900 on the Forest. Seismic activity has been associated with scattered faults in the southern half of the Forest. Volcanoes have not erupted on the Forest within the last two thousand years. Volcanoes and earthquakes are not a significant hazard on the Forest.

Landslide hazards also have not been an important consideration. As steeper terrain is accessed to meet logging needs, landslide hazard identification will be more important.

5. Energy Production and Conservation

a. Energy Production

Hydroelectric generation is the primary form of energy production on the Forest. There are six hydroelectric plants currently in operation on the Sequoia NF with a combined output of 87.6 Megawatts. Preliminary proposals for additional generation capacity of 23 Megawatts have been made. Development of all potentially identified projects would provide an additional 107 Megawatts. The Federal Energy Regulatory Commission reviews applications for hydroelectric power operating permits and makes the decision after receiving input from the Forest Service and other interested parties.

Demand for electricity has maintained a slow, steady increase roughly proportional to population growth (approximately one percent per year). These trends are expected to continue in the short-term. Potential energy development will most likely be an expansion of existing or construction of new hydroelectric facilities.

b. Energy Conservation

Current management direction is focused on energy conservation, and assessing energy conservation potentials. Energy conservation efforts have been directed towards the reduction of Forest Service fleet fuel usage and improving the efficiency of its buildings. The substitution of smaller more efficient vehicles, including motorcycles, for full-sized vehicles as well as mileage restrictions have significantly reduced the Forest's fuel usage.

An energy survey of all the buildings on the Forest has been completed and has been analyzed resulting in a set of specific recommendations for improving the energy efficiency of each building. Implementation of those recommendations with favorable savings-investment-ratios has already begun. The trend is to continue to explore ways of conserving energy and utilizing existing technology to the extent that funding will permit.

6. Facilities

a. Forest Transportation System (Roads and Bridges)

The Forest Transportation System consists of 29 bridges, 1,471 miles of Forest development roads, 1,033 miles of abandoned roads, and 383 miles of road under the jurisdiction of others.

Local roads constructed usually range from 0.5 to 1.5 miles in length and are normally single lane with earth surface. From 1981 to 1986, these roads averaged 0.8 miles in length. Local roads reconstructed usually range from 1.0 to 4.5 miles in length and normally consist of clearing, surface reshaping, curve widening, and drainage work. From 1981 to 1986, these roads averaged 2.4 miles in length. Collector roads constructed are normally three to seven miles in length and are usually single lane roads but constructed to a higher standard than local routes. Higher standard may consist of flatter grades, larger radius curves, more turnouts, and may have surface stabilization.

State and County roads serve as major access routes for Forest users. The majority of travel on the Forest Transportation System is linked with demand for timber products and outdoor recreation. Forest Development Roads supplement the State and County road system.

Approximately 44 percent of the Forest is unroaded. The feasibility of constructing a cost-effective road system to access some of these areas is questionable because of steep terrain and low resource values.

Assuming that traffic will increase at the current rate, there is minimal need to increase capacities of existing routes. Improvements of existing

alignments may be needed to improve safety. Maintenance demands will increase also.

Forest highway designation has been granted to approximately 159 miles of State and County roads which connect safe and adequate highways to the Forest Development Road System. The following is a list of routes currently designated as Forest Highways:

Table 3.1 - Forest Highways

Forest Highway Number	Name	Approx. Length Miles	Jurisdiction
128	Nine Mile Canyon	25	Inyo County Tulare County
208	Piute Mountain	25	Kern County
209	Rancheria	3	Kern County
210	Wofford Heights-Glennville	20	State
211	Kernville-Pine Flat	43	Kern County Tulare County
212	Springville-Parker Pass	40	State Tulare County
219	Hume Road	3	Fresno County

b. Buildings, Utility Systems, and Other Facilities

The Forest owns and operates approximately 136 buildings and related facilities which support the management activities of the Forest. These include offices, warehouses, residences, shops, and mess halls. The Forest also leases and operates six administrative sites. Over 50 percent of the Forest-owned structures are 36 years or older. Facilities are in various stages of repair and some need to be replaced. The combined effects of increased maintenance requirements as facilities become older, plus deferred maintenance and increasing costs have caused a maintenance deficiency. The location of the existing facilities was based on past needs. Some buildings are no longer needed at their present locations, while additional buildings are needed at other locations.

The Forest maintains and operates other facilities. Approximately 62 potable water systems and 124 waste water systems presently serve both recreation and administrative facilities. There are 11 dams on or near the Sequoia NF. The Forest is responsible for operation, maintenance, inspection, and administration of one dam, inspection only of three special-use

dams, and administration only of the remainder. The Forest maintains and operates four heliports.

In addition to maintenance needs for older structures, construction of new facilities have not kept pace with current needs. Overcrowding or inadequate location of facilities are causing delays or increased costs. The number and location of facilities needed in the future will be determined by considering the amount and location of the work to be accomplished. Water and wastewater systems will be required for both recreation and administrative sites.

Other facilities on the Forest include seven electric transmission lines greater than 66 KV. The largest of these is a Southern California Edison line that originates on the Sierra NF and crosses the Sequoia NF at Pine Flat Reservoir. The other six begin along the Kern River or the Tule River. Conflicts have not been identified with these lines.

7. Fire and Fuels Management

The Sequoia NF is one of the five most active fire Forests in California. It has an average of 200 fires each year which burn about 4,500 acres annually. Lightning accounts for about 67 percent of fire ignitions, with the remainder caused by recreationists, wildland operations and local residents.

Fire season normally starts on the Forest about May 15, when the annual grasses have cured at the lower elevations. The season lasts until about mid-November. Hot days, warm nights and low humidities can be expected throughout the season with the most severe conditions coming in August, September, and into early October. Thunderstorms occur throughout the spring, summer and fall with scattered precipitation and concentrations of lightning-caused fires.

The Sequoia NF has cooperative agreements and/or operating plans with all neighboring fire protection agencies including Sequoia and Kings Canyon National Parks, Bureau of Land Management, Bureau of Indian Affairs, U.S. Army Corps of Engineers, California Department of Forestry, and the County of Kern. These agreements provide for coordinated fire management planning and the sharing of fire protection resources, thus augmenting the fire suppression and management capabilities of each agency. Fires that threaten lands of more than one jurisdiction are jointly managed. Initial attack planning is based upon using the nearest suppression force. Training is coordinated and often jointly conducted.

Increasing recreation use, continued timber harvesting, additional expansion of private land developments, and the lack of an aggressive fuels reduction program have greatly increased the fire risks and hazards on the Forest. The fuel loading caused by the addition of logging slash, the increasing number of young timber stands and plantations, as well as the continuing decadence of chaparral fuels, far exceeds the capabilities of the protection force even with the use of bigger and better aircraft and other equipment.
The long-range solution to the ever increasing demand for fire protection is in the management of the Forest fuels. Fuels management activities have

consisted of construction and maintenance of fuelbreaks, burning of timber sale slash, and broadcast burning in both timber and brush fuels. Prescribed fire can also be used to meet a number of resource objectives as well as resource protection. There has recently been an increased interest in the use of prescribed fire in chaparral to improve wildlife habitat, range opportunities, and hazard reduction to provide protection to local resources.

Prior to this Plan, "control" was the only wildfire suppression strategy in use on the Forest. Judicious use of a "contain" or "confine" strategy will cause suppression actions to be more responsive to management objectives. While there will be an increase in the total acres burned, there will be no increase in resource loss. Suppression costs will be reduced.

8. Fisheries, Wildlife and Sensitive Plants

The Forest Service and the California Department of Fish and Game share responsibility for wildlife management on National Forest System lands. The Forest Service manages wildlife habitat in cooperation with the Department of Fish and Game which manages the resident animals. Responsibility for migratory species and for management and recovery of Federally listed, threatened or endangered species is also shared with the USDI Fish and Wildlife Service.

As in the past, the Forest Service will rely heavily on cooperative funding from the Department of Fish and Game and/or County Wildlife Commissions to accomplish wildlife and fisheries habitat enhancement.

a. Fisheries

Fishing is the a popular wildlife-related recreational pursuit on the Forest, providing an average of 40 percent of the total Wildlife-Fisheries User Days (WFUD's). Sport fishing is increasing at a faster rate than any other consumptive wildlife use. There are approximately 732 miles of fishable streams and 260 surface-acres of lakes on the Forest. Streams on the Sequoia NF are producing an optimum number of catchable fish from watersheds that are in relatively good hydrological condition.

The Forest has actively implemented programs and plans providing for the improvement and protection of fishery habitat. The Little Kern Golden Trout Management Plan provides for improvement of habitat and restoration of golden trout populations. Forest Riparian Standards and Guidelines, Streamside Management Zones, and Best Management Practices are implemented on all projects affecting the riparian resources surrounding fisheries. These guidelines provide for the protection and improvement of riparian dependent resources. With projects such as road closures, meadow restoration and watershed improvement, the guidelines reduce sediment entering streams. The Sequoia National Forest has maintained and will continue an active program of stream habitat improvement through timber sale improvement funds, watershed improvement projects, range betterment, road construction and maintenance, volunteer programs, and cooperative projects with the California Department of Fish and Game.

The Planning Area represents the southernmost native trout fisheries in the Sierra Nevada. Native harvest species are the four "golden-like" trout of the Kern River drainage (Kern River rainbow, two subspecies of the South Fork Kern goldens, and the Little Kern golden trout) and possibly some remnant native rainbow trout populations. Known native non-harvest species are Sacramento sucker, California roach, Sacramento squawfish, Sacramento perch, Sacramento blackfish, hitch, hardhead, and riffle sculpin. Non-native and either stocked or self-sustaining populations of rainbows, brown, and brook trout, smallmouth and largemouth bass, and green sunfish occur on the Forest. White catfish, bluegill, bullheads, and crappie occur in the Kern River below Lake Isabella, but whether these are self-sustaining populations or just swept out of the lake is unknown. The BLM Wilderness Study Area does not contain significant fisheries.

The Forest is currently involved in three fish management activities:

1) restoring Little Kern golden trout to its critical habitat;

2) considering fisheries concerns in Forest management activities; and

3) completing stream surveys for the Forest (to date, 59 percent of the perennial stream mileage has been surveyed).

Of the approximate 1,280 miles of perennial streams on the Forest, 732 miles are estimated to contain fish, with rainbow trout the dominant harvest species. Hybridized and pure native "golden-like" trout occur in less than 210 miles of streams. Of that total, 117 miles are being returned to pure Little Kern golden trout (LKGT) upon the successful completion of the LKGT Recovery Program. Fish habitat quality in most streams is rated medium or high. Those streams with medium or low ratings either lack fish habitat due to inherent physical qualities such as high water temperatures in the summer combined with steep, rugged terrain, granitic soils and major fluctuations in yearly stream flows, or they have been damaged by livestock, excessive recreation use and/or water diversion.

The greatest impacts on fish habitat have historically come from livestock grazing and water diversion for domestic use and energy production. Present conditions can, in most cases, be traced to events of those types that occurred 50 or more years ago.

Livestock grazing began in the area about 130 years ago. The number of animals (over 100,000 sheep and cattle) remained high until the 1930's. The heavy grazing denuded meadows and streambanks, causing sedimentation of streams and corresponding damage to fish habitat quality. Livestock numbers have been reduced dramatically. Approximately 12,000 cattle now graze Forest lands. Livestock damage to riparian habitat is mitigated on a case-by-case basis without reducing livestock numbers.

Table 3.2 - Dominant Fish Species Distribution by Stream Mileage and Total Acreage With Fish

Dominant Species	Stream Mileage	% of Total Fish Mileage	Stream Acreage	Lake [1/] Acreage	Total Acreage by Species	% of Acreage by Species
Rainbow Trout	443.11	60.5	972.8	151.0	1,123.8	65.8
Little Kern Golden Trout	116.56[2/]	15.9	62.2	44.0	106.2	6.2
Kern River Rainbow	35.22	4.8	140.8	14.0	154.8	9.1
SFGT + hybrids	58.13	7.9	37.6	--	37.6	2.2
Brown Trout	51.49	7.0	217.9	--	217.9	12.7
Brook Trout	26.65	3.6	17.3	50.6	67.9	4.0
Suckers	0.68	0.1	0.2	--	0.2	0.01
	731.84		1,448.8	259.6	1,708.4	

1/ Excluding Pine Flat Reservoir.
2/ Upon completion of the LKGT Management Plan in 8 to 10 years.

Also, although FORPLAN outputs indicate an expected increase of forage to 89,000 AUM's based on an increase transitory range forage, the Forest has decided to keep AUM production at approximate current levels. There will be slight flucuations to take advantage of surplus annual grass forage in appropriate years. Keeping AUM production at approximate current levels while forage increases will help lessen impacts to meadow and riparian habitats and provide additional forage for recreational stock use which is increasing on the Forest.

Water diversion for domestic use and energy generation eliminates fish habitat by removing water from streams and piping it to collection sites.

It was once thought that all economically feasible hydroelectric sites on the Forest had been developed. However, recent legislation and the international oil situation have encouraged the reconsideration of development on stream reaches formerly thought uneconomical. Several perennial streams on the Forest have at least one application for hydroelectric development. Some applications propose diversion of 90 percent of the available water. The number of permits that will finally be granted and hydroelectric projects built is unknown. The resulting impact of fisheries is, there-

fore, difficult to predict. That impact, whatever its magnitude, is of considerable concern to local anglers in the San Joaquin Valley.

Other management activities, such as road construction, timber harvest, and recreational developments, can adversely impact fish habitat. In many cases, the direct impacts can be mitigated. However, as access for fishing is improved; resident fish populations will drop as more resident trout are taken, and as habitat quality declines with increasing use.

The fishing resource on the Sequoia offers a multiproduct output. Two of the most important outputs are food and recreation. Demand analysis views fishing as primarily a recreation experience so demand for fishing is measured in WFUD's.

The supply and demand of the fisheries resource is presented and examined by two approaches. The first approach is that of the above - fisheries discussed by stream mileage and lake acreage containing fish, and the respective habitat quality.

The second approach is to examine the fish resource in view of angling opportunities. These differences can be defined by ease of access to the various streams and lakes on the forest, and can be summarized as:

1) Heavily fished, easily accessed waters (within one-quarter mile of a road, trail crossing, etc). Opportunities here are heavily dependent on trout stocking.

2) Areas fished during an extended trip into one of the wildernesses. Fishing here is usually only a part of the overall experience.

3) Areas in the general forest reached on a one-day trip. Fishing is the major activity of the trip with fish quality (size) of more importance than quantity.

From these descriptions, angler data was converted to show amount of anglers or demand per mile of stream or acre of lake.

Table 3.3 - 1982 Supply/Demand for Fisheries

Water Type	Quantity Available	Wildlife & Fisheries User Days (WFUD's)	Pressure
Accessed Streams	214 mi.	94,500	190 anglers/mi.
Accessed Lakes	151 ac.	17,500	50 anglers/ac.
Wilderness Streams	170 mi.	9,800	25 anglers/mi.
Wilderness Lakes	109 ac.	7,700	30 anglers/ac.
Remote Streams	372 mi.	10,500	12 anglers/mi.
Remote Lakes	None		0
TOTAL	—	140,000	—

The present demand for fishing opportunities in easily accessed areas is well beyond the current resident fish supply, particularly for streams.

Harvest in these areas is almost totally supported by stocked rainbow trout. In 1982, 43 miles of stream and 236 acres of lakes were stocked with 315,000 trout. The native fisheries in these areas are depressed due to the heavy fishing pressure and damaged habitats due to heavy use.

The projected angler use for 1995 is even more out of balance with supply. The addition of new small impoundments and enhancement of existing lakes coupled with increased stocking will allow the Forest to increase the supply of easily accessed fishing opportunities.

Increasing ease of access on small streams will not increase the supply of "accessed" fishing opportunities as these waters are generally too small physically to sustain the angler pressure without habitat damage.

With the exception of heavily used areas, such as trail crossings, campsites, and some lakes, fish populations exceed the consumptive demand in most areas of the wilderness. Supply of fish, except in a few heavily impacted areas, could continue to exceed user demand through the fifth decade of the Plan.

Fishing demand for the remote areas is marginally met through use of many of the small streams that do not contain the desired larger "trophy" fish. If the number of anglers of this type continue to increase, even with low harvest rates, the various fisheries could begin showing symptoms of overharvest (reduced size and number of fish available). With the defined lack of easy access, habitat repairs or enhancements offer little opportunity to increase the supply of this opportunity.

The following opportunities have been identified to maintain, restore and enhance the fisheries resource:

1) Accomplish streambank stabilization and revegetation work, and installation of stream structures to help offset previous stream habitat losses;

2) Create new fishing reservoirs to provide valuable additional fishing habitat to help meet the increasing demand; and

3) Control water quality problems related to other resource uses.

b. Wildlife

Wildlife resources occur Forest-wide though they are seldom uniformly distributed. Each species is unique and has its own habitat requirements. They exist only where their specific needs for food, water and cover can be met simultaneously.

Vegetative diversity, its age, structure and geographical location all combine to provide for wildlife needs. Some vegetative combinations provide a rich variety of habitats for wildlife, while others are limited.

On the Sequoia NF, several broad ecosystems exist; each capable of providing a variety of habitats over time and space for wildlife. Within the conifer forests, oak woodlands, and brush types, there exists many

physical and biological differences that provide special habitat. In addition, localized special components such as caves, talus slopes, rock outcrops, snags and downed logs, riparian zones, meadows, etc. provide necessary diversity to support an even greater variety of additional wildlife species.

All of these factors combined, form habitats of sufficient size and variety to support over 330 species of fish and wildlife on the Sequoia NF.

Table 3.4 - Number of Vertebrate Species on the Sequoia NF

Taxonomic Group	Total Number of Species	Game Species
Mammals	85	23
Birds	194	20
Reptiles	25	0
Amphibians	11	1
Fish	24	16
TOTAL	339	60

The demand to maintain and enhance habitat for endangered, threatened, rare and sensitive species is expected to increase. Federal and State laws and regulations mandate the Forest to manage habitat of threatened and endangered species to insure their survival. Sensitive species are managed in such a way as to prevent them from becoming threatened or endangered.

The endangered California condor is a special case. The bird was discovered nesting on the Sequoia NF in 1984. The nesting haitat was established as a special management area at that time. As the recovery program proceeds, the Sequoia will adjust the management area to provide for the condor's needs.

Changes in the vegetation in a particular area can reduce the habitat capability as viewed from a particular species' needs while enhancing its capabilities for another species. Conflicts arise with any change in habitat. The degree of conflict depends on the species involved.

Wildlife species on the Sequoia NF vary as to their public demand, sensitivity to change, and to the apparent availability of habitat, both existing and potential. Species of particular concern include tree cavity nesting species, riparian (including wet meadows) dependent species, species associated with older overmature stands of timber, species which utilize early successional stages of vegetation, and species associated with mast-producing trees.

Cavity-nesting species of wildlife are abundant on the Forest. Approximately 35 species utilize cavities on the Forest. Data show population levels of these species to be unevenly distributed and approximately 80 percent of potential carrying capacity overall.

Table 3.5 - Federal and State Listed Wildlife Species on the Sequoia NF

Listed by Federal, State or Forest Service as Endangered (E), Threatened (T), Fully Protected Under California State Fish and Game Code (CP), California Department of Fish and Game Species of Special Concern (CSC), or Sensitive (S)

Species Common Name	Federal	State	Forest Service
Little Kern Golden Trout	(T)		
"Revised Fisheries Management Plan For Little Kern Golden Trout" Apr. 1984			
Kern Canyon Slender Salamander		(T)	
Tehachapi Slender Salamander		(T)	
Southern Rubber Boa		(T)	
California Condor	(E)	(E,CP)	
"California Condor Recovery Plan" Feb. 1980 California Condor Recovery Team			
Coopers Hawk		(CSC)	
Northern Goshawk		(CSC)	(S)
Sharp-shinned Hawk		(CSC)	
Golden Eagle		(CP,CSC)	
Swainson's Hawk		(T)	
Bald Eagle	(E)	(E,CP)	
"Bald Eagle Recovery Plan"			
Prairie Falcon		(CSC)	
American Peregrine Falcon	(E)	(E,CP)	
"Recovery Plan for Peregrine Falcon" Aug. 1982 Pacific Coast American Peregrine Falcon Recovery Team			
Burrowing Owl		(CSC)	
Long-eared Owl		(CSC)	
Great Gray Owl		(E)	(S)
Spotted Owl		(CSC)	(S)
Willow Flycatcher		(CSC)	(S)
Yellow Warbler		(CSC)	
Sierra Red Fox		(T)	(S)
Wolverine		(T,CP)	
Fisher			(S)
Pine Marten			(S)

Due to abundant forage, available water, and rich variety of habitats, riparian areas and meadows have an importance to wildlife which is highly disproportionate to their limited acreage. They are also a focal point of conflicts between uses such as grazing, recreation, and timber. Cattle utilize the abundant forage resources; and, through overuse, can cause habitat damage. Recreationists are attracted to these areas for their scenic beauty, generally flat topography, and water. This recreational use can cause damage to habitats. Timber harvest adjacent to and in these areas can change the structural diversity.

Most riparian areas on the Forest have not been significantly altered by management activities, and continue to supply habitat for dependent species. Meadows have received significant use in the past. Current meadow management focuses on restoration and maintenance of the existing acreage.

The Sequoia NF currently contains approximately 470,000 acres of mature to overmature timber. This vegetation provides habitat for wildlife species associated with these older timber stands. The actual percentage of this vegetation that is capable of supporting reproductive individuals varies among species according to their specific habitat requirements and factors such as elevation, stand density and fragmentation. Timber harvest is the only planned activity that decreases this habitat type.

Early successional stages are not abundant on the Planning Area. Available data show approximately 30,000 acres in the timber zone to be in this seral stage. Other vegetation zones currently contain little of the young growth stage. Prescribed burning programs have provided for some increases in the chaparral. Regeneration timber harvest, particularly clearcutting, can also provide for large acreages.

Wildlife species associated with these early seral stages are at low population levels, approximately 50 percent of potential carrying capacity. Concern exists that if more of this stage is not created, some wildlife species will continue at low population levels.

There are approximately 190,200 acres supporting mast-producing trees on the Forest. Potential exists for another 30,000 acres. This acreage provides potential habitat for species associated with mast producing trees at approximately 85 percent of maximum carrying capacity. This amount cannot be increased during the planning horizon since 80 years is required to begin significant mast production.

Current demand is both consumptive and nonconsumptive, with nonconsumptive the major use. User data for 1982, show 43,000 consumptive WFUD's and 67,000 nonconsumptive WFUD's associated with terrestrial wildlife. Consumptive use is almost totally deer hunting while nonconsumptive uses include bird watching, photography, and animal study.

Future wildlife demand is expected to increase based upon projected population growth. The increased use will be almost exclusively nonconsumptive. Hunting use may increase as deer numbers increase.

Because of the losses of habitat outside the Forest due to urbanization, wildlife species are becoming more dependent upon the Forest to supply their life requirements. Management activities currently occurring on the Forest degrade habitat for some species while improving the quality of habitat for other species. The challenge of wildlife management on the Forest is to balance these gains and losses of habitat to insure species survival while meeting public needs.

Management Indicators

The objective of the wildlife and fish management program on the Forest is to manage habitats to maintain or enhance viable populations of existing wildlife and fish species. To insure that viable populations of all species occurring on the Forest are maintained, certain species called Management Indicator Species (MIS) were selected to act as barometers for wildlife communities. These species and associated guilds were selected because they are believed to represent the vegetation types, successional stages, and special habitat elements necessary to provide for viable populations of all species on the Forest; and their population changes are believed to indicate or represent the effects of management activities on wildlife and fish populations. Ten wildlife species were selected as management indicator species on the Forest. Listed below are the species chosen and the habitats they represent.

1) Species associated with early successional stages:

   -- Mule Deer

2) Species associated with riparian zones:

   -- Rainbow Trout (Native)

3) Species associated with snags:

   -- Pileated Woodpecker

4) Species associated with mast-producing vegetation:

   -- Gray Squirrel

5) Species associated with late successional stages:

   -- Spotted Owl
   -- Goshawk

6) Threatened and Endangered species:

   -- California Condor
   -- Peregrine Falcon
   -- Bald Eagle
   -- Little Kern Golden Trout

An estimate of current habitat supply for MIS on the Forest is listed in Table 3.6.

Table 3.6 - Indicator Species Used to Determine Changes in Habitat

Species	Current Acres High Quality Habitat	Current Acres Moderate/Low Quality Habitat
Mule Deer[1]	13,000	666,000
Spotted Owl[2]	20,000 estimated	55,000 estimated
Pileated Woodpecker[1]	44,700	232,200
Goshawk[1]	Unknown	Unknown
Gray Squirrel[1]	147,100	237,700
Bald Eagle[1]	Unknown	138,000
Peregrine Falcon[1]	4 sites	24 sites
Rainbow Trout[1]	350 stream/lake areas	750 stream/lake areas
California Condor[3]	2,000	Unknown
Little Kern Golden Trout[4]	62.2	------

MULE DEER - Early Successional Stages

Mule deer are found throughout the Forest in virtually all habitats at varying densities. Deer were chosen, to represent early successional stages of vegetation because of their reliance on food and cover found in these habitat types.

Portions of seven deer herds occur within the boundaries of the Sequoia. The deer population on the Forest is estimated at 11,000 individuals. Deer hunting is a major recreational use on the Forest. Current management direction is found within deer herd plans being cooperatively developed with the California Department of Fish and Game. Prescriptions will be delineated in these plans for the maintenance and improvement of habitat elements to benefit deer. The majority of these recommendations focus on manipulating vegetation to sustain early successional stands of forage.

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[1]Acreage figures derived using Hurley, Janet, et al; Wildlife Habitat Capability Models and Habitat Quality Criteria for the Western Sierra Nevada, Stanislaus National Forest, May 1981. Models were compared with vegetation data for the Forest.

[2]See Appendix B of the EIS for an explanation of habitat capability, acres for spotted owls.

[3]Acres based on nest habitat identified in Starvation Grove Nest Management Plan for the California Condor.

[4]Based on the Little Kern Golden Trout Management Plan.

Other habitat improvements suggested in the deer herd plans center around development of springs and installation of wildlife guzzlers.

Conflicts between deer and forest management activities include competition for forage with domestic livestock, disturbance of deer and deer fawning areas by road traffic and off-highway vehicles, and changes or disturbances caused by timber management activities to travel corridors utilized by deer.

RAINBOW TROUT (Native) - Riparian

Rainbow trout is the most common and most important recreational fish in the Forest. Of the approximate 1,280 miles of perennial streams on the Forest, 57 percent (or 732 miles) are estimated to contain fish, with rainbow trout the dominant harvest species.

As with other species of trout, a combination of various land management activities can influence the quality and quantity of aquatic habitat for rainbow trout. Several fishery habitat improvement projects are completed each year. Erosion control structures, gully plugs, and vegetation plantings are the most commonly performed work. Newly developed riparian guidelines further restricting management activities in the riparian zones have been established for the Forest. These guidelines will further benefit this important habitat type.

PILEATED WOODPECKERS - Snags

Pileated woodpeckers are found throughout the Forest within conifer and conifer-hardwood stands where large diameter softwood snags are present. Conflicts occur primarily from timber and fuels management activities which reduce the older age class of timber and the availability of large diameter softwood snages.

Opportunities exist to create and/or recruit snags into areas now deficient in large diameter softwood snags and to provide an adequate distribution of older mature mixed conifer stands throughout the Forest. Also, retaining aggregations of mature trees one-fourth to two acres in size will provide old growth snags and down material for wildlife needs utilizing this habitat. These aggregations will amount to five percent of the forested area managed for timber.

GRAY SQUIRRELS - Oaks and Hardwoods

Gray squirrels occur throughout the Forest wherever oaks, pines, and snags are present. Abundant populations of gray squirrels currently exist on the Forest. Opportunities exist to improve habitat for these species by manipulating young dense hardwood stands to provide for older age classes by trees and protection of oaks in timber management areas.

SPOTTED OWL - Mature to Overmature Timber

The spotted owl is identified as a sensitive species in California National Forests. Throughout Northern California, it represents wildlife species associated with mature and older timber stands in the Douglas-fir and mixed

conifer types. In the Sierra Nevada, pairs of spotted owls also occur in mixed conifer/hardwood stands and in older second growth that contain an old growth or mature component.

Because the spotted owl is identified as sensitive and has been selected as a MIS, management of suitable habitat is necessary to ensure the maintenance of a viable population, well distributed across the Forest (36 CFR 219.19).

The Pacific Southwest Regional Guide defines suitable spotted owl habitat as consisting of mature timbered stands having multilayered conditions, a canopy closure of 70 percent or greater, and obvious decadence. The Regional Guide also indicates that deviation from this definition is possible, in the Sierra Nevada, based on local research data, habitat models, or other information sources.

Suitable habitat on the Forest has been tentatively defined as consisting of 30-80 percent old growth, with the remaining acreage in younger stands of mixed conifer and mixed hardwood/conifer stands. The selection of these vegetation types in the SOHA's is based on what currently exists on the Forest.

Field surveys since the late 1970's have identified 75 locations with individuals or pairs of spotted owls on the Forest. Recently (since the base planning year of 1982) four locations have been verified as supporting reproductively successful pairs, 19 locations have been verified with pairs (reproductive success has not been determined), and another 29 locations have been verified to at least have an individual spotted owl (some of these 29 may actually have had pairs).

Based on the field survey data, coupled with information on the amount and distribution of habitat that appears to be suitable, habitat on the Forest is estimated to be capable of supporting approximately 75 pairs of spotted owls through the first decade. This includes estimated capability to support 20 pairs in wilderness, five pairs on lands managed under prescriptions compatible with spotted owl habitat needs, and 50 pairs on lands suitable and available for timber production.

A network of 40 Spotted Owl Habitat Areas has been developed. Ten of these SOHA's are currently located on non-CAS land (wilderness) while 30 are on CAS land. There are three additional SOHA's believed capable of supporting reproductive pairs of spotted owls on National Park Service Land adjacent to the proposed Forest network. The purpose of the network is to ensure the maintenance of a self-sustaining population, well distributed across the planning area. The network consists of Spotted Owl Habitat Areas (SOHA's), each consisting of 1,000 acres of suitable habitat plus 650 acres of replacement habitat within a 1.5-mile radius of a known or estimated location of a nest site. To the extent possible, the SOHA's are grouped together in clusters of three, with no more than 1.5 miles spacing between SOHA's within a cluster. Clusters are spaced 6 to 12 miles apart to ensure the population is well distributed. Individual SOHA's have been identified when natural geographic conditions preclude clusters. The individual SOHA's are no more than six miles from the nearest clusters. To the extent possible, the network sites are located on lands not available for timber

harvest or on lands already allocated to prescriptions compatible with spotted owl habitat needs.

During 1987, intensive inventories were conducted to document current occupancy and reproductive success in the proposed network SOHA's. Adjustments in the number, location and size of SOHA's in the network may occur as the final network is developed. These changes will be based on spotted owl inventory and monitoring efforts and on an updated definition of suitable habitat in the southern Sierra Nevada. The definition will be updated using information from the Spotted Owl Research, Development, and Application Program which involves a five-year program beginning in 1987 of inventories, monitoring, research and administrative studies concerning spotted owls.

GOSHAWK - Mature to Overmature Timber

Goshawks are another species representing animals associated with mature to overmature timber stands. These birds appear infrequently on the Forest although precise numbers are not known due to the lack of a comprehensive survey. Fifty acres of habitat will be managed around nest sites to prevent disturbance to nesting activities as described in the Regional Guide.

CALIFORNIA CONDOR, PEREGRINE FALCON, BALD EAGLE

The California condor is a federally listed endangered species that has infrequently utilized portions of the Forest for roosting, and in one recent documented case, nesting habitat. Currently the Starvation Grove Nest Site (2,229 acres) and the Breckenridge Mountain Roost Site (640 acres) are managed to maintain condor habitat. The Basket Peak (2,000 acres) and Lion Ridge (1,000 acres) roost sites receive modified management to minimize possible conflict with the recovery needs of the condor. Additional areas may be set aside as critical needs are perceived in accordance with the Condor Recovery Plan and in cooperation with the USDI Fish and Wildlife Service.

In many tables throughout this document, acres for condor nesting habitat are shown as zero acres for the 1982 Base Year and 2,299 acres for the decades following the base year. These acres changed from zero to 2,299 when condors were discovered nesting on the Forest after 1982. A management area of 2,299 acres was then established to protect and manage this habitat.

The peregrine falcon is a federally listed endangered species. Endangered species status directs National Forests to protect critical habitats and participate in recovery efforts for listed species. A 1980 survey identified four superior nest sites for peregrine falcons. So far 12 birds have been successfully hacked on Sequoia NF although no production of young have been verified near the hack sites.

The bald eagle is classified as endangered in California by the USDI Fish and Wildlife Service. The bald eagle sometimes visits the Forest during the winter months and is occasionally spotted around Pine Flat Reservoir and the Kern River, near Lake Isabella.

Conflicts with the condor, peregrine falcon, and bald eagles occur primarily from disturbance associated with human-related activity around nest sites during the breeding period and at winter roosts (bald eagle); and from changes in vegetation that reduce diversity of avian prey (peregrine falcon). There are no known bald eagle nests; however, winter roosting sites do exist on the Sequoia NF.

LITTLE KERN GOLDEN TROUT

The Little Kern golden trout is a federally listed threatened species located primarily in the Golden Trout Wilderness. Through the direction of the Little Kern Golden Trout Management Plan, this trout species will be returned to its designated critical habitat.

c. Sensitive Plants

Wildflower photography is a common activity occurring on the Forest, especially in the spring and summer months. The Sequoia NF contains over 2,000 species of plants, a remarkable assemblage comprising over one-fourth of the State's flora. Of this total, 25 species are considered sensitive and are listed by the Regional Forester as requiring special management attention. An additional 25 species (formerly sensitive) have been proven to be more abundant or widespread than was previously believed and/or are not in jeopardy by various management activities.

Distribution of each sensitive plant species on Sequoia NF is unique, both geographically and ecologically. Managing sensitive plants must be done on a case-by-case basis due to specific locations, potential threats and the ecology of each species. Current Forest Service policy is to assure that agency actions do not jeopardize the continued existence of these species or result in the destruction or modification of their essential habitat until such time as their status for possible listing under the Endangered Species Act is determined.

The dynamic nature of the knowledge base for sensitive plants requires the list to be updated as new information becomes available. Deletions and additions occasionally become necessary. The trend on the Sequoia NF indicates a net reduction of sensitive species. Twenty-five sensitive plants from the Regional Forester's List have been "delisted" from the Sequoia National Forest since 1978. As the Forest inventory (and inventories of adjacent public lands) reaches completion, we can expect further "delistings" from the sensitive plant list. Many of these species are presently being inventoried by the California Department of Fish and Game Natural Diversity Data Base System. Currently, the Forest inventory is of a resolution that enables prediction of potential habitat and occurrence on any given project.

A complete list of sensitive plant species occurring on the Forest is found on the following list. The Forest will actively pursue status determination and long-term protection of all sensitive plants. Currently, sensitive plant surveys are conducted prior to any ground disturbing activity in areas where they are known or suspected to occur.

Generally sensitive plants on the Sequoia NF fall into three broad categories. They are:

1) Plants are rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.

Unexpected larkspur	Delphinium inopinum
Muirs raillardella	Raillardella muirii
Tompkin's sedge	Carex tompkinsii

2) Occurrence of plants confined to several populations or one extended population.

Hall's daisy	Erigeron aequifolius
Kernville poppy	Eschscholzia procera
Congdons bitterroot	Lewisia congdonii
Coville's navarretia	Navarretia setiloba
Purple mountain parsley	Oreonana purpurascens
Piute jewel flower	Streptanthus cordatus var. piutensis
DeDecker clover	Trifolium dedeckerae
Charlotte's phacelia	Phacelia nashiana

3) Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Ertter milkvetch	Astragalus ertterae
*Shevock milkvetch	Astragalus shevockii
Kaweah brodiaea	Brodiaea insignis
*Shirley Meadows mariposa**	Calochortus westonii
Springville clarkia***	Clarkia springvillensis
*Kern River daisy	Erigeron multiceps
*Piute buckwheat	Eriogonum breedlovei var. breedlovei
Needles buckwheat	Eriogonum breedlovei var. shevockii
*Twisselmann's buckwheat	Eriogonum twisselmannii
Kaweah fawn lily	Erythronium grandiflorum ssp. pusaterii
Greenhorn adobe lily	Fritillaria striata
*Bald Mountain potentilla	Horkelia tularensis
*Twisselmann's nemacladus	Nemacladus twisselmannii
Nine Mile Canyon phacelia	Phacelia novenmillensis

* These seven sensitive plants are endemic to the Sequoia NF.
** See "Management Guide for Shirley Meadows Mariposa," Sequoia NF 1984.
***See "Management Guide for Springville Clarkia", Sequoia NF 1987.

All other sites will be protected until specific species management guides are written.

At this time, there are no plants on the Sequoia NF, that are federally listed as threatened or endangered. Kaweah brodiaea, Greenhorn adobe lilly, and Springville clarkia are listed as "endangered" under the California Endangered Species Act. Twisselmann's nemacladus, Twisselmann's buckwheat, and Congdons bitterroot are listed as "rare" by the State of

California pursuant to Section 1904, Fish and Game Code (Native Plant Protection Act). A Management Guide and Conservation Agreement has been established between the Forest Service and the USDI Fish and Wildlife Service for the rare Shirley Meadows Mariposa, a Sequoia NF endemic species.

9. Further Planning and Released Areas

Further Planning Areas are unroaded lands which are at least 5,000 acres or of any size if they are contiguous to an existing designated wilderness or another agency or Forest Further Planning Area. These areas have been recommended for either wilderness or non-wilderness in this environmental statement.

Within the Planning Area there are six Further Planning Areas with a total of 117,308 acres (net) of public land (see Figure 3.1 and Table 3.7). Of this total, two areas totaling 25,849 acres were not considered for wilderness recommendation in Sequoia NF planning, but were considered by others in their planning. One 1,949 acre parcel (Cypress) is public land within the Forest and is contiguous to a larger parcel of unroaded Bureau of Land Management (BLM) administered land. BLM considered both parcels during their planning and have recommended they not be designated as wilderness. The other parcel (Kings River) includes lands on both the Sierra NF and the Sequoia NF. The Sequoia's portion, totaling 23,900 acres, is being considered by the Sierra NF during their planning. This area has not been recommended for wilderness designation in the Sierra's DEIS. Enactment of the Kings River Wild and Scenic River legislation in November 1987, included this area as a Special Management Area. This action negates the need for additional consideration as a Further Planning Unit. A plan for managing this Special Management Area (SMA) will be prepared jointly by the two Forests within three years of the legislation enactment date.

The lands considered are administered by the Forest Service. Forest Service Further Planning Areas were identified during the Roadless Area Review and Evaluation (RARE II) process and EIS. Forest Service roadless lands were identified as being either non-wilderness or Further Planning Areas. Further Planning Areas were to be recommended for wilderness or non-wilderness during the land management planning process and associated EIS. The non-wilderness lands were to be managed for non-wilderness uses.

