



Feather Falls



United States
Department of
Agriculture

Forest
Service



Pacific
Southwest
Region

PLUMAS NATIONAL FOREST

Land and Resource Management Plan

Plumas National Forest
Land and Resource Management Plan

1988

Pacific Southwest Region
USDA Forest Service



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This is a Plan for managing the Plumas
National Forest for the next 10-15 years,
after which it must be revised. If the need
arises, it will be revised or amended earlier.

Plumas National Forest
Land and Resource Management Plan

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Plumas National Forest
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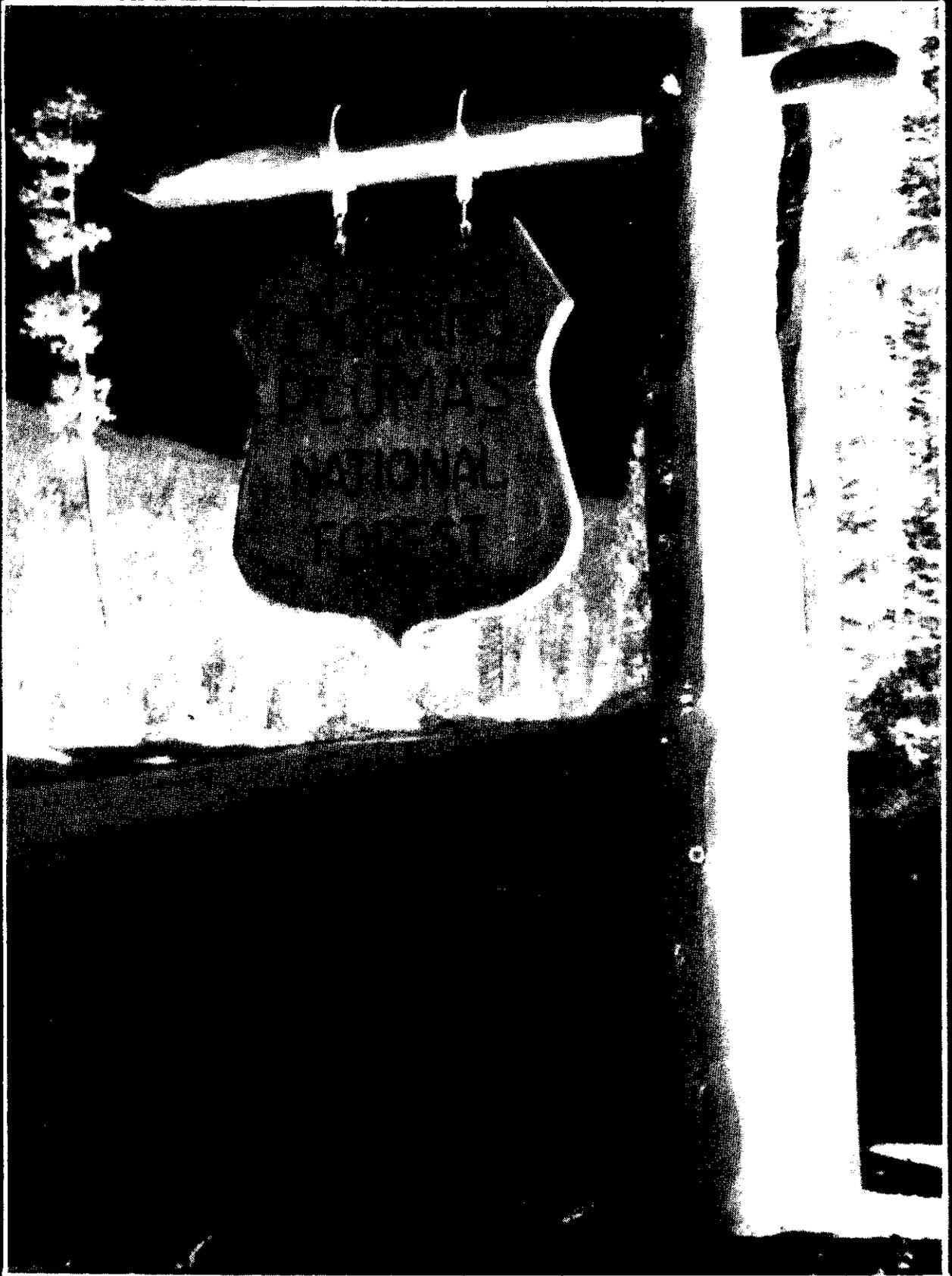
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Chapter I, Introduction



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Introduction

Purpose of the Plan

This Plumas National Forest Land and Resource Management Plan (Forest Plan) directs the management of the Plumas National Forest (PNF) and 15,000 acres of the Lassen National Forest. The purpose is to guide efficient use and protection of Forest resources, fulfill legislative requirements, and balance local, regional, and national needs. To accomplish this, the Forest Plan:

- * establishes management goals and direction for the next 10-15 years (the "planning period") and compatible long-range Forest objectives for the next fifty years (the "planning horizon"),
- * prescribes management practices for specified areas and time periods needed to attain these objectives,
- * establishes monitoring and evaluation requirements that measure implementation success,
- * yields resource inventory data necessary for Resource Planning Act (RPA) Assessments, and
- * provides information for the development of program and budget proposals.

Preparation of the Forest Plan is required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA), and by the implementing Code of Federal Regulations (36 CFR 219). Assessment of the Plan's environmental impacts is required by the National Environmental Policy Act (NEPA) and the Federal Regulations (36 CFR 219.10 (b)) and is contained in an accompanying Environmental Impact Statement (EIS).

The EIS describes in detail the existing Forest environment and management, supply and demand factors, and the environmental effects of implementing the proposed Forest Plan or other reasonable alternatives that are presented therein. It also includes a description of the data-gathering, issue-identification, and alternative-formulation that constituted this planning process. The Plan summarizes demand and supply potential, amplifies the selected alternative, and applies its management direction to each management area of the Forest. Both the EIS and the Plan state the public issues and management concerns that guided formulation of the Plan.

B. Relationship to Existing Plumas National Forest Plans

This plan applies to all areas of the Forest and integrates all other Forest planning within it. This plan therefore supersedes all general management plans (e.g. Timber Management Plan, District Multiple Use Plans), all unit plans (e.g. Mohawk and Bucks Lake), and all special area or activity plans where separate plans are not specifically required by law (36 CFR 219.2). Separate plans so required are incorporated by reference into this document, and overall management direction is stated herein. See Appendix A for disposition of all existing plans.

C. The Implementation Process

The management policy of this document will be implemented as soon as the final EIS is approved by the Regional Forester. All subsequent activities affecting the Forest, including management, budget proposals, permits, contracts, and other instruments for the use of the Forest, shall comply with this Forest Plan (36 CFR 219.1(b) and 219.10 (e) and 16 USC 1604 (i)). The Plan will be implemented at all levels of Forest management. Environmental Assessments (EA's) for all Forest projects will be tiered to the EIS for this Plan.

D. Plan Amendments and Revisions

Lands governed by the Forest Plan will be reviewed every five years by the Forest Supervisor to determine whether conditions or demands of the public have changed significantly. The Forest Plan will normally be revised every ten years (at least every 15 years); however, it may be revised whenever the Forest Supervisor determines that changing conditions or demands, including RPA policies, would have a significant effect on the Forest (36 CFR 219.10 (g)), or whenever monitoring results so require (see Chapter 4). Regional Forester approval is required. The Forest Supervisor may amend the Plan at any time if monitoring results indicate a need and the Plan would not thereby be significantly changed.

Management actions, outputs, and environmental and socio-economic effects for several decades beyond the plan period are discussed in the EIS. The purpose of these discussions is twofold:

(1) To present a long term analysis for decision-makers and the public of the management necessary to achieve and maintain, in perpetuity, a high level of regular, periodic outputs of the various resources without impairment to the productivity of the land (16 USC 531), (2) to coordinate the Forest Plan with RPA program development since RPA

requires information for four decades beyond the plan period (16 USC 1602). This linkage is discussed in Chapter 1 of the EIS.

The projection of actions and outputs beyond the plan period, although required by law, does not legally bind the Forest to such action and production action beyond the plan period, since, as noted above, the Forest is required to revise the plan within 15 years and this revision may establish different long-term goals with different future projections.

E. Plan Organization

The Forest Plan is divided into four major parts:

Chapter 2, Public Issues and Management Concerns, states the issues and concerns established at the outset of the planning process and indicates how they are resolved herein.

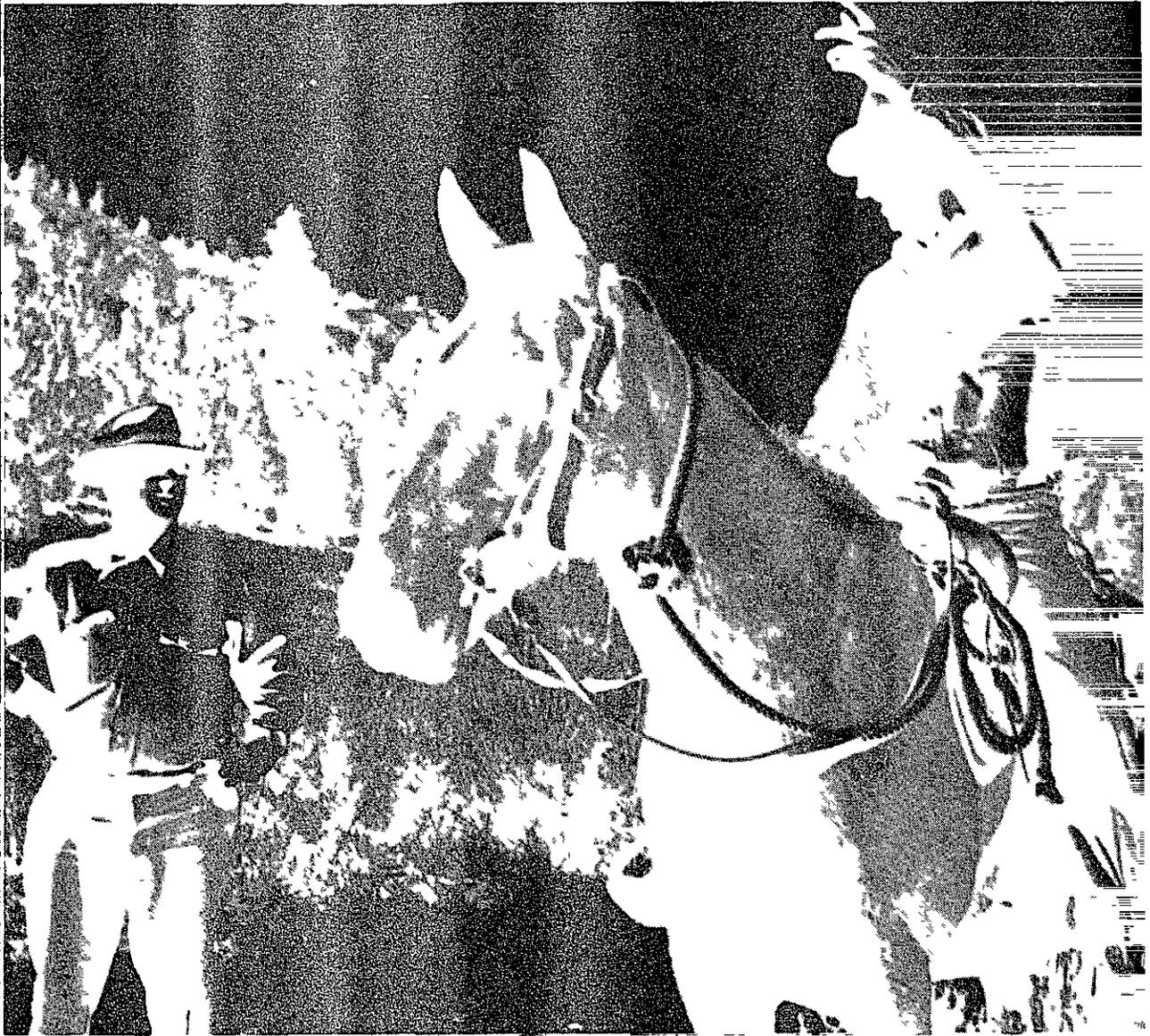
Chapter 3, Analysis of the Management Situation Summary, summarizes both the Analysis of the Management Situation, the full text of which is in the Planning Records, and the EIS "Affected Environment". It describes demand, supply potential, and the need and opportunity for management change on a resource-by-resource basis.

Chapter 4, Management Direction, presents the selected Forest goals and policies, land allocation, and commodity outputs and costs for the 10-year planning period. In addition, it a) presents Forest-wide management standards and guidelines to attain these goals and objectives and b) defines management prescriptions, special standards and guidelines, and target outputs for each of the 43 "Management Areas" of the Forest. A description and map of each Management Area accompanies the text.

Chapter 5, Monitoring and Evaluation, establishes a procedure to monitor specific Forest outputs and environmental effects of Plan implementation and a framework to generate feedback to the planning process.

The PNF Planning Records for this plan (36 CFR 219.10 (h)), available for inspection at the Supervisor's Office in Quincy, California, are hereby incorporated by reference into this plan.

Chapter 2, Public Issues and Management Concerns



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Public Issues and Management Concerns

Issues and Concerns



Recreation

- (1a) What kind and amount of recreation opportunities and facilities should be provided and emphasized, and where should they be made available?
- (1b) On what areas and trails of the PNF will off-road vehicle (ORV) use be permitted? Are there areas where the effects of ORV use on various resources will permit certain types of ORV's while excluding others?



Visual Resources

- (2a) Should present visual quality objectives be maintained or how should they be altered?



Cultural Resources

- (3a) What will the PNF do to inventory, protect, preserve, stabilize, enhance, or interpret cultural resources?



Roadless Areas

- (4a) How should the five RARE II "further planning areas" and other roadless areas be allocated?

Resolution: The California Wilderness Act of 1984 created the 21,000 acre Bucks Lake Wilderness on the PNF and released all other unroaded areas from further study of wilderness

suitability. During Plan revision in 10-15 years, any of these areas retaining their wildland character must be considered for Wilderness designation at that time.



Wildlife, Fish, and Sensitive Plants

- (5a) What kinds and amounts of fish, wildlife and plant habitat should be provided or protected and at what locations?



Range

- (6a) What areas on the Plumas should be grazed by livestock? At what intensity should grazing occur?
- (6b) What amount of forage should be allocated to other uses such as wildlife, recreation, etc.?
- (6c) What grazing systems and improvement practices should be implemented on the PNF? What is the potential for producing more livestock forage?



Timber

- (7a) What lands on the PNF are capable, suitable, and available for timber production and will be included in calculating the timber harvest amount?
- (7b) What silvicultural, logging system and other management practices will be used on lands capable, suitable, and available for timber harvesting?
- (7c) What levels of timber management intensity should be used and what rotation length should be used for lands in each management intensity group?
- (7d) Under what circumstances and to what extent should the PNF depart from the base harvest schedule?
- (7e) What should be the role of herbicides in management of the PNF?



Christmas Trees

- (8a) Where and for what purposes (silvicultural, recreational or other) will Christmas trees be harvested on the PNF?



Riparian Areas

- (9a) What kinds and amounts of riparian area protection should be provided and at what locations? 1/



Water

- (10a) What should be the water quality, quantity, and timing objectives of the PNF?
- (10b) What management practices should the PNF use to provide public safety and property protection from the hazards of flooding, water quality degradation, channel erosion, and unstable channel side slopes?



Soil

- (11a) Which areas of the Forest are prone to either natural or activity-caused erosion, and what level of ground disturbance is acceptable for those areas?
- (11b) What are the effects on soil of the various management practices, and how can the adverse effects be mitigated?



Air Quality

- (12a) What changes in management practices, if any, will be needed to accommodate Forest uses and maintain air quality equal to or better than applicable Federal, State, and/or local standards?

1/ Derived from Issue 5a.



Minerals and Materials

- (13a) Where are the areas on the PNF that mineral development, including common varieties, should be encouraged? What areas should be withdrawn from mineral entry to protect other resources? How can adverse effects of mineral development be mitigated?



Geology

- (14a) Which areas of the Forest are prone to either natural or activity-caused slope failures, and what level of ground disturbance is acceptable for these areas? 2/
- (14b) What should be the groundwater quality and quantity objectives of the PNF? 3/



Energy

- (15a) What should the PNF do to encourage the development and conservation of energy resources?
- (15b) What quantity and type of fuelwood will be available for user groups?