On June 25, 1979, the State of California filed a suit claiming the RARE II EIS was inadequate with respect to non-wilderness areas. Four areas in the Sequoia NF were included. The judge directed that these areas were to be reevaluated for wilderness or non-wilderness. The original ruling was upheld by the Ninth Circuit Court of Appeals. The Forest Service then directed that because the RARE II EIS was inadequate, all Roadless Areas inventoried during the RARE II process would be evaluated for wilderness or non-wilderness during the Land Management Planning process. Except for six Further Planning Areas, this issue was resolved in the California Wilderness Act of 1984.

The Roadless Areas specifically cited by the California Wilderness Act of 1984 were either those portions of RARE II identified as Further Planning

or non-wilderness areas which were adjacent to newly created wilderness or to existing wilderness where the wilderness was expanded. Roadless Areas cited in the 1979 RARE II EIS as non-wilderness, and not specifically cited in the California Wilderness Act of 1984, were also released to non-wilderness management. See Appendix P of the EIS for the management prescription by alternative for all released areas. See Appendix C of the EIS for management prescriptions of all Further Planning Areas.

*Areas that became new wilderness (W) and those released to non-wilderness (NW) management are shown below:

Name	RARE II No.	RARE II Acres (Net)	Acres Released for NW Uses	Acres Allocated for W
Agnew	(199)	18,200	9,300	8,900
Jennie Lakes	(200)	13,700	3,200	10,500
South Sierra	(029)	34,100*	9,700	24,400
Woodpecker	(206)	44,400	13,600	30,800
Domeland Additions	(207)	3,100	3,100	0
Domeland Additions II	(305)	1,100	---	1,100**

* acreage on Sequoia NF

** An unspecified area of a few hundred acres was excluded from wilderness to allow a possible small hydroelectric project, but has not been subtracted from total acreage.

Table 3.7 - Further Planning Areas

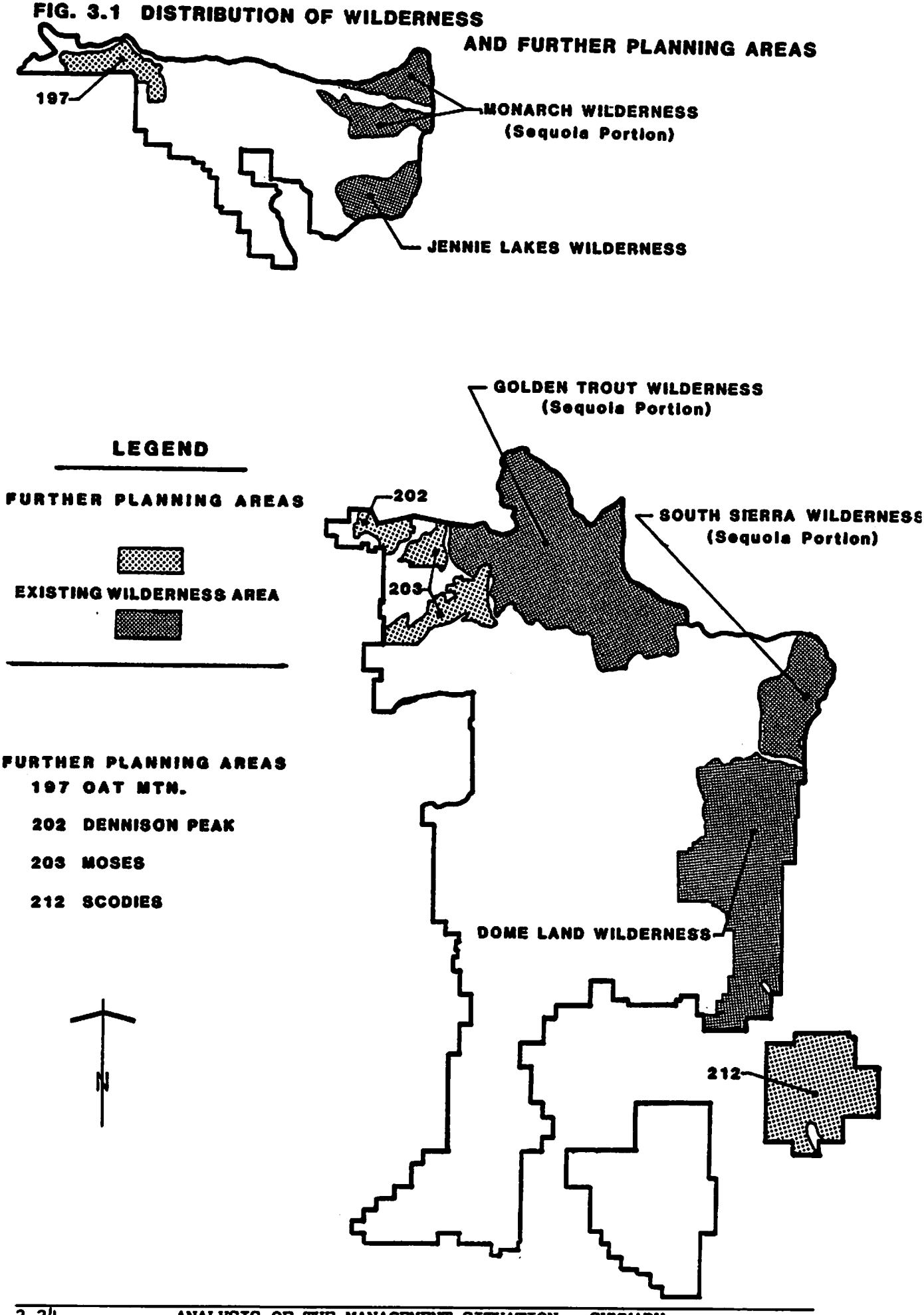
Area Type	Code	Name	Gross Acres	Net Acres
Further Planning Areas (National Forest)				
	*A5213	Cypress	1,949	1,949
	**B5198	Kings River	24,300	23,900
	05197	Oat Mountain	12,400	12,400
	05202	Dennison Peak	6,700	6,700
	05203	Moses	24,359	24,359
	05212	Scodies	48,000	48,000
			117,708	117,308

* Considered in a joint study headed by the BLM. Sequoia NF planning will not consider Cypress for wilderness.

** Enactment of Kings River Wild and Scenic River Legislation in November 1987 established this entire area as a Special Management Area, negating the need for Further Planning Area consideration.

Approximately nine percent of the Forest is in a further planning category. This portion was evaluated during the planning process; and a

FIG. 3.1 DISTRIBUTION OF WILDERNESS AND FURTHER PLANNING AREAS



recommendation was made on which areas should receive wilderness status. The recommendation was made after considering the social, financial and physical impacts produced by designating each area.

The future demand for wilderness is difficult to estimate, but it is expected there may be continued efforts to establish more wilderness through the year 2030. However, increasing demands for consumptive resources such as timber and minerals could cause a change in outlook regarding additional wilderness.

10. Human Resource Programs

The Human Resource Programs on the Sequoia NF in 1980 were the Senior Community Service Employment Program (SCSEP), Summer Youth Employment Program (SYEP) sponsored through Self Help Training and Employment and Tulare County Human Services, the Kern High School District Forestry Program, California Conservation Corps (CCC), Work Experience through Tulare County Superintendent of Schools, Volunteers in the National Forest, Youth Conservations Corps (YCC), and Young Adult Conservation Corps (YACC). The Human Resource Programs supplement the Forest work force and provide dollars and productive work to segments of the population, especially youth and older Americans who cannot readily gain entry into the labor market. The quality of the work produced for the most part has been high. The safety record of the youth programs has been quite good and the Summer Youth Employment Program safety record is outstanding.

In 1982, there were 1,065 individuals employed through Human Resource Programs, 11.2 person-years were worked through YACC; 47.51 person-years through SCSEP; 7.7 person-years through Volunteers in the National Forest; and 45.5 person-years through Hosted programs, which include Summer Youth Employment, Kern High School District Forestry Program, and California Conservation Corps.

The Forest is located in three fairly rural counties where high youth and adult unemployment (14.5 percent in Tulare County) creates strong demand for work experience and training.

Recruitment for SCSEP in remote Forest stations is difficult, but is not a problem at the Kernville or Porterville offices. Under the new Job Training and Partnership Act (JTPA), Work Experience students for the most part will not be available; however, the Summer Youth Employment Program will continue at current levels and there may be opportunity for the Forest to host work programs through JTPA under a volunteer basis.

11. Integrated Pest Management

Destructive insects, plant diseases, and animals can cause damage to trees and other forms of vegetation. The affects of this damage include mortality, reduced growth, reduced tree quality, top-kill, degradation and reduced seed production. At times, this can adversely impact the attainment of land management goals and objectives. Such damage can vary from year to year and place to place within the Forest.

There is no indication of current "epidemics" occurring on the Sequoia NF. With the exception of the 1975-1977 drought/insect/disease-related tree mortality, no catastrophic mortality situations have been encountered on the Sequoia within the last 10-15 years. Tree mortality on the Sequoia is usually the result of several pests or environmental factors acting together rather than the result of action by a single agent. The likelihood of future episodes of catastrophic pest-caused tree mortality depends in part upon climatic conditions and the degree of effectiveness of mitigating actions taken by the Forest to reduce destructive insect, plant diseases and vertebrate pest impacts.

Ground squirrels, chipmunks, and other small rodents may be serious pests in campgrounds and at other recreational facilities. They are occasionally carriers of bubonic plague and other diseases. Sometimes they cause damage to structures by chewing and/or digging.

The demand for control of pests is directly related to their impact on human activities and resources. An integrated pest management (IPM) approach is used to implement and coordinate activities needed to prevent/reduce pest-related problems on the Sequoia NF. This approach recognizes that pest management is an integral part of resource management and that insects, diseases, plants and animals are established elements of forest and range ecosystems. They are considered pests only when they interfere with the attainment of management goals and objectives.

12. Lands

a. Landownership Adjustment

The Sequoia NF administers about 1,119,000 acres of National Forest System Lands. In addition, there are about 54,000 acres within the boundaries of the Sequoia NF that are privately owned or State owned. The nonfederal land consists of many small, scattered parcels. Their effect on management activities, while locally intense at times does not have major effects.

b. Land Line Location

Encroachments on Forest land from private land activities are an increasing problem. The management solution has been to embark on a 20-year project to mark and post all 731 miles of boundary lines. This will enable both neighbors to know the location of the boundary and begin the process of removing encroachments. In certain cases, where immediate removal will cause great hardship on the private interest, a permit, limited as to time, may be issued. To date, 122 miles of line have been marked and posted at an average of 17.5 miles per year.

Demand for locating and posting the true boundary line has increased. This stems from the increasing developments within and adjacent to the Forest, the increasing concern about encroachment and the need to minimize the time invested in resolving them.

c. Rights-of-Way Acquisition

Access to the Forest is very important for management of resources and for providing public access. The Sequoia NF's rights-of-way program has concentrated on timber access roads and the Pacific Crest National Scenic Trail. Existing Forest System roads and trails cross the land of over 30 private landowners without rights-of-way and total about 45 miles. In addition, rights-of-way for new roads and trails will be needed to resolve management and public access problems.

d. Non-Recreation Special Uses

Approximately 2,151 acres of the Forest are used by 279 special-use permittees. These permits allow occupancy and use by the private sector and local governments.

Demand for special-use permits is tied closely to the development of private land adjacent to the National Forest System lands. This factor will continue to grow and will increase the demand for uses of the National Forest.

13. Law Enforcement

Law enforcement includes the protection of government property, employees and forest resources and uses. It is a management concern because of the potential for injury to employees and visitors, and the potential for losses and damages of the natural resources and property. Claims against the government for damages and/or losses sustained by the public are, and will continue, to increase. These cases require extensive investigation.

Highly concentrated recreational use in several locations and at particular times often cause significant problems in law enforcement. Vandalism, theft, destruction of government property, threats, intimidation and assaults on Forest Officers, occupancy trespass, wildland arson, and large group activities are growing problems.

There has been an increase in illegal use of National Forest System lands for the cultivation of marijuana. Employees are subjected to threats and possible violence by the growers. The Sequoia NF works closely with State and County law enforcement agencies investigating and eradicating marijuana gardens on National Forest System lands.

The use of the Forest's resources and facilities by the Forest visitors will accelerate in the years to come in proportion to the increase in population. This situation will have an impact upon the Forest law enforcement program. The frequency and complexity of the violations of laws, rules and regulations will be directly affected. The Forest will be faced with a challenge in attempting to maintain an effective law enforcement program that will be sensitive to visitor and management needs.

14. Minerals and Geology

The Forest is dominated by granitic material with small scattered metamorphic roof pendants. Volcanic material is rare. Mining activity is primarily associated with the metamorphics.

Past mining activity has been mostly along the Upper and Lower Kern Canyon and in the Piute and Greenhorn Mountains. Some activity occurred near Mountain Home State Forest and within the Hume Lake District during the 1930's and 1940's. Currently the Forest has about five mines in operation. Activity is not expected to increase much in the next 10 years.

Past mining activity has been mainly for gold, uranium, and tungsten. Current gold mining activity is confined mostly to weekend recreational prospecting. Uranium is not being mined at the present time but there are proven reserves which could be utilized. Tungsten is being mined in small quantities.

Overall demand for gold, tungsten, and uranium is low as evidenced by the amount of activity but is expected to increase. Demand for gold is expected to increase at about two percent per year. The most probable areas for development are in the Petersburg area, eastern Greenhorn Mountains, and in the Piute Mountains. Demand for uranium will likely be determined by environmental issues. Highest potential for development is located near Hobo Campground. The demand for tungsten is expected to increase at a rate of about four percent per year. The area with the most potential for tungsten production is located in the Golden Trout Wilderness and sections of the Kern Canyon.

Rock aggregate and decomposed granite are the most abundant forms of saleable mineral material for construction. Supply should meet demand during the next 10 years. Oil and gas and other leasable mineral potentials in the Forest are very low.

Sequoia NF System lands are generally open to mineral entry since most of them are in public domain status. However, 30,304 acres were purchased or donated under the Weeks Act which provides that minerals on these lands would be developable under leases (leaseable under 43 CFR 3500). Of this area, outstanding rights apply to only 1,280 acres. The sellers reserved all mineral rights for these areas, negating the leasing of any minerals until 1999. On 30 acres relinquished in a land exchange, the Federal Government reserved all geothermal resources. In another exchange, all fissionable materials on 1,266 acres were reserved.

The Forest Service does not initiate mining of locatable minerals, but responds to private requests for exploration and development. With the exception of about 6,194 acres withdrawn by the Forest Service (for developed recreation, administrative sites, and roadside strips) and 11,660 acres withdrawn by other agencies, the Forest is open to mineral development subject to the mitigation of impacts to surface resources. In compliance with P.L. 94-579 (Section 204), each withdrawal will be reviewed in conjunction with the Secretary of Interior to determine whether the withdrawal should continue and for how long. This review will be completed by October 21, 1991. Access to wilderness and special areas (i.e., Wild

and Scenic Rivers, Botanical Areas, and Research Natural Areas) is subject to valid existing rights. It is restricted to the extent that the integrity of the area involved must be maintained. Otherwise, access is unrestricted. Roads provide adequate access to most areas with the most mineral potential.

15. National Natural Landmarks

The Department of the Interior, National Park Service, is responsible for administering the Natural Landmarks Program as established by the Historic Sites Act of 1935. A series of theme studies have been completed by the Park Service which identified candidate National Natural Landmarks sites on National Forest System land. These are sites which potentially represent a particular niche in the ecological or geological character of the United States.

Eleven candidates were submitted to the Sequoia for evaluation. Moses Mountain and Long Canyon are identified within this Plan as recommended (Moses) and potential (Long Canyon) Research Natural Areas. Bald Mountain, Sirretta Pass and Inspiration Point are candidates for Special Interest Areas (botanical). The Bodfish Piute Cypress is an officially classified Botanical Area.

One area, Little Kern River Basin, is entirely within the Golden Trout Wilderness; and another, Dome Land, is primarily within the Dome Land Wilderness and the BLM Rockhouse WSA. Since these areas are located within a wilderness, they were not deemed necessary to pursue additional status.

The Greenhorn Ridge Cypress Grove represents an insignificant stand. The Cedarbrook site is partially within private ownership and does not possess a significant representation of the ecosystem present. The Hobo Ridge site contains Piute cypress that is well represented in the Bodfish Grove.

16. Office of Information and Interpretive Services

The Office of Information (OI) and Interpretive Service (IS) provides an important communication link between Forest managers and the public. The Forest is within one hour's drive of two large urban areas in the San Joaquin Valley (Fresno and Bakersfield) with more than 500,000 people. It is within a 3-1/2-hour drive of the Los Angeles Basin, the largest population center in the State. Local news media include: 40 newspapers, 12 television stations, 30 radio stations and four bureaus, including foreign language media.

With more than 300,000 individuals of Hispanic background residing in the three County area (Fresno, Tulare, Kern), there is a need for bilingual information programs. Currently, the Sequoia NF issues press releases to three Hispanic newspapers, six Hispanic radio stations, and one Hispanic television station. An average of four television shows are presented annually in Spanish to publicize the opportunities available in the Forest.

Three Forest Interpretive Association (3-FIA) is a nonprofit association which assists the Sequoia NF in providing information, books, and pamphlets

at seven public contact stations. Those stations include five Ranger Stations, one field station, and the Supervisor's Office.

Current management direction is to:

1) provide opportunities for visitors and potential visitors to obtain basic information about the Forest;

2) on-the-ground interpretation and visitor contact in areas of heavy use;

3) make the Forest visitor's stay a more enjoyable and meaningful experience; and

4) assist resource management objectives through public understanding.

The urban public is generally not involved in Forest activities; and, consequently, is uninformed. This results in a lack of understanding and support for timber management, abuse of public facilities, many person-caused fires and serious accidents by Forest visitors. Besides personal and environmental damage, this lack of information demands greater outlays of Forest employee time and taxpayer dollars. Additionally; many people confuse the identity and role of the Forest with the Sequoia and Kings Canyon National Parks.

With over 50 percent of the State's population within a few hours of the Forest, OI is flooded with inquiries when environmental issues or major events occur. In this sense, the Sequoia NF has extra media responsibilities, which are regional in scope. Increasing use will create the need for efficient and effective means for communicating with the public. Public understanding and support of Forest programs and activities will likely become more critical as more people use and become interested in the Forest and its resources and management.

17. Range Management

Rangelands are composed of plant and animal communities and their physical environments. The components of rangelands (soil, water, climate, solar energy, topography, fire, animals and people) are closely related. A change in one affects the others.

Management of rangeland vegetation is the application of knowledge, skills, and techniques based on ecological principles to maintain or reach certain vegetative objectives. Achievement of these objectives will provide for an integrated mix of related resource values and uses which include soil protection, water quality and yield, open space, plant diversity, wildlife habitat, livestock forage, recreational use and landscape quality.

The underlying value in all decisions affecting range vegetation is maintenance or enhancement of the soil resource. Cost-effectiveness is also a necessary factor in the evaluation of these decisions.

Management of range vegetation includes:

1) Inventorying and analyzing of range vegetation and uses to form a basis for decision making.

2) Monitoring ecological status, resource values and results of management actions, and

3) Gaining cooperation and understanding from others to achieve range vegetation management objectives.

One of the more visible uses occurring on Sequoia NF ranges is livestock grazing. This use is important, not only for vegetation management purposes, but to sustain ranch operations which are a source of livelihood, sustain a rural lifestyle, and promote sound land use practices.

Range management programs on the Forest cover about 1.01 million acres of grassland, open forests, and other forage-producing areas. As of 1982, this large area was divided into approximately 55 livestock grazing allotments located in three counties. Some 47 paid permits were issued to permittees to graze 69,000 Animal Unit Months (AUM's) annually.

Grazing occurs on two basic types of grasslands: annual and perennial. Annual grassland occurs at lower elevations of 1,000-3,500 feet; and perennial grassland generally occurs in wet meadows located from 4,500-10,000 feet.

Current management activities include general administrative management of the grazing program and range improvements. The general administrative management of livestock grazing involves inventories of range resources, determination of grazing potentials, designation of range allotments, granting of grazing permits, and the inspection and administration of range grazing to assure environmentally sound use of the range resources. Range improvement practices include fencing and water development, prescribed burning and seeding to improve forage conditions, brush control, thinning of timber stands, control of animal pests, noxious weed control, drainage and fertilization.

To provide a link between environmental management of the range resource and livestock grazing administration, the Sequoia NF recognizes the use of grazing systems and allotment management strategies. Grazing systems are the means for obtaining the kind of grazing prescribed by the management strategy. Some grazing systems entail no more than confining livestock in a fenced area, providing them with water and salt, and removing the animals when the vegetation has been grazed to a desired amount. Other systems are quite complex and involve rotating a herd of cattle among several pasture units during a given grazing season with the order of rotation varied between years.

In general, the three management strategies used on the Forest vary from the use forage by livestock within the apparent capacity of the rangeland to an intensive livestock management approach calling for complex cultural practices. These management strategies consider the stocking levels of

livestock as well as provide for varying use patterns which result from livestock distribution and range improvements.

The livestock industry is capable of utilizing all of the additional forage that can be produced in the planning area. The beef-cow numbers on adjacent private lands will remain fairly stable. The acreage of private land that is currently utilized for grazing will not change appreciably.

The potential supply of grazing on the Sequoia NF based on biological potential is estimated to be 96,000 AUM's. This could be achieved by intensively managing about 1.49 million acres of range in the Planning Area (which is 15 percent greater than the current acreage).

Although the potential for increases in grazing exist on the forest, there are not plans to increase AUM production. Instead, the forest will maintain current levels of grazing through at least the next decade except for minor fluctuations to take advantage of surplus and annual grass forage in favorable years. The additional forage created by even-age harvest methods (transitional forage) will be available to lessen grazing pressure on meadows and riparian areas and provide additional forage for wildlife and recreational stock.

18. Recreation

a. Overview

The Planning Area, with its range of elevation, climate, vegetation, and topography, offers a broad spectrum of recreation opportunities and settings for all seasons of the year. Principal outdoor recreation activities include camping, motorized travel, water-related activities, hiking, horseback riding, resort, and recreation residence use. The recreating public can pursue activities in areas of high use such as those along the Kern and Tule Rivers, around Hume Lake, parts of the Lloyd Meadows Road and parts of the Kern Plateau. Conversely, many parts of the Forest offer less intensive use. Visitors can experience primitive situations within the designated wildernesses. In 1982 the Forest received nearly 2.5 million Recreation Visitor Days (RVD's) and ranked eleventh in the Pacific Southwest Region and twenty-ninth in the Nation for total recreation use. Approximately 36 percent of the RVD's occurred in developed sites and 64 percent in dispersed areas (4 percent of which were in designated wildernesses).

Approximately 90 percent of the Sequoia NF use originates from the five southern California counties of Los Angeles, Riverside, San Bernardino, San Diego, and Santa Barbara. Use projections are based on the predicted population growth of these counties. Table 3.8 displays use projections for dispersed and developed recreation and ski areas.

Table 3.8 - Recreation Use Projections on the Sequoia NF (in Thousand RVD's)

	1982	1990	2000	2010	2020	2030
Developed	882.2	937.0	1,043.5	1,082.0	1,213.0	1,279.0
Ski Areas	3.3	297.0	320.5	419.0	547.0	708.0
Dispersed	1,582.0	1,900.0	2,158.0	2,438.0	2,712.0	3,000.0
Total	2,467.5	3,134.0	3,522.0	3,939.0	4,472.0	4,987.0

b. Recreation Management

Until recent years, the traditional Forest Service approach has been to provide facilities to support specific recreation activities. During the last decade, however, outdoor recreation pursuits have changed creating the need for a different recreation management approach. These changes have come from an increased environmental awareness, social pressures in urban situations, improved technology in clothing and equipment, and a general increase in leisure time. The current approach, then, is to manage recreation opportunities by managing the social and physical setting where various activities take place. The result was the Recreation Opportunity Spectrum (ROS).

The ROS system was developed to display a continuum of recreation opportunities and to identify the portion of the spectrum that a National Forest might be able to provide. The ROS classes are: Primitive (P), Semi-Primitive Non-Motorized (SPNM), Semi-Primitive Motorized (SPM), Roaded Natural (RN), Rural (R), and Urban (U). Urban ROS class does not exist on the Sequoia NF.

c. Demand for Recreation

In order to analyze demand, recreational opportunities have been separated into activity groups (land, water, snow). Projections of demand by activity group on the Sequoia NF suggest a substantial increase in use levels. Land activities show a 30 percent rise between 1980-2000, and a 45 percent rise between 2000-2030. Similar increases are shown for water (30 percent and 50 percent respectively) and snow (35 percent and 60 percent).

Certain recreational activities are associated with each ROS class. For example, the Roaded Natural Class usually offers the opportunity for trailer camping and Semi-Primitive Non-Motorized offers opportunities for tent camping.

Table 3.9 - Capacity (PAOT) and Demand (MRVD's) by ROS Class

ROS Class	Capacity (PAOT)	Demand (MRVD's) 1982	1990	2000	2010	2020	2030
P	1,055	2	2	3	3	3	3
SPNM	6,241	88	101	111	125	140	155
SPM	41,743	42	46	53	63	68	73
RN	767,749	1,235	1,668	1,877	2,166	2,491	2,831
R	48,794	1,100	1,235	1,415	1,576	1,744	1,921
	865,582	2,467	3,052	3,459	3,933	4,446	4,986

d. Developed Recreation Opportunities

Developed recreation use tends to be concentrated around special scenic or recreation features, facilities, or travel routes. In the Sequoia NF, developed recreational sites account for 36 percent of the total recreational use but occupy only 0.1 percent of National Forest System lands.

Type of Site	Sites	1982 RVD's	Total PAOT
Observation (Vista Point)	5	4,900	157
Swimming	2	24,800	300
Campgrounds - Family	48	454,400	5,690
Campgrounds - Group	5	13,300	430
Picnic Grounds	9	56,500	530
Resort	6	63,000	710
Organization	11	143,200	1,735
Other Rec. Concessions	3	21,700	810
Rec. Residences	19	96,500	1,480
Information Sites		3,900	
Forest Totals	108	882,200	11,842

Predicted demand for recreation opportunities in developed sites can be met with existing facilities until shortly after 2000. This is based strictly on capacity figures and does not take into account the desirability of some sites (which are presently heavily used) and the fact that other sites, with no primary "drawing card" (e.g., water orientation), receive very little use. Some sites will reach capacity in the next few years.

e. Dispersed Recreation Opportunities

Participation in dispersed recreational activities on the Sequoia NF is significant. In 1982, for example, approximately 64 percent of the total Forest use was in this category.

The freedom and lack of development which characterize dispersed land activities make any precise statements about the current supply situation difficult. The following table displays the Forest capability to supply recreation opportunities by ROS classes. The acreage is based on the

assumption that few acres with slopes greater than 40 percent are useful for recreation opportunities.

Table 3.10 - Current Dispersed Area Acres, Capacity (PAOT), and RVD's by ROS Class

ROS Class	Acres	PAOT	1982 RVD's
P	35,900	1,100	2,000
SPNM	122,400	6,200	88,000
SPM	76,500	41,800	42,000
RN	340,400	761,100	761,000
R	1,700	43,600	689,000
Total	576,900	853,800	1,582,000

There is increasing use and demand for dispersed motorized activities on the Sequoia NF. The Forest Off-Road Vehicle Management Plan will be designed to ensure that the use of off-highway vehicles (OHV's) is controlled and directed. This will include coordination with the "Draft Statewide OHV Recreation Trails Plan." The objectives of OHV management are to protect the resources and improvements, and to minimize the conflicts between users.

The popularity of dispersed land recreation will continue to grow. Demand for recreation opportunities on dispersed areas can be met throughout the planning period, although certain ROS classes will be used almost to capacity by the year 2030. The most critical of these areas are the river zones--those areas which provide recreation opportunities most desired on the Sequoia NF. The trail system will be expanded somewhat above the existing 900 miles (approximate) and coupled with rehabilitation, will be an important factor in dispersed recreation management. The Pacific Crest National Scenic Trail traverses the Forest for approximately 49 miles. Coordination with the adjacent Sequoia and Kings Canyon NP's will continue as it pertains to backcountry visitor management.

f. Winter Recreation Opportunities

The presence of snow significantly broadens the range of recreational opportunities the Forest can provide. Snow activities accounted for 34,700 Recreation Visitor Days of use in 1982, on the Sequoia NF (approximately one percent of total recreational use).

Few facilities are available for winter recreational use. A small (300 SAOT) downhill ski area, Shirley Meadow, has been under permit to Kern County since 1940. Twenty-six miles of oversnow vehicle trails have been identified and less than that number marked for cross-country skiing. The Hume Lake District and the Tule River District, in particular, receive heavy cross-country ski and oversnow vehicle use. Two Sno-Park sites, designated by the State of California and managed in coordination with the Department of Parks and Recreation, currently exist along the Western Divide Highway on the Tule River Ranger District.

For many years the Forest has kept an inventory of potential downhill ski sites and has periodically updated these potential sites. Three appear to be most promising. Following is a listing of those sites:

Name	District	Study Acs.	Est. SAOT
Peppermint	Tule River	6,000	8,000
Mitchell-Maddox	Hume Lake	3,000	10,335
Sherman Pass	Cannell Meadow	3,000	5,249

First priority for development of these potential ski areas is Peppermint. As a result of a special study and preparation of a Final Environmental Impact Statement, a decision to proceed with the process to develop this resort has been made. Consideration of other downhill ski resorts with the attendant facilities would require following NEPA processes and be undertaken only as demand warrants.

g. Water-Oriented Recreation Opportunities

Water serves as the prime attraction for recreational activities on the Sequoia NF. In 1982, water activities accounted for 392,900 recreation visitor days of use, approximately 15 percent of all Sequoia NF recreational use. Almost all of this use was directly water-oriented (floating, fishing, swimming, etc.) as opposed to onshore activities. Whitewater floating is a popular activity, with almost 20,000 people participating in 1982. Two rivers, the North Fork Kern and the Kings, have been discovered as offering outstanding whitewater floating opportunities.

There are 8,900 acres of rivers, streams, lakes, and reservoirs on the Sequoia. Most are small streams suitable for fishing but not developments. Those sites suitable for development have been used. Adding to this capacity will be difficult.

19. Research Natural Areas

Research Natural Areas (RNA'S) set aside important vegetative and geologic types and other natural conditions that have special unique characteristics of scientific interest. RNA's are for non-manipulative research and education. Uses other than research and education are discouraged.

There are no RNA's currently established on the Sequoia NF. Target elements needed to complete the RNA system for the Sierra Nevada (south) Province were prioritized. The target elements selected for the Sequoia NF to be evaluated include Jeffrey pine, red fir, and giant sequoia. An additional element, the conifer woodland, has been identified as a potential RNA.

Church Dome Jeffrey Pine RNA Candidate

Church Dome (Cannell Meadow District) has been identified as a candidate RNA for the Jeffrey pine element. The area is dominated by an open parklike Jeffrey pine forest within the Manter Creek Drainage in the Dome Land Wilderness. The potential RNA is 1,380 acres in size.

South Mountaineer Creek Red Fir RNA Candidate

South Mountaineer Creek (Tule River District) has been identified as a candidate RNA for the red fir element. An extensive red fir forest dominates the area. This area lies within the watershed of South Mountaineer Creek in the Golden Trout Wilderness. This potential RNA is 1,325 acres in size.

Moses Mountain Giant Sequoia RNA Candidate

Moses Mountain (Tule River District) has been identified as a candidate RNA for the giant sequoia element. In addition to giant sequoia, the area contains rare plant habitat on the rocky east-facing slopes of Moses Mountain and aquatic habitat along the Wishon Fork Tule River. Of the 960-acre area, nearly two-thirds (610 acres) of the area lies within the Golden Trout Wilderness. The remaining 350 acres are outside of the wilderness boundary.

Long Canyon Conifer Woodland RNA Candidate

Long Canyon (Greenhorn District) has been identified as a candidate RNA for the conifer woodland element comprising Piute cypress, California juniper and pinyon pine. This area is 1,000 acres in size. A large portion of this area burned in the 1984 Bodfish Fire.

20. Special Interest Areas

Special Interest Areas (SIA's) are classified because of their unusual or outstanding scenic, cultural, scientific, natural or other unique characteristics which merit special attention and management. They are managed to protect the resources and where appropriate, foster public use and enjoyment of their significant values. There are two existing SIA's on the Forest, the Bodfish Piute Cypress Botanical Area and the Packsaddle Cave Geologic Area.

a) Botanical Areas

The Sequoia NF is one of the most diverse botanical regions in California with over one-quarter of the State's flora occurring within its boundaries. Because of this diversity, several noteworthy botanical areas were identified during the inventory phase for the Plan. Demand for Botanical Areas has been expressed by botanical organizations and concerned individuals.

Bodfish Piute Cypress Botanical Area (established in 1970)

The Bodfish Piute Cypress Botanical Area covers 310 acres on the Greenhorn District. It is part of the largest stand of this localized and endemic conifer of the Southern Sierra Nevada.

Ernest C. Twisselmann Botanical Area (proposed in 1979)

This area is located on the Kern Plateau at Sirretta Peak, on the Cannell Meadow District, and covers 860 acres. It contains a subalpine coniferous

ecosystem of foxtail, limber, western white, Jeffrey and lodgepole pines, and red and white firs. This botanical area has several plant species with their southernmost occurrence in the Sierra. Scenic vistas are dramatic from East Sirretta Pass with views of Farewell Gap, Bald Mountain, Big Meadow, Olancha Peak, and Mt. Whitney.

The following Botanical Areas are candidates that were identified through an inventory process that contain the best SIA attributes on the Forest.

Bald Mountain Botanical Area (Cannell Meadow District)

This area, consisting of 440 acres, has been recognized by the scientific community as a most unusual botanical and geological island in the southern Sierra on the Kern Plateau. Bald Mountain is comprised of precretaceous metasedimentary rocks while the surrounding area for miles is mesozoic granitic rock. Over 170 species of plants have been recorded on the rocky summit, and one sensitive species, the Bald Mountain potentilla (Horkelia tularensis) occurs nowhere else.

Baker Point Botanical Area (Hot Springs District)

Baker Point is a granitic point overlooking the Kern River Canyon. This area encompasses 780 acres and contains many "rock-loving" plants. The area offers scenic views towards Lake Isabella and the Piute Mountains to the south; the Great Western Divide, Needles and the Sierran Crest to the north and east. Three sensitive plants are located within this Botanical Area.

Inspiration Point Botanical Area (Greenhorn District)

This area containing 270 acres occurs in the rugged Erskine Creek watershed. Several Sierran plants have their southernmost station at Inspiration Point, while other plants have their most northern station from the mountains of southern California.

Slate Mountain Botanical Area (Tule River District)

Slate Mountain is uncommon because of an abundance of sensitive plants. The area covers 490 acres along the rocky northern summit comprised of precretaceous metamorphic and metasedimentary rocks surrounded by granitic rocks. Nearly 95 percent of the total population of Twisselmann's buckwheat occurs on Slate Mountain. While this inventoried area is within the Peppermint Mountain Resort FEIS study boundary, it is outside of the proposed ski area and would not be impacted if a ski area were to be developed.

b) Geological Areas

The Forest is geologically dominated by granitics. Granite domes such as Dome Rock, Needles, and the Dome Land Wilderness are topographically important. Volcanic and sedimentary islands contain areas of special interest with roof pendants of marbles, basalts, and limestones being most noteworthy. The majority of geological features are already protected in

wildernesses on the Forest. In addition, most of the potential botanical areas are also geologically significant.

Packsaddle Cave is the only classified geologic SIA on the Forest and encompasses 40 acres. This cave has been impacted and vandalized.

21. Urban Interface

The definition of an "urban interface" is "an area of human settlement on private land, contiguous with the Forest that is developed or potentially developable to density comparable to conventional subdivisions." Currently, urbanized interface is not formally recognized on the Sequoia NF. Developed areas are scattered along the edges of the Forest and concentrated on or near the larger parcels of private lands within the Forest boundary. These areas possess the potential to affect the management of adjacent public lands. The Forest has delineated interface areas on the basis of visual resources and increased fire suppression and prevention needs. These are: Hume Lake, Pinehurst, Hartland, Camp Nelson, Sequoia Crest/Alpine, Ponderosa, Hot Springs, Sugarloaf, Poso, Greenhorn Summit, Kernville, and Breckenridge.

Residential and commercial structures in these urbanized areas represent large investments. The flammable nature of many of the buildings, narrow roads, limited water, native and introduced vegetation, along with a wide variety of human activities, combine to create a complex and demanding fire management problem. Fuelbreaks, access roads and the use of prescribed fire is limited by the need for rights-of-way and agreements from private landowners.

Demands for modified management direction in urban interfaces are increasing. Identified concerns and problems in urbanized areas relate to the threat of fire, demand for recreation, access, water quality and quantity, timber harvesting, visual effects, fiscal effects of Forest Service actions and a need for selected land exchanges. Many of these factors are currently interacting on several urbanized areas on the Forest. Current direction is limited to dealing with the problems of human settlement (encroachment, fire risk, etc.) on a case-by-case basis.

22. Vegetation Management

a. Chaparral

There are 245,700 acres of vegetation classed as chaparral on the Sequoia National Forest. Of this 61,300 are classed as montane chaparral which is included in the conifer forest management area. Approximately 8,600 acres are intermixed in oak woodland or pinyon-sage management areas. Another 10,800 acres is managed under wilderness or other areas or special categories. The remaining 165,000 acres is managed as a mixed chaparral ecotype under non-wilderness management.

The majority of this management area is found in the front country (particularly in the Upper and Lower Kern Canyon) at an elevation of 1,000 to 4,500 feet between the oak savanna and the black oak woodland or conifer forest. Approximately 75 percent of the brush in this management area is

mature to decadent with large areas virtually inaccessible due to steep slopes and closed canopies.

Primary uses of this area are grazing, wildlife habitat, camping, hunting, hiking, fishing and light to moderate water yield. This management area provides winter range for deer and forage for livestock.

In the late sixties, it was realized that the existing fire exclusion policy was neither practical nor desirable. The controlled use of fire and mechanical treatment of decadent brush offers potential to increase water yield, forage production, recreational opportunities and wildlife habitat diversity in addition to reducing fire hazards.

Current management of the chaparral zone includes treatment of up to 5,000 acres per year. Primary emphasis of these treatments has been the reduction of hazardous fuels at the urban interface and adjacent to intermixed private holdings. Several wildlife oriented burns have been accomplished in the last few years, primarily utilizing outside funding sources.

Potential exists to increase water yield by approximately 8,000 acre-feet per year in the mixed chaparral zone in addition to increasing on-site productivity of water and prolonging the flow of springs and small tributaries. Additional opportunity exists to increase grazing capacity by 13,300 AUM's and increase habitat capability for deer on winter range by 5,000 animals.

Benefits to resource protection are difficult to measure since fires will still occur; and, under current policy, will still be aggressively controlled. The benefits will be in lower rates-of-spread and resistance-to-control which will substantially reduce costs of suppression and losses to Forest resources and private property.

Recreational benefits of chaparral management are increased hunting opportunity, greater visual diversity, and increased recreational access to the chaparral zone.

Experience has shown that optimum management for this area is to burn the chaparral on a continuing or rotating cycle to achieve sustained benefits over time. Resource protection objectives require retreatment of an area on a 10-year basis or less for fuelbreaks. Habitat improvement and grazing production can be maintained by a fire cycle of 20 to 40 years depending on chaparral species, slope, aspect and resource objectives. Treatment of chaparral brush on a rotational cycle maintains a healthy diversity of habitat and vegetative age classes.

b. Giant Sequoias

Giant sequoia or sierra redwood (Sequoiadendron giganteum) grows in mixed conifer forests on the western slope of the Sierra Nevada at elevations ranging from 5,000-8,000 feet. Common conifer associates are white fir, sugar pine, ponderosa pine, Jeffrey pine, and incense cedar.

About 38 groves, totaling approximately 13,200 acres, are scattered throughout the Forest primarily on the Hume Lake, Tule River, and Hot Springs Ranger Districts. These acres include the previously mentioned associated species as well as individuals and groups of specimen and immature giant sequoia. Preliminary inventory estimates 960 MMBF of standing volume in the groves. Stands of pure giant sequoia are not common on the Forest and occupy only about 3,000 acres. (See the Giant Sequoia Location Map attached to this Plan.)

The majority of the sequoia trees in the Forest are greater than 80 years old. There is little sequoia reproduction in the groves. Whitewoods (trees other than giant sequoia) have intruded in the last 80 years increasing the fire danger and obscuring the view of specimen trees.

There is demand for giant sequoia for recreational use and for lumber. The wood in mature trees is more brittle than coast redwood but is very resistant to rot. However, structural quality in young giant sequoia trees is similar, if not better than coast redwood. Rapid growth and commercial value make this species very desirable in the managed Forest. According to recreational data, giant sequoia areas in 1982 received 70,000 visitor days of use, all in Roaded Natural ROS class.

The potential uses and opportunities could be enhanced by:

1) reducing excessive fuels within the groves;

2) producing a seedbed for natural regeneration by a combination of timber harvesting activities and prescribed burns;

3) increasing aesthetic values by selectively removing dense "whitewoods" so that the giant sequoia can easily be seen;

4) planting of giant sequoia in other mixed conifer stands or plantations;

5) selectively thinning young growth giant sequoia to promote growth of future specimen or museum trees;

6) constructing recreation trails through selected groves and providing interpretation; and

7) increasing publicity about giant sequoia groves.

Currently new management activities are not planned within sequoia groves pending completion of a Giant Sequoia Management Implementation Plan.

c. Meadows

The Forest has approximately 7,540 acres of mountain meadows ranging in size from a few square feet to several hundred acres. All lie within the larger conifer ecosystem. They represent less than two percent of that ecosystem's gross acreage. Although the total area of meadows is a small percentage of the mountainous terrain, they are among the most heavily used areas of the mountains for livestock grazing, wildlife habitat and

recreation. In addition, meadows contain the greatest plant diversity and number of plant species per acre on the Sequoia NF.

Most meadows in the Forest are classified as wet meadows or wetlands. They are generally found scattered above 5,000 feet, and have a shallow water table which provides for a high soil moisure content the year-round. Dry meadows are another meadow type. The few dry meadows are scattered in the more arid, eastern portion of the Planning Area.

The meadow ecosystem is fragile and its survival depends on its water supply and vegetative cover. Heavy trampling and overgrazing can destroy meadow vegetation leaving the meadow susceptible to erosion. Activity in the watershed upstream from the meadow can change the runoff timing and quantity. This, in turn, can cause channel scouring and eventually lower the water table.

The small acreage of the meadow ecosystem provides the bulk of forage on many of the Forest's grazing allotments and for recreational stock. Frequently, there is little forage available on slopes around the meadows. Meadows provide scenic vistas, and their timbered edges are favored campsites for Forest visitors. Also, meadows serve to filter sediments, chemicals, and bacteria from water coming off of surrounding slopes. Thus, meadows function to provide clean water for human use and maintain suitable fish habitat in streams. Current demand for livestock forage, recreation and wildlife far exceeds the capability of this ecosystem.

It is not possible to significantly increase the total acreage of mountain meadows on the Forest. The same conditions that create current demands for this ecosystem will increase in the future. Therefore, future demands will be greater than this fragile landscape will be capable of producing. The potential exists to protect and enhance meadows through improved livestock management systems, watershed improvement, and increased transitory forage in the conifer ecosystem.

d. Riparian Areas

The riparian area is defined as the area within the streamside management zone. This includes the aquatic ecosystem, wetlands, riparian vegetation and 100-year flood plain. There are approximately 1,300 miles of perennial streams and about 275 acres of lakes in the Forest.

Riparian areas support unique vegetation and are important wildlife habitat. They provide important ecotonal areas and edges with the larger forest ecosystems and contribute greatly to habitat diversity. Many species are dependent on riparian areas for their livelihood.

Riparian areas protect the water quality, filter, sediment and provide vegetation to stabilize stream banks. Floodplain widths and vegetation associated with them help reduce flood intensities.

Riparian areas are important to a number of resources. They provide diversity and edge effect for wildlife species. The difference between riparian and adjacent vegetation provides visual contrast and a fire barrier. Hardwoods in riparian areas could supply firewood; softwoods

provide timber. Water and forage attract livestock to riparian areas. Streams and flat areas adjacent to them draw special recreation pursuits, such as camping, swimming, fishing and residential use. Riparian vegetation shade streams; thereby, maintaining lower water temperatures needed for trout fisheries. Conflicts between these resource needs and uses exist now and will increase as demands for goods and services increase. The Forest Riparian Guidelines will determine to what extent the riparian areas are utilized to provide these goods and services. (These Guidelines are available for public review.)

e. Timber

Approximately 531,000 acres of the Forest contain conifers. Of these approximately 420,000 acres are classified as tentatively suitable for timber production. The following table displays the timber strata and standing volume.

Table 3.11 - Timber Strata and Standing Volume Inventory*

Conifer Type	Acres	Volume (MMBF)
mixed conifer	254,000	5,500
ponderosa/Jeffrey	59,000	1,000
red fir	40,000	1,300
lodgepole	11,000	200
giant sequoia	3,000	100
Total conifer	367,000	8,100 MMBF
Other Forest land (hardwood, shrubs, non-stocked)	53,000	---
Total lands tentatively suitable for timber management	420,000	8,100 MMBF

* Data obtained from 1976 aerial photos and inventory plots established in 1980. See Plan, Appendix C, Table C.9 for unrounded figures.

Current management direction for the management of the timber resource is found in the Sequoia NF Timber Management and Forest Multiple-Use Plans. The objective of the timber management plan was to sustain a maximum annual sawtimber harvest of the most desirable species to meet the Timber Resource Review goal for the Forest of 103.3 MMBF.

The Timber Management Plan directed that management in the mixed conifer, westside pine and true fir types be carried out under Unit Area Control guidelines; and eastside pine be managed under individual risk tree selection. The eastside pine was planned to phase into Unit Area Control at a

later time. In Unit Area Control the condition of existing timber rather than topography dictates the stand boundary and cutting prescription.

Currently, timber is managed under the even-aged system incorporating such harvest practices as clearcutting, shelterwood and intermediate methods. Modified even-aged practices are used where timber production is not the dominant use such as at recreation sites, visually sensitive areas or critical wildlife habitat.

There are two major mills utilizing Sequoia NF timber: Sierra Forest Products at Terra Bella, and the Sequoia Forest Industries at Dinuba. In addition, there are approximately 10-15 small businesses and individuals which also purchase timber sales. During the period 1960-1986, the average annual harvest has been 92.0 MMBF. Approximately 1200-1500 acres are artificially regenerated on the Sequoia N.F. each year. Currently the use of herbicides which support artificial regeneration practices have been suspended in Region Five pending completion of Regional EIS.

Timber from adjacent National Forest and private land are also processed by these mills. Future demand is expected to exceed supply.

Demand for firewood from the Forest has increased dramatically over the past five years. The demand for firewood was 27,500 cords in 1978 and 34,700 cords in 1982.

f. Woodlands

Woodlands on the Planning Area are divided into various oak (hardwood) and pinyon pine woodlands. Major resource uses and opportunities include: wood production (firewood), wildlife habitat, recreation, and range.

Oak Woodlands

There are three major species of oaks occurring in the Planning Area. These are blue, black, and canyon live oak. Each type has uses and opportunities that are different from each other.

1) Black Oak Woodland

Black oak woodlands lie between the mixed chaparral and conifer forests and are primarily located on the western slope of the Forest. Black oak woodlands form a narrow transition zone where warm chaparral soils give way to cooler soils that are capable of growing conifer species.

In the past 80 years, intensive fire suppression activities have nearly eliminated ground fires in black oak woodlands that under natural conditions periodically burned out the understory vegetation. Today there is an understory of shade-tolerant incense cedar and white fir trees.

Black oaks continue to be used for firewood production since this is a species desired by people who obtain firewood for home heating. This woodland is a critical area for wildlife diversity for birds and mammals due to the availability of nesting cavity openings in mature

black oak trees. Mast (acorn) production is also extremely important for deer and other wildlife species. Recreation use is relatively high in the black oak woodlands and cattle utilize the herbaceous understory which is composed primarily of grasses.

Harvesting and thinning of black oak trees would increase the diversity of wildlife habitat and increase grazing opportunities. Black oak woodlands comprise about 45,900 acres on the Sequoia NF. Only 25 percent of this acreage is considered accessible at this time. A minimum of 20-25 square feet basal area per acre is required to maintain wildlife habitat. An uneven-aged management approach could be implemented with a minimum of 120-year rotations. Based on biological potential, 10-25 cords per acre could be harvested and maintain wildlife habitat.

2) Blue Oak Woodland

Blue oak woodlands, besides serving as valuable wildlife habitat, have traditionally been utilized for range production due to the extensive annual grass understory and the proximity to cattle ranches on the eastern edge of the San Joaquin Valley. This woodland occurs only on the western fringe of the Forest wedged between the floor of the San Joaquin Valley and the mixed chaparral. Blue oak is the dominant species in this woodland, but digger pine, California buckeye, interior live oak and valley oak can be common associates. The understory in the blue oak woodland is brome, oat and fescue grasses giving this woodland a savanna appearance.

Growth potential (like most oaks) is extremely slow. Wildlife habitat and livestock will continue to utilize the blue oak woodland.

Firewood harvesting on the 16,539 acres of blue oak woodland on the Sequoia NF is not a high priority primarily since the cords per acre are low, the few trees per acre are essential to many wildlife species, and shade provided from the trees is utilized by cattle during the hot summer months.

3) Live Oak Woodland

The last hardwood type is the live oak woodlands. These woodlands are evergreen as opposed to the blue and black oaks that are deciduous. Geographically, live oaks occur scattered across the Planning Area from 1,000 to 8,000 feet. They generally occur on steep, rocky slopes or areas with relatively shallow soils.

There has been little utilization of live oak woodlands. Live oaks form a closed-canopy and usually no understory vegetation is present precluding livestock use. Wildlife habitat is also slightly reduced as compared to the blue and black oak woodlands. Diversity of these woodlands is extremely minimal. Live oak woodlands comprise 124,071 acres on the Sequoia NF. Only 15 percent of this acreage is considered accessible due to steep rugged terrain and lack of existing roads. Based on biological potential, yields of 15-25 cords per acre could be

harvested with the number of acres available varying between the alternatives with rotation ages of 120 years.

Firewood production is the greatest potential use of this resource. Live oaks are stump-sprouting species making regeneration relatively easy. Steep, rocky slopes throughout much of the live oak stands will make harvesting and proper utilization difficult in most cases.

Pinyon Pine Woodland

Pinyon pine woodlands are found primarily east of the Kern River. Extensive pinyon woodlands occur on the eastern portion of the Piutes, the Scodie Mountains, and the Kern Plateau. Precipitation is very low in the pinyon pine woodlands, rarely exceeding 18 inches with an average of 10 inches. Soils are rocky and shallow.

Pinyon pine woodlands comprise 71,705 acres on the Sequoia NF and 28,938 acres on the BLM Rockhouse Wilderness Study Area. Only 20 percent of this acreage is considered accessible due to rugged terrain and lack of existing roads. An uneven-aged management approach could be implemented with a minimum of 120 year rotation. Based on biological potential, 10 cords per acre could be harvested with the number of acres available varying between various alternative land allocations.

The pinyon pine woodland has received custodial management for the past 80 years. This woodland burns very hot under extreme fire weather conditions. However, large wildfires in the pinyon pine woodlands are infrequent.

Livestock grazing opportunities are minimal due to the lack of water supply and preferred browse. Recreation use in the form of OHV's have utilized this area heavily. Gathering of pinyon nuts attracts Forest visitors to this woodland in the fall and hunters also use the area at this time. The woodland could be thinned in many place to release dense stands of pinyon pines and encourage perennial grasses and assorted browse species. Firewood potential exists, however, this resource remains lightly used at the present time.

23. Visual Resources

The Planning Area offers a wide range of scenic features that include desertlike, foothill and mid to high elevation landscapes. Elevations vary from approximately 1,000 feet to over 12,400 feet above sea level, an indication of the diversity of the area's visual resource. Three landscape provinces are represented. The Sierra Nevada is the largest, encompassing nearly 90 percent of the landscape. The Sierra Foothill, and Desert and Desert Mountain Provinces complete the Planning Area and are found along the western and southeastern boundaries, respectively.

While no specific statistical analysis of the demand for visual quality is available, the presence of strong demand can be inferred from a variety of sources. A number of Federal laws, regulations, and policies have cited visual quality or scenery as their primary or secondary purpose. The

Wilderness Act of 1964, the Endangered American Wilderness Act of 1968, and the California Wilderness Act of 1984, are examples.

The State Legislature has established the State Scenic Highway Master Plan indicating a concern for visual quality. In addition, the local counties have recognized the importance of visual quality through designation of specific roads within the Scenic Highway Element of their General Plans.

Another source of demand for visual quality is the level of recreation use in activities associated with the enjoyment of scenery. The State Parks and Recreation Information System has projected use by County participation in such activities as hiking and backpacking, nature appreciation, and visiting scenic areas. For the eight counties from which about 98 percent of the Sequoia NF users originate, the projected increase in demand between 1980 and 2000 is 35 percent for hiking and back-packing, 40 percent for nature appreciation, and 52 percent for visiting scenic areas.

Because of this clear public concern and demand for natural scenic environments, a standardized method has been established to inventory and evaluate the visual attributes of a National Forest. The Forest Service Visual Management System provides the method.

Through this system, the existing supply of visual quality is measured by the relative degree of visual alteration (Existing Visual Condition) and in acres of variety class. The demand is determined by an assessment of the numbers and types of viewers, length of viewing time, and distance to the viewed landscape (Sensitivity Levels). Definitive land areas are assigned an Initial Visual Quality Objective (IVQO) which is compared with other resource values during the planning process.

Twenty-four percent of the Forest has an IVQO of Preservation, 15 percent has Retention, 37 percent has Partial Retention, 18 percent has Modification, and six percent has Maximum Modification. In other words, the natural landscape character would dominate 76 percent of the Forest while an altered landscape character would dominate 24 percent. The IVQO may be left as assigned or traded down or up, depending on the results of the comparison and the decision of the Forest Supervisor. A final Visual Quality Objective (VQO) is then applied to the land. (See the VQO map included with this document.) This system has been used at project level since the mid-70's and, now, is a part of the Land Management Planning Process.

The relative degree of visual alteration of the "naturally appearing" landscape is addressed through the Existing Visual Condition (EVC) process. The EVC classes become a baseline from which to measure future changes. Seventy-six percent of the Forest is EVC Class I, 15 percent is Class II, four percent is Class III, four percent is Class IV, one percent is Class V, and less than one percent is Class VI.

Since the Variety Classes, which rate visual diversity, are inherent to the natural landscape (the classes are a ranking of physical features and display visual importance), they remain constant. The Planning Area has a good inherent capability to supply visual resources. The Variety Class inventory shows 313,700 acres (28 percent) of National Forest System land

with potential to provide top quality scenery (Class A). Eleven percent (118,800 acres) of the Forest have a low capability (Class C). The remaining land, 686,500 acres (61 percent) of Forest has an average capability (Class B).

Visual Sensitivity Levels are an expression of existing demand and are inventoried by distance zone. Of the land outside wilderness, about 60 percent is considered high sensitivity, 23 percent average and 17 percent low. Of the high sensitivity lands, 24 percent is foreground, 69 percent is middleground, and seven percent is background. In the average level, 31 percent is foreground, 65 percent is middleground, and four percent is background. Low Sensitivity Levels are not inventoried by distance zones.

To assist in the comparison of alternatives, R-5 has developed a Visual Quality Index (VQI). The index uses a weighted value assigned to VQO and EVC's in each variety class and then multiplied by the number of acres (or decimal thereof) in each category. For the Planning Area, the VQI for EVC (the result of past management) shows an index value of 76.6. If all lands were managed to their highest visual capability, the VQI would be 80.7. If, on the other hand, all lands outside wilderness were managed to the Maximum Modification VQO, the VQI would be 50.

Utilizing the VQI to rate total visual quality within the Pacific Southwest Region, it has been estimated that this resource has been reduced by 25 percent. For the Planning Unit, the VQI for EVC (results of past management) indicates only a 13 percent reduction of visual quality. By this same method, the IVQO (results of the Visual Management System before trade-offs) could allow a 45 percent reduction in visual quality and remain within an acceptable range of alteration. The IVQO's, then, recognize a great deal of alteration could be possible and still meet the visual objective.

Once the VQO is adopted, the ease or difficulty of a land unit to "absorb" management activities is identified through an inventory process called Visual Absorption Capability (VAC). Where the absorption capability is High, it is easier to meet the VQO; and, conversely, where the VAC is Low, it is more difficult to meet a VQO. Nine percent of the Sequoia NF, excluding the wildernesses, has a VAC of High, 24 percent has a Medium VAC, and 67 percent has a Low VAC.

Past timber harvest practices in parts of the Sierra Nevada have not been conducive to optimum timber production. The move toward regulated, even-aged management on the Sequoia NF increases the challenge to maintaining high levels of visual quality for several decades once the Forest is managed in a regulated state. However, studies now indicate that the visual resource could be maintained consistently Forest-wide at acceptable levels. A regulated state is a condition where past and current activities will be evident during a consistent cycle and at a predetermined level of impact as defined by the adapted VQO's.

Besides chaparral management, which often improves the visual attributes by rejuvenation of old growth, various other management practices actually protect and/or enhance visual quality. The revegetation of poorly growing sites or thinning of overstocked, visually impenetrable stands increase

visual interest. The temporary closure of deteriorated land allows revegetation and visual "healing". Replanting in recreation sites and along roads reduces the visual impacts of unvegetated soil. In the design and construction of Forest facilities, every effort is made to enhance the quality of the aesthetic environment by blending the facility, as much as possible, into the naturally appearing landscape. In addition to the Acts mentioned earlier in this section, the National Forest Management Act of 1976 requires, for example, "Cut blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain" and "Identify, protect, and enhance the visual quality". Management actions that protect and enhance the visual resource are occurring throughout the Forest.

24. Wild and Scenic Rivers

The National Rivers Inventory of January 1982 identified three rivers on the Sequoia NF which may be suitable for inclusion in the National Wild and Scenic Rivers System. Those rivers on the Forest identified for study in the Land Management Plan were: South Fork Kern River, Kings River, and South Fork Kings River (see Appendix E of the FEIS for a detailed discussion of these rivers).

In addition to these, the North Fork Kern River was identified for study as a possible candidate for wild and scenic designation by an Amendment (PL 95-625, November 10, 1978) to this Act. The public comment phase of the Draft Environmental Impact Statement was completed, and comments from the public were analyzed. A Final Environmental Impact Statement was prepared. This report was evaluated by the Office of Management and Budget for a final recommendation. President Reagan subsequently recommended that 60.7 miles of the total 78.5 studied be included in the National Wild and Scenic River System.

During the course of preparing this Forest Plan and its accompanying EIS, a considerable amount of legislative action took place with respect to Wild and Scenic River status. In November 1987, legislation pending in Congress for all three rivers being studied and the North Fork Kern was enacted into law. This legislation designated all or portions of each river under the Wild and Scenic River Act, negating the need for further Wild and Scenic River consideration. In summary, legislation included the following:

South Fork Kern River -- 72.5 miles, from headwaters in Golden Trout Wilderness, Inyo NF, to south boundary of Dome Land Wilderness, Sequoia NF (Segments 2 through 6).

North Fork Kern River -- 78.5 miles from headwaters in Sequoia National Park through Sequoia NF to Kern-Tulare County Line (Segments 1 through 4).

South Fork Kings River -- 40.5 miles from headwaters in Kings Canyon National Park through Sequoia NF to confluence with Middle Fork and Main Kings Rivers (Segments 1 through 3).

Kings River -- 5.0 miles from confluence of Middle Fork and South Fork Kings Rivers to Garlic Meadow Creek (Segment 2). In addition, a 48,000-acre Special Management Area consisting of the Kings River

Further Planning Area was designated. It includes the five miles of Wild and Scenic River (Segment 2) plus an additional 13.0 miles of the river (Segment 1), although this latter segment was not specifically designated Wild and Scenic.

25. Wilderness

The Sequoia NF has five wildernesses. Approximately 24 percent of the Forest, or 264,071 acres, is in established wildernesses.

Current direction is that within wildernesses there shall be no timber harvesting; no manipulation of vegetation for watershed, wildlife, or forage purposes; no use of motor vehicles, mechanical transport, motorized equipment; and no installations or structures other than as specifically provided in the Wilderness Act.

Fire suppression has, to a large extent, excluded fire from a natural role in wilderness. Presently fuel buildups in some locations could result in fires starting in a wilderness and spreading to areas outside wilderness boundaries. Prescribed fire, using either planned or natural ignition, could be used to improve this condition and maintain long-term vegetative diversity.

a. Dome Land Wilderness

The Dome Land is the southernmost wilderness in the Sierra Nevada, encompassing 94,686 acres. It is located at the southern end of the Kern Plateau, about 70 miles northeast of Bakersfield.

The area is characterized by numerous granitic domes and unique geologic formations with generally rugged terrain. Elevation ranges from 3,000 to 9,730 feet. Vegetation is primarily pinyon pine woodlands on the eastern half and Jeffrey pine on the western half with red fir, lodgepole and foxtail pines at the higher elevations. The majority of the Dome Land is semiarid to desert-like in appearance. The South Fork of the Kern River Wild and Scenic River bisects the wilderness. The area adjacent to the river south of Rockhouse Basin to the Forest boundary, known as the "roughs," is extremely rugged and is generally considered inaccessible.

Approximately 60 miles of trails are located in the Dome Land. Manter Meadow and Rockhouse Basin are the most popular camping spots in the wilderness.

The initial Dome Land Wilderness has been managed under an approved Wilderness Management Plan since 1979, with the major thrusts being to monitor recreation use and water quality at Manter Meadow and to encourage more use through loop trails and better trailhead facilities. The California Wilderness Act of 1984, added 32,000 acres of the Woodpecker and the Domeland Addition II Roadless Areas into the Dome Land Wilderness. The Woodpecker area was previously a popular area for OHV's with several miles of four-wheel drive trails and a system of two-wheel vehicle trails used by motorcycles.

b. Golden Trout Wilderness

The 303,287-acre Golden Trout Wilderness was designated by Congress in 1978. Of this total, 111,146 acres is on the Sequoia and the remainder on the Inyo NF. The Golden Trout Wilderness (GTW) gets its name from the brightly colored native trout (California State fish) and its subspecies the Little Kern golden trout, a federally listed threatened species, and the South Fork Kern golden trout.

In the Sequoia NF portion of the GTW, elevations range from 4,700 feet at the Forks of the Kern river to 12,432 feet on Mt. Florence, the highest peak on the Forest. Vegetation ranges from digger and pinyon pine woodlands at lower elevations; extensive parklike Jeffrey pine forests at mid elevations; and red fir, lodgepole and foxtail pine at higher elevations. Portions of the GTW occur above timberline. The entire Little Kern River Drainage lies within the wilderness. The North Fork Kern, and South Fork Kern Wild and Scenic Rivers bisect this wilderness.

Approximately 150 miles of trails are located in the Sequoia NF portion of the GTW. Grey Meadow and Trout Meadows are located on the major trail network system for the GTW and receive high use.

The Golden Trout Wilderness Interim Management Plan was approved by the Regional Forester on March 29, 1982. Key values addressed are fisheries, historical and cultural resources, visual quality associated primarily with meadows, and recreation stock use. The plan calls for restoration and enhancement of these values and uses while managing other resources so as to prevent their degradation.

c. Monarch Wilderness

Monarch Wilderness contains 45,000 acres with 21,200 acres on the Sierra NF and 23,800 acres on the Hume Lake District of the Sequoia NF. The Monarch Wilderness lies 70 miles east of Fresno. Between November and April the access road is closed because of snow.

This is a scenically dramatic area rising from elevations of 4,300 feet along the South Fork of the Kings River to 11,077 feet at Hogback Peak. The main drainage is Grizzly Creek. Vegetation ranges from Jeffrey-ponderosa pine forests and chaparral at the lower elevations to alpine conifer forests of white-bark pine above 10,000 feet, the only occurrence of this conifer on the Forest. Two small shallow lakes (Grizzly Lakes) occur in the Monarch Wilderness but contain no fish.

Because of the steep, rugged character of the area, trail access is extremely limited. The Sequoia NF's portion of the Monarch Wilderness contains approximately 25 miles of trails. Use is very light with the majority occurring during the hunting season. This wilderness was established by Congress in the California Wilderness Act of 1984 from the High Sierra Primitive Area and a portion of the Agnew Roadless Area.

d. Jennie Lakes Wilderness

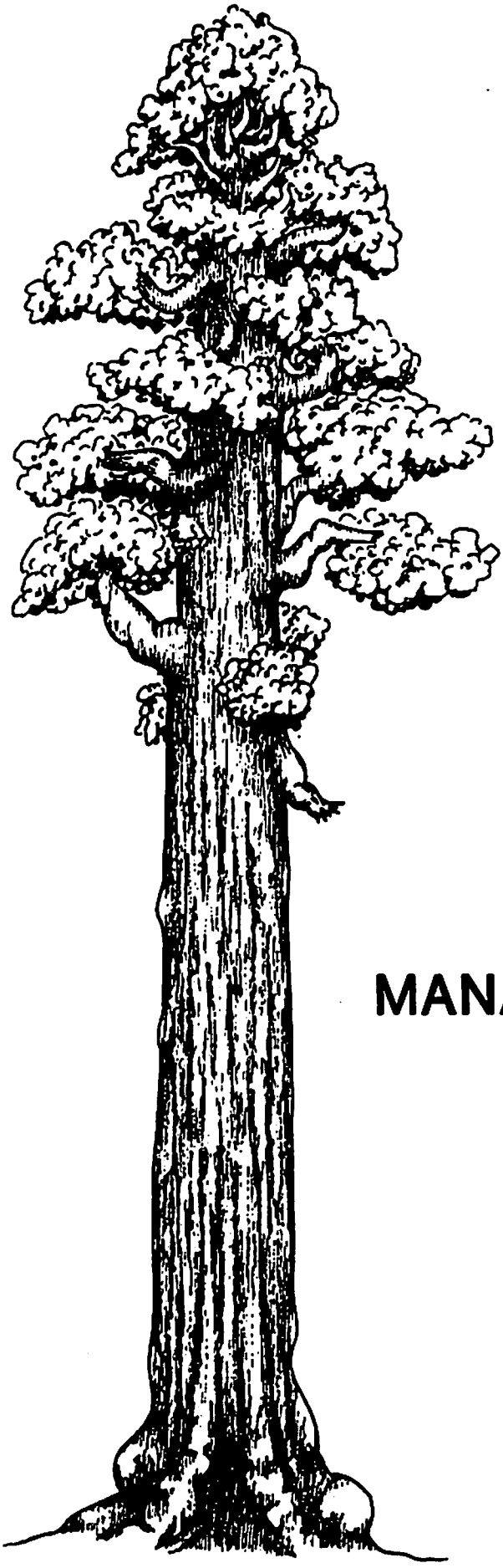
The 10,500-acre Jennie Lakes Wilderness on the Sequoia NF was designated by Congress in the California Wilderness Act of 1984. The wilderness is located on the Hume Lake Ranger District, primarily in the Kings River Drainage. This wilderness is a mixture of subalpine coniferous forests, meadows, and lakes.

Elevations range from 6,800 feet to 10,365 feet at the summit of Mitchell Peak. The two lakes, Jennie and Weaver, are popular destination points in the wilderness. Approximately twenty-five miles of trail provide access both east-west and north-south and a loop trail connects both lakes. In addition, trails connect with the backcountry of Sequoia and Kings Canyon National Parks. Some OHV use (motorcycles) has been traditional in this area.

e. South Sierra Wilderness

The 63,000-acre South Sierra Wilderness on the Sequoia NF (24,410 net acres) and Inyo NF (38,350 net acres) was designated by Congress in the California Wilderness Act of 1984. This wilderness is located on the Kern Plateau on the eastern edge of the southern Sierra Nevada. A majority of the South Sierra Wilderness lies within the South Fork Kern River drainage which contains the unique South Fork Kern golden trout.

In the Sequoia NF portion of the South Sierra Wilderness on the Cannell Meadow District, elevations range from 6,000 feet near Kennedy Meadows to 9,455 feet at Crag Peak. Terrain is mostly rolling; large meadows lie between low forested ridges of mixed conifers. Stands of quaking aspen border most meadows. There are over 30 miles of streams which contain trout. A portion of the South Fork Kern Wild and Scenic River bisects this wilderness. The wilderness contains approximately 25 miles of trails, much of which was used by motorcycles prior to wilderness designation. The Pacific Crest Trail bisects a majority of this wilderness.



Chapter 4

MANAGEMENT DIRECTION

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A. INTRODUCTION

This chapter describes management direction that will guide administration and use of the Sequoia National Forest until the Forest Plan is amended or revised. Direction is used by Forest personnel to achieve the desired results. Direction also informs the public and other agencies of future programs.

The Sequoia National Forest is guided by direction from numerous sources. Laws passed by Congress (such as the National Environmental Policy Act, National Forest Management Act, Multiple-Use Sustained-Yield Act, Threatened and Endangered Species Act) provide direction for certain aspects of management.

Additionally, the Forest Service has developed regulations and policies for the management of resources in response to legislation or management needs. This direction is contained in the Code of Federal Regulations (CFR), Forest Service Manuals (FSM), and Forest Service Handbooks (FSH); and covers a wide range of direction for managing Forest resources.

At the national level, the Resources Planning Act (RPA) program gives broad direction. At the Regional level, the Regional Guide gives direction for management as well as target levels of output for various resources on each National Forest.

The Forest will continue to be guided by the laws, regulations, policies, and guidelines mentioned. This Forest Plan supplements, but does not replace the direction from those sources. The Plan generally does not restate this direction, except where it was felt necessary to clarify treatment of an issue or concern.

The first level of direction in the Plan are the Forest Goals (Section B). Goals provide the broad, overall direction for the type and amount of goods and services that the Forest will provide in the future. The Forest Goals are followed by a discussion of the Future Condition of the Forest (Section C).

Next, the Forest-wide Standards and Guidelines (Section F) more specifically describe how the Forest Goals will be achieved and set the minimum conditions that must be maintained while achieving the Goals and adhering to policies.

Finally, the Management Prescriptions (Section G) state the mix of integrated management practices and activities that will be conducted on the Forest Management Areas. They provide area-specific program direction.

The resource outputs, activities and environmental changes described in this Plan represent the anticipated results of Plan implementation. Differences can be expected to occur between what is planned and the results. The most important differences that may occur are included as

monitoring items in Chapter 5. That chapter explains the way monitoring is used to make adjustments in the Plan to achieve the desired results.

Through the annual budgeting and work planning processes the management direction will be turned into visible results. These processes allow for annual adjustments to be made within the overall plan direction to reflect current priorities. The degree to which the plan can be implemented will depend to a large extent on the appropriation of funds by Congress and the allocation to the Forest through budget procedures (see Appendix L of the Final Environmental Statement for additional discussion on this matter).

Project environmental documents will be tiered to the Plan Environmental Statement (40 CFR 1508.21). New plans directed by this Forest Plan will be incorporated by amendment.

B. FOREST GOALS

Recreation

1) Increase the quality and variety of recreation experience available.

2) Emphasize and facilitate opportunities for recreation in a natural setting.

3) Provide interpretive and orientation services with emphasis on resource management, use, and environmental quality.

4) Reduce conflicts among recreational users.

5) Establish use fees that are compatible with costs and that reduce public competition with the private sector.

6) Encourage investment of private risk capital for development of appropriate facilities and services on National Forest System lands.

7) Enhance and interpret the more significant cultural resources to a level consistent with Forest use and resource management.

8) Provide and protect areas of important natural associations for non-manipulative research, observation, and study.

9) Meet Visual Quality Objectives established by this Plan.

10) Encourage location of those facilities or uses not consistent with National Forest purposes and goals on private lands.

Wilderness

1) 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.

Wildlife, Fish and Plants

1) Maintain and improve habitat for endangered and threatened plant and animal species on Federal and State lists to meet objectives set forth in their recovery and management plans.

2) Provide well distributed habitat diversity on each Ranger District for all indigenous wildlife species.

3) Maintain or increase habitat capabilities to support viable populations of wildlife and fish species (CFR 36 219.19) in cooperation with the California Department of Fish and Game.

4) Provide increased quality and quantity of opportunities for enjoyment of consumptive and nonconsumptive uses of the wildlife, fish and plant resources.

5) Increase the diversity of plant and animal communities.

Range

1) Maintain or enhance the productivity of all Forest ranges through adequate protection of the soil, water, and vegetative resources.

2) Foster, then follow with action, the idea that joint stewardship is in everyones interest.

3) Contribute to the stability of the ranching community by recognizing it value as part of our heritage, its contribution of food and fiber, and its maintenance of open space.

4) Utilize improved management systems that ensure cost-effective management of suitable ranges.

Timber

1) Increase total timber (and wood fiber) supply from the National Forest by intensively managing those lands where timber production is cost-effective. As timber supplies are increased, meet demands for other resources without impairing environmental values.

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

Water, Soil and Air

1) Provide the technical services needed to comply with water quality goals as specified in the Clean Water Act.

2) Maintain or improve long-term soil productivity.

3) Determine the feasibility of providing improvements to increase water yield in water-short areas.

4) Emphasize the protection management and improvement of riparian areas during the planning and implementation of land and resource management activities along streamcourses on the Forest.

5) Manage activities to comply with Federal, State, and Local air quality regulations.

Minerals and Geology

1) Encourage exploration and development of mineral resources outside of classified and withdrawn areas with emphasis on energy resources.

Facilities

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

2) Provide support facilities to meet Forest management requirements.

Rural Community and Human Resources

1) Continue to support and participate in employment and training program for youths, older Americans, and the disadvantaged in response to national employment and training needs and opportunities existing in Forest surroundings.

2) Increase opportunities for the use of volunteers in accomplishing Forest Goals.

Lands

1) Maintain land line location marking and status activities at a level sufficient to support planned levels of resource production, discourage new unauthorized occupancies, and resolve current cases.

Protection

1) Provide pest management, fire control, and law enforcement activities to reduce resource losses and to enhance and maintain resource productivity.

C. FUTURE CONDITION OF THE FOREST

This section describes how the Forest is expected to change over the approximate 10 to 15-year term of this Plan.

1. ECONOMIC CONDITION

The Forest's contribution to the three-county economy would increase with larger budget expenditures, with increases in market-valued outputs on which Receipt Act payment into county revenues are based, and in the generation of income and jobs. Most of the increase in income and jobs

would be generated by the development of the Peppermint Mountain Resort, resulting in some growth in foothill communities and diversification of the economic base of the Kern-Tulare-Fresno County area.

Timber and firewood production would remain about the same. Forage production and wildlife and fish user days would increase. There would be an opportunity for biomass production. Infrastructure support would expand with extension of the road system by nearly 28 percent.

2. SOCIAL CONDITION

Ranchers and the ranching community would benefit from a stable source of forage (AUM's available on the Sequoia). At the same time, however, since there would be an increase in dispersed recreation, there may be some localized conflict between grazing animals and recreationists. The lifestyle of foothill families would be affected by the additional jobs and recreation opportunities offered through commodity production and the possible development of Peppermint. Over the planning period the development of Peppermint would increase job and business opportunities for foothill residents. However, it can also be expected to exacerbate conflict within foothill communities regarding desired patterns of growth and the addition of at least one more group in the foothill communities. This group would be composed of younger people from urban backgrounds who are drawn to the foothills by the resorts and the promise of "country living". By the end of the planning period much of the conflict of oldtimers and newcomers should settle down.

Timber harvest would generate larger firewood supplies. Retirees and families would share an interest in enhanced firewood availability and the substantially expanded road system to access both firewood and increased recreational opportunities. All local recreational users, day and overnight, enjoy increased recreational opportunities. However, since additional wilderness is not designated, local conservation values are redeemed.

By the end of the period, the Sequoia will play a more substantial role in providing additional recreation for residents of Kern, Tulare and Fresno Counties. In particular, day use opportunities will be enhanced and a variety of high quality winter sports will be added.

3. RESOURCE CONDITION

a. Air Quality: The overall regional air quality is expected to be better as improved control technology is implemented for automobiles and industry. As a result, visibility into the San Joaquin Valley may improve. Local emissions may increase due to more Forest users and developed recreation sites but could be countered by improved vehicle emission controls. Conifer condition may deteriorate, regardless of improved control technology, as the duration of exposure to pollutants increases.

b. Cultural and Historical Resources: Additional prehistoric and/or historic sites will be inventoried. Some excavations would be done. Interpretive services will be available to the public at highly

significant sites. High quality interpretive materials will provide the public and Forest managers with a link to the past.

c. Diversity: Diversity of plant species and communities will be maintained or enhanced. Changes within communities will differ by vegetative type through age and structural changes due to management. The conifer and chaparral ecosystems will receive the most management hence the most structural and age class differences. The changes will provide additional habitats for species now at low population levels. This will bring the Forest to a more balanced, diverse state, reduce the threat of catastrophic wildfire and provide more stable ecosystems through broad-based diversity.

d. Earth Resources:

1) Soils/Geologic Hazards: There will be fewer abandoned roads in evidence because of a continuing road obliteration program. Careful attention will be required to limit earth movement in steep terrain managed for timber and other resources.

2) Water: There will be more gaging stations and hydroelectric power plants and structures along streams. Weather monitoring stations will be encountered more frequently. There may be a definite contrast in management between streamside zones and adjacent land in the conifer Forest used for timber harvesting. Water quality will continue to be high.

e. Energy: As technology improves, it may become more feasible to develop currently marginal sources of power (i.e., wind and biomass). Hydroelectric facilities and impoundments will increase and some will be used for water related recreation.

f. Facilities: More of the Forest available for resource management will be roaded and the transportation emphasis will shift from road construction/reconstruction to road maintenance and management. Only a portion of the road system is expected to be open to accommodate recreation users. Some roads will be maintained primarily for OHV (e.g., 4-wheeled) recreational vehicle use.