Lands

- (16a) What land adjustments should the PNF implement to deal with the impact of intermingled private and National Forest land?
- (16b) What constraints in what areas should be placed on issuance of special use permits on the PNF?

2/ Derived from Issue 11a.

3/ Derived from Issue 10a.



Facilities

(17a) What transportation systems are necessary to support the management of the PNF and intermingled private lands?



Fire and Fuels

(18a) To what extent should prescribed fire be used as a management tool to enhance and/or protect resource values on the PNF?

(18b) What are the most cost-effective fire objectives that support resource management?



Forest Pests

(19a) What should be the role of pesticides in management of the PNF.



Special Areas

(20a) Where are the areas on the PNF which appear to be suitable for Research Natural Areas and are needed to help round out the national system?

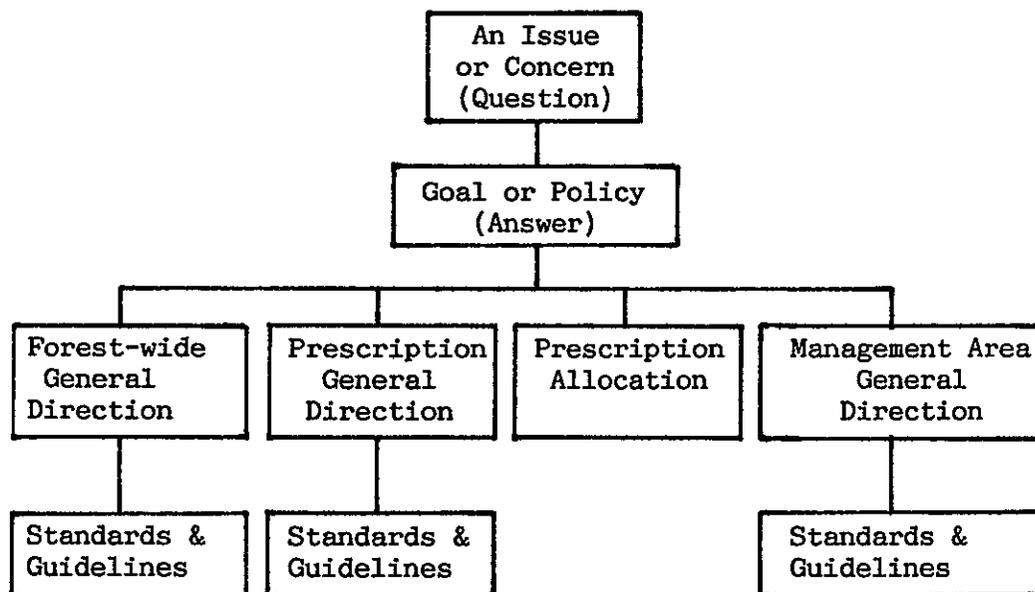
(20b) Are classified special interest areas needed and if so where should they be located and how should they be managed?

Resolution of Issues and Concerns

Each public issue and management concern is explicitly addressed in this plan by the Forest Goals and Policies and the management direction that flows therefrom.

Each of the issue and concern questions above are answered by a Forest Goal and Policy statement, as given in Chapter 4, Forest Goals and Policies. All of the remaining management direction* in Chapter 4 is implementation guidance in the form of "standards and guidelines" or allocation of land to management prescriptions. Each standard and guideline is preceded by a statement of "general direction," which ties the standard and guideline to the Goal and Policy it is implementing. The Goal and Policy numeration appears with each general direction statement to make the connection readily apparent.

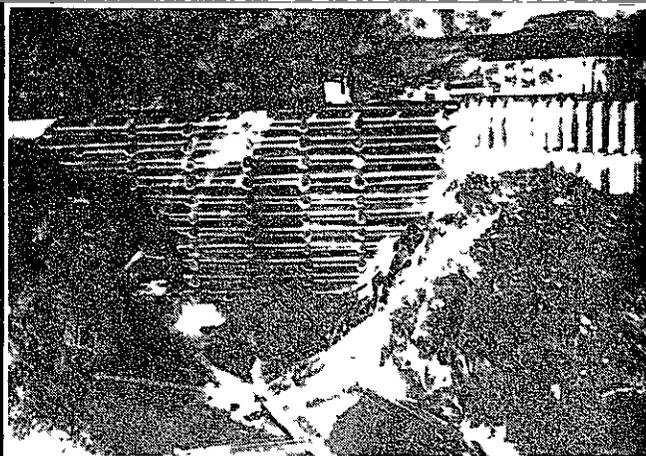
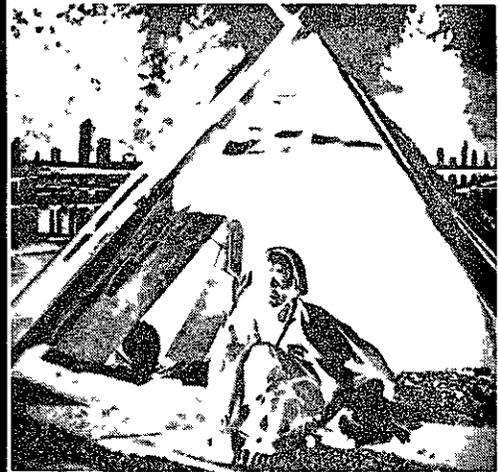
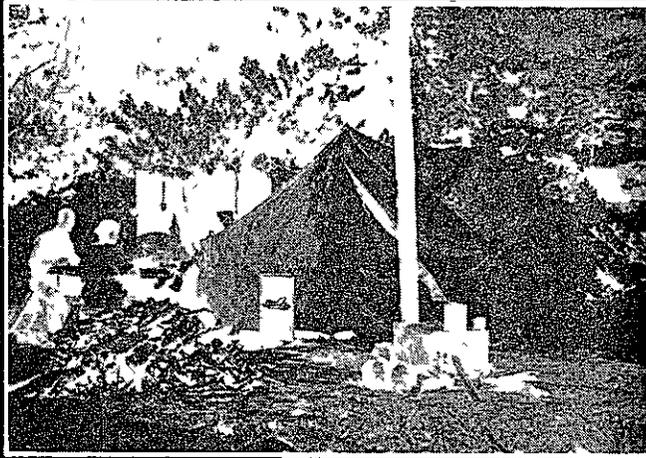
Thus, the reader may ascertain in detail how each issue and concern is addressed in this plan by both general and specific management direction.



Issue resolution afforded by each management alternative, including this Plan (Alternative PRF), is presented in the EIS in Table 2-29, Summary Treatment of Issues and Concerns.

* This direction is in three parts: (a) Forest-wide Standards and Guidelines, (b) Prescriptions (comprised of standards and guidelines) that are applied to various areas as shown on maps herein, and (c) Management Area Direction (comprised of standards and guidelines). See also introduction to Chapter 4.

Chapter 3, Analysis of the Management Situation Summary



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Summary of the Analysis of the Management Situation

Introduction

The Analysis of the Management Situation (AMS) is a document that thoroughly examines the existing management situation on the PNF. It is part of the Planning Records.

In Chapter 3, The Affected Environment of the EIS for this plan, Forest environmental conditions and much of the AMS information is presented in detail. This chapter is a summary by resource of that information. The reader interested in a more definitive exposition of present resource conditions should consult the EIS Affected Environment.

Physical and Biological Environment

Location. The Forest is at the northern end of the Sierra Nevada mountain range in northeastern California and is bisected by the Sierra crest. The Sacramento Valley and the Honey Lake Valley form the western and eastern boundaries. To the north lies the volcanic Cascade Range, and to the south gradually rises the High Sierra. Quincy, the seat of Plumas County and location of the Forest Supervisor's headquarters, is in the central portion of the Forest on State Highways 70 and 89.

Climate. West of the Sierra crest, weather is primarily of a Mediterranean pattern with wet winters and dry summers. East of the crest the marine influence lessens, and there is a greater range in daily and seasonal temperatures, lower precipitation amounts, a greater contribution to total precipitation from summer thunderstorms and lower humidity. Over 95% of the precipitation falling on the Forest occurs during the winter months, ranging from 15 inches on the eastside to 90 inches on the westside. A snowpack of 5 to 10 feet or more is commonly present from December through May at elevations above 5000-6000 feet, although individual winter storms may be in the form of rain to the highest elevations.

Topography and Watershed. Elevations range from about 900 feet in the western foothills to 8,372 feet at Mt. Ingalls. In the western portion, the North and Middle Forks of the Feather River and their tributaries have carved deep canyons into the Sierra Block. Narrow plateaus of moderate relief are located between the canyons and are

the most productive timberland. The eastside is a part of the Basin and Range Province, with forested ranges and intervening broad valleys often used for livestock grazing. At the easternmost range, the Diamond Mountains, the terrain drops off sharply to the arid Honey Lake Basin. Except for this slope, nearly all of the Forest drains southwesterly to the Feather River.

Geology and Soils. A wide variety of rock types have been exposed by erosion following the faulting and uplift process which created the Sierra Nevada range. Most of those faults are considered inactive today, but low intensity earthquakes still occur.

This geologic complexity and the climatic variation across the range have resulted in diverse soils. Generally, the warmer and more humid westside has deeper, more productive soils; the cooler, arid eastside has shallow, less productive soils. Equally important, north-facing slopes have moister, deeper, more productive soils than do south aspects. Some rock types, such as serpentine, produce rather infertile soils. Granitic soils are susceptible to high rates of surface erosion. Volcanic rock and soils and glacial deposits are often subject to landsliding.

Vegetation. The following vegetation associations are present on the Forest:

	% of PNF
Westside Mixed Conifer	57
Eastside Mixed Conifer	8
Eastside Pine	13
Oak Woodland	7
Red Fir	5
Ponderosa Pine	3
Sagebrush	2
Climax Chaparral (brushfields)	1-2
Fresh Water Communities	1
Pine-Juniper Woodland (eastside)	0.8
Wet Meadows	0.4
Rocky Areas	0.4
Lodgepole Pine	0.4
Riparian Deciduous	0.4
Dry Grassland (eastside)	0.2
Digger Pine - Oak (foothills)	0.1
Mountain Hemlock (above 6000 feet)	.02

The Economic and Social Environment

Sphere of Influence. The lands administered by the PNF are located in five northeastern California counties: Plumas, Lassen, Sierra, Butte, and Yuba. More than 80% of the Forest lies within Plumas County;

and the Tahoe National Forests). Lassen and Sierra Counties have only minor acreages in the Forest, but the impact on them, from a socio-economic standpoint, are similar to those on Plumas County. Butte and Yuba Counties and the nearby Reno area are more urban, and the relative importance of the PNF outputs is lessened by the size and diversity of their economies. Most of the timber harvested from the PNF is milled in these five counties.

Accordingly, this socio-economic analysis deals primarily with effects in Plumas, Lassen, Sierra, Butte, and Yuba Counties.

Population. Population growth in the five counties has been substantial during the past two decades due primarily to in-migration of urban emigrants and retirees.

Employment. The economy in the area, for the most part, has been based on logging, lumbering, and agriculture. But employment in these sectors has been decreasing. Concurrently, employment in the service and trade sector has enlarged as a result of growth in the retirement population, urban emigration, and tourism.

The lack of diversification, rapid population growth, and the seasonal nature of tourism and resource-related industries have resulted in unemployment rates that are twice the State average.

Role of the Forest. The PNF contributes to the local economy by providing timber for harvesting and milling into lumber, by furnishing summer range for local and regional livestock operations, through the Receipts Act Payment Program, and through the influx of the annual operating budget. Local employment in the impact counties, as a result of PNF activities, amounts to approximately 7173 jobs. The Forest's annual budget, which includes locally-paid wages and contracted expenditures, peaked in 1981 at \$21 million.

According to the Receipts Act Payment Program, 25% of the revenues* earned by the Forest are returned to the counties in which the Forest is located for road and school programs; State law requires equal-sharing between these programs. These revenue payments play an important role in county finances, especially in Plumas County where, in 1980, 55% of the road budget and 21% of the school budget came from PNF receipts.

*Revenues include: a) value of timber harvested (including timber sales receipts, Knutsen-Vandenberg collections for reforestation and timber stand improvement on timber sales, and value of timber sale road improvements), b) land use permit fees, c) recreation user fees, d) mineral permit fees, and e) grazing fees.

Social Groups; Relation to Forest Management. Management direction and resource outputs of the PNF affect several local social groups, each of which places different demands and values on resource use. Six major groups identified are:

Long Time Residents. This group has a predominance of residents who have lived in the area for 20 or more years and are employed in logging, lumber manufacturing, and agriculture.

The older members tend to have strong feelings for stopping, or at least reducing, development. The younger group is more oriented towards resource utilization. Both tend to perceive the Forest Service, along with other government agencies, as authoritarian.

Urban Emigrants. This group ranges from professionals to those with alternative-lifestyles. For the most part, their values are compatible with those of the long-term residents. The newcomers generally place a high value on the need to protect ecological resources. They are often supportive of Forest Service regulation but critical of some timber management practices, such as herbicide spraying and clearcutting.

Governmental Workers. Employment by school systems and local, State, and the Federal government in the five counties is an important part of the economy. In general, this group is concerned over actions taken by the PNF that could affect income, job security, and timber receipts shared by the local road and school systems.

Retirees. The population segment older than 50 years comprises about one-third of the total population. Many of these people come to the area as second-home owners, and, upon retirement, move here either permanently or for all but winter months.

Most retirees hold conservative values and are oriented towards the protection of the environment. Recreation, including hunting, fishing, boating, and observation of nature, is considered important.

Business Community. These are people involved in manufacturing, services, and trades. Individuals are generally quite active within organizations and operate from a powerful influence base. They are sensitive to decisions on timber sales, mining regulations, and tourism that could affect their businesses.

Native Americans. The Maidu (Northeastern Maidu) and Konkow (Northwestern Maidu) ancestral territories included most of the PNF. Today, their descendents are primarily employed in logging and related areas. Accordingly, the group is concerned with PNF actions that would affect income, job security, and local job opportunity. In addition, Indian communities have concerns about

PNF actions that could adversely affect cultural or religious sites important to their heritage. Other groups with an interest in, or immediately adjacent to the PNF, include Nisenan (Southern Maidu), Washoe, and Northern Paiute.

Supply, Demand, and Management by Resource

On the following pages, each resource/program area of the Forest is discussed in terms of a) Current Management, b) Opportunities for Management Change, c) Supply, and d) Demand. "Opportunities for Management Change" is a description of possible future actions identified during the issue solicitation process. Chapter 4 Management Direction states those management actions actually selected for implementation.



Recreation

a. Current Management. Recreation management includes the planning, implementation, and maintenance of recreation facilities and activities, including the trail system. The PNF has a \$6.8 million investment in developed recreation sites due to past FS policy, but recent direction emphasizes dispersed recreation and use of the Recreation Opportunity Spectrum (ROS) system.

Funding of resources for recreation facility construction and maintenance has been derived from a variety of sources, including the Forest budget, Federal Energy Regulatory Commission (FERC) licensees (often utilizing Davis-Grunsky Act grants), the California Department of Boating and Waterways, California ORV license fees, and the California State Water Project. Funding levels over the years have resulted in limited developed recreation maintenance; if this trend continues, some site closures for health and safety purposes are likely.

The Forest currently makes use of several recreation plans for various purposes or areas. These regulate camping and motorized vehicle use and guide development of additional trails, campgrounds, and other facilities.

b. Opportunities For Management Change. Additional needed management efforts could: 1) initiate more precise direction for ORV management, 2) initiate use restrictions on some reservoirs to reduce conflicts, 3) renew an aggressive acquisition program for scenic easements or fee title to private lands within the Recreation Zone of the Wild and Scenic River, 4) develop parking and sanitation facilities for

cross-country skiers and snowmobilers and resolve conflicts between them, 5) acquire rights-of-way for hunters and fishermen across developing land in the Beckwourth and Milford Districts, 6) expand campground facilities at the reservoirs, including termination of special uses by private parties where needed, and 7) expand interpretive services in major use areas.

c. Supply. The recreation use-capacity of the Forest in "persons at one time" (PAOT), is 258,770. Thirty-eight family campgrounds are now in seasonal operation, and 24 offer capacity in excess of use. This assumes that optimum use is about 40% of theoretical season capacity; greater use indicates overcrowding during peak use periods. Most of the developed recreation is around five large reservoirs on the Forest. In general, the existing developed recreation supply does not approach the maximum capability of the Forest.