Further capacity increases would be obtained by reconstructing selected roads to higher standards. Needed improvements would include realignment, widening, surfacing, and the construction of turnouts and turnarounds.

Some new roads could be constructed where management plans dictate a need. Technical feasibility and cost effectiveness would be the primary considerations for this new construction.

Little growth in the Forest work force is anticipated. Consequently, there should be only minor needs for additional support facilities. A continuing emphasis will be to replace or refurbish existing facilities in response to land management practices, health requirements, and energy efficiency.

g. Fisheries, Wildlife, and Sensitive Plants:

1) Fish: There will be an improvement in the condition of fisheries habitat. Most of the Class I and II streams will be maintained in their current condition. Increased protection of Class III and intermittent streams will result in better habitat for native fisheries, but this improvement can be offset by increased recreation use. Overall, habitat for native fisheries is expected to improve, with Little Kern golden trout population increased to occupy all of their critical habitat, as defined by the management plan.

2) Wildlife: Wildlife habitats will change. Wildlife species associated with early successional stages of vegetation will be more prevalent throughout the Forest. Species associated with late successional stages of vegetation will decrease but remain present throughout their range. Wildlife populations associated with mast-producing trees and snags will decrease but will remain present throughout their range. Riparian areas will be managed to maintain or restore habitats for riparian species as well as those species associated with late successional stages of vegetation.

   Increased management of chaparral and conifer zones will provide a broad mixture of age classes and vegetation mosaics. Vegetative management of this type will provide a variety and abundance of wildlife throughout the Forest.

3) Sensitive Plants: Areas of sensitive plants will be present for visitor enjoyment and scientific use.

h. Integrated Pest Management: Pest-related damage, especially mortality and growth loss, will be at low levels in regenerated areas of the Forest. Losses may be higher on poorer stocked, low site lands until they are harvested and regenerated.

i. Lands: The future is expected to be little different from the present. The availability of private land for exchange or purchase is expected to continue to decline. Development of private land adjacent to the National Forest System land will continue to create impacts on the Forest lands. Demand for special-use permits will continue to grow.

j. Protection:

1) Law Enforcement: Violations of laws and regulations requiring law enforcement actions will increase as the population grows. The most significant measure of this growth will be a 35 percent increase in Recreation Visitor Day use from current levels by the end of the period. This increased use will create conflicts between both Forest users and uses. In order to mitigate such conflicts and assure both user and resource protection, additional rules and regulations will need to be implemented, and the level of enforcement expanded. Violation prevention efforts are designed to educate the Forest user in proper behavior.

2) Fire Management: Prescribed burning and fuel reduction activities will remove large amounts of debris creating a cleaner appearing forest.

Vegetative treatments, along with fuelbreak construction and maintenance in the chaparral and other brush covered areas will create a great deal of visual diversity. Solid blocks of large, older vegetation will be broken by areas of vigorously growing younger vegetation. Major ridgetops, especially those adjacent to developed areas and commercial forest, will be maintained with grass cover adding variety to the landscape vegetation scattered throughout the forest.

k. Minerals: The Sequoia NF contains few large reserves of highly valuable minerals. Mining activity is expected to remain at low levels. Recreational prospecting for gold would be the most prevalent mining activity. Salable material for construction would be available where not in conflict with management objectives. Little or no leasable mineral oil and gas exploration and development would occur. Geothermal activity is expected to be minimal.

l. Range: Cattle, drawn to areas of new forage, will be present and visible in areas of treated mixed chaparral and in timber harvest areas during the spring and summer months. Water developments for livestock will be encountered more frequently especially in mixed chaparral. These water developments will assist in a more even distribution of cattle utilization, taking grazing pressure off traditional high use areas.

m. Recreation: The recreation picture will be one of a wider variety of opportunities. This will be a result of increased demand in each of the three activity groups (land, water, snow). The Roaded Natural setting, where human activity will be evidenced, will remain at about 45 percent of the landbase. The highest concentration of use will be within water-oriented sites during warm weather periods. In all likelihood, there will be one major ski area development (Peppermint) with a high degree of possibility that one additional site will be studied and possibly developed. Overall, increased uses and diversity of opportunities will result in more conflicts between recreationists. (For more information on the proposed Peppermint Ski Area, refer to the EIS for that project.)

Dispersed recreation opportunities will be emphasized. Comprehensive studies will be done which will establish the Forest trail management and winter cross-country skiing/oversnow vehicle programs. Off-highway vehicle routes will provide a network of loop trails while the Forest trail system, with some increases in mileage, will appear maintained consistent with the individual trail classification. The Forest transportation system will be used by recreationists to pursue dispersed activities with designated roads and trails open and available for public travel. Wildlife habitat management will enhance a variety of species; thus, a greater presence of hunters, photographers and individuals viewing wildlife will occur. Giant sequoias may be observed in totally natural conditions, as well as

groves managed to highlight "specimens". Planned studies will evaluate the future management of all giant sequoia groves on the Forest for specific emphasis. These studies will be completed in the first decade. The presence of horses will reflect the availability of facilities such as trail heads, public pastures, and added outfitter and guide services to support equestrian use both in and out of wildernesses. Recreationists along the Kings and Kern Rivers will observe both commercial and noncommercial rafting. A concentration of day-use activities will be seen along the Lower Kern River, below Isabella Dam. Cross-country skiing and oversnow vehicle opportunities will be available, including overnight opportunities on the Kern Plateau.

Three Research Natural Areas are recommended for establishment and five Botanical Areas will be classified. The South Fork Kings, North Fork Kern, and South Fork Kern Wild and Scenic Rivers will remain essentially unchanged.

To aid recreationists visiting the Forest, bulletin boards and self-service information stations will be maintained at a high level to inform the public in remote locations. Information stations will be operated seasonally, during high public use periods. Information on local conditions and opportunities will be easily available to the public at these times. Interpretive signs and trails, outdoor programs, and self-guided auto tours will be available to the public in selected locations.

n. Vegetation:

1) Chaparral: An average of 11,000 acres per decade are prescribed burned and managed for grazing, wildlife and watershed improvement. An additional 15,000 acres per decade are burned or type converted for fuelbreaks or reduced fuel zones around the urban interface and intermixed private land. A broad mix of age classes and structural diversity exist as a result of reburning over a 30- to 40-year cycle.

2) Giant Sequoia: A Forest-wide giant sequoia management implementation plan will be completed which assigns management emphasis to each grove.

3) Meadows: Meadows will be managed to a fair or better condition and to maintain their existing acreage and restore any that have been damaged. Trails will be rerouted away from meadows where unacceptable damage is occurring. On the meadow edge, large tree character and a diverse environment of structural "edge" effects will be provided.

4) Riparian Areas: Future overall conditions are expected to be very similar to present conditions. Riparian areas will provide a visual contrast from adjacent lands in the conifer forest used for timber harvest, thus contributing to the diversity of the landscape and forest ecosystems.

5) Timber: Approximately 345,000 acres of timbered land, suitable for timber management, will remain relatively unchanged up to the year 2000. These are the areas planned for regulated timber yields under this Plan, and those areas planned for timber production that have not yet been treated.

By the year 2000, approximately 22,800 acres of Forest land will have been regenerated under the even-aged system of management and 8,500 under uneven-aged management. About 7,500 acres will be 10 years old. Trees in this age class will number about 200 per acre, should be about two inches in diameter and about 10 feet tall. There will be approximately 23,800 acres that are less than 10 years old. These small trees will number about 400 per acre and be less than five feet in height.

About 1,500 acres will have been harvested using the uneven-aged stand maintenance (single tree selection) method.

6) Woodlands: Firewood will continue to be harvested from the woodlands, utilizing mostly dead and down material, particularly black oak. Blue oak will not be harvested. Less downed wood will be seen in these areas, particularly near roads. New roads are not planned into the woodland areas.

o. Visual Resources and Urban Interface: The high visual quality of the Forest landscapes will be maintained in areas of heavy public use and along several major travel routes. Natural diversity of landform, vegetation, rock and water will dominate these views. Large tree character and diversity of vegetative species will continue to be seen in natural surroundings.

More noticeable changes will occur in the distant views and lesser seen conifer vegetative types. Here, timber harvesting and associated road construction will result in visual elements (form, line, color and texture) that contrast with the naturally appearing landscape, resulting in a more mottled appearance with visible road lines. Fuelbreak construction, type conversion and mechanical vegetative treatments (particularly through new lines and color variations) will create additional changes, often improving the visual quality of the scene. The use of prescribed fire will increase over current levels, creating textural and color changes that enhance the chaparral type.

The urban interface areas within the conifer forest will continue to experience a dominantly natural landscape. Activities seen from these areas will remain subordinate.

p. Wilderness and Roadless Area Allocations: Designated wildernesses will encompass 264,000 acres of National Forest and 12,500 acres of BLM land contiguous to the Dome Land Wilderness. These wildernesses will provide a diversity of landscapes in which to recreate. Examples include low elevation pinyon-sage, high elevation meadows, alpine conifers and steep rocky crags over 12,000 feet in elevation. Recreation experience opportunity levels will vary from Roaded Natural adjacent to major Forest and National Park access roads to Primitive in areas of extreme

solitude. Management emphasis will be to maintain the primitive nature and setting of the wilderness.

Wilderness use is anticipated to be approximately 129,000 Recreation Visitor Days; yet the areas will not be overcrowded, and quotas on users are not envisioned. Trailhead facilities will be constructed and maintained in an effort to meet the demand. Trail networks will be improved to facilitate dispersed uses. Outfitter-guide services will be provided for equestrian uses of the wilderness.

Use of prescribed fire will result in landscapes with youthful and diverse appearance. Charred remains of burned material and grey ash will be present for short durations. Intense wildfires and the resultant black remnants of trees and denuded landscapes will be infrequent.

D. MANAGEMENT AREA PRESCRIPTION ACREAGE

Table 4.1 - Management Area Prescription Acreage

Management Area Prescription Code	Vegetative Area	Management Emphasis	Management Area Net M Acres Sequoia NF
OW1	oak woodland	GENERAL	13
MC1	mixed chaparral	DISPERSED	6
PS1	pinyon-sage	RECREATION	1
CF1	conifer forest		45
BO2	blue oak savanna	WATER-	6
OW2	oak woodland	ORIENTED	1
MC2	mixed chaparral	RECREATION	4
CF3	conifer forest	DEVELOPED RECREATION	12
OW5	oak woodland	WILDLIFE AND	34
MC5	mixed chaparral	DISPERSED	78
PS5	pinyon-sage	RECREATION	63
CF5	conifer forest		25
BO6	blue oak savanna		37
OW6	oak woodland	GRAZING	122
MC6	mixed chaparral		64
PS6	pinyon-sage		9
CF6	conifer forest		8
CF7	conifer forest	TIMBER	308
WF4	A T L Y L P E S	WILDERNESS-natural role of fire	264
SIA		SPECIAL INTEREST AREAS	3
WSR		WILD, SCENIC and RECREATION RIVERS	
		within wilderness	(19)*
		outside wilderness	14
RNA		RESEARCH NATURAL AREAS	
		within wilderness	(3)*
		outside wilderness	2
TOTAL			1,119

* Included within Wilderness Acreages

Note: The Management Prescription Acres shown in this table include a total of 66,000 acres which are dedicated to spotted owl management. The acres also include 23,900 acres within the Kings River Special Management Area. Both of these items will require management plans. These plans will be incorporated into the Forest Plan by Amendment.

E. Table 4.2 - Average Annual Resource Outputs and Costs

Resource Elements	Base Year 1982	'80 RPA Goals 1990	'80 RPA Goals 2030	Decade 1	Decade 2
RECREATION					
Developed Public (M RVD's)	557	522	754	650	655
Developed Private (M RVD's)	328	538	776	583	595
Dispersed (M RVD) 1/	1,582	2,880	3,550	1,818	2,161
Wilderness (M RVD)	61.5 6/	--	--	113.0	135.0
Zone of Limited OHV Use (Designated routes only. Closed to cross-country travel.)					
Area (M Acres) 2/	267	--	--	855 3/	855
Trails Open to OHV Use (Miles)	145	--	--	545 4/	605
Trails Closed to OHV Use (Miles)	86	--	--	330 4/	330
Zone of Limited OHV Use (Cross-country travel permissible with specific seasonal and resource restrictions.)					
Acres (M Acres) 2/	--	--	--	0	0
Trails Available to OHV Use (Miles)	--	--	--	N/A	N/A
Zone Open to Cross-Country OHV's					
Area (M Acres) 2/	588	--	--	0	0
Trails Available to OHV Use (Miles)	282	--	--	N/A	N/A
Trails with Seasonal OHV Closure (Miles)	102	--	--	520 4/	580
Roads with Seasonal Closures (Miles)	425	--	--	539	563
Visual Quality Index	76.6	--	--	75.0	72.8
WILDLIFE AND FISH					
Threatened and Endangered Species					
Peregrine Falcon (Superior Nest Sites)	4	--	--	4	4
Little Kern Golden Trout (Miles of Stream Habitat)	29	--	--	60	117
Condor (Acres of Nesting Habitat) 8/	0	--	--	2,299	2,299
Wildlife - Other Than T&E (Habitat Capability)					
Deer (Number)	11,000	13,200	13,200	11,500	12,000
Spotted Owls (Number of Pairs) 7/	80	--	--	75	70
Goshawk (Number of Pairs) 5/	110	--	--	105	105
Resident Fish (M Pounds)	77	92	92	92	92

1/ These numbers include Wilderness RVD's and Total MFUD's

2/ These acres represent the total area within this zone. Only about 25% of this total is useable terrain due to steep slopes, dense vegetation, etc.

3/ These acres include lands designated SPNM (approximately 71,000 acres) outside of wilderness. By definition, no motorized recreation use will occur within these areas.

4/ Includes both less than 24-inch and greater than 24-inch trails (e.g., jeep trails). Does not include road mileage.

5/ Fragmentation of suitable habitat was not considered. Actual amount of habitat to be managed will differ based on compliance with Appendix H of the Regional EIS on Standards and Guidelines.

6/ 1982 Use Information for Wilderness includes the Dome Land and Golden Trout Wildernesses only. All decade projections include all five Sequoia Wildernesses.

7/ See Appendix B of the EIS for explanation of spotted owl habitat capability.

8/ See Chapter 3 for an explanation of condor nesting habitat acres.

Table 4.2 - Average Annual Resource Outputs and Costs (continued)

Resource Elements	Base Year 1982	'80 RPA Goals 1990	'80 RPA Goals 2030	Decade 1	Decade 2
Wildlife and Fish User Days					
Direct Habitat Improvement (M WFUD's)					
Deer	.3	--	--	5	6
All Other Species (Except T&E)	.1	--	--	.2	.3
Resident Fish (Except T&E)	0	--	--	.5	.5
Induced Habitat Improvement (M WFUD's)					
Deer	20	--	--	21	22
All Other Species (Except T&E)	95	--	--	99	105
Resident Fish (Except T&E)	28	--	--	28	28
Total Wildlife & Fish User Days	250	--	--	299	368
Direct Habitat Improvement (Except T&E)					
Deer (Acres of Chaparral)	500	--	--	1,000	1,000
All Other Wildlife Species (Number of Guzzlers)	10	--	--	10	5
Resident Fish (Miles of Stream)	0	--	--	3	0
GRAZING					
Permitted Livestock (M AUM's)	63.0	69.5[2]	74.6[2]	69.0	74.0
Range Betterment (acres)	800	--	--	0	4,000
TIMBER					
Sales Offered (MMBF) 1/	97	99	107	102	102
Sales Offered (MMCF)	15.0	15.3	16.6	15.3	15.3
Allowable Sale Quantity (MMBF)	95	97	105	97	97
Long-Term Sustained Yield (MMCF)	--	--	--	24.4	24.4
(MMBF)	--	--	--	158	158
Reforestation (Acres)	2,048	2,242	2,616	2,475	2,132
Timber Stand Improvement (Acres)	1,579	2,664	2,716	4,739	3,977
WOOD PRODUCTS OTHER THAN SAWTIMBER					
Firewood (Cords)	20,000	--	--	21,013	21,013
WATERSHED					
Quantity (M Acre-Feet)	736	--	--	751	751
Quality (M Acre-Feet at Standards)	720	990	1,000	744	744
Increased Quantity (M Acre-Feet)	0	--	--	15	15
Watershed Improvement (Acres)	140	270	310	140	100
Road Obliteration (Miles)	6.5	--	--	6.5	6.5

1/ Includes Allowable Sale Quantity and additional sales (unregulated volume, e.g., salvage)
2/ RPA AM goals converted to AUM's based on Forest mix of Animal Unit factors.

Table 4.2 - Average Annual Resource Outputs and Costs (continued)

Resource Elements	Base Year 1982	'80 RPA Goals 1990	'80 RPA Goals 2030	Decade 1	Decade 2
LANDS					
Land Acquisition (Acres)	0	--	--	12	30
HUMAN RESOURCES					
Programs (Enrollees)	112	14	14	70	60
FIRE					
Fuel Treatment (Acres)	2,500	1,700	1,300	1,500	1,500
Fire Protection	2,269	--	--	2,511	2,632
Timber Management	1,000	--	--	1,100	5,900
Range, Wildlife, Watershed 1/					
Wildfire Burned Acres	4,534	4,606	5,231	4,606	4,601
Intensity Class 1	329	334	379	334	334
Intensity Class 2	389	395	449	395	395
Intensity Class 3	1,841	1,869	2,123	1,869	1,867
Intensity Class 4	665	677	767	677	675
Intensity Class 5	172	176	200	176	176
Intensity Class 6	1,138	1,155	1,312	1,155	1,154
TRANSPORTATION					
New Trail Construction (Miles) 2/	16	1	0	16.0	2.1
Trail Relocation				14.0	14.0
Trail Reconstruction (Miles)	0	31	30	28.0	28.0
Road Construction/Reconstruction					
New Construction (Local Miles)	21.8	--	--	22.1	26.1
Reconstruction (Local Miles)	73.7	--	--	21.0	15.7
New Construction (Collector Miles)	--	--	--	5.9	0
Total	95.5	9	5	49.0	41.8
Road Maintenance (Miles)	1,471	--	--	1,516	1,540
FACILITIES					
Dams and Reservoirs					
Forest Service (Number)	1	--	--	1	1
Other Federal (Number)	2	--	--	2	2
Other State/Local (Number)	0	--	--	0	0
Private (Number)	8	--	--	8	8
Administrative Sites					
Forest Service Owned (Number)	15	--	--	17	18
Leased (Number)	6	--	--	4	3
TOTAL BUDGET (MIS)	16.3	19.6	21.3	20.0	19.8

1/ Combined acreage from range, wildlife and watershed categories.
2/ This trail mileage is accounted for under trail miles for OHV use.

F. FOREST-WIDE STANDARDS AND GUIDELINES

Management direction for the Sequoia NF is included in the Forest Goals, the Forest-wide Standards and Guidelines, and the Management Prescriptions. This direction along with laws, regulations, and National and Regional policies (as stated in the Forest Service Manual) provide the long-range direction for managing the Sequoia NF.

GENERAL

Projects will be started only after following and completing the NEPA requirements.

Contact public land agencies to coordinate management activities.

Contact will be made with organizations or groups where proposed actions could affect the management of private lands so that actions can be coordinated and mitigation provided if appropriate.

RECREATION

Recreation Opportunity Spectrum (ROS)

Manage the Forest to provide recreation opportunities within the parameters established by each ROS class. Follow the "Recreation Opportunity Spectrum Users Guide" to determine the applicable activities, physical settings, and recreation experiences for each ROS class. ROS classes are displayed on the accompanying map.

The ROS classes are:

P - Primitive
SPNM - Semi-Primitive Non-Motorized
SPM - Semi-Primitive Motorized
RN - Roaded Natural
R - Rural
U - Urban

See Glossary for further explanation.

General Recreation

-- Develop special management direction to deal with exceptionally heavy recreation use in areas such as: Hume Lake, the Lower Tule River Canyon, the Kern Canyon, and the Lloyd Meadows.

-- Review and participate in the preparation of State Recreation Plans.

-- Maintain Interpretive Plan for the Forest.

-- Provide basic information about recreation opportunities on the Forest through publications.

-- Continue coordination with the NPS to help facilitate users and management activities for the benefit of park resources (e.g., permit issuance for park backcountry users where access begins on the National Forest).

General Developed Recreation Sites

-- Manage vegetation to maintain or improve recreation values.

-- Pursue development of the Peppermint Mountain Resort as detailed in the Final Environmental Impact Statement.

-- Administer Shirley Meadow Ski Area with expansion following the approved master plan.

-- Study the feasibility of constructing either Mitchell-Maddox or Sherman Pass ski areas, with potential development of one in decade two (with expansion in decade three). Manage these areas to maintain options for future development.

-- Emphasize day-use opportunities (e.g., overlooks, interpretive signing) to compliment existing facilities.

-- Consider elderly and handicapped standards during construction, rehabilitation, and reconstruction of facilities.

-- Manage existing destination sites to compliment dispersed activities.

-- Increase occupancy through extended seasons. (An objective will be to increase Recreation Visitor Days (RVD's) by an estimated 10 percent.)

-- Rehabilitate developed sites (on an average 20-year cycle) using established Forest priority lists.

-- Maintain fee sites at standard level and non-fee sites at the less than standard level. Over time, move the non-fee sites toward standard level with an objective to obtain about a 50 percent shift during the first decade.

-- Continue the Pack-in, Pack-out policy in lightly used recreation areas.

-- Evaluate potentials and take opportunities to convert small, under-utilized camp and picnic sites to undeveloped occupancy spots.

-- Emphasize expansion of existing water-oriented sites where use dictates resource protection and average utilization exceeds 40 percent of theoretical capacity. (Apply a maximum 10% increase or 600 Persons-At-One-Time (PAOT) each decade.)

-- Develop new sites during first and second decade only where new water developments and/or licensing actions occur or to facilitate wilderness access. (An objective is an estimated five percent or 300 PAOT increase.)

-- Manage potential developed sites during the first decade to maintain values for future development.

-- Develop barrier-free interpretive trails with emphasis at Indian Basin near Princess Campground (Hume Lake District) and Redwood Campground (Hot Springs District) during the first decade.

Dispersed Recreation Management

-- Emphasize Pack-in, Pack-out policy.

-- Provide for a variety of dispersed uses (including both summer and winter activities) consistent with resource protection and maintaining recreation opportunities.

-- Emphasize opportunities for increasing dispersed recreation.

-- Manage heavier used dispersed areas (e.g., Kern River and off-highway vehicle use areas on the Plateau) at the standard level.

-- Identify and respond to potential problems created by target shooting with the objective to minimize user conflicts.

-- Utilize less than standard level management in lightly used areas including wilderness.

-- Provide sanitation facilities in the areas of or during periods of concentrated use, where either increased management presence or resource protection is necessary and/or potential development exists for which a specific site plan is prepared.

Wheeled Off-Highway Vehicles (OHV's) (including mountain bikes)

-- Study use and develop a monitoring plan to identify and resolve conflicts between mountain bikes and other users.

-- OHV's may be used on designated routes on the Sequoia National Forest except where closed by law (i.e., wilderness and Pacific Crest Trail) or by Forest Supervisor order to prevent:

a) Resource damage (e.g., soil compaction, vegetation damage, wildlife disturbance, fire);

b) Facility damage (e.g., roads, trails, signs, fences); and

c) User conflicts (e.g., motorized and nonmotorized use) to maintain specific recreation opportunities/experiences.

OHV's are legitimate uses of the National Forest. The Forest will increase opportunities for OHV vehicles through development of OHV trail facilities. Areas of OHV emphasis are identified and are displayed on the accompanying map. These are areas of the National Forest towards which OHV use will be directed and management priority placed accommodating/administering this activity. This will not preclude OHV use in other areas of the Forest, nor will it preclude non-OHV use within the emphasis area. Rather, managers will direct priorities in trail designation, construction, public information,

etc., toward emphasis areas as a way to draw users from other areas. User accountability via signing, maps, and other user education and cooperative actions in concert with other forest management activities will be emphasized. OHV planning and management will be coordinated with Federal, State and local agencies, adjacent landowners, and other interested individuals and organizations. Monitoring of the effects of OHV use will be undertaken. The Forest OHV Plan will be revised and implemented consistent with the management objectives of the Forest Plan.

Plan Specifics

Following are vehicle use zones:

Zone A Closed (estimated 264,000 acres)

Areas permanently closed to all motorized/mechanized vehicles - wilderness and Pacific Crest Trail (PCT)

Zone B Restricted (estimated 855,000 acres)[1]

Wheeled vehicle use, including OHV's, is limited to designated routes only, subject to:

a) Seasonal or permanent restrictions to prevent resource damage, facility damage and/or user conflicts;

b) Incidental access off designated routes or system roads if provided by permit (e.g., firewood gathering, mining activities, access to permitted facilities);

c) Incidental access to dispersed area camp locations immediately adjacent to system roads (e.g., generally within 200 feet where no resource damage occurs); and

d) Specific restriction as to type of vehicle on certain facilities (e.g., 2-, 3-, or 4-wheels or other design criteria).

-- Obtain public involvement whenever changes to the OHV Management Action Plan are necessary based on trail standards and guidelines.

-- Enforce state laws for noise control, the use of approved spark arresters, and green sticker registration as part of overall OHV administration activities.

-- Use location and design criteria for OHV trails that will hold down the speed of vehicles.

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[1]Approximately 71,000 acres of this total are to be managed as SPNM; therein, there are no designated routes in these areas.

-- Consistent with the Forest Plan, identify (in cooperation with the state, other agencies and user groups) opportunities to develop segments of trail that support the concept of a statewide trail system. An objective of this system is to connect use areas and provide opportunities for long distance trail touring.

Winter Snow Dispersed Recreation

-- Permit both wheeled ATV's and tracked oversnow vehicles to travel cross-country on snow throughout the Sequoia National Forest except where closed by law (wilderness and PCT) or by Forest Supervisor order to prevent resource damage, facility damage and/or user conflicts.

-- Manage oversnow vehicles and cross-country ski opportunities recognizing the need for segregating conflicting uses.

-- Explore development of commercial opportunities such as overnight/hut system for winter activities.

-- Undertake a planning effort to identify the specifics of winter recreation activities including motorized and nonmotorized uses.

Nonmotorized (e.g., horses, hikers)

-- Keep open the entire planning area.

-- Establish and maintain public pastures to enhance overnight camping opportunities.

Recreation Management (Private Permitted Uses)

-- Prepare Future Use Determinations Needs Assessments for resorts, recreation residence tracts, and organization camps with permits due to expire during the planning period (attempt three year lead time) when potential use conflicts are identified; when the public need for the use has diminished; when unacceptable resource damage is occurring; or when an alternate use is proposed or has evolved without Forest Service approval.

-- Prepare Future Use Determinations Needs Assessments for resorts and organization sites prior to issuing new permits when existing facilities are sold and new termination dates are requested, and the criteria listed above is applicable.

-- Encourage development of recreation uses on private lands. Permit uses and/or activities on National Forest System lands only after full consideration of the opportunities provided by others, both public and private.

Permitted Uses

-- Maintain at least 50 percent of boating capacity on rivers and lakes within appropriate ROS classes for the noncommercial public.

Water-Oriented Use

-- Whitewater Floating

a) Continue implementation of Kern River Whitewater Floating Management Plan until revised as part of the Kern River Wild and Scenic Management Plan.

b) Develop and implement a Kings River Whitewater Floating Management Plan as part of the Kings River Special Management Area Plan (in cooperation with the Sierra NF).

-- North Fork Kern River

a) Lloyd Meadows Road: Designate and manage sites for day- and overnight-use including regulated parking during the managed season throughout the first decade.

-- Lower Kern River

a) Emphasize water-oriented recreation activities along the Kern River below Lake Isabella.

b) Move from the current developed site mix of night/day use toward day use emphasis during the first decade.

-- Maintain current mix of dispersed/developed, night/day-use along the Tule River.

-- Hume Lake Area

a) Emphasize development of facilities to enhance dispersed day-use recreation. Expand no overnight facilities.

b) Complete a Recreation Action Plan for the Hume Lake Basin during the first decade.

Wild and Scenic Rivers

-- Manage rivers in accordance with the final legislation on Wild and Scenic River designation.

-- Prepare a river management plan for each designated river or Special Management Area, including final boundary descriptions.

-- Maintain Wild and Scenic River values on Segment 2 of the Lower Kern River pending completion of suitability studies in the future.

-- Classify the National Forest segments of designated rivers at their highest eligible level (refer to FEIS, Appendix E):

a) South Fork Kern

Segment 2	Wild	Sequoia
Segment 3	Recreation	National
Segment 4	Wild	Forest
Segment 5	Scenic	Inyo
Segment 5A	Wild	National
Segment 6	Wild	Forest

b) North Fork Kern[1]

Segment 2	Wild	Sequoia
Segment 3	Wild	National
Segment 4	Recreation	Forest

c) South Fork Kings

Segment 1	Recreation
Segment 1A	Wild

d) Kings

Segment 2	Wild

Office of Information (OI) and Interpretive Services (IS)

-- Provide educational and user services to assist resource management programs to maintain outputs, to resolve management problems, and to change visitor behavior.

-- Provide for and maintain present facilities and programs at a high level emphasizing self-service. These include: recreation site and trailhead bulletin boards, publications, media releases, and self service information stations.

-- Provide other programs and facilities at a moderate level. These include: seven-day seasonal information desks, resource management interpretive signs, Three Forest Interpretive Association (3-FIA) programs, exhibits, interpretive trails, outdoor programs, and

[1]Classifications for the North Fork Kern River are the highest eligible levels as shown in the North Fork Kern Final Environmental Impact Statement dated August 19, 1985.

self-guided auto tours. Use specialized media to promote dispersed use.

Visual Resources

-- Maintain visual quality to the VQO level specified. Consider these a minimum, but strive for higher visual quality whenever practical and when compatible with other resource objectives.

-- Accept occasional short-term departure from adopted Visual Quality Objectives (VQO's) that will lead to long-term desired visual character. Require a documented decision, based on an environmental analysis, whenever a proposed activity or development reduces the visual quality below the adopted VQO.

-- Manage Highway 180, Highway 190, Highway 178, Sierra Way (SM99), the Western Divide from Quaking Aspen to the Ponderosa, the Generals Highway, the PCT, and heavily used trails that lead directly into wildernesses as Sensitivity Level 1.

-- Manage about 270 miles of roads and 200 miles of trail as Sensitivity Level 2.

-- Manage the following viewsheds as Sensitivity Level 1: Monache Meadows, Sherman Pass and Salmon Creek/Big Meadow.

-- Manage the remainder of the forested land as either Sensitivity Level 2 or 3. Exceptions occur in the following ROS classes where the greatest visual impact allowed will be: SPNM = PR, SPM = M, RN and R = MM with M as the primary VQO.

-- Manage the remainder of the non-forested lands according to ROS classes. The recommended maximum visual impact allowed will be: SPNM = R, SPM = PR, RN and R = MM, with M as the primary VQO.

-- Initiate corrective action to meet adopted VQO when landscape rehabilitation is needed.

-- Consider visual concerns of individual landowners and agencies within and adjacent to National Forest System lands when planning National Forest management activities. (See Timber Management, Silvicultural Systems, within this Chapter.)

-- Manage activities to reflect, wherever possible, the form, line, color, texture of natural occurrences when viewed from middleground and background distances.

Trails

-- Allow changes and increases to the existing trail system on the Forest (new trail construction). Project-specific EA's will be used to determine if some new trails need to be constructed in popular areas; to possibly replace trails causing resource and facility damage and/or

receiving low use (these types of trails will be abandoned); to prevent user conflicts; and/or to meet other needs.

-- Maintain, relocate, or reconstruct 50 percent of the trail system during the first decade. Emphasize preventing resource damage, including signs to facilitate use.

-- Maintain trails consistent with ROS concepts at levels determined by the Trail System Analysis procedures, with priority given to dispersing users and preventing further deterioration of the resources.

-- Develop and maintain a trail/transportation system that emphasizes loop trails.

-- Enhance present opportunities by emphasizing management actions which will link campground and other sites to existing trails, tie trails together to create loops and multi-day opportunities, and resolve user conflicts (through designation or design to serve the needs of different trail users). Accessing new (not currently accessed) areas will be lower in priority than the above actions.

-- Maintain system trails to minimize trail degradation and to protect off-site resources.

-- Undertake trail system planning to provide a comprehensive look at and identify specifics of all uses (e.g., hiking, equestrian, OHV).

-- Implement mitigation measures in all projects posing an impact on the long-term Forest trail system. Measures will include such items as signing, protection of visual quality values, rehabilitation of trails following project completion, and/or relocation of trails around areas where impacts dictate. Timing will be such that user inconvenience is minimized.

-- Manage the Pacific Crest Trail in accordance with Secretary of Agriculture Guides and Standards, and the Regional approved management plan.

-- Relocate system trails out of meadows where unacceptable damage is occurring.

Wilderness

-- Manage the Golden Trout Wilderness within the framework established by the approved interim wilderness management plan.

-- Update the management plan for the Dome Land Wilderness to add consideration for the additions made by the 1984 California Act. Continue current management actions pending completion and approval of a revised plan.

-- Prepare wilderness management plans for the Sequoia National Forest portions of areas designated wilderness by the 1984 California Act (e.g., Monarch, Jennie Lakes and South Sierra). Planning will be

coordinated with adjacent Forests or agencies. Continue current management actions pending completion and approval of management plans.

-- Use prescribed fire to enhance wilderness values (e.g; long-term plant diversity) in all wildernesses in locations and under conditions described in wilderness management plans.

-- Use a "confine" or "contain" suppression strategy for wildfire when public safety will not be compromised, adjacent resources can be protected, and other management constraints (air quality, watershed, etc.) can be met. Apply "control" strategy to all other wildfires.

-- Utilize confinement as a suppression strategy when the potential fire size will generally not exceed 100 acres.

-- Authorize outfitter-guide services in wildernesses established in 1984 when public need is demonstrated and wilderness objectives can be maintained.

-- Develop or improve trailhead facilities.

-- Establish and maintain public pastures to enhance overnight camping opportunities.

-- Emphasize Pack-in, Pack-out policy.

Cultural Resource Management

-- Comply with 36 CFR 800 Regulations by completing cultural resource inventories prior to any action which may effect cultural resources. Develop follow-up actions for evaluation, protection and/or interpretation as a result of inventory findings.

-- Inventory

a) Conduct inventories as necessary, occasionally doing non-project-specific surveys which will result in partial achievement of the 1995 target for the total Forest inventory.

b) Complete Archaeological Reconnaissance Reports and site records to allow evaluation of site significance.

c) Release those site locations declared "not significant" for other management activities.

d) Approach systematically the reduction of the existing Forest backlog of sites to be evaluated. Those types of sites deemed more potentially critical in the Forest Overview will receive priority.

-- Protection

a) Post and sign (e.g., tractors prohibited or Antiquities Act) selected cultural resource sites where such signing will not endanger the sites.

b) Monitor a number of sites for protection. Visits will be on a revolving basis and prioritized according to resource significance and vulnerability as developed in the Forest Overview.

c) Develop and provide interpretive brochures for selected sites.

-- Interpretation: Conduct on-ground interpretation at a number of sites where highly significant properties exist or near developed sites where high level of use or exposure is possible (i.e., properties adjacent to campgrounds or historic logging activities in the vicinity of campgrounds).

-- Ethnographic: Regularly consult with Native Americans as interested parties on proposed undertakings.

-- History

a) Interview key knowledgeable informants occasionally for project-specific information. Bring together and organize archival sources according to a Forest archival policy.

b) Promote interpretation through 3-FIA.

Urban Interface Areas

-- Manage viewsheds as Sensitivity Level 1, with adjustments based on project level EA.

SPECIAL INTEREST AREAS

-- The Baker Point (780 acres), Bald Mountain (440 acres), Inspiration Point (270 acres), Slate Mountain (490 acres), and Ernest C. Twisselmann (860 acres) areas are classified as Botanical Areas and management plans will be developed pursuant to 36 CFR 294.1(a) and the authority vested in the Regional Forester by the Chief of the Forest Service.

-- Revise and implement a management plan for the Packsaddle Cave Geologic Area.

-- Revise and implement a management plan for the Bodfish Piute Cypress Botanical Area in cooperation with the Bureau of Land Management.

RESEARCH NATURAL AREAS

-- Protect and manage the following potential RNA's as if they are already established pending their final establishment or release by Chief of the Forest Service: Moses Mountain (960 acres), South Mountaineer Creek (1,325 acres), Church Dome (1,380 acres), and Long Canyon (1,000 acres).

-- Prepare establishment reports for submission to the Chief for the following areas recommended by the Regional RNA Committee for final

establishment: Church Dome, South Mountaineer Creek, and Moses Mountain.

-- Submit the nomination of the Long Canyon site to the Regional RNA Committee. Upon favorable action by the committee, an establishment report will be prepared for submission to the Chief.

NATIONAL NATURAL LANDMARKS

-- Continue coordination with the National Park Service to conduct on-site landmark evaluation studies for the following sites: Moses Mountain, Long Canyon, Bald Mountain, Sirretta Peak, Inspiration Point, and the Bodfish Piute Cypress Grove. These candidate areas will be adequately protected and managed within the foregoing classifications until final resolution.

AIR QUALITY

-- Establish a visibility monitoring program and determine sensitive indicators for each Air Quality Related Value in National Forest Class I areas. Protect Air Quality Related Values by reviewing all projects and management activities that may impact those values.

-- Minimize resource and air quality impacts from air pollutants generated by management activities through use of the following control measures:

a) Follow dust abatement procedures.

b) Conduct an air quality analysis for all projects that may impair air quality to determine impacts, mitigations, and/or controls.

c) Respond to local planning authorities when development outside Forest jurisdiction may impact forest resources.

d) Conduct prescribed burning activities in accordance with Air Pollution Control District regulations and with proper prescriptions to assure good smoke management.

-- Coordinate management activities that potentially impact the air quality of adjacent Class I areas and military facilities with the responsible agency (i.e., Sequoia and Kings Canyon National Parks, Edwards Air Force Base and China Lake Naval Weapons Center).

FISH, WILDLIFE AND PLANTS

General

-- Maintain habitat to insure all native fish, wildlife, and plant species will have adequate population levels and distribution to provide for their continued existence throughout their current range.

-- Follow recovery and management plans for the following species: California condor, peregrine falcon, bald eagle, Little Kern golden trout.

-- Emphasize habitat management for wildlife species that utilize riparian, hardwood, snags, and down log habitats.

-- Protect fishery streams by specifying minimum flows necessary to maintain fisheries habitat and allowing removal of no more than 50 percent of the flow at any time.

-- Maintain the current program of direct habitat improvement by submitting requests for funds to appropriate county, state, and federal agencies.

-- Give high priority to meadows and riparian areas when funding fish and wildlife habitat projects through timber sales.

-- Focus on habitats outside the planned timber sales when funding habitat improvement projects from sources other than timber sales.

-- Use approved cooperative deer herd management plans as a guide to deer habitat management.

Fish, Wildlife and Plant Habitat Coordination

-- Protect sensitive, proposed for listing, and California species of special concern with the long-term objective for removal from Federal listing or to prevent them from being listed.

-- Participate, when requested, with the Regional Office, the USDI Fish and Wildlife Service, and the California Department of Fish and Game in the development of recovery or management plans for species listed in Chapter 3, Section C.8 of the Plan (i.e., Table 3.5; and subsection, Sensitive Plants).

-- Restore and enhance fisheries habitat through implementation of "Rise to the Future" (an action plan for the National Forest fisheries program).

Old-growth Habitat

-- Provide habitat for wildlife species associated with late-successional and old-growth forest stands by retaining five percent of old-growth outside of riparian area habitats, well dispersed over the Forest.

-- Maintain a network of 40 Spotted Owl Habitat Areas. Manage 1,000 acres of suitable habitat plus approximately 650 acres of replacement habitat for each network site using a "No Scheduled Timber Harvest" prescription. Manage according to the Regional Spotted Owl Guidelines, Appendix H.

-- See the SOHA location map for the general location of the existing and replacement acres associated with each network site.

-- In the event of future network adjustments, areas for which existing habitat and/or replacement acres have not been identified will receive no vegetation management that might be detrimental to spotted owl

habitat within a 1.5 mile radius of the nest or center of the core area until existing and replacement acres have been identified, mapped, and verified on the ground.

-- Activities within the network spotted owl habitat acres will not occur until a spotted owl management plan has been prepared, approved, and signed by the Forest Supervisor.

-- Include in spotted owl management plans on the Sequoia:

a) Mapping and field verification of existing suitable habitat and specific replacement stands within a 1.5 mile radius of the nest or the center of the core area; specification of the composition and percent makeup of vegetation components to be managed.

b) Direction for other resource management or uses such that they will be compatible with the primary objective of maintaining habitat for a reproductive pair of spotted owls at the site.

c) Direction, if appropriate, about the amount and frequency of vegetation manipulation that will be permitted/needed for the purpose of maintaining or enhancing habitat conditions for the spotted owls.

-- Maintain goshawk habitat according to LMP direction in the Regional Guide. Provide a total of 1,050 acres of habitat for at least 21 pairs.

Snag and Down Log Management

-- Provide habitat for wildlife species dependent on down logs and snags in timber harvested areas.

-- Maintain a minimum average of 1.5 snags per acre in each compartment.

a) Retain four to six percent of regeneration area harvested under even-aged prescriptions in aggregations of mature trees to provide snags and snag recruitment to contribute to wildlife habitat diversity and scenic values. Aggregations will be one-quarter to two acres in size.

b) Include in each aggregation of mature timber at least one soft snag (16 inches dbh or larger and greater than 12 feet high) and one potential future hard snag (a tree with a fading top or structural damage with the same size criteria as a soft snag).

c) Protect individual snags and live culls in uneven-aged timber management units.

-- Retain approximately 132 cubic feet per acre of well-dispersed down logs. Ideal size of log is 20 inches in diameter and 20 feet in length.

Oak Management

-- Maintain mast-producing oaks on lands tentatively suitable for timber management in numbers proportional to the current inventory. Where hardwoods and conifers coexist, the goal is to increase conifers subject to leaving at least a minimum of 20 square feet per acre basal area of oak hardwoods dispersed over each timber compartment.

-- Provide hardwoods management for key areas of those indicator species highly dependent on hardwoods.

RIPARIAN AREAS

-- Within riparian area, protect streamcourses and adjacent vegetation to maintain or improve overall wildlife and fish habitat, water quality, and recreational opportunities.

-- Give preferential consideration to riparian area dependent resources over other non-dependent resources in case of unresolvable conflicts.

-- Delineate and evaluate riparian areas prior to implementing any project activity.

-- Monitor the effectiveness of the Sequoia National Forest's Riparian Standards and Guidelines.

MEADOWS

-- Maintain or enhance all meadows.

-- Consider meadows smaller than two acres as part of the riparian areas.

-- Develop Meadow Management Standards and Guidelines.

SENSITIVE PLANTS

-- Manage sensitive plants to prevent the need for Federal listing as threatened and endangered.

-- Conserve all sensitive plants on the Regional Forester's Sensitive Plant List (Chapter 3, Section 8, Fisheries, Wildlife and Sensitive Plants, of the Plan).

RANGE

-- Apply the standards and guidelines set forth in the most current version of the Range Environmental Analysis Handbook (R-5 FSH 2209.21). Meadows will be grazed to allowable use standards, as determined by the height/weight or grazed plot method.

TIMBER MANAGEMENT

Silvicultural System

-- Apply uneven-aged management single tree selection, as the principal silvicultural system within foreground of roads, trails, and high use sites that are Sensitivity Level 1 and Streamside Management Zones.

-- Apply even-aged management or uneven-aged management (group selection) within middleground view of roads, trails and high use sites that are Sensitivity Level 1 and within giant sequoia groves designated for Non-Intensive Management. The system to be selected will meet the assigned Visual Quality Objective and the silvicultural requirements of the site.

-- Apply uneven-aged management group selection, as the principal silvicultural system within foreground of Sensitivity Level 2 roads and trails, Monache Meadow Viewshed, Sherman Pass Viewshed, and Salmon Creek-Big Meadow area. Within these areas, even-aged prescriptions are allowed where terrain, stand characteristics, operational factors, or non-timber objectives make this necessary and justified by the project environmental analysis.

-- Utilize the following criteria to allow even-aged silvicultural systems in Sensitivity Level 1, middleground areas when harvest practices and related activities:

  a) Do not visually detract from a Class A landscape feature or an identified focal point;

  b) Are screened by terrain;

  c) Occur at or near a perpendicular angle to the direction of travel; or

  d) Occur in low variety landscapes.

-- Apply even-aged management as the principal silvicultural system on all land to be managed for timber production where uneven-aged management is not specified.

Cutting Methods

-- Limit regeneration areas requiring reforestation to 25 acres without approval of the Forest Supervisor.

-- Limit group selection regeneration areas under uneven-aged management to two acres without approval of the Forest Supervisor.

Harvest System

-- Use a variety of logging systems to harvest forest products. Generally, use ground-based systems (such as tractors) on slopes of less than 40 percent, and aerial systems (such as highlead, skyline or helicopters) where slopes exceed 40 percent.

Regeneration Methods

-- Plant all regeneration areas requiring reforestation except where natural seeding is prescribed. Regeneration by natural seeding will be applied primarily in the true fir type.

-- Save viable existing reproduction where feasible and incorporate into silvicultural prescriptions for new stands.

-- Utilize current state of the art regeneration techniques, including controlling pests, such as gophers, and controlling competing vegetation.

-- Meet draft regional soil standards for long-term site productivity.

Harvest Location

-- Harvest timber during the first 10 years primarily on better stocked high site lands. Regenerate interspersed and nearby poorly stocked stands that make logical harvest units. About 20 percent of the acres harvested and regenerated will be poorly stocked stands.

-- Make logging slash and dead and down material available for firewood throughout the Forest. Make some green material available for firewood.

Diversity

-- Maintain the existing species composition for major forest types where reforestation and thinning projects occur.

-- Provide for an array of early and late successional stages over time in each Forest ecosystem to assure that long-term viability of Forest wildlife species will be maintained.

-- Design vegetation treatments to provide for edge, corridors of cover, and enhancement of special habitat features such as meadows for wildlife.

Integrated Pest Management

-- Apply the principles of integrated pest management to the control of competing vegetation, animal pests, and diseases. Consider a full range of management strategies and techniques before prescribing treatment designed to reduce damage from any forest pest. Strategies include indirect control (which focuses on increasing host resistance to pests) and direct control (which seeks to reduce pest populations).

Techniques include biological, chemical, mechanical, manual, and prescribed fire in prescriptions considered in the control of pest damage. Control of competing vegetation will be within the scope of the PSW Region DEIS of June 1983, entitled: Vegetation Management for Reforestation.

Giant Sequoias

-- Manage giant sequoia groves with the objectives of perpetuating the species, preserving the old growth "specimen" trees, and producing a sustained yield of sawtimber.

-- Complete a Forest-wide giant sequoia management implementation plan which makes the final assignment of management emphasis to each grove. The final assignment of management emphasis is expected to fall within the following ranges shown on Table 4.3.

-- Except for emergency rehabilitation due to catastrophic events, do not plan any new management activities that will affect giant sequoia trees until the Forest-wide management implementation plan is completed.

-- Recognize the following grove boundaries pending development of the Forest-wide management grove implementation plan:

  a) Boundaries that have been mapped.

  b) Where no mapping has been done, the type lines from the LMP data base strata maps will be used.

-- Encourage giant sequoia reproduction. Thinning will be done to enhance the health and vigor of the young trees.

-- Consider giant sequoia for planting outside of recognized groves along with other mixed conifers where site conditions favor its survival and growth.

-- Use stand management prescriptions that ensure the maintenance and replacement of "specimen" trees so that their total number does not decrease through time.

-- Recommend a Research Natural Area at Moses Mountain for the further study of giant sequoia in a natural setting.

Table 4.3 - Giant Sequoia Groves

Grove Name	Acres	Allocation (Approximate Acres) Preservation	Non-Intensive	Intensive	Grove No.*
Abbott Creek	20	0	20	0	1
Agnew	120	120	0	0	2
Alder Creek	130	0	130	0	3
Bearskin	60	0	60	0	4
Belknap	80	80	0	0	5
Big Stump	540	0	540	0	6
Black Mountain	1100	200	900	0	7
Boulder Creek	80	0	80	0	8
Burro Creek	40	40	0	0	9
Burton	40	0	40	0	10
Cherry Gap	100	0	100	0	11
Converse Basin	3000	600	2400	0	12
Cunningham	10	0	10	0	13
Deer Creek	100	0	100	0	14
Deer Meadow	140	140	0	0	15
Dillonwood	80	80	0	0	16
Evans	730	300	430	0	17
Freeman Creek	1750	170	1580	0	18
Grant	20	0	20	0	19
Indian Basin	600	50	550	0	20
Kennedy	200	100	100	0	21
Landslide	100	0	100	0	22
Little Boulder	80	80	0	0	23

* Number keyed to G.S. Grove Map

Table 4.3 - Giant Sequoia Groves (continued)

Grove Name	Acres	Allocation (Approximate Acres) Preservation	Non-Intensive	Intensive	Grove No.
Lockwood	130	130	0	0	24
Long Meadow	150	150	0	0	25
McIntyre	180	180	0	0	26
Maggie Mountain	40	40	0	0	27
Middle Tule	300	300	0	0	28
Mountain Home	330	70	260	0	29
Packsaddle	300	300	0	0	30
Peyrone	800	200	600	0	31
Powderhorn	10	0	10	0	32
Red Hill	600	0	600	0	33
Redwood Mountain	450	40	410	0	34
Silver Creek	50	50	0	0	35
Starvation	200	80	120	0	36
Tenmile	40	0	40	0	37
Wheel Meadow	500	400	100	0	38
TOTALS	13,200	3,900	9,300	0	

SOIL AND WATER

-- Identify areas of watershed damage and abandoned roads. These areas will be added to the Watershed Improvement Needs (WIN) program for rehabilitation. Water quality improvement will receive first priority, followed by priorities established by the management prescriptions.

-- Utilize the Sequoia NF Cumulative Watershed Effects (CWE) methodology for application within the Forest to assess each project for potentials to incur cumulative effects.

-- Secure water rights annually for existing and foreseeable future Forest consumptive uses following appropriate Federal and State filing procedures.

-- Protect water quality and soil productivity through the implementation of Best Management Practices (BMP's) in accordance with the most current version of "Water Quality Management for National Forest System Lands in California." Determine methods and techniques for applying the BMP's at the project level and identify in the associated project documents and plans. (See Appendix Q in FEIS.)

-- Utilize administrative studies on small watersheds to evaluate water yield improvement in cooperation with other agencies.

-- Conduct management actions within or in proximity to floodplains, wetlands, and riparian area to comply with E.O. 11990 and E.O. 11988 requirements, processes and procedures.

-- Manage to maintain long-term soil productivity.

MINERALS AND GEOLOGY

-- Evaluate requests for leaseable minerals and mineral material on a project basis. Before authorizing users, ensure that these activities can be conducted in an environmentally sound manner and that they are integrated with the planning and management of other National Forest resources.

-- Include provisions to minimize adverse environmental impacts to surface resources in operating plans (36 CFR 228). Upon the completion of any mineral activities on the Forest, provisions will be made for the timely reclamation of a disturbed area with the ultimate goal being full surface production and use of land.

-- Complete a Geologic Resource Inventory to Order 3 standards.

-- Seek resolution of situations where activities, questionably based on the 1872 Mining Law, conflict with management needs.

-- Review all withdrawals to meet the Bureau of Land Management schedule. Priorities will be coordinated by the Regional Office.

-- Utilize care where valid existing rights are exercised in withdrawn areas to insure the integrity of the area for the purpose for which the area is withdrawn.

RURAL COMMUNITY AND HUMAN RESOURCES

-- Meet human and community needs where feasible by providing employment and training opportunities, particularly for the elderly, disadvantaged and minority communities. Volunteers and other Human Resource Programs will help accomplish planned work while meeting budget constraints.

-- Provide where feasible an environment that promotes the active participation of all segments of the public in the management of the Forest.

a) Promote the use of symbol signing for the hearing impaired.

b) Utilize bilingual personnel, brochures and signing in areas heavily used by the Hispanic community.

-- Ensure over time that Forest Service facilities are responsive to the design needs of the physically challenged.

-- Ensure that federally conducted and assisted programs administered by the Forest Service (including contracting opportunities and special-use permits) are responsive to the needs of minority groups.

LANDS

-- Survey, mark and post all property lines to Forest Service Standards. Give priority to those lands needed for management activities and where a high potential for encroachment exists.

-- Grant new non-recreation special-use permits or easements only when suitable private land is not available and they would not conflict with Forest management objectives.

-- Continue a minimum level of administration of special uses that meets current direction except where higher levels are warranted on a case-by-case basis.

-- Acquire available private land and dispose of public land only where needed to reduce administrative costs, foster resource programs, or resolve administrative problems; and have a favorable benefit-cost ratio.

-- Acquire rights-of-way needed for management activities and to provide public access to National Forest System lands.

-- Respond to interagency transfer proposals, as needed.

-- Review existing withdrawals to determine if they should be continued and for how long.

FACILITIES AND ENERGY

Energy

-- Encourage energy development, when sources are available, as long as the development is consistent with other standards and guidelines.

Facilities

-- Provide additions to the transportation system to meet the needs of resource management.

a) Construct approximately 24 miles of local roads per year (20-year average). These roads usually range from 0.5 to 1.5 miles in length and are normally single lane with earth surface.

b) Reconstruct approximately 18 miles of local roads per year (20-year average). These roads usually range from 1.0 to 4.5 miles in length and

normally consist of clearing, surface reshaping, curve widening and drainage work.

c) Construct approximately 5.9 miles per year of collector roads in the first decade to provide access to currently unroaded areas. These roads are normally 3 to 7 miles in length and are usually single lane roads but constructed to a higher standard than local routes. Higher standards may consist of flatter grades, larger radius curves, more turnouts, and may have surface stabilization.

-- Manage the road system to assure resource protection, provide safe access and accommodate resource management needs.

a) Emphasize maintenance of arterials and high volume collector roads to provide a high degree of user comfort.

b) May not maintain for user comfort collector roads with low traffic volumes.

c) Open roads to public travel unless closure is necessary to ensure resource protection, road investment protection, or for other management reasons.

-- Rehabilitate, replace, or relocate existing buildings to support Forest management.

-- Maintain buildings at least to a minimum level that protects health and prevents building deterioration.

-- Improve signing of road closures to include the reason for closure.

-- Maintain selected roads for OHV enthusiasts.

PROTECTION

Fire Management

-- Plan for a Fire Management program with an average Efficiency Index of $6.70/acre each decade.

$$F.M.E.I. = \frac{\text{Annual Costs (FFP + FFF + NVC) - Fuels Investment}}{\text{M Acres Protected}}$$

-- Treat fuels in urban interface areas to reduce fire threat to private improvements and Forest resources.

-- Meet at least once annually with cooperating agencies (Kern County, CDF, Sequoia and Kings Canyon National Parks, BLM - Bakersfield District, Pine Flat Lake - Corps of Engineers) to coordinate prescribed burning plans for projects located on adjacent lands and to coordinate fire protection activities.

-- Outside wilderness, prepare an activity fuels management/fire protection plan for each compartment. Treatment and protection objectives for timbered compartments are:

  a) Treat activity fuels to assure control of 90 percent of all fires at less than five acres.

  b) Establish fire protection features (fuelbreaks, roadsides, access, etc.) that assure control of 98 percent of fires escaping initial attack (greater than five acres) at less than 50 acres.

  c) Determine the suppression alternative for fires that escape initial attack through an "Escaped Fire Situation Analysis."

-- In wilderness, limit the use of unplanned natural ignition prescribed fire to meeting planned objectives when fuel loading and natural barriers will limit final fire perimeter to planned boundaries under the most severe weather conditions.

Search and Rescue

-- Provide assistance as requested by the sheriff in search and rescue operations.

Enforcement

-- Emphasize coordination with local law enforcement agencies and intensive violation prevention programs.

Integrated Pest Management

-- Implement a moderate level of IPM, with emphasis on protection of plantations and developed recreation fee sites.

G. MANAGEMENT AREAS AND PRESCRIPTIONS

1. Management Areas

Management Areas are made up of management emphases and vegetative types. Management emphases include grazing, dispersed recreation, water-oriented recreation, developed recreation, water yield, wildlife, timber, Research Natural Areas, special interest areas and wilderness. The broad vegetative type zones contain a predominant vegetative type. Because of the large size of the Management Areas and mapping scale, it is not unusual to find small inclusions of other vegetative types. The Management Direction for an inclusion is to treat them with the prescription which has the same emphasis but for their particular vegetative type.

The following are descriptions of the vegetative types which make up management areas. A generalized map of vegetative types is part of the FEIS.

Blue Oak Savanna

This vegetation type is on gently sloping to moderately steep foothills dominated by annual grassland with scattered blue oak trees. Associated trees may be interior live oak, California buckeye, digger pine, or valley oak. This type is located on the western fringe of the Forest below an elevation of 2,500 feet and below the mixed chaparral type.

Oak Woodland

This vegetation type is composed of black oak woodlands and live oak woodlands.

Mature black oaks are 50 to 75 feet high with trunks that are often bent or leaning. They are clear of branches for 10 to 20 feet, and then give off large limbs which form irregularly open, broad, rounded crowns. They are associated with pine, white fir, and incense cedar; and are located on the western slope of the Forest. It is in a narrow transition between the blue oak savanna type and the conifer forest type at an elevation of 4,000 feet to 5,500 feet.

Live oaks are variable in size, from low, dense chaparral brush to a wide-spreading tree 30 or 40 feet high, with hugh horizontal limbs and a short, thick trunk. They are scattered across the entire Forest from an elevation of 1,000 to 8,000 feet, on steep, rocky canyonsides and mountainsides. The live oaks are evergreen and form a nearly completely closed canopy.

Mixed Chaparral

This vegetation type consists of broad-leaved shrubs which are adapted to heat and drought. They are three to six feet high and form a dense, often nearly impenetrable canopy. The dominant species are chamise, buckbrush, flannel bush, shin-oak, mariposa manzanita, whiteleaf manzanita, chaparral whitethorn, and birchleaf mountain mahogany. Generally, stands of mixed chaparral contain two or more of these species; however, pure stands of one species may occur. Mixed chaparral occurs below an elevation of 4,500 feet and between the conifer forest or black oak woodland and the blue oak savanna.

Pinyon-Sage

Pinyon pine have short trunks, rarely straight, and wide, rather flat crowns of short, heavy, twisted, and bent branches, which often start near the ground and often hang low. Pinyon pine are 10 to 30 feet high and occur in open stands with shrubs between.

Generally, pinyon pine forms pure stands, but occasionally can be found with western juniper, California juniper, or piute cypress. The associated shrubs are basin sagebrush, bitterbrush, and rabbitbrush. The pinyon-sage type occurs in the Scodie Mountains and on the eastern portion of the Kern Plateau and Piute Mountains.

Conifer Forest

The conifer forest is generally above an elevation of 5,000 feet on mountainsides, canyonsides, ridges, peaks, and in riparian areas. They may be composed of a single conifer species or a mixture of species. They are 50 to

200 feet tall, with stand density ranging from open "parklike" stands to dense forests with a closed canopy. There is a wide variety in amount and species of understory shrubs, forbs, and grasses and sedges. Conifer species which occur on the Forest are ponderosa pine, Jeffrey pine, sugar pine, giant sequoia, incense cedar, white fir, lodgepole pine, western white pine, red fir, and the subalpine species of foxtail pine, white-bark pine, and limber pine.

2. Management Prescriptions

A Management Prescription is a cohesive and compatible set of practices and activities selected and scheduled for application on a specific area of land, the Management Area, to attain desired goals and objectives. Twenty- two management prescriptions were developed to allow consideration of a wide range of emphases across the Forest including grazing, dispersed recreation, water-oriented recreation, developed recreation, water yield, wildlife, timber, special interest areas, and wilderness. Each Management Prescription contains a compatible set of practices and activities which are applied to a vegetative type. Exceptions are those prescriptions which are applied to existing or proposed designated areas which are not vegeta- tive type specific. These are wilderness, Special Interest Areas, Research Natural Areas, and Wild, Scenic and Recreation Rivers.

The accompanying Land and Resource Management Plan Map displays the management emphasis areas for the Forest. The Management Prescription for each area can be identified by combining the vegetative type from the Forest Vegetative Type Map with the emphasis area information.

The management emphasis of each prescription is summarized in Table 4.1. A synopsis of the emphasis and opportunities for each prescription follows. For each prescription, management activities will be constrained to meet or exceed minimum legal requirements. Forest-wide Standards and Guidelines will apply to these prescriptions and may constrain practices

Table 4.4 - Management Area Prescription Summary

Prescription Code	Management Emphasis	Vegetative Type	Description Located on Page
OW1	General Dispersed Recreation	Oak Woodland	4-42
MC1	General Dispersed Recreation	Mixed Chaparral	4-45
PS1	General Dispersed Recreation	Pinyon-Sage	4-48
CF1	General Dispersed Recreation and Timber	Conifer Forest	4-50
BO2	Water-Oriented Recreation	Blue Oak Savanna	4-53
OW2	Water-Oriented Recreation	Oak Woodland	4-56
MC2	Water-Oriented Recreation	Mixed Chaparral	4-58
CF3	Developed Recreation	Conifer Forest	4-61
WF4	Wilderness (Natural role of fire)	All Types	4-64
OW5	Wildlife and Dispersed Recreation	Oak Woodland	4-66
MC5	Wildlife and Dispersed Recreation	Mixed Chaparral	4-68
PS5	Wildlife and Dispersed Recreation	Pinyon-Sage	4-71
CF5	Wildlife, Dispersed Recreation and Timber	Conifer Forest	4-73
BO6	Grazing	Blue Oak Savanna	4-76
OW6	Grazing	Oak Woodland	4-79
MC6	Grazing	Mixed Chaparral	4-81
PS6	Grazing	Pinyon-Sage	4-83
CF6	Grazing and Timber	Conifer Forest	4-85
CF7	Timber	Conifer Forest	4-88
SIA	Special Interest Areas	All Types	4-90
WSR	Wild, Scenic, and Recreation Rivers	All Types	4-91
RNA	Research Natural Areas	All Types	4-91

MANAGEMENT AREA PRESCRIPTION OW1

This prescription emphasizes general dispersed recreation in oak woodland. This management area encompasses 13,000 net acres.

Emphasis

Recreational emphasis will range from Semi-Primitive Non-Motorized to Rural opportunities. A mix of activities will be permitted. OHV use, hiking,

equestrian use, fishing, hunting, and viewing scenery will be the primary activities. Scenic quality will be emphasized.

Opportunities

Firewood cutting for personal use will be favored over commercial use except where management problems would occur. Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which enhance recreation opportunities will receive priority. Transportation system planning and management will favor dispersed recreational and visual needs. Wildlife habitat and diversity will be managed to enhance recreation except in those areas where concentrated OHV use occurs. Livestock management techniques will be utilized to reduce conflict with dispersed recreation.

Developed Recreation

1) Build and manage new facilities to enhance dispersed recreation opportunities.

2) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

3) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

Dispersed Recreation

1) Increase opportunities for public enjoyment and benefits with emphasis on OHV use, hiking, equestrian use, fishing, hunting, and viewing.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPNM	.055
SPM	.80
RN	2.00
R	3.50

4) Emphasize providing and maintaining a comprehensive network of OHV trails in Roaded Natural ROS Class areas.

Fish and Wildlife

1) Maintain an average of 35-50 square feet of basal area of oak per acre.

2) Desired age classes of black oak:

0 - 80 yrs.	15%
80 - 160 yrs.	50-70%
160 - 250 yrs.	15-35%

3) Maintain an average of 1.5 snags per acre.

4) Limit type conversions.

5) Limit habitat management activities where concentrated OHV use occurs.

Range

1) Concentrate manipulation of black oaks on ridge tops and south to west facing slopes.

2) Utilize livestock management techniques to reduce conflicts with dispersed recreation.

Timber

1) Enhance general dispersed recreation through stand management.

2) Favor firewood cutting for personal use over commercial use except where management problems would occur.

Watershed

1) Give priority to watershed improvement projects which enhance recreation opportunities.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road developments in SPM ROS areas to low density, local roads.

Fire Management

1) Construct fuelbreaks and firebreaks to limit fire size and to support recreation use.

2) Utilize "control" suppression stragedy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

3) Reduce fire hazard through prescribed underburning.

4) Focus fire prevention program on OHV users.

Visual

1) Protect large or unique tree character in Foreground (FG) R and PR zones (VQO Classes).

2) Use M as minimum VQO with emphasis on R and PR (VQO classes).

MANAGEMENT AREA PRESCRIPTION MC1

This prescription emphasizes general dispersed recreation in mixed chaparral. This management area encompasses 6,000 net acres.

Emphasis

Recreational opportunities range from Semi-Primitive Non-Motorized to Rural. However, emphasis will be on Semi-Primitive Non-Motorized and Semi-Primitive Motorized. A mix of activities will be emphasized (including OHV use, hiking, fishing, equestrian trail uses and viewing as primary activities). OHV use will be permitted on designated routes and areas. Scenic quality will be emphasized.

Opportunities

Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which enhance recreation will receive priority. Transportation system planning and management will favor dispersed recreational and visual needs. Prescribed fire will be used to improve access, increase visual variety, and enhance recreation and wildlife opportunities. Wildlife habitat and diversity will be managed to enhance recreation except in those areas where concentrated OHV use occurs. Livestock management techniques will be utilized to reduce direct conflicts with dispersed recreation.

Developed Recreation

1) Perpetuate existing large tree cover and/or establish additional trees for shade when any developed recreation site is capable of growing trees.

2) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPNM and SPM)

3) Establish specific program needs and direction to begin resolution of deficiencies in the Forest CRM program, with priority established as follows -- archaeology, history, ethnography.

Dispersed Recreation

1) Increase opportunities for public enjoyment and benefits with emphasis on OHV use, hiking, equestrian use, and viewing as primary activities.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPNM	.01
SPM	.80
RN	1.50
R	3.00

(emphasis on SPNM and SPM)

4) Emphasize providing and maintaining a comprehensive network of OHV trails.

Fish and Wildlife

1) Manage for desired age classes of mixed chaparral:

0 - 20	years	- 60%
20 - 30	years	- 20%
40+	years	- 20%

2) Convert chaparral types to annual grass on slopes less than 10 percent.

3) Implement vegetation manipulation projects when crown density of browse species is greater than 70 percent or average height exceeds five feet.

4) Limit habitat management activities where concentrated OHV use occurs.

5) Treat chaparral on slopes less than 40 percent to establish a 30- to 40-year age class rotation.

6) Follow Regional coordination guidelines for wildlife habitat improvement on chaparral management projects.

Range

1) Utilize livestock management techniques to reduce conflicts with dispersed recreation.

Timber

Not applicable.

Watershed

1) Give priority to watershed improvement projects which enhance recreation opportunities.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

Fire Management

1) Construct fuelbreaks and firebreaks to support recreation use, including OHV's.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

3) Use prescribed fire as the primary management tool used to alter vegetative structure composition.

4) Focus fire prevention program on OHV users.

Visual

1) When corrective action is to be taken, Landscape Rehabilitation Requirements are:

Adopted VQO	Field Season After Plan
R	first
PR	third
M	fifth

2) Design edges and openings to meet the VQO (VQO Classes):

R & PR - feather, vary edge density
M - feather only

3) Achieve visual variety through random mosaic pattern by varying:

a. vegetation density
b. age classes
c. distribution of treatments

4) Introduce landscape enhancement to improve scenic quality.

5) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION PS1

This prescription emphasizes general dispersed recreation in pinyon-sage. This management area encompasses 1,000 net acres.

Emphasis

Recreation emphasis will range from Semi-Primitive Non-Motorized to Roaded Natural. A mix of activities will be permitted. Hiking and equestrian use will be stressed in nonmotorized areas. In motorized areas, driving for pleasure, OHV use, and viewing scenery will be emphasized.

Opportunities

Firewood cutting for personal use will be favored over commercial use. Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which enhance recreation opportunities will receive priority. Transportation system planning and management will favor dispersed recreational and visual needs. Wildlife habitat and diversity will be managed to enhance recreation except those areas where OHV use occurs. Livestock management techniques will be utilized to reduce direct conflict with dispersed recreation.

Developed Recreation

1) Build and manage new facilities to enhance dispersed recreational opportunities.

2) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

Dispersed Recreation

1) Increase opportunities for public enjoyment and benefits with emphasis on hiking and equestrian use in nonmotorized areas; and driving for pleasure, OHV use and viewing in motorized areas.

2) Maintain and develop trails to meet user needs and to protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPMN	.055
SPM	.50
RN	1.80
R	3.50

4) Emphasize providing and maintaining a comprehensive network of OHV trails.

Fish and Wildlife

1) Create clearings and edges where possible.

2) Retain existing stands of pinyon pine and other hardwoods.

3) Lop and scatter slash.

4) Limit habitat management activities where concentrated OHV use occurs.

5) Provide water where it is limiting.

Range

1) Utilize livestock management techniques to reduce conflict with dispersed recreation.

Timber

1) Favor firewood cutting for personal use over commercial use.

Watershed

1) Give priority to watershed improvement projects which enhance recreation opportunities.

2) Minimize treatments on slopes greater than 15 percent.

3) Limit activities to produce no more than 5-7 percent bare ground per 1,000-acre or smaller watershed.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

Fire Management

1) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

2) Generally, do not use prescribed fire.

3) Restrict heavy mechanical equipment use where soil will be adversely affected.

4) Focus fire prevention program on dispersed campers and OHV users.

Visual

1) Provide openings with random sizes and spacing and simulate natural edges.

2) Use undeveloped vistas for viewing scenery.

3) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION CF1

This prescription emphasizes general dispersed recreation and sawtimber production in conifer. This management area encompasses 45,000 net acres.

Emphasis

All recreation opportunities will be provided, but emphasis will be on Semi-Primitive Non-Motorized and Semi-Primitive Motorized. A mix of activities will be permitted. Activities in the nonmotorized areas will

include equestrian trail use, hiking, cross-country skiing, and trail camping. In the motorized areas, OHV use (including oversnow vehicles), and driving for pleasure activities will be added. Scenic quality will be emphasized. Sawtimber will be produced.

Opportunities

Timber harvesting will be designed considering recreation opportunities and visual concerns. Firewood cutting for personal use will be favored over commercial use, except where management problems would occur. Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which enhance recreation opportunities will receive priority. Transportation system planning and management will favor dispersed recreational and visual needs. Wildlife habitat and diversity will be managed to enhance recreation except in those areas where concentrated OHV use occurs. Livestock management techniques will be utilized to reduce conflict with dispersed recreation.

Developed Recreation

1) Build and manage new facilities to enhance dispersed recreational opportunities.

2) Perpetuate large tree cover and revegetate openings when any developed recreation area is capable of growing trees.

3) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
P	5
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPNM and SPM)

Dispersed Recreation

1) Increase opportunities for public enjoyment and benefits with emphasis on hiking, equestrian use, cross-country skiing and trail camping in nonmotorized areas; and OHV (including oversnow vehicles), driving for pleasure, and viewing in motorized areas.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
P	.03
SPNM	.055
SPM	.80
RN	2.30
R	3.75

4) Emphasize providing and maintaining a comprehensive network of OHV trails.

Fish and Wildlife

1) Protect fisheries and wildlife through compliance with Riparian and Meadow Guidelines established for the Forest.

Range

1) Utilize livestock management techniques to reduce conflict with dispersed recreation.

Timber

1) Use uneven-aged or even-aged management as appropriate.

2) Limit regeneration acres and stand sizes by visual, fish and wildlife considerations.

3) Design weeding and thinning prescriptions to maximize timber growth while maintaining basal area stocking between 70 and 90 percent of normal except in immediate foreground where VQO is R or PR.

4) Reduce conifer stocking density and weeding intensity in immediate foreground where VQO is R or PR in order to allow development of mixed vegetative species and create multilayer appearance.

5) Recognize fire risk created by dispersed recreation use in activity fuel treatment plans.

6) Schedule no harvesting in SPNM areas.

Watershed

1) Give priority to watershed management projects which enhance recreation opportunities.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

Fire Management

1) Construct firebreaks and fuelbreaks. Use prescribed burning to protect timber values and forest users.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires is expected to be five acres.

3) Focus fire prevention program on timber harvesting and recreational activities.

Visual

1) Protect large or unique tree character in FG R and PR zones (VQO Classes).

2) Remove trees selectively to improve visual amenities within high use areas, vista points, and along interpretive trails.

3) Use MM as minimum VQO with emphasis on PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION B02

This prescription emphasizes water-oriented recreation in blue oak savanna. This management area encompasses 6,000 net acres.

Emphasis

Recreational opportunities will range from Semi-Primitive Motorized to Rural, occurring in developed sites and concentrated use areas adjacent to streams, rivers or reservoirs. Emphasis will be on Semi-Primitive Motorized and Roaded Natural. Semi-Primitive Motorized areas will stress observation sites and interpretive service opportunities. Campgrounds and picnic areas will be favored in Roaded Natural and Rural areas. In the Rural class, driving for pleasure and viewing scenery will also be emphasized. All developments will be managed to enhance and emphasize dispersed recreation activities such as rafting, sunbathing, swimming, and fishing in adjacent water bodies.

Opportunities

Watershed improvements which enhance recreational opportunities will receive priority. Transportation system planning and management will favor recreational, interpretive, and visual needs. Livestock management techniques will be utilized to reduce direct conflict with recreational uses.

Developed Recreation

1) Develop picnic grounds and campgrounds when need increases in the priority listed.

   a. Rehabilitate existing
   b. Expand existing
   c. Develop new

   Emphasize RN and R areas.

2) Develop programs and methods of presentation for interpretive services (beyond self-service levels) at key selected locations in Semi-Primitive Motorized areas. Observation sites will be stressed in SPM areas.

3) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

4) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPM	9
RN	13
R	17

   (emphasis on SPM and RN)

5) Establish system trails which provide for access between developed facilities and water/streamside.

6) Manage developed sites to increase dispersed recreation opportunities.

7) Design new constructed or reconstructed facilities to a standard conducive to recreational type vehicles.

Dispersed Recreation

1) Develop and manage opportunities for increasing public enjoyment and benefits with emphasis on driving for pleasure and viewing scenery in Rural class areas.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPM	.80
RN	2.00
R	.50

(emphasize SPM and RN)

4) Direct OHV use to areas away from concentrations of people (e.g., campgrounds and other heavily used areas).

Fish and Wildlife

1) None other than Forest-wide Standards and Guidelines.

Range

1) Utilize grazing management techniques during season of heavy recreational use to reduce conflict.

Timber

Not applicable.

Watershed

1) Give priority to watershed improvement projects which enhance recreation opportunities.

2) Regulate the discharge and disposal of potential pollutants near recreation sites.

Transportation and Facilities

1) Maintain trailhead access roads and primary access routes to developed facilities at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

Fire Management

1) Construct firebreaks and fuelbreaks. Use prescribed burning primarily to protect forest users.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment will be 100 acres.

3) Focus fire prevention program on recreational users.

Visual

1) Protect large or unique tree character in FG R or PR zones (VQO Classes).

2) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION OW2

This prescription emphasizes water-oriented recreation in oak woodland. This management area encompasses 1,000 net acres.

Emphasis

Recreational opportunities will range from Semi-Primitive Motorized to Rural, occurring in developed sites and concentrated use areas adjacent to streams, rivers or reservoirs. Emphasis will be on Semi-Primitive Motorized and Roaded Natural. Semi-Primitive Motorized areas will stress observation sites and interpretive service opportunities. Campground and picnic areas will be favored in Roaded Natural and Rural areas. In the Rural class, driving for pleasure and viewing scenery will also be emphasized. All developments will be managed to enhance and emphasize dispersed recreation activities such as rafting, sunbathing, swimming, and fishing in adjacent water bodies.

Opportunities

Trees will be harvested to maintain healthy, vigorous stands. Watershed improvements which enhance recreational opportunities will receive priority. Transportation system planning and management will favor recreational, interpretive, and visual needs. Livestock management techniques will be utilized to reduce direct conflict with recreational use.

Developed Recreation

1) Develop picnic grounds and campgrounds when need increases in the priority listed.

   a. Rehabilitate existing
   b. Expand existing
   c. Develop new facilities.

   Emphasize Roaded Natural and Rural areas.

2) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

3) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPM	9
RN	13
R	17

(emphasis on SPM and RN)

4) Establish system trails which provide for access between developed facilities and water/streamside.

5) Manage developed sites to increase dispersed recreation opportunities.

Dispersed Recreation

1) Develop and manage opportunities for increasing public enjoyment and benefits with emphasis on driving for pleasure and viewing scenery in Rural class areas.

2) Maintain and develop trails to meet user needs and protect user values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPM	.80
RN	2.00
R	3.50

(emphasis on SPM and RN)

4) Direct OHV use to areas away from concentrations of people (e.g., campgrounds and other heavily used areas).

Fish and Wildlife

1) None other than Forest-wide Standards and Guidelines.

Range

1) Utilize grazing management techniques during season of heavy recreational use to reduce conflict.

Timber

1) Harvest trees to maintain healthy vigorous stands.

Watershed

1) Give priority to watershed management projects which enhance recreation opportunities.

2) Regulate the discharge and disposal of potential pollutants near recreation sites.

Transportation and Facilities

1) Maintain trailhead access roads and primary access routes to developed sites at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density local roads.

3) Design new construction and reconstruction to a standard that is conducive to recreational type vehicles.

Fire Management

1) Construct firebreaks and fuelbreaks. Use prescribed burning primarily to protect forest users.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

3) Focus fire prevention program on recreational users.

Visual

1) Protect large or unique tree character in FG zones.

2) Use PR as minimum VQO (VQO Class).

MANAGEMENT AREA PRESCRIPTION MC2

This prescription emphasizes water-oriented recreation in mixed chaparral. This management area encompasses 4,000 net acres.