No major privately-owned recreation facilities utilize public land within the Forest.

Three recreation residence tracts are on the PNF. Current permits terminate at the year 2000.

Dispersed recreation on the PNF includes fishing, hunting, driving for pleasure, lake recreation, horseback riding, hiking, cross-country skiing, and off-road vehicle use. The Forest has one wilderness area, three Wild Trout Streams and 243 miles of trails, including 66 miles of the Pacific Crest Trail. ORV use occurs throughout the Forest except on that 13% closed for resource protection needs.

The two scenic recreational areas of special note are the Lakes Basin and the Middle Fork of the Feather River. The 10,800 acre high-elevation, glaciated Lakes Basin Recreation Area was set aside by the Secretary of Agriculture in 1926 for recreation purposes. The area has over 20 lakes, including the 500-acre Gold Lake, and offers 30 miles of scenic trail hiking, developed and dispersed camping, privately-operated horseback riding, and lodge accommodations.

The Federally-designated Middle Fork of the Feather Wild and Scenic River extends across the Forest from Beckwourth in the Sierra Valley to Lake Oroville. The river is divided into Wild, Scenic and Recreation Zones to promote different types of recreation experience.

d. Demand. Total PNF recreation has generally increased over the past 30 years and is currently 2.3 million Recreation Visitor Days (RVD's) per year. It is assumed that recreation demand will increase at the current population growth rate in the region, about 1.7% annually.

Historically, about 40% of the recreation use occurs on developed sites, and 60% is dispersed. It is expected that this ratio will

gradually shift in favor of developed uses due to the increasing average age of the population.

Developed Recreation. The average campground is utilized 20 to 35% of theoretical capacity, but 12 of the 38 family campgrounds are fully utilized. Most others are fully utilized on summer holiday weekends. The total use in 1982 was 976,000 RVD's. It is estimated that overall campground capacity would need to increase 30% by the year 2000 to accomodate estimated demand increases, primarily at the reservoirs.

Dispersed Recreation. The annual dispersed recreation on the Forest is 1,300,000 RVD's. The primary activities are camping, fishing, and pleasure driving. Demand for hiking trails is increasing Forest-wide and especially on the westside in Butte County. Hiking and backpacking demand will continue to increase. Annual ORV use is now increased markedly during the 1970's but is relatively constant at present. Cross-country skiing is the fastest growing dispersed recreation activity on the Forest. With no recorded activity earlier, the use was 2,100 RVD's in 1979, and 11,000 RVD's in 1982. Use in the Lakes Basin Recreation Area was estimated at 85,000 RVD's in 1982, and weekend overnight use is usually at capacity.

Use in the Middle Fork of the Feather Wild and Scenic River designated area was 121,500 RVD's in 1982. Demand in the wild Zone is limited by terrain and difficulty of access and is well below capacity, but use at river trails termini may exceed capacity in the near future. Use at the more accessible areas in the Scenic Zone is at or near capacity.

Since it is estimated that the present recreation capacity for all uses exceeds the projected demand 50 years hence, future recreation demand can in general be met. However, new campgrounds that serve the Reno demand and the Lakes Basin, and new trails and campgrounds on the western edge of the Forest, and retention of semi-primitive areas would be needed.



Visual Resources

a. Current Management. The Visual Management System as described in Appendix K, has been used to define current Visual Quality Objectives (VQO) for all lands, based on specified physical features of the land and viewer location, frequency, and duration assumptions. These objectives specify maximum desirable visual change due to uses such as timber harvest and road construction.

Certain areas, such as the Feather Falls Scenic Area, the Bucks Lake Wilderness, the Middle Fork of the Feather River, and the Lakes Basin Recreation Area, are managed for scenic (and recreational) values.

b. Opportunities For Management Change. Future management could adopt a particular distribution of VQO designations, monitor visual effects of timber harvest for adherence to adopted visual objectives, and maximize visual quality in corridors and other special visual zones.

c. Supply. Most of the Forest exhibits "common" landscape (83%) or "distinctive" landscape (17%), according to variety class definitions applied nationwide. A majority is classified in the "high" sensitivity level when considering viewer location. Past management activities have generally not had a dominant visual effect so that changes are not evident to the average person unless pointed out.

Historical trends in visual quality are difficult to assess. Wildfire, timber management, and road construction continue to cause the greatest loss in visual quality throughout the Forest.

d. Demand. Public demand for visual quality is intangible but is closely tied to recreational demand. Driving and walking for pleasure and sightseeing will increase 34% by 1990, according to the California Parkway System estimates. This suggests an eventual need for additional scenic routes and vista point turnouts. State Highways 70 and 89 (through the Forest) were designated in 1966 as possible Scenic Routes by CALTRANS but await legislative designation.

Demand for visual quality has and will continue to conflict with wood product and mineral demand. In many cases, this conflict can be mitigated by use of site specific measures such as, but not limited to those depicted in the publications listed in Appendix K.



Cultural Resources

a. Current Management. The PNF has inventoried, evaluated, protected, and enhanced cultural resources as required by law and administrative directives. The cultural resource program is involved in the inventory, appraisal, and management of prehistoric, ethnographic, and historic materials and properties. To date most inventory has been associated with resource management projects, especially timber harvest. Present objectives are to: 1) complete the inventory of all cultural properties by 1995, and conduct National Register evaluation and enhancement activities as directed by Congress and Forest Service policy; 2) complete an inventory of other cultural resources to meet the American Indian Religious Freedom Act of 1978 and Forest Service policy direction; and 3) evaluate previously-recorded properties.

b. Opportunities for Management Change. Additional needed management could: 1) evaluate previously recorded properties; 2) extend

inventories to lands beyond project areas; 3) integrate ethnic concerns into the project plans; 4) increase surveillance and other protective measures at repeatedly vandalized sites; 5) establish policy for managing standing historic properties; and 6) develop enhancement plans for selected National Registry sites.

c. Supply. By 1981, the PNF surveyed over 20% of its lands and collected documents on, or recorded over 1,700 cultural properties representing prehistoric, ethnographic, and historic land use.

The PNF's cultural resources occur over a wide area with varying degrees of predictability. Generally the locations of prehistoric sites are the most predictable, since livelihood was tied closely to the land. Many of these sites are found on the westside of the Forest in areas of favorable habitation below 4000 feet. Others occur adjacent or in higher intermountain and eastside valleys and within the major canyons.

Ethnographic site locations are more difficult to predict since many of them were located in remote areas in response to the devastating effects of cultural contact with foreigners. The most difficult site locations to predict are those of the historic period, because by then man was no longer tied to the land. The extensive distribution of California Gold rush artifacts on the PNF is important in studying this frontier era.

Approximately 1% of the recorded properties have been evaluated for eligibility for the National Register of Historic Places, Natural Landmark status, State Landmark status, or for dedication by historical preservation groups. When the inventory is complete, more than 10,000 total sites may be found, so that many more eligible sites are to be expected.

d. Demand. PNF cultural resources are used by and are of interest to scientists, visitors, and ethnic or working groups.

Visitor use is encouraged by interpretive sites - two existing, one under development, and three planned.

Native American groups in the area use, or have interest in, various Forest locales including sacred areas, places of origin and of cultural importance (burial sites, etc.), and sites where traditional gathering activities for subsistence or ceremony occurred. In addition, descendants of pioneers, settlers, and miners identify with certain locations.



Wilderness

- a. Current Management. The California Wilderness Act of 1984 established the Bucks Lake Wilderness.
- b. Opportunities for Management Change. The Wilderness Act provided that no other areas on the forest can be considered for wilderness designation during this planning period. A Bucks Lake Wilderness Plan, now under preparation, could provide guidelines for the use of prescribed fire from unplanned ignition to reduce unnatural accumulations of fuel and could guide recreation use management.
- c. Supply. The Bucks Lake Wilderness is located on the westside of the forest, on the Oroville R.D., between Bucks Lake and the North Fork of the Feather River, encompassing 21,000 acres.
- d. Demand. The Bucks Lake Wilderness is presently used for recreation (hiking, backpacking, and fishing), cattle grazing, and mining. Recreation centers on the Pacific Crest Trail which passes through the area, the Gold Lake - Silver Lake Basin, and the vicinity of Bucks Lake. Cattle graze the Bucks Creek allotment. A few active gold mining claims are within the area near the Union Pacific Railroad tracks and in the vicinity of Virgilia. Exploration operations have subsided since 1982.



Wildlife, Fish, and Sensitive Plants

- a. Current Management. The direction of the Fish and Wildlife Program is to: 1) maintain at least viable populations of all native vertebrate species through the use of Management Indicators Species; 2) provide habitat leading to viable populations of endangered or sensitive species; 3) improve and protect habitat for selected emphasis species; and 4) provide for diversity of plant and animal communities and tree species.

Portions of Yellow Creek, Nelson Creek, and the Middle Fork of the Feather River are managed as Wild Trout Streams. All fisheries are protected through application of "Best Management Practices".

- b. Opportunities for Management Change. Future management could prescribe limits on vegetation manipulation in each management area to protect habitat diversity. Breeding and foraging areas for old-growth dependent and other indicator species and for the expansion of endangered bald eagle and peregrine falcon populations could be provided.

c. Supply. The Forest contains approximately 313 vertebrate species. Fifteen species or groups have been selected as indicator species to represent the status of specific habitat types and thus entire wildlife communities. All communities are presently viable, although habitat for old-growth dependent species is diminishing.

Two endangered animals, five sensitive animals, and fifteen sensitive plants inhabit the PNF. Bald eagles nest and winter in significant numbers on the Forest. A program to introduce peregrine falcons is now underway.

Blacktail and mule deer are the most numerous big game species on the PNF. Portions of the summer and winter range for the Bucks Mountain, Mooretown, Sloat, East Tehama, and Doyle deer herds are present.

Over 1,000 miles of streams and 14,000 surface acres of lakes and reservoirs provide habitat for cold water fish species, primarily trout. Some outstanding fisheries are present, however in some waterbodies there are undesirable species. There have been no anadromous fish on the Forest since construction of Oroville Dam.

d. Demand. Trout fishing and big game hunting are important activities in the Forest and account for 16% and 3% of the total recreation use, respectively.

Most recreationists seek wildlife to enhance their wildland experience on the PNF. Photography is common. Others want only to know that wildlife exists. Consumptive and observational demands for wildlife will increase with human population expansion, but it is anticipated that the observational demand will grow faster.



Diversity

a. Current Management. The need for diversity management of vegetation types and seral stages has recently materialized. Adjustments of timber harvests to assure diversity have begun.

b. Opportunities for Management Change. To benefit species requiring mature and overmature seral stage habitat, such as bald eagle, spotted owl, and marten, reduced timber cutting or longer rotation ages could be used at a network of sites throughout the Forest. To benefit deer and other species which rely upon early seral stages, increased timber harvest and habitat improvement projects for increased forage and cover could be pursued in their most limiting seasonal range. The amount and distribution of diversity elements such as snags and dead and down material could be increased through adjustment of timber harvest or direct improvement projects throughout the Forest. In

general, at least 5% of each vegetation type could be retained or provided in each seral stage to provide a diversity "floor".

c. Supply. Extents of various vegetation communities were given earlier in this chapter. Presently 9% of the Forest's commercial timber stands are in early successional stages, 47% are in mid-successional stages, and 43% are in mature stages. Less than 3% of the mature stands are two-storied.

d. Demand. Diversity is increasingly valued for visual and recreational enhancement, to help assure the viability of all vertebrate wildlife populations, and to increase stability of the Forest's ecosystems.



Range

a. Current Management. Most rangeland on the Forest is divided into 79 separate areas referred to as "allotments". Livestock use, including numbers, season, and level of use, is controlled through the issuance and administration of grazing permits. Initial stocking rates were determined through grazing capacity estimates based upon standard range analysis. Information gathered through annual allotment inspections is used to refine the original capacity estimates. Allotments are improved from time to time by fencing and water source development.

b. Opportunities for Management Change. Future management could focus on increasing range capability, if demand increases so warrant, and on resolving any incompatibilities with recreation, wildlife, and watershed uses and restoring those riparian areas in deteriorated condition.

c. Supply. About 314,500 acres are currently suitable for grazing. These rangelands are classified as primary (12%), secondary (13%), and transitory (75%).

Primary range is chiefly meadow and perennial grassland that is easily accessed and has available water. Secondary range, generally grazed after the primary range, is predominantly sagebrush-timber and bunchgrass-timber associations.

Transitory range exists as a result of wildfire, recent regeneration cutting, or other timber management practices which open the tree canopy and allow the development of understory forage. Although transitory range makes up 75% of the suitable range, only about two-thirds of it is available for livestock use.

The rangelands are presently divided into 67 cattle allotments, 10 sheep allotments, and two allotments for dual use. The total grazing capacity* is 43,000 animal-unit months (AUM).

A continuous grazing system is used on 71% of the rangeland, deferred grazing management is used on 27%, and a rest-rotation system is used on 2%.

Range condition is satisfactory overall, with a static to upward trend. Areas in unsatisfactory condition are generally overgrazed riparian areas on the Forest's eastside.

d. Demand. Forty-five permittees are dependent upon PNF range to complete their ranching operations. This use has remained fairly constant since the 1950's. During 1981, approximately 7,500 cattle and 1,400 sheep grazed the allotments under fee permits, utilizing 72% of the 43,000 AUM capacity. Land exchange and transitory range utilization increased grazing use from 30,200 AUM's in 1982 to over 33,000 AUM's in 1986. On active allotments essentially 100% of the existing capacity is utilized.

Demand depends upon range fees, allotment location, and type of forage. Eastside demand is very strong, where allotments contain a high proportion of permanent range. Westside demand is low since most range is transitory. The demand for sheep allotments does not meet the supply of those so allocated.

Demand is also affected by County policy as to the responsibility for excluding livestock from intervening private lands not available for grazing. Presently Lassen and eastern Plumas Counties are "open range", giving landowners that responsibility, whereas western Plumas, Sierra, Butte, and Yuba Counties are "closed range", requiring operator control.



Timber

a. Current Management. PNF timber management is guided by several congressional acts, regulations of the Secretary of Agriculture, policies of the Chief of the Forest Service as stated in the FS Manual, and the R-5 Manual Supplement and the Regional Guide. In general, these guides require the Forest to produce a non-declining flow (relatively constant supply) of timber on a sustained-yield basis by balancing net growth and harvest. Although not embodied in law,

* "Grazing Capacity" is the residual after allowance for plant maintenance and wildlife consumption.

current policy is to simultaneously evolve the Region's forests to a "regulated" condition with a complete and equal distribution of tree-age classes, up to a chosen "rotation age". This goal, to be gradually approached, is aimed at producing equal annual timber volumes by always harvesting the oldest stands.

Timber management at the Forest level is currently guided by the FY 76-85 Timber Management Plan, which established those lands available for commercial forest use, estimates the potential timber yield (or "allowable cut"), and provides direction for silviculture and harvest methods, reforestation, timber stand improvement, and fuelwood management.

Although Regional silviculture policy is directed at ultimately achieving regulated Forests as just described, the PNF determines which of its stands are to be managed on an even-age and uneven-age basis. Under the current plan, all stands in the Standard and Marginal Components are managed on an even-age basis. A 110-year rotation-age has been adopted, based on the average culmination age of all PNF timberlands.

All harvesting in the Standard Component is by clearcut (where little or no understory is present), by overstory removal, and by thinning and sanitation cut, in that order of yield volume. Selection cuts are employed in the Special Component, and both selection and salvage cuts are applied in the Unregulated Component. Tractor logging is usually employed on slopes up to 35% and occasionally beyond. On steeper slopes, cable yarding is usually employed. Helicopter logging is occasionally employed.

Clearcut areas are normally planted the spring following harvest, or at least within three years. According to regulations of the Secretary of Agriculture, these lands must be planted within 5 years. In the case of overstory removal, the site must support a prescribed optimum density of trees older than two years within five years. If not, planting is required. Target restocking densities for regeneration

Timber Stand Improvement (TSI) includes suppression of competing vegetation and precommercial thinning of young stands. Competing vegetation is suppressed by mechanical, cultural, and chemical methods chosen on a case-by-case basis.