Emphasis

Recreational opportunities will range from Semi-Primitive Motorized to Rural, occurring in developed sites and concentrated use areas adjacent to streams, rivers or reservoirs. Emphasis will be on Semi-Primitive Motorized and Roaded Natural. Semi-Primitive Motorized areas will stress observation sites and interpretive service opportunities. Campgrounds and picnic areas will be favored in Roaded Natural and Rural areas. In the Rural class, driving for pleasure and viewing scenery will also be emphasized. All developments will be managed to enhance and emphasize dispersed recreation activities such as rafting, sunbathing, swimming, and fishing in adjacent water bodies.

Opportunities

Watershed improvements which enhance recreational opportunities will receive priority. Transportation system planning and management will favor recreational, interpretive, and visual needs. Management of chaparral vegetation will be minimized except for the enhancement of recreation. Livestock management techniques will be utilized to reduce conflict with recreational uses.

Developed Recreation

1) Develop picnic grounds and campgrounds when need increases in the priority listed.

   a. Rehabilitate existing
   b. Expand existing
   c. Develop new

   Emphasize RN and R areas.

2) Develop programs and methods of presentation for interpretive services (beyond self-service levels) at key selected locations in Semi-Primitive Motorized areas. Stress observation sites in SPM areas.

3) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

4) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPM	9
RN	13
R	17

(emphasis on SPM and RN)

5) Establish system trails which provide for safe access between developed facilities and water/streamside.

6) Manage developed sites to increase dispersed recreation opportunities.

7) Design new constructed or reconstructed facilities to a standard that is conducive to recreational type vehicles.

Dispersed Recreation

1) Develop and manage opportunities for increasing public enjoyment and benefits with emphasis on driving for pleasure and viewing scenery in Rural class areas.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPM	.80
RN	1.50
R	3.00

(emphasis on SPM and RN)

4) Direct OHV use to more suitable areas away from concentrations of people (e.g., campgrounds and other heavily used areas).

Fish and Wildlife

1) None other than Forest-wide Standards and Guidelines.

Range

1) Utilize grazing management techniques during season of heavy recreational use to reduce conflict.

Timber

Not applicable.

Watershed

1) Give priority to watershed improvement projects which enhance recreation opportunities.

2) Regulate the discharge and disposal of potential pollutants near recreation sites.

Transportation and Facilities

1) Maintain trailhead access roads and primary access routes to developed facilities at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density local roads. Close unneeded existing roads.

Fire Management

1) Construct firebreaks and fuelbreaks. Use prescribed burning primarily to protect forest users.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

3) Focus fire prevention program on recreational users.

Visual

1) Insure visual variety through design of random mosaic patterns by varying:

   a. vegetation density;
   b. age classes; and
   c. distribution of treatments.

2) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION CF3

This prescription emphasizes developed recreation in conifer. This management area encompasses 12,000 net acres.

Emphasis

Recreational opportunities will range from Semi-Primitive Non-Motorized to Rural; but emphasis will be on Semi-Primitive Motorized, Roaded Natural, and Rural ROS areas. Trailheads to facilitate dispersed uses in outlying areas, campgrounds, and picnic areas will be the primary developments in the Roaded Natural and Rural areas. Visitor interpretive facilities and organization camps will be authorized for development. Downhill ski areas will be studied for development.

Opportunities

Silvicultural practices will be utilized to protect and enhance recreational and visual needs. Dispersed recreational activities will be compatible. Watershed improvements which enhance recreational needs will receive priority. Transportation system planning and management will favor recreational and visual needs. Livestock management techniques will be utilized to reduce conflict with developed recreation.

Developed Recreation

1) Develop picnic grounds and campgrounds as the need increases in the priority listed.

   a. Rehabilitate existing
   b. Expand existing
   c. Develop new facilities

2) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

3) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPM, RN, R)

4) Provide for issuance of new permits for expansion of existing ski area (Shirley Meadow) and for new ski areas.

5) Manage developed recreation facilities to minimize dispersed use impacts within the MIZ's.

6) Do not locate new recreation sites where fish habitat cannot be adequately protected.

Dispersed Recreation

1) Develop and manage opportunities for increasing public enjoyment and benefits.

2) Retain and maintain trails to protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
P	.03
SPNM	.005
SPM	.80
RN	2.30
R	3.75

(emphasis on SPM, RN, R)

4) Direct OHV use to areas away from concentrations of people (e.g., campgrounds).

Fish and Wildlife

1) Protect fisheries and wildlife through compliance with Riparian and Meadow Guidelines established for the Forest.

2) Manage wildlife habitat and diversity to enhance recreation.

Range

1) Utilize livestock management techniques to reduce conflict with developed recreation.

Timber

1) Allow development of mixed vegetative species and create multi-layer appearance in immediate foreground where VQO is R or PR (VQO Classes).

2) Manage timber on an even-aged or uneven-aged basis outside of designated recreation sites. Limit regeneration harvest acres based on rotation ages listed under visual.

Watershed

1) Give priority to watershed management projects which enhance recreation opportunities.

2) Regulate the discharge and disposal of potential pollutants near recreation sites.

Transportation and Facilities

1) Maintain all roads used to access developed recreation sites at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

Fire Management

1) Construct firebreaks and fuelbreaks. Use prescribed burning primarily to protect forest users.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be five acres.

3) Focus fire prevention program on recreational users.

Visual

1) Protect large or unique tree character in FG R and PR zones (VQO Classes).

2) Remove trees selectively to improve visual amenities within high-use areas, at vista points, and along interpretive trails.

3) Minimum Rotation Ages:

R = 200 years
PR = 140 years
M = 100 years.

4) Increase species diversity of native species.

5) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION WF4

This prescription emphasizes wilderness with the natural role of fire. This management area encompasses 264,000 acres.

Emphasis

This area will be managed for the preservation and enhancement of wilderness characteristics. Fire under prescribed conditions will be used to maintain long-term plant diversity in the wilderness. Confinement will be used as a suppression strategy when the potential fire size will generally not exceed 100 acres. Fires generally will not threaten lands outside the wilderness if allowed to burn; nor will fire present a threat to wilderness users. Fires will not be allowed to cause significant increase in soil movement. Areas where past activities have resulted in adverse wilderness impacts will be identified and managed to rehabilitate the sites.

Opportunities

Timber harvesting will not occur. [1/] Firewood gathering will be limited to dead and downed wood for wilderness recreational uses. Dispersed recreation, excluding mechanized uses, will be provided. Trails will be provided, but will protect wilderness solitude and soil and water quality. Grazing will be permitted.

Existing wilderness plans will apply except where practices are superseded by these directions and standards. Following Congressional designation of each new wilderness, a wilderness management plan will be completed.

Developed Recreation

1) Limit the amount and kind of primitive structural campsite improvements.

Dispersed Recreation

1) Permit camping within 100 feet of live streams only when terrain does not allow appropriate space further away.

2) Develop loop trails.

1/ 36 CFR 219.18 states: "(B) Evaluate the extent to which wildfire, insect and disease control measures may be desirable for protection of either wilderness or adjacent areas and provide for such measures when appropriate." Under extreme situations, this may necessitate limited timber activities.

Fish and Wildlife

1) Utilize prescribed fire for wildlife habitat improvement work.

Range

1) Allow the current level of grazing.

Timber

1) Do not permit harvesting. 1/

Watershed

1) Do not permit restoration activities, unless allowed by enabling legislation or explicit approval by the Chief of the Forest Service.

Transportation and Facilities

1) Construct and maintain trail bridges consistent with wilderness uses.

2) Maintain administrative facilities consistent with wilderness values.

Fire Management

1) Use a "confine" or "contain" suppression strategy for wildfire when public safety will not be compromised, adjacent resources can be protected, and other management constraints (air quality, watershed, etc.) can be met. A "Control" strategy will be applied to all other wildfires.

2) Use prescribed fire to enhance wilderness values. Planned and unplanned ignitions may be used.

3) Limit and tightly control the use of mechanized equipment.

Visual

1) Maintain P VQO (VQO Class).

1/ 36 CFR 219.18 states: "(B) Evaluate the extent to which wildfire, insect and disease control measures may be desirable for protection of either wilderness or adjacent areas and provide for such measures when appropriate." Under extreme situations, this may necessitate limited timber activities.

MANAGEMENT AREA PRESCRIPTION OW5

This prescription emphasizes wildlife and dispersed recreation in oak woodland. This management area encompasses 34,000 net acres.

Emphasis

Management emphasis will be to manipulate wildlife habitat in order to increase the quality of recreational experience. Vegetative diversity will be enhanced. Recreation will range from Semi-Primitive Non-Motorized to Rural opportunities. Hiking, equestrian use, fishing, hunting, and viewing will be the primary activities. Scenic quality will be emphasized.

Opportunities

Firewood cutting for personal use will be favored over commercial use except where management problems would occur. Developed recreational sites will emphasize enhancement of dispersed recreational and visual opportunities. Watershed improvements which improve wildlife habitat and enhance recreation will receive priority. Transportation system planning and management will favor dispersed recreational, wildlife and visual needs. Livestock management techniques will be utilized to reduce conflict with dispersed recreation and wildlife.

Developed Recreation

1) Build and manage new facilities to enhance dispersed recreation opportunities.

2) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

3) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

Dispersed Recreation

1) Increase opportunities for increasing public enjoyment and benefits with emphasis on hiking, equestrian use, fishing, hunting and viewing.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPNM	.055
SPM	.80
RN	2.00
R	3.50

4) Manage OHV use by location and period of use based on wildlife needs (e.g., excluding OHV's from key areas during fawning and nesting).

Fish and Wildlife

1) Desired age classes of black oak:

0 - 80 yrs.	15%
80 - 160 yrs.	50-70%
150 - 250 yrs.	15-35%

2) Maintain an average of 3-5 snags per acre.

3) Limit developed clearings to less than five acres. Maintain natural openings.

4) Maintain an average of 35-50 square feet basal area of oaks per acre.

5) Give priority to habitat improvement projects that provide the greatest return for recreationists.

6) Consider fish and amphibia in habitat improvement projects.

Range

1) Utilize livestock management techniques to reduce conflict with dispersed recreation and wildlife.

Timber

1) Permit firewood cutting for personal use to improve wildlife habitat or dispersed recreation.

Watershed

1) Give priority to watershed improvement projects which enhance recreation opportunities.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in Semi-Primitive Motorized areas to low density, local roads.

3) Use seasonal closure as a tool to protect key wildlife values.

Fire Management

1) Construct fuelbreaks and firebreaks primarily to restrict fire size and compliment wildlife management.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment will be 15 acres.

3) Use prescribed fire to protect black oaks from damage.

4) Focus fire prevention program on hunters.

Visual

1) Open undeveloped vistas for viewing scenery.

2) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION MC5

This prescription emphasizes wildlife and dispersed recreation in mixed chaparral. This management area encompasses 78,000 net acres.

Emphasis

Management emphasis will be to manipulate wildlife habitat in order to increase the quality of recreational experiences. A mosaic of age classes will be produced and maintained to improve the quality and diversity of wildlife habitats. Recreational opportunities range from Semi-Primitive Non-Motorized to Rural. However, emphasis will be on Semi-Primitive Non-Motorized and Semi-Primitive Motorized. Hiking, hunting, fishing, equestrian trail uses, and viewing will be the primary activities. Scenic quality will be emphasized.

Opportunities

Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which improve wildlife habitat and enhance recreation will receive priority. Transportation system planning and management will favor dispersed recreational, wildlife, and visual needs. Livestock management techniques will be utilized to reduce direct conflict with dispersed recreation and wildlife. Livestock may be used to maintain browse at an available height.

Developed Recreation

1) Develop new facilities to enhance dispersed recreation opportunities.

2) ROS capacity guidelines for developed sites.

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPNM and SPM)

Dispersed Recreation

1) Increase opportunities for public enjoyment and benefits with emphasis on hiking, hunting, equestrian use and viewing.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPNM	.01
SPM	.80
RN	1.50
R	3.00

(emphasis on SPNM and SPM)

4) Manage OHV use by location and period of use based on wildlife needs (e.g., excluding OHV's from key areas during fawning and nesting).

Fish and Wildlife

1) Desired age classes of mixed chaparral:

0 - 20 years - 60%
20 - 30 years - 40%

2) Convert chaparral types to annual grass on slopes less than 10 percent.

3) Implement vegetative manipulation projects only when crown density of browse species is greater than 70 percent or average height exceeds five feet.

4) Develop water supplies on intensively treated lands.

5) Treat on slopes less than 40 percent to establish a 40- to 60-year age class rotation.

6) Use prescribed fire as the primary method to accomplish age class management.

7) Follow regional wildlife coordination guidelines for burning prescriptions.

8) Consider fish and amphibia in habitat improvement projects.

Range

1) Utilize livestock management techniques to reduce conflict with dispersed recreation and wildlife.

Timber

Not applicable.

Watershed

1) Give priority to watershed improvement projects which improve wildlife habitat and enhance recreation opportunities.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

Fire Management

1) Construct fuelbreaks and firebreaks primarily to protect forest users and protect adjacent resource values.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

3) Use prescribed fire to improve wildlife habitat.

4) Focus fire prevention program on hunters.

Visual

1) Design edges and openings to meet the VQO (VQO Classes):

R and PR - feather, vary edge density
M - feather only
MM - not applicable.

2) Manage visual variety through random mosaic pattern by varying:

   a. vegetation density and diversity
   b. age class
   c. distribution of treatments

3) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION PS5

This prescription emphasizes wildlife and dispersed recreation in pinyon-sage. This management area encompasses 63,000 net acres.

Emphasis

Management emphasis will be to manipulate wildlife habitat in order to increase the quality of recreational experiences. Vegetative diversity and quality of wildlife habitat will be improved by creating openings and developing water. Recreation will range from Semi-Primitive Non-Motorized to Roaded Natural. However, emphasis will be on Semi-Primitive Non-Motorized. Hiking and equestrian use will be stressed in nonmotorized areas. In motorized areas, driving for pleasure and viewing scenery will also be emphasized. Scenic quality will be emphasized.

Opportunities

Firewood cutting for personal use will be favored over commercial use. Developed recreational sites will be managed to enhance dispersed recreational and visual opportunities. Watershed improvements which improve wildlife habitat and enhance recreation will receive priority. Transportation system planning and management will favor dispersed recreational, wildlife, and visual needs. Livestock management techniques will be utilized to reduce direct conflict with dispersed recreation and wildlife.

Developed Recreation

1) Build and manage new facilities to enhance dispersed recreation opportunities, including developments for self-contained RV's.

2) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPNM)

Dispersed Recreation

1) Increase opportunities for enjoyment and benefits with emphasis on hiking and equestrian use in nonmotorized areas and driving for pleasure and viewing in motorized areas.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
SPNM	.055
SPM	.50
RN	1.80
R	3.50

(emphasis on SPNM)

4) Do not permit camping within 300 feet of water.

5) Manage OHV use by location and period of use based on wildlife needs (e.g., excluding OHV's from key areas during fawning and nesting).

Fish and Wildlife

1) Create edges and clearings with openings one to five acres and 400 to 600 feet apart.

2) Allow type conversion in ecosystem for wildlife needs.

3) Retain existing stands of oaks and other hardwoods.

4) Lop and scatter slash.

5) Develop water where it is limiting.

Range

1) Install structural range improvements to obtain proper management when vegetation is available for livestock and will not conflict with wildlife.

2) Utilize livestock management techniques to reduce conflict with dispersed recreation and wildlife.

Timber

1) Favor firewood production for personal use over commercial use.

Watershed

1) Give priority to watershed improvement projects which improve wildlife habitat and enhance recreation opportunities.

2) Minimize treatments on slopes greater than 15 percent.

3) Limit activities to produce no more than 5-7 percent bare ground per 1,000-acre or smaller watershed.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

3) Use seasonal closure as a tool to protect key wildlife values.

Fire Management

1) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

2) Generally, do not use prescribed fire.

3) Restrict the use of heavy mechanical equipment where soil will be adversely affected.

4) Focus fire prevention program on hunters.

Visual

1) Space openings randomly and simulate natural edges.

2) Open undeveloped vistas for viewing scenery.

3) Use M as minimum VQO with emphasis on R and PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION CF5

This prescription emphasizes wildlife, dispersed recreation, and sawtimber production in conifer. This management area encompasses 25,000 net acres.

Emphasis

Management emphasis will be to manipulate wildlife habitat in order to increase the quality of recreational experiences. Vegetative diversity will be enhanced. All recreation opportunities will be provided, but emphasis will be on Semi-Primitive Non-Motorized and Semi-Primitive Motorized. Activities in the nonmotorized areas will include horseback trail use, fishing, hiking, cross-country skiing, and trail camping. In

the motorized areas, activities will also include driving for pleasure. Scenic quality will be emphasized. Sawtimber will be produced.

Opportunities

Timber harvesting will be designed considering wildlife, recreation, and visual concerns. Firewood cutting will favor personal use. Developed recreational sites will emphasize enhancement of dispersed recreational and visual opportunities. Watershed improvements which improve wildlife habitat and enhance recreation will receive priority. Transportation system planning and management will favor wildlife, dispersed recreational, and visual needs.

Developed Recreation

1) Perpetuate large tree cover and revegetate openings when any developed recreational site is capable of growing trees.

2) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
P	5
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPNM and SPM)

3) Limit new development to RN areas where key wildlife habitat will not be impacted.

4) Develop new facilities which increase dispersed recreation opportunities and are located at least one-quarter mile from meadows.

Dispersed Recreation

1) Increase opportunities for public enjoyment and benefits with emphasis on equestrian use, fishing, hiking, cross-country skiing and trail camping in nonmotorized areas; and driving for pleasure and viewing in motorized areas.

2) Maintain and develop trails to meet user needs and protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
P	.03
SPNM	.055
SPM	.80
RN	2.30
R	3.75

(emphasis on SPNM and SPM)

4) Manage OHV use by location and period of use based on wildlife needs (e.g., excluding OHV's from key areas during fawning and nesting).

Fish and Wildlife

1) Maintain an average of 3-5 snags per acre.

2) Protect fisheries and wildlife through compliance with Riparian and Meadow Guidelines established for the Forest.

3) Construct permanent water chances with built-in safeguards to protect the aquatic and wildlife communities.

4) Maintain greater than 50 percent of area on a 120- to 140-year rotation.

5) Create and/or maintain a vegetative buffer strip along OHV trails and areas designated for OHV use to reduce impacts on wildlife.

Range

1) Utilize livestock management techniques to reduce conflict with dispersed recreation and wildlife.

Timber

1) Use even-aged or uneven-aged management as appropriate.

2) Favor firewood cutting for personal use over commercial use.

3) Utilize all methods of regeneration.

4) Control growing stock levels, through thinning or weeding, to maximize optimum growing conditions.

5) Protect plantations from wildlife damage throughout the establishment period. Then encourage utilization of forage.

6) Limit openings to less than 25 acres in size and greater than 300 feet apart.

Watershed

1) Give priority to watershed improvements which improve wildlife habitat and enhance recreation opportunities.

Transportation and Facilities

1) Maintain trailhead access roads at a minimum of Level 3.

2) Limit road development in SPM ROS areas to low density, local roads.

3) Use seasonal closure as a tool to protect key wildlife values.

Fire Management

1) Construct firebreaks and fuelbreaks. Use prescribed burning to improve wildlife habitat and to protect timber values and forest users.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be five acres.

3) Focus fire prevention program on timber harvesting and recreational users.

Visual

1) Protect large or unique tree character in FG R and PR zones (VQO Classes).

2) Remove trees selectively to improve visual amenities within high-use areas, vista points and along interpretive trails.

3) Specify vegetative clearings less than five acres in R and PR zones (VQO Classes).

4) Use M as minimum VQO with emphasis on PR (VQO Classes).

MANAGEMENT AREA PRESCRIPTION B06

This prescription emphasizes grazing of livestock in blue oak savanna. This management area encompasses 37,000 net acres.

Emphasis

Grazing of livestock will be emphasized. Forage and range improvements will be provided as needed.

Opportunities

Wood will be used for campfires only and use will be limited to dead and downed material. Recreation will favor Semi-Primitive Motorized and Roaded Natural opportunities. Developed recreation will be limited. Dispersed recreation will be minimal. Watershed improvements which enhance and improve range productivity will receive priority. Transportation system planning and management will favor range activities. Wildlife habitat will be managed to maintain or enhance harvest species and to maintain viable populations of species dependent on blue oak savanna.

Developed Recreation

1) Do not construct any new campgrounds or picnic sites.

Dispersed Recreation

1) Develop opportunities for increasing public enjoyment and benefits that are compatible with grazing needs.

2) Retain and maintain trails to protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE (year-round)
SPNM	.008
SPM	.008
RN	.083
R	.830

(emphasis on SPM and RN)

4) Restrict OHV use seasonally to reduce conflicts with grazing.

Fish and Wildlife

1) Maintain a minimum of 20 square feet of basal area of blue oak per acre where it presently exists.

2) Maintain snags where possible.

Range

1) Do not utilize mechanical treatments of blue oak.

2) Develop water, fences, trails, etc. to facilitate optimum use of forage.

Timber

1) Allow firewood gathering only for on-site campfires.

Watershed

1) Give priority to watershed improvement projects which enhance and improve range productivity.

2) Minimize ground disturbance.

Transportation and Facilities

1) Limit road development in SPM ROS areas to low density, local roads

2) Manage roads to improve range management practices (i.e., seasonal closure).

3) Discourage use of roads not needed for range management.

4) Coordinate road construction with range management practices.

Fire Management

1) Limit firebreak construction to ridge tops.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 100 acres.

3) Prevent fires from escaping into other vegetative types, or causing extensive damage to blue oaks.

4) Limit heavy mechanized equipment use to roads, ridge tops, and slopes less than 40 percent.

Visual

1) Protect large or unique tree character in FG R and PR zones (VQO Classes).

2) Provide openings with random spacing.

3) Use MM as minimum VQO with emphasis on M where grazing opportunities will be enhanced (VQO Classes).

MANAGEMENT AREA PRESCRIPTION OW6

This prescription emphasizes grazing of livestock in oak woodland. This management area encompasses 122,000 net acres.

Emphasis

Livestock grazing will be emphasized in black oak woodlands. Where black oak stands are dense, thinning will be done to improve forage production. Grazing in live oak areas will be minimal but would be done where forage can be increased by vegetative manipulation. Range improvements will be provided as needed.

Opportunities

Wood harvesting in black oak will be encouraged. Recreation activities which are acceptable within Semi-Primitive Non-Motorized class will be emphasized. Camp and picnic facilities will not be developed. Dispersed recreation will be limited. Watershed improvements which enhance and protect range productivity will receive priority. Transportation system planning and management will favor range activities. Wildlife habitat will be managed to maintain or enhance harvest species and to maintain viable populations of oak dependent species.

Developed Recreation

1) Do not construct any new camp or picnic sites.

Dispersed Recreation

1) Develop opportunities for increasing public enjoyment and benefits that are compatible with grazing needs.

2) Retain and maintain trails to protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE (Grazing Season)	PAOT/ACRE (Off Season)
SPNM	.008	.055
SPM	.008	.800
RN	.083	2.00
R	.830	3.50

(emphasis on SPNM)

5) Restrict OHV use seasonally to reduce conflicts with grazing.

Fish and Wildlife

1) Provide for 1.5 snags per acre.

2) Maintain at least 20 square feet basal area per acre of oaks where it currently exists.

3) Maintain understory vegetation to provide horizontal and vertical diversity.

4) Provide continual supply of oaks.

Range

1) Concentrate manipulation of black oaks on ridgetops and south to west facing slopes.

2) Develop water, fences, trails, etc. to facilitate maximum use of forage.

Timber

1) Permit wood harvest in black oak.

Watershed

1) Give priority to watershed improvement projects which enhance and protect range productivity.

Transportation and Facilities

1) Limit road development in SPM ROS areas to low density, local roads.

2) Manage roads to enhance range management practices (i.e., seasonal closure).

3) Discourage use of roads not needed for range management.

Fire Management

1) Utilize fuel breaks and firebreaks to restrict fire spread and compliment range management.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

3) Use prescribed fire to improve forage production.

Visual

1) Use MM as minimum VQO with emphasis on M where grazing opportunities will be enhanced (VQO Classes).

MANAGEMENT AREA PRESCRIPTION MC6

This prescription emphasizes grazing of livestock in mixed chaparral. This management area encompasses 64,000 net acres.

Emphasis

Livestock grazing will be emphasized. Vegetative manipulation will be used to promote young growth (age less than 20 years) of preferred browse species for increased livestock forage production. Range improvements will be provided as needed.

Opportunities

Recreation will stress Semi-Primitive Non-Motorized and Semi-Primitive Motorized opportunities. Developed recreation will be limited where in conflict with grazing. Dispersed recreation will be limited. Watershed improvements which enhance and protect range productivity will receive priority. Transportation system planning and management will favor range activities. Wildlife habitat management will favor early successional species.

Developed Recreation

1) Do not construct campgrounds or picnic sites.

Dispersed Recreation

1) Develop opportunities for increasing public enjoyment and benefits that are compatible with grazing needs.

2) Retain and maintain trails to protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE (Grazing Season)	PAOT/ACRE (Off Season)
SPNM	.008	.01
SPM	.008	.80
RN	.083	1.550
R	.830	3.00

(emphasis on SPNM and SPM)

4) Restrict activities during periods of drought and high fire hazard.

5) Restrict OHV use seasonally to reduce conflicts with grazing.

Fish and Wildlife

1) Provide wildlife adaptations in all water developments.

2) Consider wildlife needs for cover and edge in chaparral type conversions and vegetation manipulation projects.

Range

1) Use prescribed fire as primary method to accomplish age class management.

2) Convert chaparral types to annual grass on slopes less than 10 percent.

3) Implement vegetative manipulation projects on slopes less than 40 percent when crown density of browse species is greater than 70 percent or average height exceeds five feet.

4) Develop water supplies, fences, and trails where needed on intensively treated lands.

Timber

Not applicable.

Watershed

1) Give priority to watershed improvement projects which enhance and protect range productivity.

Transportation and Facilities

1) Limit road development in SPM ROS areas to low density, local roads.

2) Manage roads to improve range management practices (i.e., seasonal closure).

3) Discourage use of roads not needed for range management.

Fire Management

1) Utilize fuelbreaks and firebreaks to protect improvements on adjacent lands and to compliment range management.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

Visual

1) Manage visual variety through random mosaic patterns by varying:

   a. vegetation densities;
   b. age classes; and
   c. distribution of treatments.

2) Use MM as minimum VQO with emphasis on R and PR, where recreation opportunities occur (VQO Classes).

MANAGEMENT AREA PRESCRIPTION PS6

This prescription emphasizes grazing of livestock in pinyon-sage. This management area encompasses 9,000 net acres.

Emphasis

Grazing will be emphasized. Water development will be critical for improved livestock distribution.

Opportunities

Firewood availability will be a by-product of range management activities only. Recreation will stress Semi-Primitive Non-Motorized opportunities. Camp and picnic facilities will not be developed. (Other recreation facilities will be developed only where appropriate.) Dispersed recreation will be limited. Watershed improvements which enhance and protect range productivity will receive priority. Transportation system planning and management will favor range activities. Wildlife habitat will be managed to maintain or enhance harvest species and maintain viable populations of pinyon-sage dependent species.

Developed Recreation

1) Do not construct campgrounds or picnic sites (none exist).

Dispersed Recreation

1) Develop opportunities for increasing public enjoyment and benefits that are compatible with grazing needs.

2) Retain and maintain trails to protect resource values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE (Grazing Season)	PAOT/ACRE (Off Season)
SPNM	.008	.055
SPM	.008	.50
RN	.083	1.80
R	.830	3.50

(emphasis on SPNM)

4) Restrict OHV use seasonally to reduce conflicts with grazing.

Fish and Wildlife

Refer to Range Section for habitat improvement direction.

Range

1) Implement nonstructural range improvements necessary for meeting objectives contained in allotment management plans.

2) Limit developed clearings to less than five acres.

3) Do not allow permanent type conversion of pinyon pine.

4) Lop and scatter slash.

5) Develop guzzlers, springs, etc. as needed for water development.

Timber

Wood will be a by-product of range management activities.

Watershed

1) Give priority to watershed improvement projects which enhance and protect range productivity.

2) Minimize treatments on slopes greater than 15 percent.

3) Limit activities to produce no more than 5-7 percent bare ground per 1,000 acres within a watershed.

Transportation and Facilities

1) Limit road development on SPM ROS areas to low density, local roads.

2) Manage roads to improve range management practices (i.e., seasonal closure).

3) Discourage use of roads not needed for range management.

Fire Management

1) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be 15 acres.

2) Limit the use of prescribed fire.

3) Restrict the use of heavy mechanical equipment where soil will be adversely effected.

Visual

1) Provide openings with random spacing and simulate natural edges.

2) Use MM as minimum VQO with emphasis on M where grazing opportunities will be enhanced (VQO Classes).

MANAGEMENT AREA PRESCRIPTION CF6

This prescription emphasizes grazing of livestock and sawtimber production in conifer. This management area encompasses 8,000 net acres.

Emphasis

Livestock grazing will take place primarily in meadows and open areas. Livestock grazing will be the primary emphasis in meadows. Forage production and range improvements will be provided as needed. Sawtimber will be produced.

Opportunities

Silvicultural practices which enhance grazing and produce sawtimber will be utilized. Recreation will stress Semi-Primitive Non-Motorized and Semi-Primitive Motorized opportunities. Dispersed recreation, developed recreation, and OHV use will be limited. Watershed improvements for increasing forage, such as raising the water tables in meadows and protecting soil productivity, will receive priority. Transportation system planning and management will favor range and sawtimber management activities.

Developed Recreation

1) Develop picnic grounds and campgrounds as needed in the following priority:

   a. Rehabilitate existing
   b. Expand existing
   c. Develop new facilities at least one-quarter mile from meadows.

2) Perpetuate large tree cover and revegetate openings when any developed recreation site is capable of growing trees.

3) ROS capacity guidelines for developed sites:

ROS	PAOT/ACRE
P	5
SPNM	7
SPM	9
RN	13
R	17

(emphasis on SPNM and SPM)

4) Fence all developed campgrounds and picnic sites.

Dispersed Recreation

1) Develop opportunities for increasing public enjoyment and benefits.

2) Maintain and develop trails to protect values.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE (Grazing Season)	PAOT/ACRE (Off Season)
P	.002	.03
SPNM	.008	.055
SPM	.008	.80
RN	.830	2.3
R	.83	3.75

(emphasis on SPNM and SPM)

4) Maintain existing dispersed recreation opportunities within the MIZ.

5) Restrict OHV use seasonally to reduce conflict with grazing.

6) Remove OHV trails from meadows.

Fish and Wildlife

1) Maintain an average of 1.5 snags per acre.

2) Protect fisheries through compliance with the Riparian and Meadow Guidelines established for the Forest.

Range

1) Develop water, fences, trails, etc. to facilitate optimum use of forage.

2) Primarily emphasize livestock grazing in meadows.

Timber

1) Apply even-aged or uneven-aged management systems except where activities will be modified.

2) Utilize all methods of regeneration.

3) Limit stand sizes and regeneration acres around meadows.

4) Control growing stock levels through thinning or weeding to minimize mortality and promote optimum growing conditions.

5) Protect plantations from grazing damage through the establishment period then encourage grazing of plantations.

Watershed

1) Give priority to watershed improvement projects which protect and enhance range productivity.

Transportation and Facilities

1) Limit road development in SPM ROS areas to low density, local roads.

2) Manage roads to enhance range management practices (i.e., seasonal closure).

Fire Management

1) Utilize fuelbreaks and firebreaks to compliment livestock grazing.

2) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be five acres.

3) Give meadow edges priority protection.

4) Focus fire prevention program on commercial timber harvesting activities.

Visual

1) Protect large or unique tree character in FG R and PR zones (VQO Classes).

2) Use MM as minimum VQO with emphasis on M where grazing opportunities will be enhanced (VQO Classes).

MANAGEMENT AREA PRESCRIPTION CF7

This prescription emphasizes production of sawtimber volume in conifer. This management area encompasses 308,000 net acres.

Emphasis

The objective is to promote sawtimber growth and harvest softwood products. Management of the area will require a variety of silvicultural practices and logging systems. Firewood will be a by-product of softwood harvest.

Opportunities

Recreational opportunities will range from Primitive to Rural. Where logging occurs emphasis will be on Roaded Natural and Rural uses. Both developed and dispersed recreational activities will be compatible. Watershed improvements will be compatible with the emphasis. Transportation systems planning and management will favor timber needs. Grazing of livestock will be compatible with timber production. Utilize grazing to reduce vegetative competition in plantations where possible.

Developed Recreation

1) Do not construct any new campgrounds and picnic sites.

2) Treat existing recreation facilities as inclusions. Maintain and rehabilitate where compatible with recreation demands and objectives. Silvicultural prescriptions will be designed to protect recreation visual needs of existing recreation facilities.

Dispersed Recreation

1) Develop opportunities including trails which increase public enjoyment and benefits.

2) Retain and maintain needed trails. Allow development of new trails where compatible with timber management activities.

3) ROS capacity guidelines for all activities:

ROS	PAOT/ACRE
P	.03
SPNM	.055
SPM	.80
RN	2.30
R	3.75

(where logged, emphasis on RN and R)

4) Provide limited facilities for dispersed camping.

5) Provide OHV recreational opportunities when compatible with timber activies.

Fish and Wildlife

1) Protect fisheries and wildlife using Standards and Guidelines established for the Forest.

Range

1) Use livestock to reduce vegetative competition in timber stands.

Timber

1) Apply even-aged or uneven-aged management systems.

2) Utilize all methods of regeneration and cultural treatments designed to promote timber growth.

3) Control growing stock levels, through thinning or weeding to minimize mortality and promote optimum growing conditions.

Watershed

1) Give priority to watershed improvement projects which protect plantations.

Transportation and Facilities

1) Limit road development in SPM ROS areas to low density, local roads.

2) Manage local roads primarily for the timber resource.

Fire Management

1) Utilize "control" suppression strategy. The maximum size of 90 percent of all wildfires at containment is expected to be five acres.

2) Construct fuelbreaks and firebreaks to be compatible with the production of sawtimber.

3) Focus fire prevention program on commercial timber harvesting activities.

Visual

1) Reduce long-term visual monotony in R and PR (VQO Classes) through random mosaic patterns by:

   a. varying size and shape of cut units;

b. use of "islands" where appropriate; and
c. develop irregular edges along cut units.

2) Remove trees selectively to improve the visual amenities within high use areas, vista points, and along interpretive trails.

3) Use MM as minimum VQO with emphasis on M and MM (VQO Classes).

MANAGEMENT AREA PRESCRIPTION SIA

This prescription emphasizes the management of Special Interest Areas (SIA's). This management area encompasses 3,000 net acres.

Emphasis

Areas which merit special management and attention include those areas of unusual or outstanding geological and botanical characteristics. Management will be in accord with the terms of their establishment report for protection and interpretation of significant features and resources. They will be available for scientific study. Public enjoyment is encouraged.

Opportunities

Timber or firewood harvesting will not occur except where in accord with their establishment report. Dispersed recreation, consistent with the emphasis, will be encouraged. OHV use will be allowed on designated trails if such use does not threaten values within the SIA. Developed recreation will not occur. Watershed improvements will occur only to protect special features. Transportation system management will favor the emphasis. Wildlife habitat will be provided by maintaining a natural state, but manipulation strictly for wildlife will not occur. Grazing may be compatible. Consider mineral withdrawal subject to existing claims. Fire suppression will be done with minimum ground disturbance.

Land Type Applicable

This prescription applies to the following areas:

Botanical Areas

310 acres - Bodfish Piute Cypress
860 acres - Ernest C. Twisselmann
440 acres - Bald Mountain
780 acres - Baker Point
490 acres - Slate Mountain
270 acres - Inspiration Point

Geological Areas

40 acres - Packsaddle Cave

Additional Management Direction

The above Botanical Areas are established pursuant to 36 CFR 294.1(a) and the authority vested in the Regional Forester by the Chief of the Forest Service.

MANAGEMENT AREA PRESCRIPTION WSR

This prescription emphasizes the management of Wild, Scenic, and Recreation Rivers (WSR). This management emphasis includes approximately 14,000 net acres outside wilderness and 19,000 net acres within wilderness.

Emphasis

The Wild, Scenic, and Recreation River emphasis is on the preservation of the free-flowing condition of selected rivers with various outstandingly remarkable features, on the protection of water quality and the immediate environment, and to fulfill other vital national conservation purposes.

Opportunities

Intensive timber management will not occur. Firewood gathering will be limited to the immediate use of the recreationist. Recreational facilities may be developed along those river segments classified as "Recreation" to provide opportunities for engaging in activities that are enhanced by the river. Motorized access in specific locations; non-intensive timber management to control insect and disease outbreaks; inconspicuous fish and wildlife habitat improvement; and water management practices to correct resource problems may occur in "Scenic" or "Recreation" segments. For rivers within a wilderness, the most restrictive management in accordance with the Wilderness Act or the Wild and Scenic River Act will apply. Within "Wild" segments, management will favor the protection of natural values while providing river-related outdoor recreation opportunities in a primitive setting that is generally inaccessible except by trail. Consider mineral withdrawal subject to existing claims.

MANAGEMENT AREA PRESCRIPTION RNA

This prescription emphasizes the management of Research Natural Areas. This management area encompasses 1,350 net acres outside wilderness and 3,315 net acres within wilderness.

Emphasis

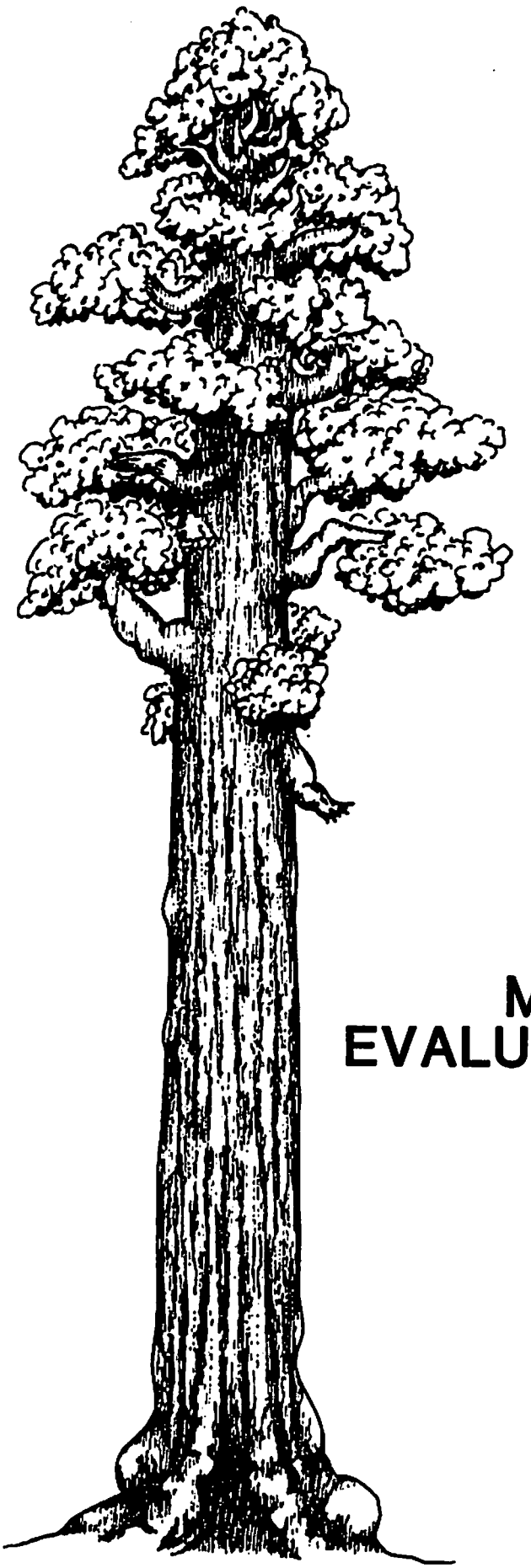
These areas have been identified as areas of important vegetative or geologic type, or areas that have special unique characteristics of scientific interest. These areas are set aside for non-manipulative research and education. Uses other than research and education are discouraged.