Based on the land classification and choice of silviculture and harvest types, the current Timber Management Plan estimated a potential annual yield of 251 MMBF/year for the FY 76-85 decade. Congressional funding has generally limited the actual harvest to 205 MMBF/year, however.

b. Opportunities for Management Change. NFMA provides direction and opportunity to reevaluate PNF timberland classification, silvicultural prescriptions, and yields.

Regional direction calls for an evaluation of silvicultural systems on a stand-by-stand basis, considering both timber productivity and other resource management needs, such as wildlife habitat and visual concerns. In particular, uneven-age management is to be considered for existing uneven aged stands or where conversion to such stands would be appropriate to achieving adopted Forest goals.

NFMA regulations also affect rotation age planning. In general, stands must exhibit an average diameter of 13" to be considered for commercial thinning harvest, and rotation ages for clearcuts must be those at least at 95% culmination of mean annual increment, which varies by forest type and site class.

In addition to the above planning decisions, future timber management can attempt to optimize growth rates on suitable timberlands by (1) priority harvest of poorly-stocked and old, slow-growing stands, (2) harvest of the overstory in two-storied stands, (3) additional suppression of competing vegetation where needed, (4) thinning of young stands, and (5) increased fire protection to reduce loss of the more flammable plantations. Release thinning for stand survival should take precedence over release for growth.

c. Supply. The PNF is a major timber-producer for the Forest Service in California (Region 5). Comprising only 6% of the Region 5 landbase, it now produces about 10.3% of the timber volume. This is primarily due to the PNF's larger share of the Region's commercial timberlands, some 9.6%, but apparently also due to some higher productivity as well. About 66% of the Forest now produces commercial timber. Considering both public and private lands, the PNF produces 4% of California's timber.

The harvest of PNF timber has grown markedly in this century. The Forest's annual production, only about 10 MMBF in 1910, has increased nearly twenty-fold in the past 70 years.

The current existing timber inventory volume is 25 billion board feet. Nearly one-half of this volume is white and red fir. The commercial pines (ponderosa, Jeffrey, and sugar) comprise one-third of the existing volume. Nearly 60% of the timberlands now have trees between 80 and 140 years of age. About one-half of the PNF timberlands are steeper than 30% and one-tenth are steeper than 60%.

Productivity of the timberlands varies substantially. Productivity is described by "Forest Survey Site Class". Since site classes are closely related to soil types, timberland productivity is addressed in the ensuing Soils section. That data suggests that the entire PNF

could potentially grow up to 435 MMBF/year if all forest lands were fully stocked.

The net or available growth on many stands is well below potential productivity due to stand structure and age. Significant gains in net growth could be achieved by harvest and regeneration of poorly stocked and old-growth stands. Other timber stands (TSI Backlog) need thinning and release to achieve full site utilization.

The recent Soil Resource Inventory, redefining productivity levels, indicates that 67,000 acres could possibly be reforested. Field verification will be necessary to determine if reforestation is physically possible and economically efficient.

d. Demand. During the 1970's, demand for PNF timber was very strong and resulted in overbids of four to five times the appraised value. Demand weakened considerably in 1981-82 due to the economic recession and remains suppressed due to high interest rates.

Demand competition is sustained by the presence of about a dozen sawmills within or adjacent to the Forest, and some PNF timber is hauled as far as Roseburg, Oregon, for milling. These mills could easily process an expanded PNF supply if market motivation is sufficient.



Christmas Trees

a. Current Management. The Forest offers both commercial and individual Christmas tree sales. There are no Christmas tree management areas, and production priority is second to timber.

Contracts are awarded for commercial Christmas tree harvest in timber stand improvement areas; where road construction, clearcut timber harvest, or other tree-displacement activities are imminent; or where tree growth creates powerline or roadway hazards.

The individual Christmas tree program is intended for local residents. The individual program is not offered in the westside La Porte and Oroville Ranger Districts where local sources are available.

b. Opportunities for Management Change. Future management can focus on longer term contracts for commercial sales resulting in improved Christmas trees while accomplishing timber stand improvement and fuels treatment. The individual program can be phased out when lot sales provide a sufficient local supply of trees.

c. Supply. The offered commercial supply has fluctuated between 11,000 and 20,000 trees in the past few years. The quality varies and

affects the actual purchase. This supply is 0.3 to 0.5% of the California demand.

Sufficient surplus trees are present, but continued growth in the individual program, due to relatively uncontrolled tree removal, may ultimately diminish the timber stock and stock quality.

d. Demand. Recently, about 4 million Christmas trees have been sold in California each year. About one-fourth million of these came from California public land tree sales (including the PNF). On the PNF, the purchase has varied from 42% to 100% of the offered supply, according to tree quality.

Future California demand is expected to remain at 4 million trees per year, but the out-of-State supply will grow due to increasing Douglas fir from Oregon and Washington. The PNF share will remain virtually constant.

Individual demand consistently increased until 1983. Recently, commercial lot sales have begun in the local area and are expected to increase.



Riparian Areas

a. Current Management. Current policy is to manage riparian areas in favor of riparian-dependent resources. Guidance for this management can be found in several Congressional acts, Regulations of the Secretary of Agriculture, and Executive Orders. This policy gives primacy to protection of soil, water, vegetation, fish, and wildlife resources, but still allows timber and livestock production unless unresolvable conflicts occur. Special Streamside Management Zones are designated in activity areas for this purpose.

b. Opportunities for Management Change. Future management could define more precisely the extent and allowable disturbance within riparian areas and could promote a restoration program for deteriorating areas. Existing roads and facilities could be removed from meadows and other riparian areas. Livestock grazing could be more intensively managed.

c. Supply. Approximately 4% of the Forest, or 45,000 acres, is estimated to be riparian. The condition of these riparian areas has not been inventoried, but is an integral part of watershed conditions; refer to "Supply" in the next section, Water, for a discussion of watershed conditions. Deteriorating riparian areas are present, primarily on the Forest's eastside. The condition of the Forest's riparian areas is poor to good, much having been heavily damaged and showing little or no signs of improvement.

d. Demand. Many demands are focused on riparian areas, since they are attractive to recreationists, wildlife, and livestock. Often riparian areas are of high timber site, making them attractive for timber production. They are therefore those places in the Forest where demands for multiple uses, often incompatible, focus upon each acre.



Water

a. Current Management. The water resource is managed to protect and enhance water quality and yield through: 1) mitigation of increased run-off due to resource harvest/management activities, where appropriate; 2) inventory and measurement of water uses, needs, and availability, including instream and riparian flow requirements; 3) water quality monitoring; 4) identification and restoration of watersheds in declining condition; 5) management of riparian and aquatic areas, based on the Stream Classification System; 6) application of Best Management Practices for water quality management; and 7) rehabilitation of selected damaged streams.

Water quality is managed, in general, to meet State of California objectives.

b. Opportunities for Management Change. Future management could adopt land-use mitigations for, and conduct restoration of, watersheds in deteriorated condition. A comprehensive sampling program to define background water quality in the Feather and Yuba River watersheds could be developed. In addition, the Forest could support State establishment of nutrient-loading and chemical contaminant standards for each reach of the Middle Fork Feather River to meet the requirements of the Wild and Scenic Rivers Act. The Water Uses and Needs Inventory could be completed and maintained to protect current and future PNF and other uses. Future management must address the potential for proposed open pit mining and processing to degrade watershed and stream conditions in the Rush Creek, Wolf Creek, and perhaps other watersheds.

c. Supply.

(1) Watershed Condition. Approximately 8% of the PNF (83,000 acres) is directly affected by deteriorated conditions on approximately 10,000 acres.

Rehabilitation of watersheds in declining watersheds has averaged 200 acres per year for the past 3 years. At this rate, the Forest will have achieved only 4 percent of the national goal to improve all backlog acres by the year 2000.

Most westside watersheds are in good condition, with a few major exceptions including the Slate and Canyon Creek and South Fork Feather River watersheds. The granitic watersheds are particularly sensitive to each increment of disturbance. Sheet and gully erosion caused by roads and skid trails is widespread in the French Creek watershed, and impacts on the fishery and water quality are high. Restoration by the PNF is in progress.

Many eastside watersheds are sensitive to land-use activities and are in deteriorated condition. Many eastside meadows have been dewatered by creek channel downcutting, and sediment production in these channels is high.

Mining, especially hydraulic mining, has had significant impact on several watersheds in the central PNF, primarily along the eastern margin of the Sierra crest. Losses of both aquatic and riparian habitat have occurred, and erosion on the denuded areas continues.

(2) Water Quantity. The average water yield from PNF lands is 2.4 million acre-feet per year (MMAF/year). Total yield in streams from and through the Forest is 4.4 MMAF/year. An estimated 0.67 MMAF/year (15%) is consumed within the Forest by domestic and irrigation users. Of the remainder, a minimum of 1.67 MMAF/year (38%) is needed to satisfy instream needs, such as fish habitat, riparian vegetation, and natural channel maintenance.

Intensive management to increase water yield through vegetation manipulation could result in a maximum 0.1% increase (1000-2000 AF/year) Forest-wide, and the cost would be substantial.

Large acreages of private land surrounded by the Forest in Indian and American Valleys are flood prone. Local flooding damage has been small, but damage along the Feather River, downstream from the PNF, in Marysville and Yuba City was at times substantial prior to construction of Oroville Dam.

(3) Water Quality. The overall quality of water flowing in the PNF is still considered acceptable, but quality deteriorates during times of heavy run-off, with decreasing and warmer flows, and locally due to mine drainage and wastewater discharge. An estimated 70% of the water draining PNF lands meets State water quality objectives.

Important sources of degradation are on both PNF and private land. Mine waste discharges have been the most persistent degrader, but sediment yield is now causing substantial degradation. The average Forest sediment yield is about three fold that of undisturbed land, but sediment yield in the most degraded watershed is seven-fold that of the pristine condition.

Sedimentation is a significant problem in the Spanish and Indian Creek tributaries of the North Fork Feather River, the South Fork of the

Feather River, and the Slate and Canyon Creek tributaries of the North Yuba River. Sedimentation affects aquatic habitats, power producing facilities, and the State Water Project. Much of the sediment is produced by streambank erosion. Ultimate causes are complex and not well known; it is probable that activities throughout the watersheds causing more rapid run-off are major contributing factors.

(4) Municipal-Supply Watersheds. Thirty-three PNF watersheds supply water to public water systems. The quality of the water reaching these systems usually meets requirements established by the State.

d. Demand. A major demand for water from the PNF is for use in the State Water Project. Ninety-two percent (92%) of the Forest drains to the State's Oroville Reservoir. This water is used downstream for irrigation in the Central Valley and for domestic and irrigation consumption in southern California. This demand may exceed the total supply by the year 2000.

A second major demand for PNF water is for hydroelectric power generation. Non-consumptive, low-sediment water demand from small and large hydroelectric power projects is increasing, especially for the North Fork of the Feather River.

The major additional water demands within the Forest are for municipal, domestic, and industrial supply; irrigation; propagation of fresh-water organisms; recreation; and various PNF uses.

Domestic water is in demand by 76 community systems (33 employing surface water diversions) and for an estimated 200 individual systems. These systems provide various degrees of treatment from no treatment to full treatment.

Agricultural uses include PNF stock-watering developments on the high-range-use arid eastside and inter-range valley irrigation for cattle pasture and hayfields. Supply is sufficient now and for the foreseeable future except, presumably, in adjudicated areas: Frenchman Lake Basin-Sierra Valley, Indian Valley, and the Honey Lake Basin.



Soil

a. Current Management. The basis for soils management is the Soil Resource Inventory, conducted at different intensity levels according to information needs, which allows evaluation of productivity potential and erosion hazard and development of project-specific mitigation measures to protect productivity. Timber productivity is quantified by use of Forest Survey Site Classes; range productivity by yield potentials in forage pounds/acre/year.

Current management focuses on the extent of disturbances, so as to reduce soil erosion and compaction. Methods include maintenance of ground cover to reduce soil loss, control of equipment to reduce compaction, and use of low to moderate fire intensities during prescribed burning to reduce loss of nutrients, ground cover, and alteration of soil structure.

b. Opportunities for Management Change. Future management can continue to focus on prevention of soil loss and compaction. It can additionally explore restoration of growth rates where site potential exceeds performance (especially on lands of timber site class 2, 3, and 4 or of range productivity 1,000 pounds/acre/year or more), chiefly by nitrogen fertilization.

c. Supply. High precipitation (70-80 inches) and warm mean annual temperature on the far westside have formed well developed and generally highly productive soils. Eastward, lower annual temperatures and precipitation (<15-40 inches) predominate. This environment forms soils slower, resulting in lower productivity. The generally arid eastside in fact has an extreme climatic range, and soil development and productivity vary from intermediate to the least.

The soil survey reveals that the highly productive soils (site classes 2,3,4) comprise one-quarter of the productive PNF land base but produce some 43% of the tree growth. The moderately productive soils (site class 5) make up about one-third of the land base and produce a little more than one-third of the annual increment. The low and least productive soils comprise 41% of the Forest but contribute only one-fifth of the annual growth. The latter soils are often in areas of unfavorable topography and climate, reducing the availability of this growth component.

Range productivity also varies greatly. Approximately 33% of the Forest can produce more than 1000 pounds/acre/year, but 29% can produce no more than 200 pounds/acre/year.

The erosion hazard to exposed soil is "high" on 29% of the PNF and "extreme" on 4%. The most erodible soils are of granitic origin, but pyroclastic and sedimentary soils are also highly erodible.

The supply of productive soils is dependent upon maintenance of adequate organic matter, control of erosion, and limiting compaction.

d. Demand. The demands for those yields dependent on soil productivity are discussed in the Wildlife, Fish and Sensitive Plants; Range; Timber; and Christmas Trees sections of this chapter. Soil erosion also affects water quality and therefore recreation demand; see Water section.



Air Quality

a. Current Management. The PNF adheres to State and County standards for air resource management. The eastside is in Sierra, Plumas, and Lassen Counties, which allow prescribed burning operations almost unimpeded. Counties on the western slope, Butte and Yuba, have much more stringent rules because of adverse effects of smoke on the Sacramento Valley. Prescribed burning operations are timed to minimize smoke in sensitive areas. Dust abatement is used on heavily traveled roads and near recreational developments and residential areas.

b. Opportunities for Management Change. No change is needed from current management.

c. Supply. The air supply is degraded by two PNF sources; fire smoke and road dust. Fire smoke is from both wildfire and prescribed fire. Since major wildfires usually occur during high wind conditions, and prescribed fires are constrained to periods favoring smoke dispersal, consequent air quality loss is usually not substantial. Road dust emissions are relatively constant, and may be actually decreasing due to use of dust palliatives on most log haul routes. Air quality is also degraded within the populated mountain valleys due to wood heating and sawmill emissions during winter inversion conditions. Incoming air from the Sacramento Valley is occasionally moderately high in particulates (rice stubble smoke) or chemical pollutants, but in general quality of the air is high and is not significantly degraded by PNF activities.

d. Demand. Clean air is a State and National priority embodied in maximum allowable pollutant concentrations. Prevention of Significant Deterioration of cleaner air could become a constraint to use of prescribed fire if Class I areas were created to protect any new Wilderness areas. No external Class I areas are significantly affected by PNF activities.



Minerals and Materials

a. Current Management. The PNF manages minerals and common variety materials in two ways: 1) administering Secretary of Agriculture Regulations for private exploration and extraction under the mining laws and administering "withdrawals" approved by the Secretary of Interior; and 2) providing common variety materials for PNF, other agency, and occasionally private party road and facility construction.

(1) Private Mineral Exploration and Extraction. Management policy is to encourage mineral activities in all areas not withdrawn from mineral entry. The PNF also has the responsibility to protect all surface resources, as well as public health and safety, under the various mining laws and NEPA. Such protection may affect mineral extraction feasibility.

Plans of Operation, required for all mineral activities that may significantly disturb surface resources, are approved and administered by District Rangers.

In the past, the PNF had many illegal occupancies on claims that were invalid or used for purposes other than mining. Most have been resolved, but all claim structures continue to be reviewed for mining necessity.