Opportunities

The recommended and deferred sites, with the exception of Long Canyon and a portion of Moses Mountain, are already in wilderness. The areas will be managed as if they are already established. Future management will follow the establishment reports.

The proposed candidate sites are:

Church Dome	-	1,380 acres
South Mountaineer Creek	-	1,325 acres
Moses Mountain	-	960 acres
Long Canyon	-	1,000 acres
		4,665 acres



Chapter 5

MONITORING AND EVALUATION REQUIREMENTS

CHAPTER 5

MONITORING AND EVALUATION REQUIREMENTS

A. PURPOSE

The purpose of monitoring and evaluation is to provide information on the results and progress of Forest Plan implementation so that:

- Necessary changes in the management practices can be instituted; and,
- Indicated plan amendments/revisions can be made.

The goals of monitoring are to determine:

- If Plan goals and objectives are being met;
- If Plan programs and activities are resolving issues and concerns;
- If the effects of Plan implementation are as prescribed; and,
- If implementation costs are as predicted.

The relationships and effects of management activities on National Forest, intermingled and adjacent private, and other agency lands will be considered and evaluated in the course of monitoring activities.

B. MONITORING SYSTEM

The total monitoring system on the Forest consists of a wide variety of actions. The plan presented in this document consists of those special activities that focus on evaluating the broad aspects of plan implementation. Other monitoring consists of reports, reviews and records that occur as a routine part of Forest management. Actions not duplicated in this plan include such things as: individual and annual fire reports; grazing reports and reviews; management attainment reports; annual timber management action plans, reviews and reports; budget and financial management documents; recreation information management reports; environmental analysis reports; activity reviews; audits; and general management reviews.

In addition to routine reviews, reports, and records; evaluations and monitoring are carried out and documented through water quality monitoring, soil productivity monitoring, Forest inventories, and threatened and endangered species monitoring, as well as a number of special and long-term studies in cooperation with other agencies.

Site-specific and project-specific monitoring is done through the environmental analysis process by the responsible District Ranger. Forest-wide data compilations, quality control, training, and spot checking are the responsibility of the Supervisor's Office staff.

C. PRECISION AND VALIDITY

Precision is the exactness or accuracy of measurement techniques. Validity is the expected probability that information acquired through sampling will reflect actual conditions. Both precision and validity are qualitatively rated as either high, moderate, or low. Some components such as key targets (e.g., animal unit months of range forage utilization, miles of road construction, and million board feet of timber offered) have a high level of accuracy and high probability of reflecting actual conditions. Other components, such as forage condition and trend, will have a moderate or low level of precision and validity based on the monitoring techniques available. The accuracy for precision and validity levels are:

Level of Precision/Validity	Expected Accuracy
High (H)	Within ± 10%
Moderate (M)	Within ± 33%
Low (L)	Within ± 50%
N/A	Cannot be established.

D. EVALUATION

Evaluation of the results of the site-specific monitoring program will be documented. The significance of the results of the monitoring program will be analyzed and evaluated by the Forest Supervisor.

Based on the evaluation, there may be a need for further action. These actions may include:

- No action needed (monitoring indicated goals, objectives, and standards are achieved);
- Refer recommended action to the appropriate line officer for improvement of application of management prescriptions;
- Modify the management prescription as a Forest Plan amendment;
- Modify the allocation of a prescription as a Forest Plan amendment;
- Revise the projected schedule of outputs; and,
- Initiate revision of the Forest Plan.

Plan modification and/or revision will be made in accordance with the NEPA process and NFMA regulations.

The documented file of the Forest Supervisor's decisions resulting from monitoring and evaluation is to be maintained for future use in amending or revising the Forest Plan.

The Monitoring Evaluation Decision Tree (Figure 5.1) illustrates the steps necessary for an effective monitoring and evaluation plan. Based on this, any need for further action is recommended to the Regional Forester.

E. MONITORING ELEMENT DISPLAY

The Forest Plan's monitoring requirements are contained in Table 5.1, Monitoring Plan. For each activity, practice, or effect to be monitored, one or more measurement techniques, and the standard to be met are specified. A frequency for measuring and reporting the monitored item is established; and the expected precision and validity of that measurement is stated.

These monitoring requirements are intended to monitor and evaluate the total effects of management activities on the soil, water, wildlife, and other resources. These actions must be used in concert with other reviews, reports, records, and studies.

Figure 5.1 MONITORING EVALUATION PROCESS

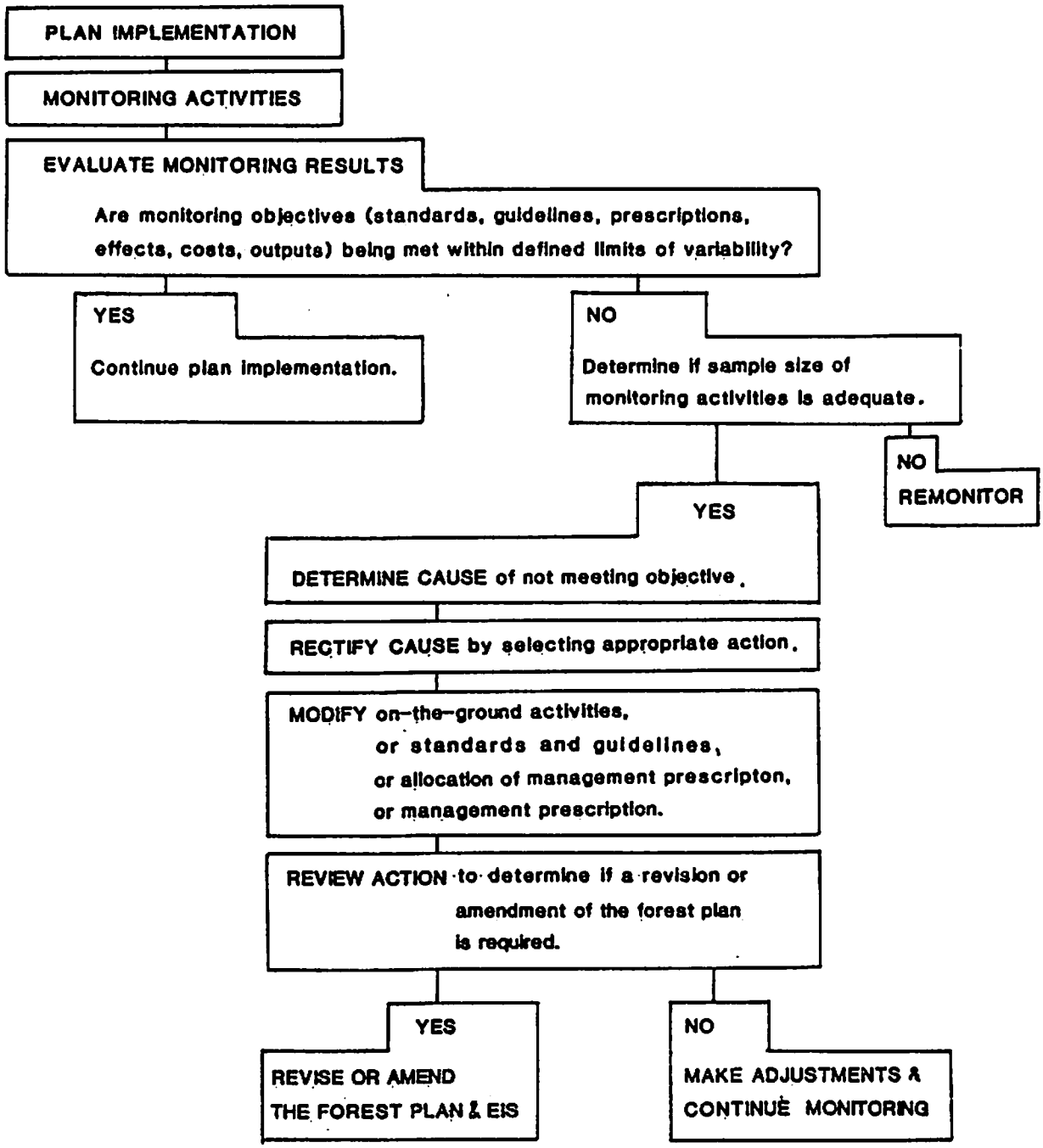


Table 5.1 - Monitoring Plan

ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	MONITORING OBJECTIVE	MONITORING TECHNIQUES	EXPECTED PRECISION/ VALIDITY	MINIMUM MONITORING FREQUENCY	REPORTING PERIOD/ RESPONSIBLE STAFF	STANDARD OF COMPARISON & VARIABILITY FROM STANDARD INDICATING FURTHER ACTION	ESTIMATED AVERAGE ANNUAL COST ($)
ECONOMIC							
Plan Implementation & Operation Costs	Validate predicted versus actual Plan unit costs for M.A.R. categories.	Analyze expenditure & allocation reports.	H/H	Annually monitor costs	5 years/ Administration Staff	>20% variation between predicted & actual unit costs.	500
AIR QUALITY							
Air Quality Maintenance in designated airsheds.	Determine existing conditions from which trends can be projected & to maintain air quality related values including visibility in Class I areas. To evaluate compliance with State & Federal Standards.	Methods of pollutant monitoring are established by the California Air Resources Board Air Quality modeling to determine impacts from existing or proposed activities.	Varies with technique	Continuous monitoring	2 years/ Forest Engineer	Federal & State standards (background data needed first)	40,000
FACILITIES							
Road Construction, Management & Maintenance	Determine effectiveness of transportation system management	Monitor rate of construction and percent of roads open and closed	H/H	Annually	Annually	20% variation from Plan in any 5-year period	500
HISTORICAL AND CULTURAL RESOURCES							
Mitigation & Protection	a) Protect sites from project impacts.	On-site inspection; photography, measurement, & recordation.	M/M	After project completion	Annually, or immediately upon discovery of damage/ Recreation Staff	FSM 2361, 36 CFR 800 Measures taken are effective on at least 90% of sites.	5,000
	b) Maintain site integrity.	On-site inspection; photography, measurement, & recordation.	M/M	10% of National Register Sites Annually	5 years/ Recreation Staff	FSM 2361, 36 CFR 800, ARPA (PL-96-95), & 36 CFR 296. Significant loss of integrity as described in pre-affected condition documented on site survey records or other documents.	5,000

Table 5.1 - Monitoring Plan (Continued)

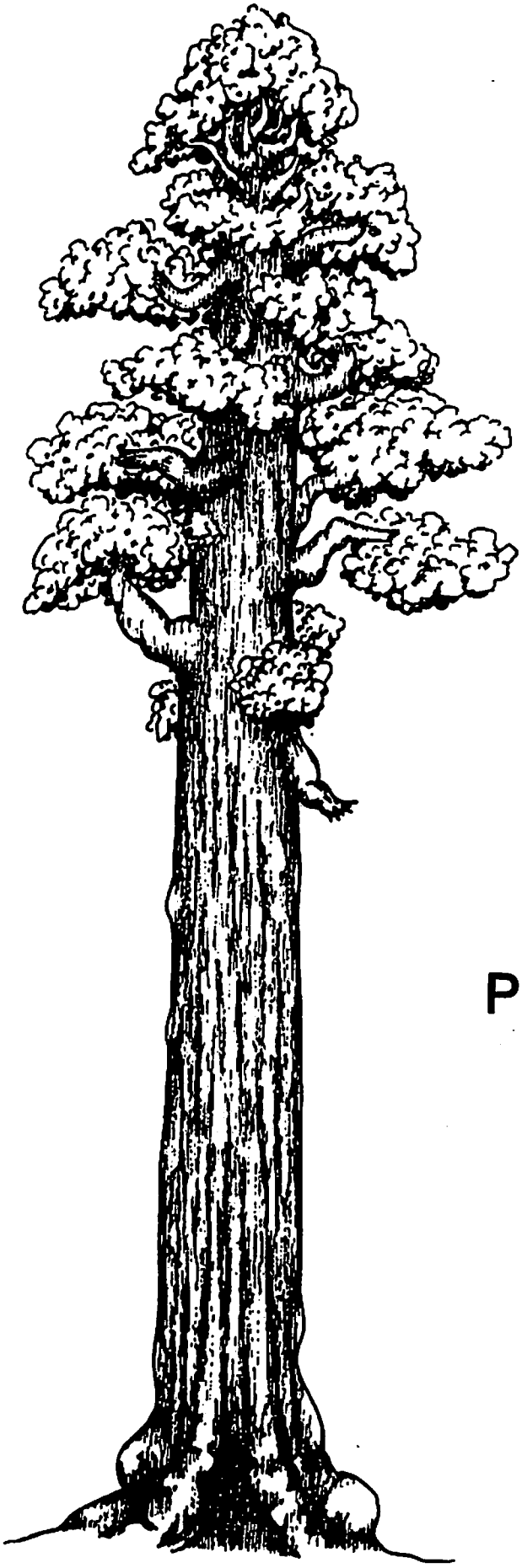
ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	MONITORING OBJECTIVE	MONITORING TECHNIQUES	EXPECTED PRECISION/ VALIDITY	MINIMUM MONITORING FREQUENCY	REPORTING PERIOD/ RESPONSIBLE STAFF	STANDARD OF COMPARISON & VARIABILITY FROM STANDARD INDICATING FURTHER ACTION	ESTIMATED AVERAGE ANNUAL COST ($)
GRAZING							
Condition & Trend of Range Forage Resource	Effects of livestock use on the vegetative resource.	Measure and photograph vegetaion in key areas.	H/M	5 years	10 years/ Range Staff	Change is significant when species frequency is outside the 95% confidence interval of the species frequency determined in the inital sampling	10,000
Effects of Range Management on Soil & Water Resources.	Monitor cumulative effects of range management.	See Earth Resources - Effects of Range, Recreation, Timber & Other Management Practices on Water Quality & Soil Productivity.					
RECREATION							
Recreation Use (Public & private sectors)	Measure total use.	RIM system & other use sampling techniques, as appropriate	M/M	As recommended by technique	5 years/ Recroation Staff	>20% variation between actual & predicted RVD's by ROS class.	10,000
Effects of OHV use on land & other resources	Determine if adverse effects on natural resources are occurring & if OHV Plan Modification is necessary.	See Earth Resources - Effects of Range, Recreation, Timber & other Management Practices on Water Quality & Soil Productivity.				>20% variation from standards in OHV Plan	6,000
VISUAL RESOURCES							
Attainment of Visual Quality Objectives	Determine if management activities are meeting adopted Visual Quality Objectives.	Field reviews & photo points. Sample 10% of all Forest projects.	M/M	Annually	3 years/ Recroation Staff	Visual Quality Objectives met at least 80% of all projects.	2,500
Trend of Visual Character	Monitor trends of desired visual character to determine effects of management activities over time.	Field reviews using landscape control points.	M/M	Annually	3 years/ Recreation Staff	Reviews indicate a trend towards a visual condition that is below the Plan Visual Quality Objectives	2,000
WILDERNESS							
Trends of Wilderness Condition	Determine effects of wilderness users on wilderness resources.	Compare use data to Limits of Acceptable Change	M/M	As recommended by technique	5 years/ Recreation Staff	>20% variation between actual & predicted limits of acceptable change in wilderness management plans.	10,000

Table 5.1 - Monitoring Plan (Continued)

ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	MONITORING OBJECTIVE	MONITORING TECHNIQUES	EXPECTED PRECISION/ VALIDITY	MINIMUM MONITORING FREQUENCY	REPORTING PERIOD/ RESPONSIBLE STAFF	STANDARD OF COMPARISON & VARIABILITY FROM STANDARD INDICATING FURTHER ACTION	ESTIMATED AVERAGE ANNUAL COST ($)
TIMBER							
Timber Stand Re-establishment	Determination of success of regeneration practices.	Sample seedling species, survival rate, density, and distribution.	H/H	1st. & 3rd growing season after reforestation and maintained until fully certified as established.	3 years/ Timber Management Officer	A trend in either mortality or growth inhibiting factors that indicates minimum standards will not be met at some future time (described in current FSH 2409.26).	10,000
Growth of Young Timber Stands	Determine growth rates of young timber stands.	Systematic and/or random samples of representative stands.	H/H	Variable, depends on treatment & predicted growth response.	5 years/ Timber Management Staff	Aggregate growth of young timber stands is at least 90% of the rates necessary to reach the yield table goals	20,000
Effects of Timber Management on Soil & Water Resources	Monitor cumulative effects of timber management.	See Earth Resources - Effects of Range, Recreation, Timber & other Management Practices on Water Quality and Soil Productivity.					
Long-Term Productivity & Diversity of Forest Types	Maintain inventory of Forest types & stand conditions.	Periodic Forest inventory.	M/M	10 Years	10 years/ Timber Management & Resource Staff	>20% deviation in inventory from adjusted current (1980) inventory	10,000
EARTH RESOURCES: SOIL, WATER AND VEGETATION							
Effects of Range Recreation, Timber, Transportation System, & Other Management Practices on Water Quality & Soil Productivity.	Evaluate the soil productivity & water quality against accepted standards on a watershed basis.	Utilize cumulative watershed impact analysis.	M/H	Continuously	5 years/ Resource Staff	>20% deviation from standards established in the cumulative watershed effects analysis which cannot be mitigated.	25,000
Vegetation Diversity Distribution	Ensure that the distribution of all successional stages meet Forest prescriptions, standards, & guidelines.	Map the distribution of successional stages using updated Forest type mapping.	See Timber - Long-Term Productivity & Diversity of Forest Types.				
Trends of Sensitive Plant Habitat	Maintain viable populations of sensitive species.	Develop & maintain population trends from surveys & inventories.	H/M	As required in species management guides	5 years/ Resource Staff	Any change that would increase the likelihood of federal listings.	8,000

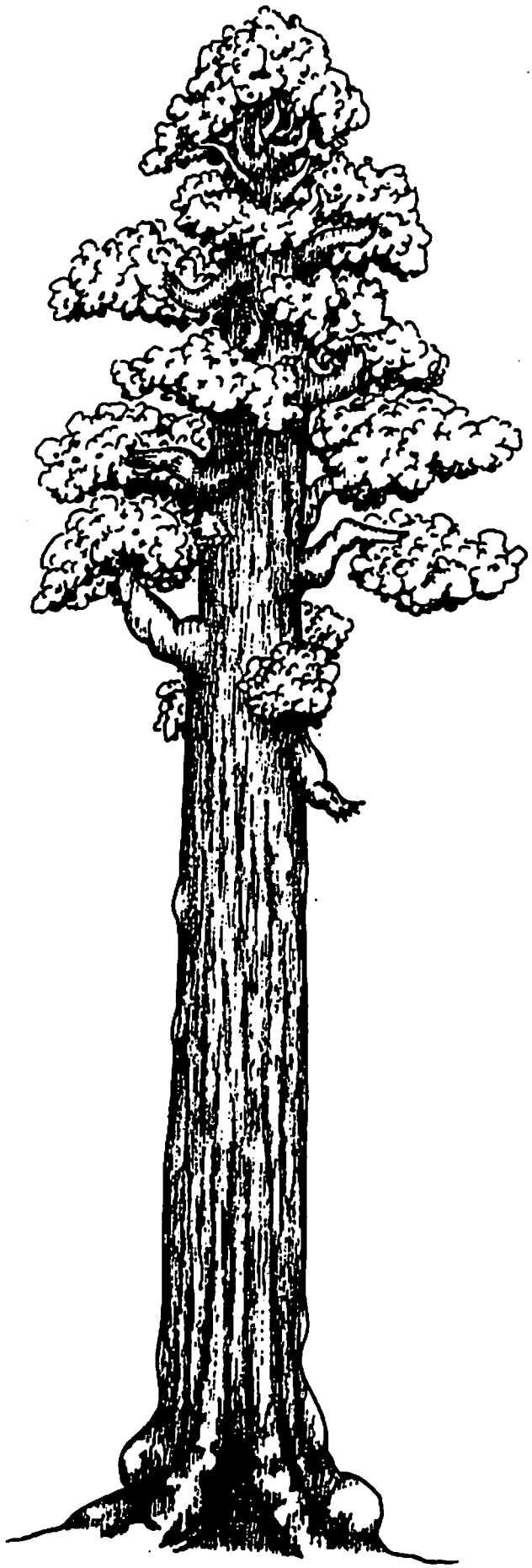
Table 5.1 - Monitoring Plan (Continued)

ACTIVITY, PRACTICE, OR EFFECT TO BE MEASURED	MONITORING OBJECTIVE	MONITORING TECHNIQUES	EXPECTED PRECISION/ VALIDITY	MINIMUM MONITORING FREQUENCY	Reporting PERIOD/ RESPONSIBLE STAFF	STANDARD OF COMPARISON & VARIABILITY FROM STANDARD INDICATING FURTHER ACTION	Estimated AVERAGE ANNUAL COST ($)
WILDLIFE							
RIPARIAN AREAS							
Condition of Riparian Areas on the Forest	Assure that project activities provide for the protection of meadows, riparian areas & associated values.	Validate the application of Standards & Guidelines through systematic sampling as described in the Forest Riparian Standards & Guidelines	M/M	Continuously	5 years/ Resource Staff	>20% deviation from Forest Riparian Standards & Guidelines.	30,000
Trends of Fish & Wildlife Populations & Habitat. Species to be monitored are: FISHERIES Little Kern Golden Trout (threatened) Rainbow, Brook & Brown Trout (harvest) WILDLIFE Peregrine Falcon (endangered) Bald Eagle (endangered) Spotted Owl (sensitive) Willow Flycatcher (sensitive) Pileated Woodpecker (to be included in the Sequoia Plan) Gray Squirrel (to be included in the Sequoia Plan) Goshawk (sensitive) Great Gray Owl (sensitive) Mule Deer (harvest)	Ensure that viable populations & suitable habitat are maintained.	Field surveys, reviews and other techniques as identified in the Fish & Wildlife Monitoring Plan for the Sequoia N.F. (Sequoia Plan as developed in cooperation with the P.S.W. Experiment Station, Calif. Dept. of Fish & Game, Sierra N.F. and Stanislaus N.F.). Spotted Owl monitoring will be as identified in the Forest Service Spotted Owl Inventory & Monitoring Handbook.	M/M	Varies by species As required in the Sequoia Plan and the Spotted Owl Inventory & Monitoring Handbook.	Varies by species As required in the Sequoia Plan and the Spotted Owl Inventory & Monitoring Handbook.	Varies by species As required in the Sequoia Plan & the Spotted Owl Inventory & Monitoring Handbook. Generally based on limits of decline of population &/or habitat.	70,000



Chapter 6

PLAN APPENDICES



Appendix A

RESOURCE PLANS

APPENDIX A
RESOURCE PLANS

The following is a listing of plans which exist and will continue to be implemented without revision, those which exist and are known to need revision, new plans which will be prepared, and those that are superseded. Each new plan will be incorporated by amendment into the Forest Plan.

	Resource Plan	Status
1.	Off-road Vehicle Plan and Monitoring Plan	Existing ORV Plan will be superseded by this Forest Plan. The ORV Plan will be retained until a new OHV Management Action Plan with specifics is prepared.
2.	Dome Land Wilderness Management Plan	Revision to incorporate area added by California Wilderness Legislation, 1984, and add fire management considerations.
3.	Golden Trout Wilderness Interim Management Plan	Adopt as Final Management Plan. Continue Plan implementation with revision to reflect fire management considerations.
4.	South Sierra Wilderness Management Plan	Will be coordinated with the Inyo NF and joint plan prepared.
5.	Jennie Lakes Wilderness Management Plan	Plan will be prepared.
6.	Monarch Wilderness Management Plan	Will be coordinated with the Sierra NF and a joint plan prepared.
7.	Wild and Scenic River Management Plans	Plans will be prepared for: North Fork Kern, South Fork Kern, South Fork Kings, and Kings River Special Management Area. (Note: All plans will be prepared jointly with other involved Forests or the NPS, as appropriate.)
8.	Packsaddle Cave Management Plan	Revise and continue implementation.
9.	Land Ownership Adjustment Plan	Plan will be prepared.
10.	Boundary Marking and Posting Plan	Continue implementation.

11.	Pacific Crest National Scenic Trail Management Plan	Continue implementation.
12.	Kern River Whitewater Floating Management Plan	Continue implementation with annual evaluation until revised as part of Kern River Wild and Scenic River Management Plan.
13.	Kings River Whitewater Floating Management Plan	Plan will be prepared as part of the Kings River Special Management Area Plan.
14.	Little Kern Golden Trout Management Plan	Continue implementation.
15.	Grazing Allotment Plans	Continue implementation.
16.	Deer Herd Plans	Continue implementation until superseded by State Plans which are being prepared.
17.	Interpretive Services Plan	Revise and continue implementation.
18.	Fire Management Implementation Plan	Plan will be prepared. (This Plan will supersede the 1972 Fire Plan.)
19.	Recreation Management Plan for Hume Lake Basin	Plan will be prepared.
20.	Riparian Standards and Guidelines for the Sequoia National Forest	Continue Implementation
21.	Forest-wide Giant Sequoia Management Plan	Plan will be prepared.
22.	Corridor Viewshed Plans for The Generals Highway, Highway 180, and Highway 190, Western Divide, and the Parker Pass Road.	Plans will be prepared.
23.	Management Plan and Evaluation for Botanical Areas: a) Twisselmann b) Bodfish Piute Cypress c) Slate Mountain d) Baker Point e) Inspiration Point f) Bald Mountain	Plans will be prepared.
24.	Management Guide for Shirley Meadows Mariposa	Continue implementation.

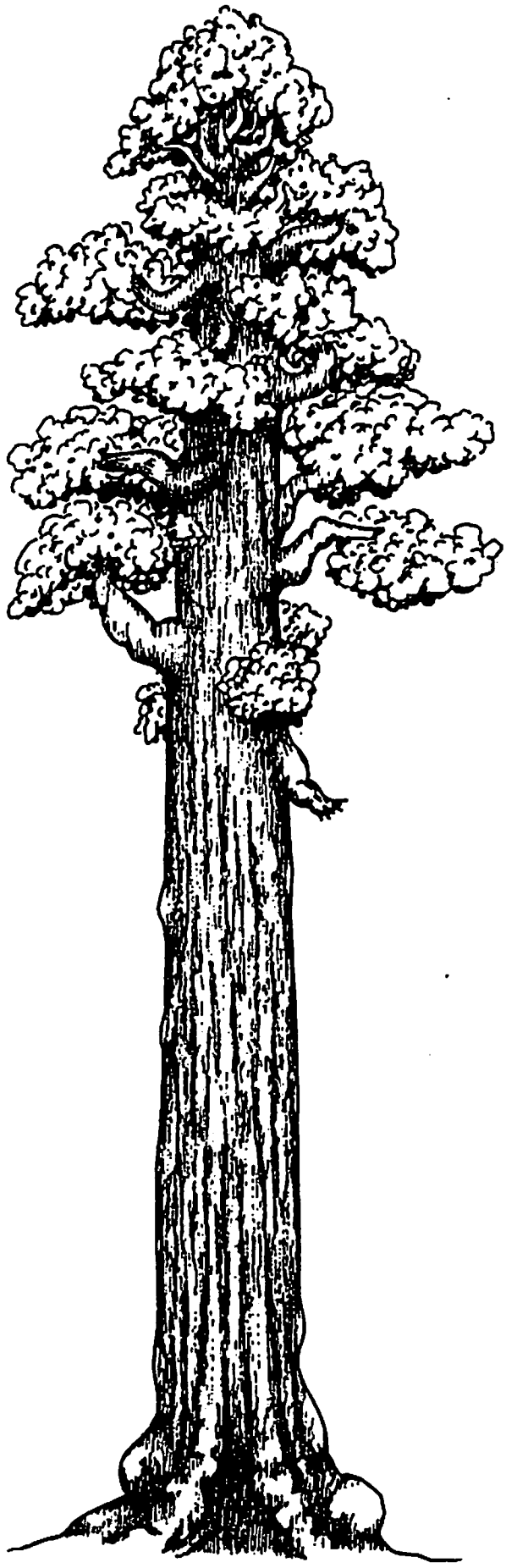
25.	Sensitive Plant Species Management Guides	To be prepared as needed.
26.	Threatened and Endangered Species Recovery Plans: a) Condor b) Peregrine falcon c) Bald eagle	Continue implementation.
27.	Spotted Owl Habitat Area Management Plans	Plans will be prepared.
28.	Goshawk Management Plan	Plan will be prepared.
29.	Great Gray Owl Management Plan	Plan will be prepared.
30.	Meadow Management Standards and Guidelines	Plan will be prepared.
31.	A Method to Assess and Predict Cumulative Watershed Effects	Continue implementation.
32.	Unneeded Road Obliteration Action Plan	Continue implementation.
33.	Fish and Wildlife Monitoring Plan for the Stanislaus, Sierra and Sequoia National Forests	Continue implementation.
34.	Procedural Guidelines for Watershed Improvement Needs Inventory and Project Priority Setting Analysis	Continue implementation.
35.	Peppermint Mountain Resort FEIS	Prospectus to be published.
36.	Comprehensive Trail Management Plan	Plan will be prepared.
37.	OHV Management Action Plan	Plan will be prepared.
38.	Water Quality Management for National Forest System Lands in California (BMP's)	Continue implementation.
39.	Rise to the Future, An Action Plan for the National Forest Fisheries Program, October 1987	Continue implementation.
40.	Transportation Development Plan	Continue implementation.
41.	Gopher control for reforestation on the Sequoia NF.	Continue implementation.

42.	R-5 Vegetation Management for Reforestation.	Implementation when approved by the Regional Forester.

The following existing plans will be superseded and not exist as separate plans:

1. Ranger District Multiple-Use Plans

2. Sequoia Timber Management Plan (1961)



Appendix B

RESEARCH NEEDS AND TECHNICAL DATA NEEDS

APPENDIX B

RESEARCH NEEDS AND TECHNICAL DATA NEEDS

It is anticipated that additional research needs will surface during the monitoring and evaluating of the Forest Plan. Considerable research has already been initiated. The Forest will continue to coordinate this effort with the Regional Office and the Pacific Southwest Experiment Station. The following have been identified during the Forest planning process:

A. RESEARCH NEEDS

Social

- Investigate changes in social behavior and its influence on Forest Service activities.

Air Quality

- Identify sensitive air quality indicators and threshold levels in Class I areas.
- Compile more information concerning the effects of acid deposition and other air contaminants on Forest resources.
- Develop a model that can predict transport patterns of pollutants in the San Joaquin Valley.

Recreation

- Continue to investigate management of Forest Resources in an urban influence area and the interrelationship with State, Regional, County, and local governments.

Cultural and Historic Resources

- Conduct research identified in the Cultural Resources Overview for the Southern Sierra Nevada which can be accomplished during the life of this Plan:

  a. Establish standard descriptions of the cultural units (e.g., artifacts, site types, cultural assemblages) with which archaeologists work so that Sierran archaeological sites may be consistently and accurately described.

  b. Further develop accurate means for temporal placement of these various cultural units.

  c. Investigate specific locations, times, and the natural settings in which human groups operated in Sierran prehistory in order to understand the natural context of sites and how cultures responded to changes in environment, including consideration for subsistence practices, settlement patterns, and procurement/exchange efforts.

Earth Resources: Soils and Water

- Continue to investigate the effects on timber productivity of site preparation methods.
- Refine the soil loss tolerance values for Sierra Nevada granitic soils.
- Verify the relationship of management practices to water quality, meadow gullying, and cumulative watershed impacts in the Southern Sierra Nevada.

Fish and Wildlife

- Test the accuracy of the Wildlife Habitat Relationships Program and associated Habitat Capability Models.
- Develop an inexpensive, reliable and efficient technique to sample populations.
- Conduct research to better define the amount and characteristics of habitat needed to ensure population viability.

Vegetation: Timber

- Develop models for early (1-20 years) growth in timber plantations under various levels and species of competing vegetation, especially for true firs and Jeffrey pine.
- Define ecological factors responsible for the natural distribution of giant sequoia.

Vegetation: Meadows

- Continue to investigate the sensitivity of the ecologic and hydrologic properties of meadows to management activities (e.g., grazing, road and trail construction, and timber harvesting).

B. TECHNICAL DATA NEEDS

The following is a list of data accumulation needs and inventory requirements.

National Natural Landmarks

- Make on-site landmark evaluation studies of Piute Cypress, Bald Mountain, and Inspiration Point Botanical Areas, and of Moses Mountain and Long Canyon potential Research Natural Areas for their consideration.

Research Natural Areas

- Evaluate and complete the Establishment Reports.

Visual Resources

- Investigate changes in the public's visual expectations.

Lands

- Review all Forest withdrawals as required by the Federal Land Policy and Management Act of 1976 (Public Law 94-579, Section 204) by October 21, 1991. Specifically, this review shall determine whether the withdrawal shall continue and for how long.

- The President's August 2, 1979, Environmental Program directed the Forest Service and BLM to study possible boundary adjustments between the two agencies. A National study is underway to determine what adjustments should take place. Such action would require an act of Congress following full public involvement.

Watershed

- Complete a geologic resources inventory to Order 3 standards.
- Assess the need for Future Use Determinations for existing permitted uses by the seventh year.
- Determine background water quality levels in municipal watersheds. Establish background levels within five years.
- Using administrative studies, evaluate water yield improvement in cooperation with other agencies.
- Conduct detailed cumulative watershed effect analysis during project planning.
- Complete a Forest-wide inventory of stream stability ratings.
- Develop Order 2 Soil Survey for capable, available, and suitable lands allocated to timber management.
- Develop soil and environmental criteria for suitable soils.
- Monitor long-term soil productivity.
- Monitor meeting Regional (Draft) Soil Management Standards & Guidelines.

Air Quality

- Determine background air quality levels in Class I Airshed.

Timber

- Prepare an Activity Created Fuels Management Fire Protection Plan for each compartment.
- Conduct an Order 2 soil resource inventory of the capable, available, and suitable timber land, in time for the next planning period.

Fish, Wildlife, and Plants

- Develop a habitat capability model for spotted owls in the Southern Sierras.
- Determine occupancy and reproductive success of Spotted Owl Habitat Areas by conducting annual field surveys.
- Determine goshawk population level on Forest by conducting field surveys.

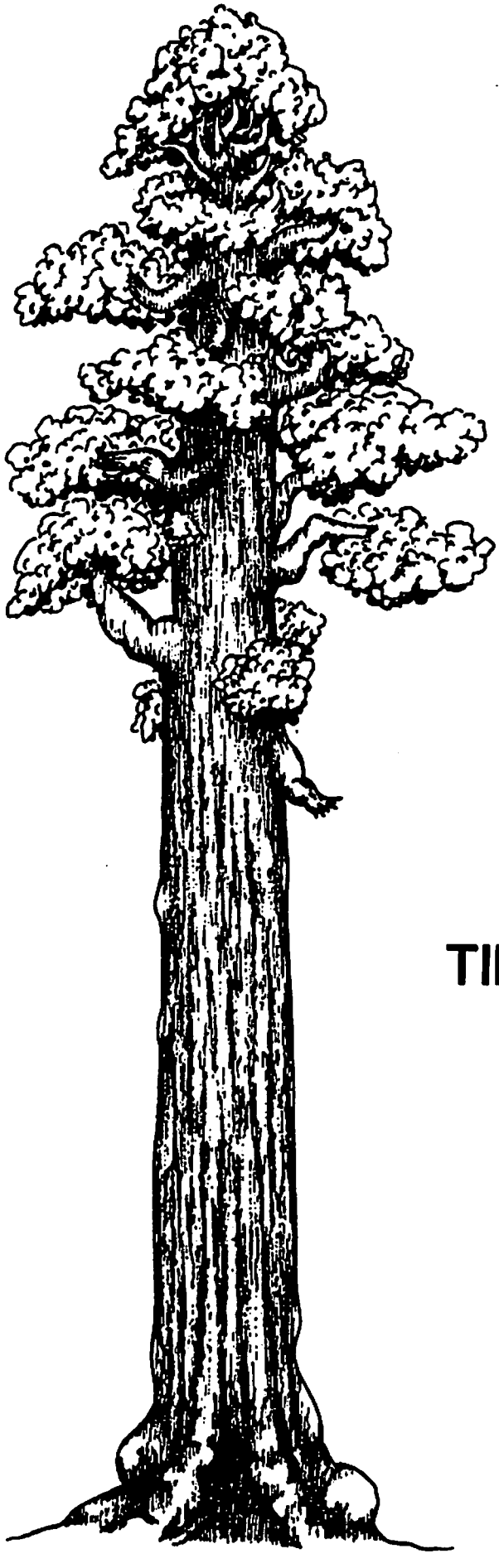
- Test High Risk Analysis Monitoring Plan for field adequacy.
- Determine snag densities in selected areas by developing random test plot method.
- Test adequacy of selected Management Indicator Species to measure habitat changes.
- Determine effects of management activities on stream habitat and fish populations.
- Complete stream surveys on Forest.
- Determine the distribution of each sensitive plant population by completing the forest inventory.
- Inventory populations of Threatened and Endangered and sensitive animal species.

Recreation

- Investigate less complicated (costly) methods and determine what visitors' experience expectations are for various National Forest related recreation activities.
- Investigate inexpensive, reliable and efficient techniques and more accurately determine dispersed recreation use on the National Forest.
- Collect baseline data to develop standards and the amount of change acceptable for maintaining water quality and soil productivity for the OHV plan revision, in time for the next planning period.
- Determine if ROS mapping is current/suitable for the next planning period.
- Study use of and develop a monitoring plan to analyze mountain bicycle use and conflicts with other uses.
- Conduct a comprehensive trail inventory and management plan to determine how hiking, equestrian, and OHV trails can best be designated.
- Determine user needs and expectations regarding recreation opportunities on the Forest.

Cultural Resources

- Complete determinations of Class II cultural resource properties (no determination of eligibility for the National Register of Historic Places) as either Class I (eligible) or Class III (not eligible). Conduct review of existing Class I properties to ensure proper classification.
- Develop research designs to direct investigation and evaluation of specific categories of prehistoric and historic sites.
- Produce watershed/area overviews of history and prehistory which will serve as reference/support material for ARR's and reduce duplication of information.
- Establish specific program needs and direction to further develop the Forest CRM program, with the following priorities -- archaeology, history, ethnography.