Wilderness, several recreational and scenic areas, administrative sites, and existing or potential power project sites and reservoirs are now withdrawn from mineral entry. However, mineral development can occur in withdrawn areas where a valid right exists. By October 21, 1991, each existing withdrawal previously established at the request of the Forest Service must be reviewed by the Forest and the Secretary of the Interior to determine whether it should be continued, and for how long.

(2) Forest Uses. "Common varieties", or mineral "materials", are constantly needed for timber sale road construction and other uses. Extraction is by the private sector under contract, and use of designated on-Forest excavation sites is encouraged. About five extraction operations per year now occur on the PNF.

Common varieties are also available by sale or free use to the public, subject to environmental analysis and discretionary regulation by the District Rangers.

b. Opportunities for Management Change. Future management can determine whether certain valuable common variety material quarries needed for these PNF uses that may also have some locatable mineral value should be withdrawn from mineral entry to protect the PNF investment. Withdrawal of certain popular streams to provide for recreational gold panning and dredging can also be considered. The withdrawal of all other areas must be reconsidered.

c. Supply.

(1) Locatables and Leasables. The central portion of the PNF contains a NW-SE trending mineralized belt with a "very high" potential as a source of various minerals, especially gold and copper. The eastside has sparsely-scattered mineralized areas. The westside has many "high" potential areas.

Geothermal energy sources appear to be limited.

Four major locatable mineral deposits have recently been explored and development apparently could become feasible: Moonlight Valley copper deposits and the Goldstripe Project gold deposits on the Greenville District, the Rich Gulch gold deposits adjacent to the North Fork of the Feather River on the Quincy District, and the Bellevue lode gold deposits on the La Porte District. Since deposits are large and disseminated, extraction could affect large land areas and produce substantial mineral and waste quantities.

(2) Salables. Common variety materials, although scarce in some areas, occur in substantial quantities in most areas. They occur as river alluvium, pit-run aggregates, and solid rock suitable for crushing. The inventoried potential supply is 11,500,000 cubic yards.

d. Demand. The PNF processes about 100 plans of operation each year, all for locatable minerals and mostly for small scale gold exploration primarily on La Porte, Oroville, Greenville, and Quincy Districts. No mineral leases or applications exist, and few are expected.

With the increase in the price of gold, the private sector has a renewed interest in the exploration for and development of this commodity. Present production is minimal, however. Further activity in lode and placer gold exploration and development, of both a commercial and recreational nature, is anticipated.

Demand for minerals is dependent on international politics and economics and is expected to generally increase. The number of Plans of Operations on the PNF is expected to increase approximately 25% per decade.

Log haul wearing surface and erosion control aggregate needs on the Forest are considerable and may be expected to increase slowly as more remote and steeper areas are accessed. At the current road-rocking rate of 30 miles per year, about 61 MCY are needed annually. Eventually only about 10-20 MCY per year would be needed for reconstruction and maintenance. Although the gross inventoried materials supply is sufficient for all anticipated needs, the establishment of even more sources should prove cost-effective by reducing haul distances.

Private and public agency use of PNF materials sources is, and will probably remain, insignificant.



Geology-Hazards

a. Current Management. Roads, structures, and timber harvest units are designed to avoid unstable slopes or prevent accelerated failure wherever possible. This is facilitated by a Geological Resources Inventory that includes mapping of active and dormant failure areas, geology and topography, and an inferred Land Instability Risk Classification.

Earthquake hazards are managed by locating buildings, fill slopes, dams, and other facilities out of fault zones and/or using special design to prevent failure.

b. Opportunities for Management Change. Future management needs include field verification and updating of the instability mapping, improved correlation of geologic units to soils and vegetative types, and analysis of causes of landslides and their relationship to geologic units and management activities, and increased understanding and use of geologic and geotechnical information during project planning and evaluation. The majority of the unstable areas on the PNF are small enough that they can be managed if properly identified and planned for during project design.

c. Supply. Potentially unstable areas more commonly occur in glacial deposits, old terrestrial sediments, and some volcanic rocks and marine deposits. Failures often occur only after some activity such as road building, timber harvesting, or mining disturbs natural slope equilibrium. Due to the diversity of rock types, the density of unstable areas on the PNF is probably higher than for average Sierra terrain, yet it is substantially less than that of the more weathered coast ranges. Nevertheless, failures here cause access, timber harvest, and stream sedimentation problems.

The landslide risk is "high" on 14% of the Forest and "extreme" on 3%. Only a few earthquake faults, primarily on the eastside, are considered active. The quite active Fort Sage Fault lies 5-10 miles east of the Forest's eastern boundary. The Maximum Expected Earthquake intensity, a measure of potential ground shaking, is considered "low" for the Forest's westside, "moderate" for the north and eastside, and "high" along the extreme northeastern Forest boundary.

The greatest threat from earthquakes on the PNF is initiation of landslides. Possible effects include road blockage by slides, cut/fill slope failure, campsite isolation and possible burial, structural damage, rolling boulders, and human injury.

d. Demand. In the past, timber harvesting and road building on the PNF have avoided much of the steepest and most unstable ground. Increasing demand for timber and minerals requires access to the more

remote, steeper, and often more unstable ground. Consequently, the need for land stability analysis will accelerate.

Geology-Groundwater

a. Current Management. Wells and springs are developed to serve campgrounds, administrative sites, and stockponds. Water quality monitoring is regularly performed. Many source developments are currently being upgraded to meet State and Federal quality standards.

Portions of the Forest may provide recharge to the adjacent privately-owned Sierra Valley, for which a groundwater monitoring and use-limitation entity has recently been created. Neither the Forest nor the Sierra Valley Groundwater Management Board currently manages recharge areas specifically for water production.

b. Opportunities for Management Change. In the future a Forest-wide groundwater management plan could be developed to help assure a safe and plentiful supply both on and adjacent to the Forest. Gravity-fed horizontal wells could be located to serve existing and new developments and reduce energy costs.

c. Supply. The supply of groundwater is a problem in some areas and not in others, due to natural conditions. Little can be done to alter the quantity in most basins. Geologic or geotechnical studies aid in locating the most likely sources for development.

d. Demand. Groundwater sources are needed to provide safe and relatively constant water supplies for campgrounds and for livestock and domestic use. Groundwater avoids problems of contamination and intermittency that are common with surface sources. Demands are slowly increasing. Total demands are relatively small and are confined to the smaller basins within the Forest.

Energy, Biomass, and Fuelwood

a. Current Management. Present policy gives preference to individual domestic heating uses of the resource over commercial utilization systems by reserving preferred materials at accessible locations for the individual users.

b. Opportunities for Management Change. The Forest can prepare a biomass-fuel prospectus in the future to assure equitable treatment of competing interests. If firewood demand continues to increase rapidly, amounts per permit or total permits could be limited.

c. Supply. About 163,000 dry tons of logging residue, spread over 30,600 harvested acres, are generated annually. Much of this is physically or economically unavailable for collection. Residue treatment (disposal) has increased somewhat over the past several years, but the majority is left untreated. Annual sawmill residue from PNF logs is about 63,000 dry tons. This supply is supplemented by snags (other than those protected for wildlife habitat) and windthrown trees, but these may not be available to woodcutters in portions of the Oroville and La Porte Districts.

Supply set-aside for individual use comes from roads left open in timber sale areas after harvest, delay of residue treatment in regeneration cut-units, cull logs left at landings, and timber stand improvement thinnings.

d. Demand. Past demand has been entirely for spaceheating: locally, in Reno, and in neighboring Sacramento Valley communities. A rapid increase in individual domestic use and commercial woodcutting has been occurring, both for local use and, more dramatically, for non-local consumption.

An estimated 48,000 dry tons of firewood for domestic use and 6,800 tons for commercial use was taken from the Forest in 1983. Biomass demands to fuel power generation plants could further decrease the firewood supply. Presently, two sawmills and one public school within the PNF generate energy from biomass, but they now use only mill wastes. However, an 11 megawatt (MW) powerplant is now operating in Westwood, 5 miles north of the Forest, and others have been proposed. These plants propose to use logging residue, stand thinnings, and any mill waste still available.

The demand for personal fuelwood could exceed the supply within the planning period, requiring a user cordage limitation. Demand for power plant biomass will depend on the costs of harvest and transport, accessibility, and relative cost of other energy sources, and may exceed the supply if all proposed plans are implemented.

Energy-Hydroelectric Power

a. Current Management. Hydroelectric development within the forest is regulated by the Federal Energy Regulatory Commission (FERC). The California Water Resources Control Board-Division of Water Rights regulates water rights. The PNF provides FERC with license provisions, comments on water rights applications, and grants conditional special use permits and power transmission line easements. The Forest encourages full development of the hydroelectric resource as long as other resources and uses are not unacceptably impaired.

b. Opportunities for Management Change. No future management changes are needed.

c. Supply. The average hydroelectric energy presently derived from the water flowing from or through the PNF is 6,460 million kilowatt hours per year (MMKWH/yr), mostly by PG&E from the North Fork of the Feather River. The Middle Fork, a major drainage protected in free-flowing condition, is unavailable for power generation, but its tributaries are available. Existing large-scale hydroelectric development on the North Fork of the Feather River is unique within the National context, due to quite favorable hydro-topographic conditions.

Present hydraulic facilities within and immediately downstream from the PNF, such as dams, weirs, and canals, have the potential to generate an additional 145-800 MMKWH/yr (an increase of 2-12%). If all proposed small hydroelectric projects (68) were developed, an additional 4-5 MMKWH/yr could be generated (a 0.06-0.07% increase). However, many sites may prove to be uneconomical due to costs of mitigating adverse effects on fisheries and other resources.

d. Demand. There is an increasing demand for all electrical energy sources nationwide. Demand is focused on the PNF by the presence of a major electrical transmission network.



Lands

a. Current Management.

(1) Ownership Adjustment. Continuing ownership adjustment with neighboring landowners is used to consolidate ownerships, facilitate Forest management, and minimize conflicts with adjacent land-users.

(2) Land Use. Use of PNF land by private parties and government agencies is authorized by permit, license, or easement, and unauthorized use is subject to both criminal and civil penalties. Since all such use represents an allocation of land to an individual at the exclusion of the general public, fees are assessed based on the value of the permitted use or of the land occupied. Uses are not authorized if use of private land will suffice or if the uses are incompatible with management objectives for the area.

(3) Land Line Survey and Occupancy Trespass. Objectives are to establish boundaries with an accuracy commensurate to management needs. Illegal occupancies are currently dealt with on a case-by-case basis, and some are resolved under the Small Tracts Act.

(4) PNF-BLM Boundary Adjustment. BLM-administered lands border the Forest in several places. Boundary change awaits conclusions of a nationwide study and Congressional action.

(5) Rights-of-Way Acquisition. Rights-of-way over intervening lands are acquired on a need basis for timber sales and recreation programs.

b. Opportunities for Management Change. Future management could identify certain PNF tracts which may be considered for exchange. Private lands desirable for acquisition could continue to be evaluated on a case-by-case basis. Purposes of acquisition could be reevaluated. The rate of boundary survey could be increased, primarily to resolve uncertainties in timber management.

c. Supply. The Forest encompasses about 1,400,000 acres. Within this gross acreage is about 1,168,500 acres of PNF and PNF-administered land (83%) and 236,000 acres of private land (17%). The Forest administers 14,811 acres of the Lassen National Forest near Paradise. Another 131,000 acres of private lands technically outside the Forest boundary are actually surrounded by the Forest.

The private lands vary from small parcels with poor access that are surrounded by PNF land to the larger mountain communities. Small Forest parcels are also surrounded by large blocks of private land. In some areas agricultural and timber uses of the past are giving way to residential subdivision adjacent to and within the Forest boundary.

Presently 183 miles of power transmission lines (66 KV or more) cross the Forest within established right-of-way. Those in the vicinity of the North Fork of the Feather River comprise 57% of the total.

Survey of 10% (250 miles) of the Forest boundary has been accomplished. About 6% of the Forest cannot now be intensively managed due to boundary uncertainty. About 15% of all landline establishment reveals some sort of trespass.

About 17,000 acres of BLM land border the eastside of the Forest from Portola on Highway 70 to Milford on Highway 395. Another 15,000 acres are within three miles of the Forest's westside in Butte and Yuba Counties.

Current rights-of-way acquisition averages 12 miles per year.

d. Demand. As adjacent private lands and communities develop, demands on PNF land increase. The PNF currently administers over 500 special use permits, licenses, and agreements. Requests for special uses, especially rights-of-way for roads, power, and water, will remain numerous. Interest in land exchange for ownership adjustment is expected to continue or increase. The growing demand for hydroelectric power sites and transmission corridors will probably continue until the better sites are developed.

PG&E has expressed interest in a new trans-Sierra power corridor for a 500 KV line tying future power generating facilities in Nevada with the Sacramento Valley power grid. One possible route crosses the PNF, including the Wild and Scenic River.

Timber demand and occupancy of private land are increasing the Forest's need for boundary survey.



Facilities

a. Current Management. Most new roads are constructed to access timberlands by timber sale contractors according to PNF plans and inspection approval. Others are constructed via public works contract funding and/or cost-sharing agreements (with counties, for example), or by Special Use Permittees.

The PNF provides road maintenance suitable for Forest administration, resource use, and recreation. Due to recent funding reductions, all maintenance levels are implemented at the lowest acceptable level based on use and watershed protection. Some roads are managed jointly with other parties (timber companies with inholdings, for example). The PNF encourages local road agencies to take over roads serving private holdings where subdivision or development occurs. The PNF leases some buildings for administrative purposes from the private sector. Although this minimizes capital investment, annual costs are significantly increased.

b. Opportunities for Management Change. Future management could include: 1) establishment of priorities for road system maintenance, since needs exceed the funding supply, 2) cost-benefit study comparing PNF ownership versus lease of major administrative buildings, 3) development of a major capital investment plan for repair and replacement of older structures, 4) decisions as to future use of fire lookouts, and improvements where warranted in conjunction with installation of new microwave radio facilities, and 5) establishment of water system upgrading priorities.

An additional ongoing management need is to protect existing log haul roads or to develop alternate routes where new subdivisions now, or may, front the historical routes.

c. Supply. PNF facilities include 3,700 miles of system roads and 1,200 to 2,000 miles of uninventoried low standard roads, 113 buildings, 43 water systems, 45 sewage systems, 79 road bridges, 12 trail bridges and 55 dams.

The Forest is traversed by 2-lane, all season State Highways 70 from west to east and 89 from north to south. Seasonal Plumas County Road

519 to the Lakes Basin area connects to the Yuba River canyon south of the Forest. Other major seasonal County routes are the Oroville-Quincy Road around Bucks Lake and the Marysville-La Porte-Quincy Road.

d. Demand. Future demand for roads depends on needs for Forest resources, primarily timber and recreation, and on availability and cost of fuel. In unroaded areas allocated to timber production, demand for new construction will continue to increase over the short-term. As new logging systems are developed, the demand for road reconstruction may increase. Since interest in improved water quality is expected to continue, demand for reconstruction, surfacing, and improved maintenance will increase.

Most of the PNF buildings and several utility systems are in need of rehabilitation. Some recreation facility water systems are in need of reconstruction to meet California drinking water standards.



Fire and Fuels

a. Current Management. The PNF fire protection program has recently been adjusted to be more cost-efficient and to gradually shift away from the former policy that favored complete wildfire exclusion.

The Forest is responsible for wildland fire protection on 1,132,000 acres of PNF land and 391,000 acres of private wildland by agreement with the California Department of Forestry. (That agency, in turn, provides protection for 42,000 acres of PNF lands). In emergency situations during the summer fire season where wildland and developed property meet and local fire agency suppression is inadequate or absent, the PNF responds to structure fires which threaten wildland.

Prescribed fire is used as a fuel management tool to access the ground for reforestation planting, promote new brush and grass sprouting for livestock or wildlife browse, reduce evapotranspiration to increase water yield, reduce fuels for wildfire hazard reduction, and abate weeds at recreation facilities.

b. Opportunities for Management Change. In future management, the former policy of total wildfire exclusion through aggressive wildfire suppression could be further relaxed. The wildfire suppression response could be varied between surveillance, confinement, containment, or control, depending on the potential for damage. In addition, unplanned ignition of prescribed fire by lightning in the Wilderness could be allowed for purposes of reducing unnatural accumulations of fuel.

c. Supply. From 1972 through 1981 the PNF experienced an annual average of 92 person-caused fires burning 1,800 acres and 126

lightning fires burning 1,200 acres. Eighteen large fires accounted for 93% of the total acreage, however. Most were person-caused. The majority of these fires resulted from simultaneous multiple ignitions.

Prior to lumbering, some major fires occurred during extreme fire weather, but, because of less fuel, less flammable stand structure, and the recurrence of fire, forest stands were infrequently destroyed. However, since the 1930's fires exceeding 10 acres have been quite destructive due to changes in the plant community structure and fuel accumulation. By attempting to exclude fire, management allowed the growth of a fire intolerant understory (e.g. dense true fire stands) and the accumulation of natural and timber harvest fuels. Large stand-destroying fires have therefore increased despite a policy of aggressive fire suppression.

Prescribed fire has been used on the PNF for the past several years. In FY 84, approximately 1900 acres were burned for timber management (reforestation and slash disposal), 400 acres for wildfire hazard reduction, and 800 acres for wildlife habitat improvement. Only planned ignitions have been used.

d. Demand. The need for protection depends on the resource value at risk. As resource management intensifies, values increase, and the need for protection is increased.

Fire protection needs are also increased by the continuing construction of new private residences adjacent to Forest lands. Since these are often areas with heavy fuel loads, the potential for catastrophic fire is growing. This creates a greater need for preventive measures, including education, enforcement of hazard reduction on private lands, and fuel management on adjacent Forest land.



Law Enforcement

a. Current Management. Law enforcement focuses on two areas: the safety and protection of users and PNF personnel, and the protection of resources from theft and destruction. The Forest maintains agreements and operating plans with four local County law enforcement agencies for assistance.

b. Opportunities for Management Change. No law enforcement changes are needed in the foreseeable future.

c. Supply. District employees provided 141 person-days of law-enforcement on a part-time basis in 1982 for petty and misdemeanor offenses. Forest and Regional Special Agents supplied 465 person-days on major offenses in 1982.

d. Demand. In 1982 there were 787 reported petty and misdemeanor offenses, resulting in 195 tickets issued, and 95 reported felonies, resulting in 9 arrests. These violations were a 21% increase from the previous year. This trend is expected to continue.



Forest Pests

a. Current Management. Pest control is sought through integrated pest management, which recognizes that insects, diseases, and destructive animals are important elements of the Forest and range ecosystems. They are considered "pests" only when they interfere with the attainment of management goals or endanger public health. The full range of pest management alternatives is considered for each pest situation.

b. Opportunities for Management Change. No policy changes are needed.

c. Supply. Annual mortality levels of 0.1 to 0.3 trees per acre Forest-wide can be expected. Some animal damage to seedlings and saplings also occur annually. Campgrounds around Lake Davis were closed in 1973, 1976, and 1981 because of plague infestation.

d. Demand. The need for salvage to control tree mortality from endemic insect and disease populations is usually fairly constant. The demand rises dramatically during periods of substantial mortality due to severe drought, and salvage efforts are increased commensurately. The demand for pest management due to animal damage to seedlings and the timber stock is relatively constant. Pest management for bubonic plague control varies in accordance with outbreaks of the disease.



Special Interest Areas

a. Current Management. The existing Butterfly Valley Botanical Area and the Feather Falls Scenic Area (including Bald Rock Canyon) are managed under special plans. Established SIA's are managed to protect their unique resources and, where appropriate, to foster their public use and enjoyment. Each formally designated area is managed with an individualized set of standards and guidelines.

b. Opportunities for Management Change. Adoption of the Forest Plan affords an opportunity to amend boundaries and management guidelines for existing SIA's, classify new ones, informally protect others, and

recommend certain ones for Research Natural Area or National Natural Landmark status.

c. Supply. The Butterfly Valley Botanical Area and the Feather Falls Scenic area are two of 15 officially designated SIA's statewide (as of 1982).

The supply of potential SIA's is gradually decreasing as man's activities alter scenic and undisturbed scientific qualities of many areas. Of the nearly 100 potential SIA's on the PNF, 9 areas have significant geologic, botanic, or scenic area values. Three areas are considered by the Natural Park Service to be potentially suitable for nomination to Landmark status.

d. Demand. Although demand for SIA's has not been quantified, interest in preservation of unique features and ecosystems is growing. University groups express growing concern for specific areas and frequently conduct field trips, summer camps, and research projects on the Forest.

Research Natural Areas

a. Current Management. None. No Research Natural Areas (RNA's) have been created on the PNF.

b. Opportunities for Management Change. Adoption of the Forest Plan affords an opportunity for the PNF to recommend RNA status for certain areas to the Regional Forester. Candidate areas can be specifically protected until designation occurs or is rejected.

c. Supply. After Forest-wide surveys in 1973 and 1977, 14 potential RNA's were identified on the PNF. Two strong candidates emerged after Regional Forester screening: the Mt. Pleasant-Spanish Peak area (about 1300 acres) in the red fir forest - mesic meadow complex, and a Modoc cypress grove at Mud Lake (120 acres).

d. Demand. Appropriate RNA's are needed to complete the Region's program of establishing research areas for each botanic element. Red fir and Modoc cypress RNA's are needed to help complete this system.



Human Resources

a. Current Management. The human resource programs that recently have been used include: Comprehensive Employment and Training Act (CETA), Senior Community Service Employment Program (SCSEP), Youth

Conservation Corps (YCC), Young Adult Conservation Corps (YACC), California Conservation Corps, California Manpower Indian Consortium, Butte County Inmate Program, and the Forest Volunteers. Enrollees are not considered employees, but they do important work for the Forest. Most program use is contingent upon Congressional funding rather than on Forest preference, except for the Forest Volunteers. If available, some housing and subsistence for enrollees is provided.

b. Opportunities for Management Change. No change in management of these programs appears warranted.

c. Supply. These programs accomplished \$1,640,000 worth of resource improvements and public service work in FY 80 and provided 142 enrollee-years employment. These figures declined to \$519,000 and 53 enrollee-years in FY 81 and \$313,000 and 61 enrollee-years in FY 82 due to congressional funding reductions. The volunteer program is being maintained, however.

d. Demand. Enrollee demand for the non-volunteer programs exceeds the supply. Demand is related to participant benefit, which varies with the type of program. Most programs provide job skills and a work record in addition to income, so as to enhance opportunities for unsubsidized placement in the private workforce. SCSEP, in addition to supplementing incomes, aids senior citizens in their sense of continuing usefulness.

Chapter 4, Management Direction



Ch. 4 Management Direction

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Management Direction

Introduction

"Management direction" includes all written policy guiding the actions of Forest land managers. It is intended to provide purpose, clarity, consistency, and full disclosure to the public of all management activity.

The hierarchy of management direction for the PNF includes all relevant Federal law, the Forest Service Manual, the Pacific Southwest Regional Guide, PNF Forest Goals and Policies herein, and all other direction of this Plan. Each successive level is subordinate to that which precedes it.

Forest Goals and Policies are the overall PNF management direction for the Plan period in response to each identified public issue and management concern. The remaining Plan direction is intended to implement these policies and attain these goals.

Implementing direction is comprised of Forest-wide direction and Management Area direction, the latter prescribed for each of the 43 geographical management areas defined within the Forest.

Forest-wide Direction includes Forest Objectives, Forestwide Standards and Guidelines, and Management Prescriptions, described as follows:

Forest Objectives are quantified target land-use allocations, resource-use activities, commodity outputs, and operating costs for the ensuing 50 years.

Forestwide Standards and Guidelines is management guidance applicable to all lands within the Forest wherever and whenever the relevant situations occur. Application areas are not mapped and may change from time to time.

Management Prescriptions are land-use categories to which all Forest lands are allocated for various purposes. Each prescription is comprised of appropriate standards and guidelines that will meet some particular need (such as special habitat protection, recreation quality enhancement, or timber production) while allowing other compatible activities. This direction supplements the Forestwide Standards and Guidelines, which must always be applied.

Management Area Direction is area-specific standards and guidelines as well as quantified objectives for each area. Approximate local acreages committed to each of the prescriptions are included.

"Standards and Guidelines" are used repeatedly to embody management direction. Each is prefaced by a statement of "General Direction", indicating which Forest Goal and Policy is being implemented. Note that guidelines are not explicitly distinguished from standards; the language of each statement indicates the degree of management discretion.

Variance from Forestwide Standards and Guidelines, Prescriptions, or Management Area Direction may occasionally be needed due to on-site conditions or overriding management objectives. However, the Forest will not vary from requirements of law. Variances must be justified in the appropriate project analysis document. The recurrence of variances could result in plan amendment or revision according to Chapter 1, page 1-2.

Forest Goals and Policies

The management direction of this plan is to evolve the Plumas National Forest to a mosaic of:

- intensively-managed, regulated, sustained-yield, and generally even-aged timberland on the most productive sites;
- increasingly-productive and utilized rangeland;
- special interest, semi-primitive, and wild areas; and
- developed recreation centers;

while:

- managing soil productivity and improving water quality,
- encouraging mineral and energy production,
- conserving significant cultural resources, and
- maintaining viability of all wildlife species.

This desired future condition is embodied in the following goals and policies that respond to each identified public issue and management concern (see Chapter 2).



Recreation

- (1a) Provide for a variety of forest-related recreation, and coordinate recreation with other resource use through the Recreation Opportunity Spectrum system.
Encourage growth of privately-operated facilities serving public needs.
Improve and expand developed facilities and trails to meet demand while reducing unit costs and protecting other resources.
Complete acquisition of Wild and Scenic River lands and easements.
Minimize conflicts between various recreational users.
Manage selected unroaded areas to provide for semi-primitive opportunities.
- (1b) Allow use of off-road vehicles wherever user conflicts or unacceptable resource damage are unlikely.
Provide separate ORV routes wherever conflicting uses are substantial.



Visual Resources

- (2a) Allow management activities to dominate the visual landscape of lands committed to intensive timber or other commodity production.
Maintain high visual quality on lands committed to other uses or readily apparent from recreational developments, major travel routes, and other high use areas.



Cultural Resources

- (3a) Continue the cultural resources inventory within and adjacent to resource-use projects prior to activity, according to a schedule that will result in Forest-wide inventory within the legislated period.
Protect or evaluate all cultural properties and manage, according to law, all significant cultural properties.
Consult with the appropriate interested parties regarding disposition of discovered resources.
Interpret for the Forest visitor selected historical and National Register sites that typify cultures, lifestyles, and events of the northern Sierra.
Locate and manage/protect important Native American religious and gathering areas and other traditional ethnic use areas.



Wildlife, Fish, and Sensitive Plants

- (5a) Maintain habitat to support viable populations of all native and desired non-native vertebrate species.
Provide habitat leading to viable populations of endangered species.
Improve and protect habitat for designated emphasis and harvest species.
Manage portions of the Middle Fork Feather River, Nelson Creek, and Yellow Creek environments to protect Wild Trout fisheries through Wild and Scenic River, Semi-Primitive Area, and Visual Quality Objective allocations.

Provide diversity of plant and animal communities and tree species by assuring the continuous and viable presence of all seral stages of all native plant communities occurring on the forest.



Range

- (6a) Use both permanent and transitory range for livestock grazing. Suspend potential use on selected vacant allotments highly valued for other uses. Maintain use in open-range areas where land subdivision is occurring. Acquire lands where needed to improve range condition on existing Forest landbase.
- (6b) Allocate forage to wildlife sufficient to satisfy Goal 5a. Do not limit grazing use in allotments due to dispersed recreational uses.
- (6c) Improve ranges and implement grazing systems to protect riparian areas and restore them where needed. Maintain or expand grazing use and range productivity of all active range allotments on a sustained-yield basis as demand and economic feasibility warrant.



Timber

- (7a) Consider the following lands suitable for forest regulation and scheduled timber production:
- forest lands capable of producing at least 20 cubic feet of wood per acre per year;
 - not withdrawn from timber production by Congress, the Secretary of Agriculture, or the Chief of the Forest Service;
 - capable of producing timber without significant or permanent impairment to productivity of the land;
 - capable of being adequately restocked within five years of harvest;
 - cost-efficient in producing timber over the planning horizon; and
 - not committed herein to other uses incompatible with scheduled timber production.
- (7b &c) Manage the timber resource to maintain timberland productivity by selecting silvicultural practices from the full range available on an individual stand basis, in accordance with biological requirements, economic efficiency, and management direction for other resources. On suitable timberlands (see 7a) capable of producing at least 50 cubic feet per acre per year, progress toward a regulated forest condition through scheduled yields from

use of both uneven-age and even-age silvicultural systems where each is optimum. Disperse harvest openings. Schedule future harvests when regenerated stands have generally reached culmination of mean annual increment. On such suitable lands also of importance to the attainment of other resource goals herein, use longer rotations and smaller openings as necessary. On the less productive suitable timberlands, maintain a generally continuous forest cover through uneven-age silvicultural systems that provide scheduled yields. On lands of primary importance to the attainment of other resource goals herein, harvest no timber or use appropriate special cutting methods to provide unscheduled yields without forest regulation. For each harvest opportunity, consider use of all appropriate logging technology, and base selection on silvicultural needs, resource protection, feasibility, and cost. Offer a range of sale types and sizes.

- (7d) Adhere to the principle of non-declining flow (no scheduled departure). Temporarily exceed the base sale schedule only if high mortality losses could be significantly reduced.
- (7e) Use a site-specific approach to control competing vegetation, employing mechanical, cultural, biological, and/or chemical methods based on effectiveness, cost-efficiency, and protection of human health and environmental quality.



Christmas Trees

- (8a) Harvest Christmas trees only where timber productivity is enhanced or maintained.
Continue commercial Christmas tree sales.
Continue the individual Christmas tree program on the Milford, Beckwourth, Greenville, and Quincy Districts until local commercial sources are sufficient to meet demand.



Riparian Areas

- (9a) Protect riparian areas and water quality by limiting disturbance in streamside management zones according to ground slope and stability, stream class, channel stability, fishery, and other beneficial uses, and favor riparian-dependent resources in cases of competing resource demands.

Encourage natural protective processes.

Inventory streams, streamside areas, and other wetlands in deteriorating condition and restore on a priority basis.



Water

- (10a) Maintain or improve water quality to protect beneficial uses and meet or exceed State objectives.

Inventory existing water uses affecting the Forest and regulate or recommend regulation of future uses to assure an adequate supply for PNF and instream needs.

Realize feasible increases in the quantity of water yield and delays in the timing of runoff by including water yield modification as an objective in the design and manipulation of commercial and non-commercial vegetation.

Reduce sediment yields from watersheds in deteriorating condition and those tributary to eroding channels or hazardous floodprone areas.

- (10b) Ensure public safety and property protection from the hazards of flooding by minimizing occupancy and modification of floodplains.

Avoid water quality degradation by using Best Management Practices during land management activities, and reduce sedimentation, and channel erosion by rehabilitating deteriorating watersheds.



Soil

- (11a) Continue to identify areas subject to significant erosion, loss of organic matter, and compaction damage to prevent or eliminate significant productivity losses associated with them. Allow activities on these areas only to the degree that erosional processes are not materially accelerated.

- (11b) Reduce soil loss and compaction where timber or range site is degraded.
Retain sufficient logging residue for erosion and fertility protection, and allow no significant or permanent impairment of soil productivity.
Enhance soil productivity on selected sites.



Air Quality

- (12a) Adjust burning programs and other Forest activities as needed so that Federal, State, and local air pollutant standards are not violated.



Minerals and Materials

- (13a) Encourage mineral and materials development throughout the Forest except in specified areas withdrawn to protect sensitive resources or substantial investments that cannot otherwise be protected.
Maintain a material source inventory for Forest uses.
Approve mining plans of operation contingent upon reasonable protection of surface resources and reclamation of disturbed land.



Geology

- (14a) In areas identified as susceptible to slope failure, analyze risks of management activities so as to avoid initiation or acceleration of failure and to protect human safety and Forest resources.
- (14b) Prevent degradation of groundwater quality and use groundwater supplies only on a long-term, sustained yield basis.