Appendix C

TIMBER MANAGEMENT PLAN

APPENDIX C
TIMBER MANAGEMENT PLAN

I. COMPARISON WITH FORMER TIMBER MANAGEMENT PLAN

Table C.1 - Comparison of 1961 Timber Management Plan and Land Management Plan

ACRES	1961 TM PLAN 1/	LMP
Total National Forest	1,119,000	1,119,000
Non-Forest Land	644,000	273,000 2/
Nonproductive Forest Land	40,000	167,000 2/
Total Productive Forest Land	435,000	679,000
Land Withdrawn or Deferred	42,000	299,000
Unregulated	10,000	35,000
Land Suited for Timber Production		
Uneven-Aged Management	46,000	69,000
Even-Aged Management	337,000	276,000
Total	383,000	345,000
ALLOWABLE SALE QUANTITY (MMBF/YEAR) 3/		
Total	95.0	97.0 4/
Uneven-Aged Management	5.7	29.1 4/
Even-Aged Management	89.3	67.9 4/

1/ Revised in 1978 to account for Golden Trout Wilderness and placed in trust for the Tule River Indian Reservation.

2/ Large differences are due to different definitions of terminology.

3/ Regulated component only. Unregulated annual harvest is estimated at 6.6 MMBF in 1961 Plan and 4.6 MMBF in Plan, including sawtimber and other products.

4/ Long-term sustained yields would be reduced by amendment by approximately 26 percent if herbicides are unavailable.

II. TEN-YEAR SALE SUMMARY

A. Introduction

The Sequoia National Forest land base (see Section III of this Appendix) was stratified using maps, photos, and verification by personnel familiar with the Forest. The capable and suitable timber strata (see Section IV) were inventoried in 1980 and analyzed using the RAM PREP program at the Fort Collins Computer Center. The resulting cubic volume yield tables were utilized by the FORPLAN linear program to estimate future yields for the timber strata. Using the predicted yields, FORPLAN optimally scheduled harvest of the strata while satisfying the constraints associated with each of the proposed alternatives.

Each alternative is discussed in detail in the body of this document. The management team selected the Preferred Alternative (PRF) for future management direction for the Forest. The optimal solution under the PRF Alternative was used to plan future timber outputs for the Sequoia NF.

B. Timber Management Controls

1. Allowable Sale Quantity (ASQ)

Implementation of the timber management portion of the Forest Plan requires maintaining a timber management control system. The management control system for the plan involves monitoring three major parts: the Allowable Sale Quantity (ASQ) cubic foot volume, the harvest acres, and changes in suitability of the lands being managed to produce yields of timber.

2. Volume Control

The ASQ is established as the MAXIMUM harvest from the Forest for the decade which is 149 MMCF. Cubic feet offered[1/] will be the volume control for implementing the Plan. The ASQ is equivalent to 970 MMBF for the decade. The volume offered in any given year can exceed the average annual ASQ, but the decade volume cannot exceed the ASQ by more than 10 percent.

1/ Monitoring and evaluating requirements in Chapter 5 of this Plan recognize that volume offered for sale may differ from volume harvested, and that successful plan execution depends on actual harvest of timber.

Table C.2 lists the ASQ calculated by FORPLAN (from suitable lands only). The additional sales are nonchargeable volumes representing anticipated cull deck (sawtimber) and fuelwood sales (other products). Volume in addition to that calculated by FORPLAN (ASQ) may include volume ("unregulated") from unsuitable lands.

Table C.2 - Allowable Sale Quantity and Timber Sale Program Quantity
(Annual Average for First Decade)

Harvest Method	Allowable Sale Quantity [1] Sawtimber (MMCF)	Other Products (MMCF)
Regeneration harvest:		
Clearcut	9.97	0
Shelterwood and seed tree		
- Preparatory cut	0	0
- Seed cut	0.47	0
- Removal cut	0	0
Selection/Group Selection	4.09	0
Intermediate harvest:[2]	0.39	
Totals	14.92	0
	Additional Sales [3] Sawtimber (MMCF)	Other Products (MMCF)
Total for all harvest methods	0.2	0.5

Allowable Sale Quantity: 14.92 MMCF (97.0 MMBF)
Timber sales program quantity: 15.62 MMCF (102 MMBF)[4]

1/ Includes only chargeable volumes from suitable lands.

2/ Includes commercial thinning and sanitation/salvage.

3/ Includes only nonchargeable volumes from suitable and/or unsuitable lands.

4/ Total of Allowable Sale Quantity and additional sawtimber sales.

3. Regulation

The acres of regeneration harvest must be maintained in order to achieve the desired age class distribution. Other types of harvest are necessary to maintain the growth which FORPLAN used to determine the harvest schedule. Table C.3 lists the harvest types which FORPLAN selected for harvest in the first decade.

Table C.3 - Tentative Harvest Allocation

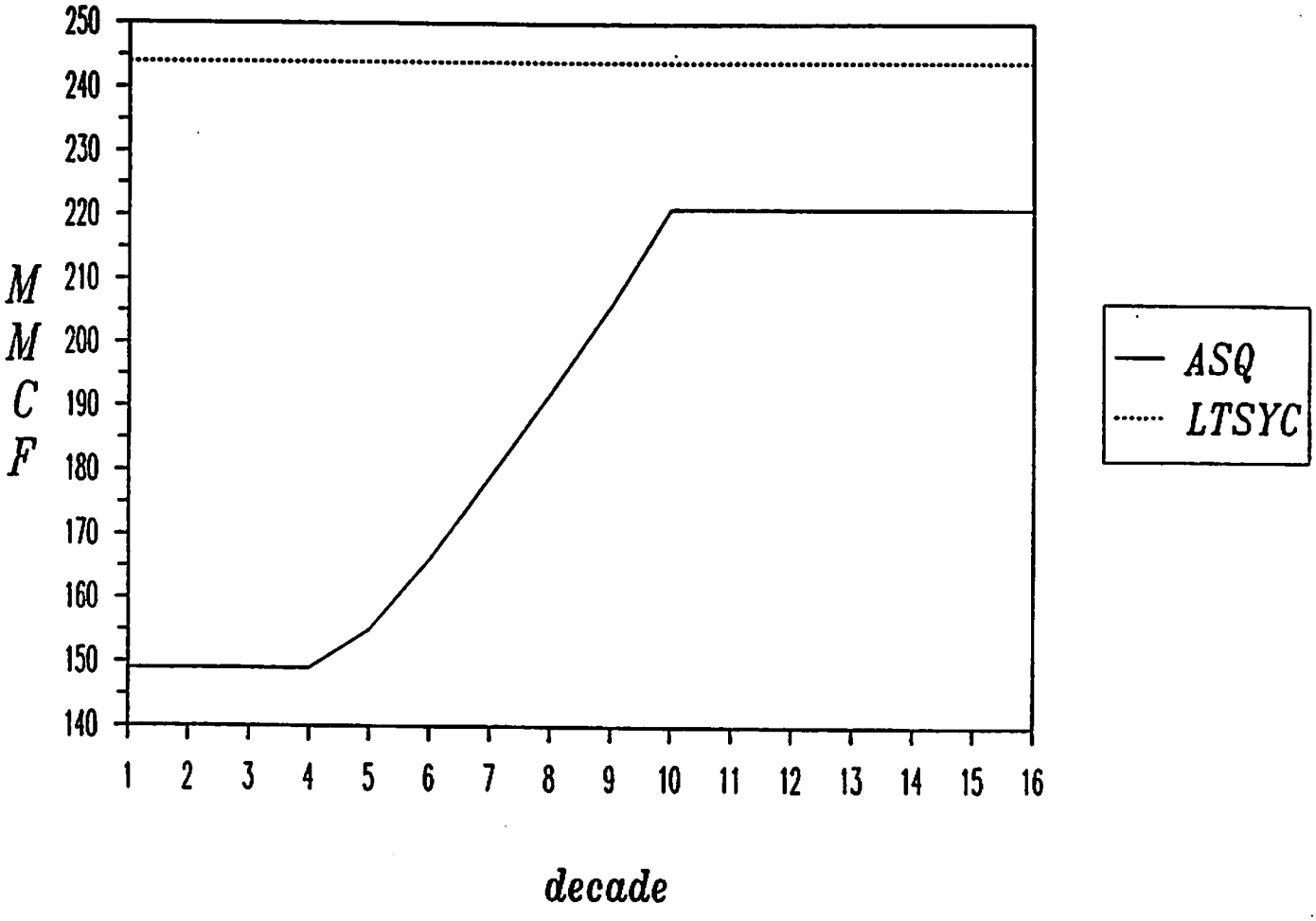
Decade 1986-1995

Type of Harvest	Total Acres (Decade)	Average Annual Acreage Allocation
Regeneration	17,336	1,734
Shelterwood (Seed Cut)	1,280	128
Selection (Single tree or group)	27,297	2,730

4. Long-Term Sustained Yield Capacity and Allowable Sale Quantity

In maximizing the value of outputs from the Sequoia NF, FORPLAN scheduled harvest from tentatively suitable lands so as to satisfy a set of constraints. The solution to the PRF Alternative provided the ASQ's which result in a long-term sustained yield capacity (LTSYC). The ASQ is the most economic harvest level that meets all of the constraints. The LTSYC is the highest uniform wood yield from lands being managed for timber production that may be sustained, under the specified management activities, consistent with multiple-use objectives. Both ASQ and LTSYC are displayed in Figure C.1. The LTSYC under the PRF Alternative is 244 MMCF (or 1,586 MMBF) per decade.

Figure C.1



5. Present and Future Forest Conditions

The FORPLAN solution predicts a decrease in growth for the first two decades from 16 MMCF per year (present) to 15 MMCF per year (decade 2). From decades two to ten, growth increases incrementally and maintains at 23 to 26 MMCF per year. This is done by harvesting existing stands with slow growth and poor stocking, and establishing stands which are fully stocked with vigorously growing trees. The growing stock on the suitable land is thereby increased from 1,064 MMCF (present) to 1,433 MMCF (decade 16). Table C.4 summarizes the present and future forest conditions on the Sequoia NF.

Table C.4 - Present and Future [1/] Forest Conditions

	Unit of Measure	Suitable Land	Unsuitable Land [2/]
Present Forest			
Growing Stock	MMCF	1,064	559
	MMBF	6,916	3,632
Live cull [2/]	MMCF	19	8
	MMBF	95	38
Salvable dead [2/]	MMCF	3	3
	MMBF	23	24
Annual net growth	MMCF	16	8
	MMBF	104	50
Annual mortality [2/]	MMCF	1	<1
	MMBF	4	3
Future Forest			
Growing stock	MMCF	1,433	
Annual net growth	MMCF	23	
Rotation Age [3/]	Years	60 to 120 (Mixed Conifer) 80 to 110 (Pine) 80 to 130 (Red Fir)	

1/ Future = decade 16.

2/ Values derived from 1980 Timber Management Inventory. Other values are from PRF, FORPLAN.

3/ Average rotation age for regenerated stands on lands with timber emphasis by major forest types.

6. Vegetation Management Practices

Vegetation management practices necessary to implement the PRF Alternative are shown in Table C.5. A description of harvest methods displayed in this table can be found in Appendix G of the FEIS. Timber stand improvement is the control of competing vegetation, thinning of trees before they reach commercial size and the control of animal damage to promote growth and vigor of future crop trees. Reforestation includes all of those activities necessary to establish a new timber stand after the regeneration harvest.

These activities are site preparation to create a favorable seedbed or access for tree planting; control of competing vegetation; planting trees when required; and control of animal depredation. A more detailed description of the reforestation process can be found in Chapter 3, Section E.22.e of the FEIS. Chapter 2, Section E.2 of the EIS describes the effects on long-term sustained yield and cost in event constraints are placed on herbicides.

Table C.5 - Vegetation Management Practices (annual average in the first decade for suitable lands)

Practice	Acres
Regeneration Harvest:	
Clearcut	1,734
Shelterwood	
- Preparatory cut	0
- Seed cut	128
- Removal cut	0
Selection (Group)	742
Intermediate Harvest:	
Commercial thinning and Salvage/sanitation	1,988*
Timber Stand Improvement	4,739
Reforestation(includes natural and artificial)	2,475

* Acres examined for consideration for intermediate harvest. Actual area harvested is estimated to be 5%.

SUMMARY OF ACRES HARVESTED (PRF)

DESCRIPTION

Single-Tree Selection

Individual trees are selected for harvest based on vigor, spacing, and desired distribution of residual trees in different size classes, periodically over the entire stand. The resulting forest tends to be composed of trees of different sizes and a more or less continuous forest cover is maintained.

The single-tree selection method will be used in those areas where resource values other than timber production have been identified. Some examples where this method will be used are in Streamside Management Zones, areas visible from scenic vistas, and near important forest travel ways and use areas.

DESCRIPTION

Group Selection

Trees are harvested periodically in small groups of about two acres in size. This leads to an uneven-aged stand with the appearance of many age-class groups throughout the forest. Thrifty young trees will be protected during logging and incorporated into the new stand. Unstocked areas will usually be planted. Some hardwoods will be present where they naturally exist. Some snags and slash will remain to benefit non-timber resources, especially wildlife and soil protection.

Group selection will be the primary silvicultural system used along moderately travelled roads and where visual quality in the foreground view is judged to be important.

DESCRIPTION

Shelterwood

The stand is partially harvested leaving several to many larger trees of the desired species that have seed production capabilities. Natural seeding or planting occurs under the partial forest canopy or shelterwood. After the young trees are established, usually in about 10 years, the residual larger trees will be removed in a final harvest cut. The new stand then develops in the open as an even-aged stand.

This method will be used primarily in the red fir timber type and in other even-aged stands where planting success is difficult.

DESCRIPTION

Clearcut

All trees meeting utilization standards are harvested from a selected area at one time. The new forest develops as an array of dispersed even-aged areas throughout the forest. Harvested areas will usually vary in size from about five to 25 acres. Slope will affect how the results appear.

Gentle Slopes

On flatter slopes where tractors can be used to remove logs, care is taken to preserve groups of thrifty young trees and hardwoods to be incorporated into the new stand. Areas not stocked with thrifty trees will be planted. Some snags and slash will also remain after logging to benefit non-timber resources, especially for wildlife and soil protection.

DESCRIPTION

Clearcut
Steep Slopes

On steep slopes there is less opportunity to manipulate the slash treatment and logging systems. Cable logging systems are required in order to protect the soil. Use of broadcast fire, because of steepness, is generally used to prepare the site for planting. These two factors make it necessary to replant the areas harvested.

This method will be used in those areas where timber production is a key value.

7. Ten-Year Timber Sale Action Plan

Table C.6 lists the 10-year timber sale programs by fiscal year for FY 88 through FY 97. The sales planned for FY 88 and FY 92 were taken from the current Five-Year Sales Program. In the remaining years, volumes were assigned based on District inventories.

All the FORPLAN PRF volume outputs are programmed in this action plan.

Table C.6 - Ten-Year Timber Sale Action Plan

Fiscal Year 1988 — Sequoia National Forest, FY 88 - FY 97

DISTRICT / Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	ROAD MILES Reconst.		PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Hume Lake							
Cherry	Eshom	380	4.5	1.4	0		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Burton	Burton	70	1.0	0	0.3		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Stone	Stony	330	4.3	0	0.8		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Pierce Fire Salvage	Eshom	370	3.6	0	0.4	2/	Burnt timber will be harvested. Some selection cutting in sensitive areas.
Small Sales			1.0				
Salvage			1.0				
Tule River							
Osa	Nelson	260	9.0	1.4	0		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Junction	Junction	160	5.5	0	0.4		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Beagle Buy Out	Alder and Nelson	150	5.1	0	0		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Salvage			1.0				
Hot Springs							
Uhl	Deer	70	2.5	0.7	0		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Scraps	Spear	70	5.0	0.6	1.5		
Salvage			1.0				
Greenhorn							
Flat	Woodsey	550	5.5	1.3	6.4		Regeneration units will generally average less than 25 acres. Some selection cutting in sensitive areas.
Salvage			1.0				
Cannell Meadow							
Fay Fire Salvage	Fay, Bartolas and True	4,000	15.0	1.5	6.0	1/	Burnt Timber will be harvested.
FISCAL YEAR TOTALS		6,610	66.0	6.9	15.8		

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.
2/ Salvage volume from fires of September 1987 has been substituted for green volume.

Table C.6 - Ten-Year Timber Sale Action Plan (continued)

Fiscal Year 1989 — Sequoia National Forest, FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	 Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Hume Lake						
Hume	Hume	110	2.4	0.7	4.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Garage	Bacon	310	4.0	0.4	0.9	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Sontag	Pine	100	2.2	0	0.8	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
White	McKinzie	150	4.0	1.5	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Mine	Baldy	150	4.0	0.7	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.0			
Salvage			1.0			
Tule River						
Zhon	Freeman	60	2.0	0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Needles	Needlerock	300	11.5	0.5	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Salvage			1.2			
Hot Springs						
French Joe	Bear	140	5.0	0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Carver Camp Buyout	Hobe	100	3.0	1.0	0.2	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Marshall	Peel	140	5.0	1.0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Salvage			1.2			

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan (continued)

Fiscal Year 1989 — Sequoia National Forest FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	ROAD MILES Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Greenhorn						
Deep	Tiger	200	7.0	0.5	4.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Salvage			1.1			
Cannell Meadow						
Pow	Powell	140	5.0	0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Paloma	Bonita	160	5.5	0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Guard	Beach and Blackrock	140	5.0	0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			0.5			
Salvage			1.0			
FISCAL YEAR TOTALS		2,200	72.6	6.3	12.9	

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan

Fiscal Year 1990

Sequoia National Forest
FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	 Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Hume Lake						
Lightning	Agnew	290	10.0	1.8	0.75	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Little Boulder	Burton	240	8.4	0.5	2.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.0			
Tule River						
Jerky	Junction	180	6.5	1.1	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Red Hill	Red	170	6.0	0.5	1.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.2			
Hot Springs						
Mill	Sugarloaf	170	6.0	0.5	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Vincent	Frog	140	5.0	0.3	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Last	Capitol	30	1.0	0	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Ranger	Dry	30	1.0	0.5	4.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.3			
Greenhorn						
Liebel Buyout	Brown	150	5.3	1.5	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.2			

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan (continued)

Fiscal Year 1990 — Sequoia National Forest, FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	ROAD MILES Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Cannell Meadow						
Tri	Cherry/Big Poison	350	8.0	3.4	3.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Fish	Sam/Bald	140	2.5	0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Casa	Casa/Osa	600	12.0	1.0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			0.5			
Salvage			1.0			
FISCAL YEAR TOTALS		2,490	77.9	11.1	16.7	

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan

Fiscal Year 1991

Sequoia National Forest
FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	 Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Hume Lake						
Badger	Eshom	100	3.4	1.25	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Hyde	Dry	200	5.0	0	2.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
McKenzie	McKenzie	200	5.0	0	3.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
State	Wind	150	3.0	0	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Rubble	Burton	60	2.0	1.6	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.0			
Tule River						
Mountaineer	Junction	170	6.0	2.0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Mahogany	Nelson	250	10.4	1.5	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.2			
Hot Springs						
Ice	Nobe	170	6.0	5.0	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Thunderbird	Starvation	170	6.0	0.8	1.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Mule	Crawford	170	6.0	1.0	2.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.3			
Greenhorn						
Nut	Squirrel	250	5.4	0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Staif	Woolstaif	350	5.6	1.0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.2			

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan (continued)

Fiscal Year 1991

Sequoia National Forest
FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	ROAD MILES Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Cannoll Meadow						
Jack	Troy/Pine	130	4.5	0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Wood	Boone	140	5.0	0	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Rincon Helicopter	Rincon/Burton/ Packsaddle/Poison/ Salmon	170	6.0	1.5	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Stony	Stony	290	10.0	13.4	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Salvage			1.0			
FISCAL YEAR TOTALS		2970	95.0	29.05	14.0	

1/ Acres are estimated based on Forest average volume cut per acre and rounded to nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan

Fiscal Year 1992 — Sequoia National Forest, FY 88 - FY 97

DISTRICT / Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	ROAD MILES Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Hume Lake						
Weaver	Shell	240	8.4	1.5	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Echo	Grove	280	10.0	1.0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.0			
Tule River						
McIntyre 2	Nelson/Red	120	4.4	1.0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Black Mtn. 2	Black	200	7.0	9.0	0.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.2			
Hot Springs						
Tylor	Tobias	200	7.0	0.5	1.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Fawn	Deer	290	10.0	1.5	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.3			
Greenhorn						
Day	Sunday	190	6.7	3.0	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Loop	Adler	120	4.3	0	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			1.2			

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan (continued)

Fiscal Year 1992

Sequoia National Forest
FY 88 - FY 97

DISTRICT Sale Name	Compartment	AREA 1/ (Acres)	VOLUME (MMBF)	ROAD MILES Const.	ROAD MILES Reconst.	PROBABLE HARVEST METHODS AND SPECIAL REQUIREMENTS
Cannell Meadow						
Durrwood	Mosquito	200	7.0	2.0	10.5	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Chapel	Taylor/Long	90	3.0	0	1.0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Bull	Bull	120	4.3	8.5	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Schaeffer	Schaeffer	290	10.0	6.7	0	Regeneration units will generally average less than 25 acres. Some selective cutting in sensitive areas.
Small Sales			0.5			
Salvage			1.0			
FISCAL YEAR TOTALS		2,340	88.3	34.7	16.0	

1/ Acres are estimated based on Forest average volume cut per acre and rounded to the nearest 10 acres.

Table C.6 - Ten-Year Timber Sale Action Plan (continued)

Fiscal Year 1993 through 1997 1/

Sequoia National Forest
FY 88 - FY 97

Annual Average DISTRICT		Average Annual MMBF 88 - 92	MMBF 93 - 97 to meet Plan	Average Annual for 88 -97
Hume Lake				
	Green	17.0	23.0	20.0
	Salvage	1.4	0.6	1.0
		18.4	23.6	21.0
Tule River				
	Green	14.6	23.4	19.0
	Salvage	1.2	0.8	1.0
		15.8	24.2	20.0
Hot Springs				
	Green	13.7	26.3	20.0
	Salvage	1.2	0.8	1.0
		14.9	27.1	21.0
Greenhorn				
	Green	8.0	16.0	12.0
	Salvage	1.1	0.9	1.0
		9.1	16.9	13.0
Cannell Meadow				
	Green	23.1	28.9	26.0
	Salvage	1.3	0.7	1.0
		24.4	29.6	27.0
Total Green		76.4	117.6	97.0
Total Salvage		6.2	3.8	5.0
Forest Total		82.6	121.4	102.0

ANNUAL FOREST TOTAL, FY 1993-97 = 116.5 MMBF

PLANNING PERIOD TOTAL = 970 MMBF

1/ Since the disallocation of volume to Districts beyond FY 1987 is based on Forest average inventory data, it is expected that the actual annual District sale programs will vary from the figures shown. However, variations between Districts are expected to balance each other so that the Forest total ASQ of 970 MMBF for the planning decade is maintained.

III. STRATIFICATION OF VEGETATION

Table C.7 - Land Management Planning Vegetation Strata Key

STRATUM	DESCRIPTION
	Forest Capable/Suitable
M1X	Mixed Conifer, Seedlings and Saplings
M2X	Mixed Conifer, Poles, 80 years old
M3G	Mixed Conifer, Small Sawlog, 140 years old
M4G	Mixed Conifer, Large Sawlog, 160 years old
M3P	Mixed Conifer, Small Sawlog, 160 years old
M4P	Mixed Conifer, Large Sawlog, 150 years old
P1X	Ponderosa - Jeffrey Pine, Seedlings and Saplings
P2X	Ponderosa - Jeffrey Pine, Poles, 70 years old
P3X	Ponderosa - Jeffrey Pine, Small Sawlog, 120 years old
P4X	Ponderosa - Jeffrey Pine, Large Sawlog, 180 years old
LXX	Lodgepole, 160 years old
R1X	Red Fir, Seedlings and Saplings
R2X	Red Fir, Poles, 90 years old
R3G	Red Fir, Small Sawlog, 160 years old
R4G	Red Fir, Large Sawlog, 170 years old
R3P	Red Fir, Small Sawlog, 140 years old
R4P	Red Fir, Large Sawlog, 200 years old
GXX	Giant Sequoia
PLS	Plantation - Stocked
PLU	Plantation - Non-stocked or poorly stocked
	Hardwood - Capable & Suitable
HBX	Black Oak
	Shrubs - Capable & Suitable
SAX	Chaparral, Capable and Suitable for Commercial Timber
SMX	Montane, Capable/Suitable for Commercial Timber
SXX	Miscellaneous Shrubs, Capable/Suitable for Commercial Timber
	Hardwoods - Capable - Not Suitable
HB2	Black Oak
	Shrubs - Capable, Not Suitable
SA2	Chaparral
SC2	Chamise
SM2	Montane
SX2	Miscellaneous Shrubs

Table C.7 - Land Management Planning Vegetation Strata Key (Continued)

STRATUM	DESCRIPTION	
	Hardwoods - Not Capable, Not Suitable	
HB1	Black Oak	
	Shrubs - Not Capable, Not Suitable	
SV	Sagebrush	
SA	Chaparral	Manzanita and associated shrubs
SC	Chamise	Adenostoma and associated shrubs
SM	Montane	Buckbrush, Chokecherry, Whitethorn, etc.
SR	Streamside	Wet meadow or bog shrubs
SX	Miscellaneous Shrubs	Bitterbrush, Mountain Mahogany, etc.
	Non-Forest Non-Woody Vegetation	
GX	Grass	
GH	Herbaceous Cover	
	Noncommercial Forest	
HXX	Hardwoods	
DXX	Digger Pine	
FXX	Foxtail-White Bark Pine and Limber Pine	
PJ	Pinyon-Juniper	
PC	Piute Cypress	
CJ	California Juniper	
JT	Joshua Tree	
	Others	
NB	Barren	
NW	Water	
FB	Recent Burn	
CL	Cultivated	

Table C.8 - Summary of Major Vegetation Stratification Rules

SEQUOIA NATIONAL FOREST

LAND MANAGEMENT PLANNING VEGETATION STRATA

MIXED CONIFER

SIZE CLASS	CROWN CLOSURE S 10 - 19%	P 20 - 39%	N 40 - 69%	G 70+%
1 - SAPLINGS	MIX			
2 - POLES	M2X			
3 - SM. SAWTIMBER	M3P		M3G	
4 - MD. SAWTIMBER	M4P		M4G	
5 - LG. SAWTIMBER				

PINE

SIZE CLASS	CROWN CLOSURE S 10 - 19%	P 20 - 39%	N 40 - 69%	G 70+%
1 - SAPLINGS	P1X			
2 - POLES	P2X			
3 - SM. SAWTIMBER	P3X			
4 - MD. SAWTIMBER	P4X			
5 - LG. SAWTIMBER				

Table C.8 - Summary of Major Vegetation Stratification Rules (continued)

RED FIR

SIZE CLASS	CROWN CLOSURE			
	S 10 - 19%	P 20 - 39%	N 40 - 69%	G 70+%
1 - SAPLINGS	R1X			
2 - POLES	R2X			
3 - SM. SAWTIMBER	R3P		R3G	
4 - MD. SAWTIMBER 5 - LG. SAWTIMBER	R4P		R4G	

LODGEPOLE PINE

SIZE CLASS	CROWN CLOSURE			
	S 10 - 19%	P 20 - 39%	N 40 - 69%	G 70+%
1 - SAPLINGS 2 - POLES 3 - SM. SAWTIMBER 4 - MD. SAWTIMBER 5 - LG. SAWTIMBER	LXX			

GIANT SEQUOIA

SIZE CLASS	CROWN CLOSURE			
	S 10 - 19%	P 20 - 39%	N 40 - 69%	G 70+%
1 - SAPLINGS 2 - POLES 3 - SM. SAWTIMBER 4 - MD. SAWTIMBER 5 - LG. SAWTIMBER	GXX			

Table C.9 - Lands Tentatively Suitable for Timber Management
(FOREST INVENTORY 1980)
Live Conifers 11 inches DBH or larger

Stratum	Total Acres	Volume in 100's of Cubic Feet		Volume in MBF	
		Per Acre	Total	Per Acre	Total
M1X	200	--	--	--	--
M2X	8,900	8.6	76,540	5.5	48,950
M3G	32,100	52.5	1,685,250	33.3	1,068,930
M4G	38,200	57.0	2,177,400	36.8	1,405,760
M3P	61,400	27.2	1,670,080	17.9	1,099,060
M4P	112,700	25.5	2,873,850	16.8	1,893,360
SUBTOTAL	253,500	--	8,483,120	--	5,516,060
P1X	1,100	--	--	--	--
P2X	4,200	15.7	65,940	10.5	44,100
P3X	9,300	29.0	269,700	18.7	173,910
P4X	44,400	28.0	1,243,200	18.4	816,960
SUBTOTAL	59,000	--	1,578,840	--	1,034,970
R1X	--	--	--	--	--
R2X	200	19.8	3,960	12.5	2,500
R3G	5,100	76.9	392,190	48.7	248,370
R4G	8,400	85.8	720,720	54.8	460,320
R3P	6,500	37.4	243,100	23.4	152,100
R4P	19,800	37.4	740,520	23.6	467,280
SUBTOTAL	40,000	--	2,100,490	--	1,330,570
GXX 1/	3,400	44.7	151,980	29.3	99,620
LXX	11,100	29.0	321,900	18.1	200,910
OTHER 2/	53,000	--	830	--	530
GRAND TOTAL	420,000	--	12,637,160	--	8,182,660

1/ Does not include volume of giant sequoia species (whitewood species only).

2/ Shrubs and hardwoods

IV. DETERMINATION OF LAND SUITABILITY

A. Identification of Lands Tentatively Capable, Available, and Suitable for Timber Management

1. Introduction

Section 6(g)(2)(A) of the Resource Planning Act of 1974, as amended by the National Forest Management Act of 1976, is quoted as follows:

> "Require the identification of the suitability of lands for resource management."

Section 6(g)(3)(A) states that guidelines for land management plans developed to achieve the goals of the program (RPA) which insures consideration of the economic and environmental aspects of various systems of renewable resource management, including the related systems of silviculture and protection of forest resources, will provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish. The land suitability assessments required under the RPA/NFMA planning process state there shall be a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences.

The Act provides very little direction to the form which this "systematic interdisciplinary approach" plan shall take. The Secretary is directed under Section 6(g) to issue regulations which set forth the process for developing land and management plans, and which provide guidelines and standards for analyzing suitability of various forms of resource management.

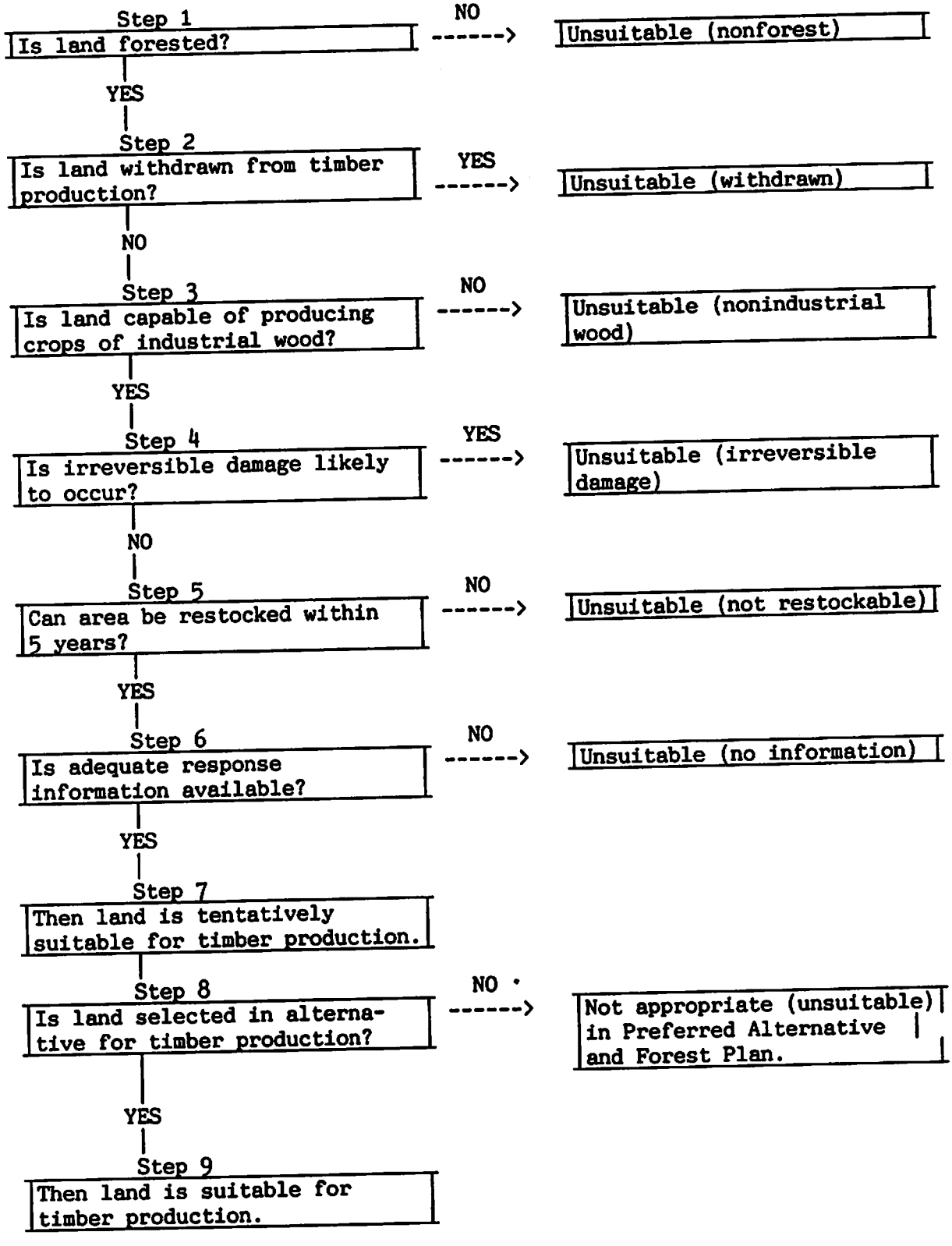
Under Section 219.3, Definitions of National Forest Management Act Regulations (9/17/79), the definition of suitability is provided. Also, the amended version of 36 CFR 219 (11/1/82) has the same definition of suitability which is:

> "The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of economic and environmental consequences and the alternative uses forgone. A unit of land may be suitable for a variety of individual or combined management practices."

Furthermore, under 36 CFR 219.3 of the National Forest Management Act Regulations (9/17/79) and the amended Regulations (effective 11/1/82) referenced above, state capability as follows:

> "Capability: the potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as the application of management practices such as silviculture or protection from fire, insects, and disease."

Table C.10 - Process for Identification of Lands Suitable for Timber Production



2. Procedure

Table C.10 illustrates the process for identifying lands suitable for timber production.

In Table C.10:

Step 1. Forested land means land where trees cover at least 10 percent of the area.

Step 2. Lands withdrawn are lands where formal legal or administrative direction prohibits timber management (e.g., wilderness).

Step 3. Industrial wood means lumber from those species currently utilized for commercial purposes.

Step 4. Irreversible damage includes consideration of soil, watershed, wildlife, and any other resource affected by timber management.

Step 5. Restocking within five years applies to regeneration of commercial timber species.

Step 6. Response information is based on local experience and research applicable to specific site conditions.

Step 7. Tentatively suitable land is all land that passes through Steps 1 to 6.

Step 8. Land selected excludes that portion of the tentatively suitable land base from timber production that is constrained by economics or other resource needs in the FORPLAN model.

Step 9. Suitable land is the difference between tentatively suitable (7) and that land excluded from regulated timber production by FORPLAN (8).

Steps 1 through 3 are based on objective criteria and require no judgment factors for evaluations.

Step 4 considers all current technology, regardless of cost, available to manage timber without appreciable loss in productivity for either timber or other resources. Under this premise, all lands capable of producing industrial wood can be managed for this purpose without irreversible damage.

In Steps 5 and 6, all otherwise capable lands were analyzed by a team consisting of the Forest Soil Scientist, Botanist/Ecologist, and the Timber Staff Officer (who was also a certified silviculturist). The analysis consisted of reviewing each inventoried polygon (mapped area with vegetation present) and estimating its timber production potential from information on aerial photos, from soil resource data, and from personal knowledge. The estimates were field checked by visits to sample areas where suitability appeared to be doubtful. Details of this procedure and criteria for judging suitability are contained in a memorandum: file designation 1920, Stephen J. Paulson to Forest Supervisor, dated June 15, 1982. The result

of this analysis determined that lands of doubtful suitability and not containing industrial (commercial) species were classified as not restockable within five years (Step 5). Lands of doubtful suitability but containing commercial tree cover were classified as unsuitable because response information was inadequate (Step 6).

Step 8 is the final test of suitability. Here lands not suitable for timber production are identified in FORPLAN and depended upon:

1. Other resource constraints that preclude timber production.

2. The economics of timber production as constrained by even-flow nondeclining yield.

B. Land Suitable for Timber Production

Table C.11 summarizes an evaluation of National Forest System land under the Preferred Alternative.

Table C.11 - Land Classification

Classification	M Acres
1. Non-Forest land (includes water)	273 1/
2. Forest land	846 2/
3. Forest land withdrawn from timber production	199 3/
4. Forest land not capable of producing crops of industrial wood	167 4/
5. Forest land physically unsuitable:	
irreversible damage likely to occur	0
not restockable within five years	28 5/
6. Forest land - inadequate information	32 6/ 7/
7. Tentatively suitable forest land (Item 2 minus Items 3, 4, 5, 6, and 7)	420
8. Forest land not appropriate for timber production	75 8/
9. Unsuitable forest land (Items 3, 4, 5, 6, and 8)	501
10. Total suitable forest land (Item 2 minus Item 9)	345
11. Total National Forest System land(s) (Items 1 and 2)	1,119

1/ Strata: SB, SA, SC, SM, SR, SX, GX, GH, NB, NW, FB, CL. See III. Stratification of Vegetation earlier in this Appendix for definitions of strata.

2/ All Strata other than non-Forest land.

3/ Wilderness

4/ Strata: HB1, HXX, DXX, FXX, PJ, PC, CJ, JT within available forest land.

5/ Strata: HB2, SA2, SC2, SM2, SX2 within available forest land.

6/ CAS Timber Strata acres within the available forest land judged unsuitable in Step 6 of the land evaluation process.

7/ Lands for which current information is inadequate to project responses to timber management. Usually applies to low site lands.

8/ Lands identified as not appropriate for timber production due to: (a) assignment to other resource uses to meet Forest Plan objectives; (b) management requirements; (c) not being cost efficient in meeting Forest Plan objectives over the planning horizon; and (d) dedicated spotted owl network.

Productivity

Productivity of forest land varies widely depending mostly upon precipitation and soil type. Data from the 1980 inventory indicate the following productivity distribution on forest lands within the Sequoia NF.

Table C.12 - Timber Productivity Classification

Potential Growth (cubic feet/acre/year)	Suitable Lands (acres)	Unsuitable Lands (acres)
Less than 20	-0-	156,000
20-49	29,000	171,000
50-84	206,000	116,000
85-119	58,000	34,000
120-164	41,000	20,000
165-224	8,000	4,000
225+	3,000	-0-
TOTAL	345,000	501,000