Energy

- (15a) Encourage biomass use for energy production where more cost-efficient than other fuel treatment methods, if site protection is not diminished.
Facilitate permitting of hydroelectric and other new energy development that reasonably protects all resources.
Maximize energy efficiency in new Forest facility construction, reconstruction, and fleet operation.
- (15b) Reserve fuelwood suitable for home heating in quantities sufficient to meet demand of local Forest communities. After meeting site protection and wildlife needs, give preference to individual domestic use of woody forest residue over commercial utilization.



Lands

- (16a) Accomplish ownership adjustments that maintain total timber productivity and that consolidate PNF lands within the Forest boundary, conform to the PNF Wild and Scenic River Acquisition Plan, or result in acquisition of Threatened or Endangered Species habitat, Wild Trout Stream watershed, critical deer range, essential watering sources on range allotments, or areas crucial to recreation management.
Designate those Forest lands suitable for disposal, particularly those essential to community expansion.
Acquire road and trail rights-of-way needed to meet the other management goals herein.
Mark sufficient Forest boundary line to avoid uncertainty in timber and other resource management and to resolve occupancy trespass.
- (16b) Authorize non-Federal use of PNF lands only if compatible with Management Area direction, use of other land is not feasible, conditions of issuance will mitigate all significant environmental impacts, and the public interest is protected.



Facilities

(17a) Provide roads and trails necessary to achieve goals herein.

Upgrade arterials and selected major collectors.

Construct or reconstruct roads to minimum standards achieving maximum road economy and resource protection. Transfer to the counties maintenance responsibility for routes serving subdivided private lands.

Determine the most efficient routes between locations served by multiple routes and confine higher-level maintenance thereto.

Reduce new road impact by use of former roadways and disturbed areas and by revegetation and other sediment control where appropriate.

Eliminate, close, or obliterate unneeded roads.

Maintain, reconstruct and construct other facilities necessary to support Forest activities in the most cost-efficient manner, compatible with resource protection needs.



Fire and Fuels

(18a) On natural fuels in areas of high risk, use prescribed fire, fuel utilization, and other fuel management as needed to reduce wildfire hazard.

Treat harvest-generated fuels both to reduce wildfire hazard and/or to facilitate cost-efficient timber production.

Treat selected grasslands and brushlands by prescribed fire to improve range conditions where cost-effective or to enhance wildlife habitat.

Allow unplanned ignition of prescribed fire in Wilderness if determined appropriate in the Wilderness management plan and approved prescriptive conditions are met.

(18b) Reduce preventable human-caused wildfire.

Provide wildfire protection by timely detection and suppression responses with appropriate forces. Use special suppression strategies where unique resources are involved.

Limit structural fire suppression to situations that either threaten Forest resources or endanger life where local structural protection forces do not yet exist or are inadequate.



Forest Pests

- (19a) Use a site specific, integrated pest management approach to control forest pests, employing mechanical, cultural, biological, and/or chemical methods based on effectiveness, cost-efficiency, and protection of human health and environmental quality.

Rely on natural processes in natural areas where adjacent resources are not threatened.



Special Areas

- (20a) To protect unique botanical values for research purposes, continue procedures to establish Research Natural Areas at Mt. Pleasant (Red Fir) and Mud Lake (Modoc Cypress).
- (20b) Establish formal Special Interest Area status for the Soda Rock geologic area, the Valley Creek old-growth mixed conifer stand, and the Little Last Chance Canyon scenic area.

Maintain the Butterfly Valley Botanical Area and Feather Falls Scenic Area.

Protect other areas of unique geologic, scenic, or ecologic value with appropriate management guidelines.

Forest Objectives

The following tables present target Forest land-use allocations, commodity outputs, resource management activities, and operating costs, that would accomplish or be compatible with the Forest Goals and Policies.

Table 4-1 presents the approximate Forest-wide acreages allocated to each Management Prescription. Table 4-2 states the target commodity outputs and resource-management activities for the next two decades. Table 4-3 provides additional objectives for timber management on an annual basis. Table 4-4 states wildlife habitat objectives for the planning period. Table 4-5 lists those areas closed to ORV use.

Table 4-1

Land Allocation to Management Prescriptions

<u>Prescription</u>	<u>Acreage</u>	<u>% of PNF</u>
Rx-1. Wilderness	21,000	1.7
Rx-2. Wild and Scenic River	19,000	1.6
Rx-3. Feather Falls Scenic Area	15,000	1.2
Rx-4. Challenge Experimental Forest	3,400	0.3
Rx-5. Recreation Area	48,500	4.1
Rx-6. Developed Recreation Site	1,000	0.1
Rx-7. Minimal Management	133,000	11.3
Rx-8. Semi-Primitive Area	53,000	4.5
Rx-9. Riparian Area	33,000	2.8
Rx-10. Visual Retention	115,000	9.8
Rx-11. Bald Eagle Habitat	9,000	0.7
Rx-12. Spotted Owl Habitat	63,000	5.3
Rx-13. Goshawk Habitat	3,000	0.2
Rx-14. Visual Partial Retention	202,000	17.2
Rx-15. Timber Emphasis	460,000	39.3
Rx-16. Intensive Range Management	15,000	1.2
Rx-17. Research Natural Area	1,400	0.1

See the 24" x 30" map of the Preferred Alternative accompanying the EIS for the approximate distribution of these prescriptions Forest-wide.

Table 4-2 (1 of 4)

Average Annual Outputs and Activities by Decade

Decade 1 is the period 1986-1995

Resource Elements	Base	'80 RPA Goals		Decades	
	Year 1982	1990	2030	1	2
RECREATION					
Developed Public (M RVD)	750	800	1160	925	1155
Developed Private (M RVD)	225			275	345
Dispersed (M RVD)	855	1360*	1820*	1037	1244
Wilderness (M RVD)	0			30	35
Open, Usable ORV Areas (M acres)					
Summer	66			60	60
Winter (snow areas)	40			40	40
Roads & Trails Open Only to ORV Use (miles)					
Summer	26			26	28
Winter (snow areas)	10			10	10
Roads & Trails Closed to ORV Use (miles)					
Summer	212			236	258
Winter	90			90	90
VISUAL RESOURCES					
Visual Quality Index	71.54			69.92	68.30
WILDLIFE					
Threatened & Endangered Species					
Peregrine Falcon Nest Sites	0			2	2
Bald Eagle Territories	13			26	26
Wildlife--Other Than T&E					
Deer (M animals)	19.1			24.0	24.2
Resident Fish (M lbs)	460			487.4	489.8
Spotted Owls (pairs)	61			69	69
Goshawk (pairs)	100			86	81

* Includes WFUD's

Table 4-2 (2 of 4)

Average Annual Outputs and Activities by Decade

Decade 1 is the period 1986-1995

Resource Elements	Base	'80 RPA Goals		Decades	
	Year 1982	1990	2030	1	2
Wildlife & Fish User Days (MWFUD's)	465			603	716
Direct Habitat Improvement (MWFUD'S)					
Deer	0.1			3.0	3.5
Other Wildlife Species (Except T&E)	0.1			0.6	0.7
Resident Fish	0.6			3.3	3.8
Induced Habitat Improvement (MWFUD'S)					
Deer	1.8			2.6	3.8
Other Wildlife Species (Except T&E)	0.7			1.0	1.5
Resident Fish	0			2.4	2.9
Direct Habitat Improvement					
Deer (acres)	630			750	750
Deer (structures)	22			68	68
Other Wildlife Except T&E (acres)	78			150	150
Resident Fish (acres)	26	0	0	150	150
Total Acre equivalents	2642	10160	4360	8750	8750
<u>RANGE</u>					
Grazing (M AUM)	30.2	30.9	32.6	34 1/	36 1/
<u>TIMBER</u>					
Allowable Sale Quantity (MMBF)	250.5 2/	245.3	267.2	265.5	265.6
(MMCF)	38.5	37.7	41.1	41.1	41.1
Long-Term Sustained Yield (MMCF)				49.6	49.6
Reforestation (M acres)	1.9	6.3	7.4	5.3	4.8

1/ Increased output over draft Plan due to expansion of the grazing land base through land exchange and utilization of transitory range.

2/ Actual sales offered 1982: 187.1 MMBF

Table 4-2 (3 of 4)

Average Annual Outputs and Activities by Decade

Decade 1 is the period 1986-1995

Resource Elements	Base	'80 RPA Goals		Decades	
	Year 1982	1990	2030	1	2
<u>TIMBER (cont.)</u>					
Timber Stand Improvement (M acres)	2.4	5.0	5.1	6.8	11.9
<u>WOOD PRODUCTS OTHER THAN SAWTIMBER</u>					
Fuelwood (M cords)	53			53	53
Biomass (M dry tons)				160	162
<u>WATER</u>					
Quality (MM ac. ft. at standards)		1.8	2/ 1.9	1.8	1.9
Increased Quantity (M acre feet)	0			20	30
Watershed Improvement (acres/year)	0	220	250	1100	1200
<u>LANDS AND MINERALS</u>					
Minerals (Plans of Operation)	100	40	4/ 52	93	117
Land Acquisition (acres)	500	2000	0	1000	1000
<u>HUMAN RESOURCES</u>					
Programs (enrollees)	175	9	9	175	175
<u>FIRE</u>					
Fuel Treatment (acres)					
Total	3100			10,143	10,474
Fire-Related	650	2600	2200	250	150
Timber-Related	2170			8103	7699
Other	280			1790	2625

3/ RPA water quality goals adjusted from total amount flowing from and through the Forest to only amount yielded from PNF lands, to allow comparison.

4/ Unanticipated mineral activity has occurred since these goals were established.

Table 4-2 (4 of 4)

Average Annual Outputs and Activities by Decade

Decade 1 is the period 1986-1995

Resource Elements	Base	'80 RPA Goals		Decades	
	Year 1982	1990	2030	1	2
Expected Wildfire (acres)					
Intensity Class 1	36			32	34
Intensity Class 2	291			265	279
Intensity Class 3	288			262	276
Intensity Class 4	701			343	677
Intensity Class 5	1624			704	1354
Intensity Class 6	0			0	0
<u>TRANSPORTATION</u>					
Trail Construction/Reconstruction (miles)	0	11	10	17.8	17.8
Road Construction/Reconstruction (miles)	149	22	15	221	174
Road Maintenance (miles)	3692			3777	3842
<u>FACILITIES</u>					
Dams and Reservoirs (number)					
Forest Service	10			10	10
Other Federal	3			3	3
State/Local	4			4	4
Private	38			35	40
Administrative Sites (number)					
Owned	24			26	27
Leased	5			3	2
<u>TOTAL BUDGET (MM\$)</u>	22.3	27.1	29.5	29.9	35.6
<u>TOTAL COST (MM\$)</u>	24.4			31.1	36.8

Table 4-3

Timber Management Schedule Outputs and Activities
(Annual Average in First Decade)

<u>Management Practice</u>	<u>Acres/Year</u>	<u>Allowable Sale Quantity</u> (MMCF/yr) (MMBF/yr)	
<u>Regeneration Harvests</u>			
Clearcutting	4000	22.33	144.0
Shelterwood (1st Step)	600	2.84	18.3
Shelterwood (2nd Step)	600	2.01	13.0
Group Selection	800	3.41	22.1
<u>Intermediate Harvest</u>			
Stand Maintenance (Sanitation and selection)	5286	6.62	42.7
Commercial Thinning	5000	3.83	25.4
Total	16,286	41.04	265.5
<u>Other Practices</u>		<u>Acres/Year</u>	
Timber Stand Improvement			
Release	5666		
Precommercial Thinning	1192		
Total	6858		
Reforestation <u>1/</u>			
Regeneration Harvest	5400		
Brush & Hardwood Conversion	400		
Total	5800		

1/ includes natural and artificial

Table 4-4

Wildlife Habitat Objectives

The following are minimum management objectives for the planning period. Numbers in the preceding Table 4-2 may be larger than those given below, since Table 4-2 reports predicted habitat based on the planning models.

Bald Eagle

Provide suitable habitat for 13 known bald eagle territories and 13 potential territories over the next decade, pending results of the Bald Eagle Recovery Plan. Provide sufficient foraging and roost sites for wintering bald eagles.

Peregrine Falcon

Provide suitable habitat for two peregrine falcon nest sites.

Prairie Falcon

Provide suitable habitat for at least seven prairie falcon territories.

Osprey

Provide suitable habitat for at least 32 osprey territories.

Golden Eagle

Provide suitable habitat for at least nine golden eagle territories.

Goshawk

Provide suitable habitat for a Forest-wide network of 60 goshawk territories.

Spotted Owl

Provide suitable habitat for a Forest-wide network of 54 spotted owl habitat areas.

Deer

Provide summer and winter range habitat to meet the PNF share of objectives of approved deer herd plans.

Other Species

Quantified objectives are not established, but management standards and guidelines are prescribed. See following section.

Table 4-5

ORV Closures

	<u>Acreage</u>
Bucks Lake Wilderness Area	21,000
Wild Zone of the Wild and Scenic River (except the Deadman Springs, Stag Point, Cleghorn Bar, and Little California 4WD Trails which remain open.)	10,400
Challenge Experimental Forest	3,400
Semi-Primitive Areas (9)	75,400
Butterfly Valley Botanical Area	500
Feather Falls Scenic Area	15,000
Recreation Areas (11)	48,500
Developed Recreation Sites Outside of Recreation Areas	200
Pacific Crest Trail	170
Quincy Junction Archaeological District	30
Unstable/Damaged Watersheds:	
Diamond Mountain Closure	4,450
Snake Lake Closure	50
Riparian Areas, Meadows, and Wetlands	Unknown
	<hr/>
Total	179,100 +

Forest-wide Standard and Guidelines

The following are management practices that are applicable to all lands within the Forest whenever and wherever they are relevant. If interpretation is needed, it should be consistent with the Forest Goals and Policies. General direction statements are keyed to issues and concerns shown in Chapter 2, and to Forest Goals and Policies starting on page 4-3, by the numbers which follow each direction statement.

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Recreation

Recreation Opportunity Spectrum (ROS)

Provide a variety of Forest-related recreation (1a).

Manage all Forest lands according to Recreation Opportunity Spectrum ROS designations (see Appendix R) as shown on the Recreation Opportunity Spectrum map and as follows:

Primitive (P) - Applies only to the Bucks Lake Wilderness.

Roaded Natural (RN): Meet applicable RN objectives. Design and maintain all facilities for conventional motorized use. Allow Development Scale (see Appendix I) 2, 3, or 4 facilities with 2-5 sites per acre. Keep use below capacity.

Manage for a visitor capacity of 1.57 PAOT/usable acre outside of developed sites to maintain the quality of RN experience.

Roaded Modified (RM): Meet applicable RM objectives. Allow Development Scale 2 or 3 facilities.

Manage for a visitor capacity of 0.2 PAOT/usable acre to maintain the quality of the RM experience.

Rural (R): Meet applicable R objectives. Design facilities according to FSM 2330. Allow Development scale 3 or 4 facilities with 3-10 sites per acre.

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Manage for a visitor capacity of 4.7 PAOT/usable acre outside of developed sites to maintain the quality of the R experience.

Developed Recreation

Improve and expand developed recreation facilities to meet demand where they will not exceed resource-carrying capacity or decrease the quality of the intended recreation experience.

Apply Prescriptions Rx-5 and Rx-6 at mapped locations.

Private Sector

Encourage private operation of PNF facilities (1a).

Based on appropriate future use determinations authorize private operation of PNF facilities by Special Use Permit if more economically advantageous to the government, a comparable recreation experience is provided, and Management Area direction is not impeded.

Trails

Provide a variety of trail use opportunities (1a).

Restrict trail use according to Appendix O, PNF Trails by Allowable Use. Maintain these trails.

Construct new trails according to management area direction.

Operate trails at the minimum standards providing utility and resource protection (16a).

Based on allowable use, stabilize trail prisms, provide drainage, and otherwise design trails for maximum stability and minimum soil loss.

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Improve the PCT to meet demand providing utility and resource protection (1a).

Open trails for public, outfitter/guide, and administrative uses. If planned and publicized, allow temporary closures of less than one year.

Provide sanitation facilities at trailheads where needed to protect water quality.

Erect signs and/or provide brochures that explain timber management activities along the trail and note historic or interesting sites.

Restrict trailhead facilities to small parking areas, trail directional signs, and bulletin boards, unless otherwise stated in Management Area direction.

Show springs and streams on brochure maps but do not develop potable water sources along the trail.

Maintain directional signs at each road and trail intersection.

Maintain the trail to Maintenance Level III in its present location and confine stabilization to the existing prism, if possible. Where relocation is appropriate for timber management purposes, reconstruct to the original PCT standards. Maintain the PCT symbols and blazes.

Manage vegetation where it interferes with trail use. Suppress poison oak to permit normal passage without contact.

Prohibit ORV use.

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Off-Road Vehicles

Allow ORV use wherever user conflict and resource damage are unlikely (1b).

Allow ORV use except where:

1. use is prohibited by law or regulation,
2. use is incompatible with the management of other resources,
3. resource damage is likely,
4. rights-of-way are insufficient,
5. lands are designated administrative or developed recreation sites.

Restricted acreages are summarized in Table 4-5 and shown on the accompanying Off Road Vehicle Closure map.

Cooperate with the State, other agencies, and user groups to identify, and where compatible with Forest Plan management objectives, develop segments of trail that supports the concept of a statewide trail system connecting use areas and providing the opportunity for long distance trail touring.



Visual Resources

Vary visual quality objectives according to land-use (2a).

Manage all Forest land in accordance with the adopted Visual Quality Objectives (V.Q.O.'s) as mapped in detail in the Planning Records and depicted on the accompanying Visual Quality Objectives map and as defined below.

Meet V.Q.O.'s by applying techniques described in publications listed in Appendix K.

Preservation (P)

Allow for ecological changes only. Preclude management activity except use for recreation facilities, with very low visual impact.

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Retention (R)

Provide a natural-appearing landscape where management activities are not visually evident.

Partial Retention (PR)

Provide a natural-appearing landscape where management activities remain visually subordinate.

Modification (M)

Allow management activities to dominate the landscape; however, keep visual elements comparable to those of natural occurrences.

Maximum Modification (MM)

Allow management activities to dominate the landscape; however, keep background visual elements comparable to those of natural occurrences.

Restore high visual quality to lands apparent from high-use areas (2a).

When future resource use activity or wildfire degrades visual quality below the adopted V.Q.O.'s, restore visual quality by planting trees and/or other vegetation where regeneration is feasible.

Maintain visual quality along the PCT. (2a).

Employ a V.Q.O. of "Partial Retention" in those areas viewed as foreground from the PCT, and allow a V.Q.O. of "Modification" in the middle and background.

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Cultural Resources

Inventory cultural resources within and adjacent to potentially-disturbing resource use projects and special recreation areas (3a).

Identify potential locations of non-inventoried cultural resources (cultural, historic, and prehistoric) via documents, literature, and oral interviews, and inventory through archaeological survey or reconnaissance prior to potentially-disturbing project activities on non-inventoried lands. Consult with Native Americans and interested parties regarding cultural resources within these areas.

Evaluate significance/eligibility of cultural resources and determine probable project effects (3a).

Apply National Register (N.R.) criteria to determine whether a cultural resource is a Class I, II, or III property.

Determine probable project effects on Class I and II properties.

Apply a test of archaeological interest to Class III cultural resources (according to ARPA criteria). Release properties of non archaeological interest. Determine if each cultural resource is eligible for listing on a local, State, or Federal register of significant properties.

Consult with Native American and other interested parties regarding eligible cultural properties.

Manage or protect significant/eligible cultural properties (3a).

Protect and preserve N.R. and N.R. eligible cultural resources and those on State or local listings of significant properties, or recover the values that result in their eligibility (in accordance with NRHP or MOU with SHPO) and in

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Locate and protect important areas of religious use (3a).

consultation with local Native Americans and interested parties.

Protect or recover those materials of archaeological interest.

Allow scientific study of cultural resources for public education and enjoyment.

Develop and implement agreements with the Advisory Council on historic Preservation for the management of identified Class I and II resources.

Identify and determine contemporary value of areas and resources used for traditional cultural or religious practices by Native Americans or other ethnic groups. Do not restrict or deter continued use of important areas.



Wildlife, Fish, and Sensitive Plants

Diversity

Provide a diversity of vegetation types and habitat to support viable populations of all fish, wildlife, and plant species (5a).

Within each vegetation association (see EIS Chapter 3, DIVERSITY), provide at least 5% in each seral stage (see Appendix E) on a Forest-wide basis. Allocate these required acreages to each management area. Use wildlife and silvicultural skills to determine specific configurations needed.

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By 1994, on a Ranger District basis, designate and maintain 5% of each forested vegetation type for old growth management. Use stands having overstory trees greater than 24" DBH and 200 years of age, exhibiting Dunning tree form class 5, and having at least a 40% crown closure (where site and vegetation type allow). Crown closure of 70% or greater is desired. Priority for old growth management locations will be Wilderness, Wild and Scenic River Zones, Spotted Owl territories, SMZ's, and Semi-primitive Areas.

In formulating project alternatives for habitat modification projects, analyze existing and needed stand structure diversity, both vertical and horizontal, and tree species diversity.

To the extent possible obtain the cooperation and concurrence of DFG and other Forests in setting priorities, schedules, sampling standards, and agency tasks and responsibilities for management of selected wildlife, fish, and plant species and habitats. This will be accomplished on a priority basis. Establish strategies to: 1) document the vegetative and other characteristics of suitable habitat for the selected species; 2) yield estimates of population(s) density and/or habitat capability; 3) measure the change in population(s) or habitat capability due to management practices.

Snags

Maintain viability of snag-dependent wildlife (5a).

Provide and/or maintain an average of at least 1.5 snags/acre. The de-

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sired number of snags should be distributed within each timber compartment. Provide and/or maintain an average of: a) 1.2 snags/acre between 15-24" dbh at least 20' high. b) 0.3 snags/acre greater than 24" dbh at least 20' high.

Give preference to soft snags, cull trees, and hard snags with evidence of wildlife uses.

During project level analysis, determine the impact of the proposed project on snags, and implement mitigation measures to meet the snag retention standard.

Dead and Down Wood

Maintain viability of species dependent upon dead and down material (5a).

Maintain a Management Area average of 320 cubic feet/acre of slash and/or down logs. Of this, approximately 50% of the volume should be in pieces longer than 8' with diameters of 20" or larger. The remainder may be met through the implementation of ground cover standards and guidelines for Soil and Water.

Meadow Ecotones

Maintain viability of species dependent on meadow-conifer ecotones (5a).

Retain strips or patches of existing vegetation along meadow edges. During project analysis, determine the need for and kinds and amounts of vegetation to be retained.

Oaks And Other Hardwoods

Maintain viability of wildlife species dependent on hardwoods.

On CAS timberlands, where hardwoods occur in conifer stands, retain an average oak and other hardwoods basal area of at least five sq.ft./acre or a minimum 200 sq.ft./40 acres.

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Give retention preference to black oaks 12" DBH or larger, and to groups rather than single trees. If implementation is unreasonable, designate hardwood retention areas within the same management area so that the overall basal area required above is maintained. Retain additional hardwoods if needed to meet Forestwide and management area wildlife objectives. Where desirable and feasible, undertake direct habitat improvement projects to produce mast, cover, or sprouts.

On non-CAS lands, retain oaks for wildlife and vegetation diversity needs, except where reductions result in improved hardwood stand characteristics. (See also oak retention standards under Deer.)

When conversion of hardwood-conifer stands to conifers is proposed, determine wildlife needs for hardwoods within the timber compartment or management area as a part of the project planning process. Designate stands to meet wildlife needs for hardwoods and/or hardwood vegetation diversity requirements. Where hardwood concerns or opportunities have been identified, document project objectives for hardwood species composition, size classes, basal area, and acreage.

Peregrine Falcon

Promote species viability (5a).

Provide two nest sites within suitable peregrine falcon habitat for species re-establishment.

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Prairie Falcon, Osprey, Golden Eagles

Maintain species viability (5a).

Maintain suitability of occupied prairie falcon, osprey, and golden eagle nesting territories.

Bald Eagle

Provide habitat for species recovery (5a).

Maintain and enhance the suitability of currently-occupied nesting territories, and provide sufficient potential nesting, foraging, and winter habitat to meet recovery goals of the Pacific States Bald Eagle Recovery Plan. Apply Rx-11 Bald Eagle Habitat Prescription.

Spotted Owl

Maintain species viability and diversity of Forest stands (5a).

Within the existing range of spotted owls, establish a network of 54 habitat areas containing suitable breeding, roosting, and foraging habitat. Apply Rx-12, Spotted Owl Habitat Prescription.

Goshawk

Maintain species viability and diversity of Forest stands (5a).

Provide a network of 60 nest stands containing suitable breeding habitat. Apply Rx-13, Goshawk Habitat Prescription.

Sierra Red Fox, Wolverine, Marten, Greater Sandhill Crane, Great Gray Owl, and Willow Flycatcher

Maintain viability of State-listed species (5a).

In cooperation with the DFG, conduct surveys for State-listed species. At minimum, provide habitat sufficient to maintain existing populations.

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Sensitive and Special Interest Plants

Maintain viable populations of sensitive plant species (5a).

Protect sensitive and special interest plant species as needed to maintain viability. Inventory and monitor sensitive plant populations on a project-by-project basis.

Develop species management guides to identify population goals and compatible management activities/prescriptions that will maintain viability. By 1992, complete species management guides for Penstemon personatus. Continue working on the Botanical Investigations for Lupinus dalesiae and Vaccinium coccinium and assess the need for a guide for these species. Develop a priority schedule for completion of other guides based upon funding, botanical expertise, and potential for adverse impact from other resource management activities.

Deer

Protect and improve habitat for emphasis/harvest species (5a).

Implement cooperative FS/DFG deer herd plans. Establish habitat manipulation priority based on the habitat capacity targets and most-limiting range components. Conduct habitat manipulation projects that modify openings and species composition to benefit deer. Modify site preparation and release practices accordingly.

Provide additional black oak in addition to the "Oak and Other Hardwoods" standards where needed to achieve habitat objectives of deer-herd plans: up to 35 sq. ft. basal area on summer range, intermediate range, and fall holding areas, and up to 30% canopy on winter range.

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Trout

Improve and protect habitat for trout (5a).

Ensure that trout habitat quality and quantity are not reduced by streamflow-altering activities such as hydroelectric projects. Use Instream Flow Incremental Methodology (IFIM) or a comparable methodology to determine streamflow needs for Class I, II, and III streams.

Provide for fish passage on any drainage or stream where spawning activity occurs, except with concurrence by DFG.

Wild Trout Streams

Continue present management of Wild Trout Streams (5a).

Continue to manage portions of Yellow Creek, Nelson Creek, and the Middle Fork Feather River as Wild Trout Streams. See Management Area Direction for areas 4,8,9,10,12,14,18,19, 24,25, and 33, and Prescription Rx-2.

Range

Allocate sufficient forage to wildlife and recreational livestock (6b).

Permit forage use shown in the Range Analysis Handbook, unless height/weight curves are developed in the particular allotment management plan.

Maintain or increase grazing and range productivity on a sustained-yield basis as demand and economy warrant (6c).

Assure allotment management plan consistency with the grazing strategies specified in the Management Area Direction.

Annually update permittee operating plans. Review and appropriately revise allotment management plans every 10 years, when permits expire, when grazing capacity changes, or when resource conflicts occur.

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Suspend use on vacant allotments valued for other uses (6a).

Implement systems to protect riparian areas (6c).

Use transitory range (6a).

Perform condition and trend studies at least once every ten years on all grazed allotments. When trends are static on unsatisfactory condition range, or are downward on range in any condition, revise allotment management plans to promote upward trend.

Conduct range inspections on all allotments annually, when possible, but at least every other year. Allotments with resource degradation or a history of unauthorized-use problems will be inspected at least once annually.

Grass/forb seed sid trails and closed roads in suitable range areas when compatible with the Allotment Management Plan, or overall management objectives for the area.

Keep vacant allotments available for use, unless otherwise specified in the Management Area Direction. Base initial stocking rates on capacity of the primary range.

See Riparian Area Prescription (Rx-9).

Graze timber plantations in active allotments unless regeneration is jeopardized; then adjust livestock management.



Timber

Manage timber on a regulated basis on lands classified as suitable (CAS) for scheduled timber production (7b&c).

Compatible with prescription standards and guidelines, schedule timber harvest on lands allocated to the following prescriptions:

Rx-5. Recreation Area (except Lakes Basin)

Rx-10. Visual Retention

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Use special cutting methods compatible with other resource goals without forest regulation on lands not classified as suitable for scheduled timber production (7b&c).

- Rx-11. Bald Eagle Habitat
- Rx-12. Spotted Owl Habitat
- Rx-13. Goshawk Habitat
- Rx-14. Visual Partial Retention
- Rx-15. Timber Emphasis

Except in response to pest epidemic threatening significant resources outside of the area, harvest no (timber from the Bucks Lake Wilderness Area (Rx-1) and the Lakes Basin Recreation Area (portion of Rx-5)). Except when unique values are threatened by non-native pests, harvest no timber from RNA's (Rx-17).

Obtain unscheduled yields compatible with prescription standards and guidelines on lands allocated to the following prescriptions:

- Rx-2. Wild and Scenic River
- Rx-3. Feather Falls Scenic Area
- Rx-4. Challenge Experimental Forest
- Rx-6. Developed Recreation Site
- Rx-7. Minimal Management
- Rx-8. Semi-Primitive Area
- Rx-9. Riparian
- Rx-16. Intensive Range Management

Select silvicultural practices from the full range available on an individual stand basis (7b&c).

Determine all silvicultural prescriptions on an individual timber stand basis, and document through a Stand Record System. Require approval of all prescriptions by a certified silviculturist.

On four timber compartments, Indian Falls (Greenville), Bald Mt. (La-Porte), Saddle (Oroville), and Deans (Quincy), obtain regulated timber

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Regenerate the more productive sites using even-aged or group selection cutting methods (7b&c).

yields using single-tree and group selection silvicultural methods.

Permit clearcuts over 40 acres in size only after 60 days public notice and Regional Forester review. (But do not apply the 40 acre limit to harvests resulting from natural catastrophes such as fire, insect, or disease attack, and wind storm.)

Plan regeneration harvest only when the technology and knowledge exists to adequately restock harvested lands within five years.

Disperse harvest openings (7b&c).

Leave stands at least five acres in size adjacent to harvest openings. Allow openings to have no more than 15% of the periphery in common with other openings. (An opening is no longer considered as such when adequately stocked with trees 4.5 feet high.)

Control competing vegetation thru a site-specific approach (7e).

Select vegetation treatment methods based on project-level analyses of the relative effectiveness, environmental effects, and costs of the feasible alternatives.

For each project, monitor to evaluate predicted project effects and adherence to planned treatment methods.



Christmas Trees

Harvest Christmas trees only where timber productivity is enhanced or maintained (8a).

Allow harvest of Christmas trees on a commercial basis where cutting will improve a stand of commercial timber species, in areas where normal tree growth cannot be permitted (such as powerline

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corridors), or in areas to be cleared for roads or other uses.

Christmas tree permits for individuals may be provided by the Beckwourth, Greenville, Milford, and Quincy Districts, if this activity does not adversely effect local private Christmas tree entrepreneurs.



Riparian Areas

Favor riparian dependent resources and limit disturbance in all riparian areas including riparian and aquatic ecosystems, wetlands, streambanks, and floodplains (9a,10b).

Favor riparian resources over other resources, except cultural resources in cases of conflict. Apply Rx-9, Riparian Area Prescription. Also see standards and guidelines for "Water".



Water

Water Quality

Maintain or, where necessary, improve water quality using BMP's (10a, 11a).

Implement FS Best Management Practices (BMP's) to meet water quality objectives and maintain and improve the quality of surface water on the Forest. Identify methods and techniques for applying the BMP's during project level planning and incorporate them into the associated project plan and implementation documents (see Plan Appendix Q).

Coordinate with the counties, CALTRANS, and the Union Pacific Railroad to eliminate the sidecasting of waste material along travel ways, except in designated locations.

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Municipal-Supply Watersheds

Apply Forest-wide water quality objectives (i.e., State objectives) to municipal-supply watersheds (10a).

Through the use of BMP's, keep water quality at a level that will allow a safe and satisfactory supply when given reasonable treatment by the purveyor.

When planning projects within these watersheds, perform hydrologic surveys and analyses, and thereafter monitor for compliance with BMP's.

Water Uses and Needs

Assure an adequate water supply for PNF and instream needs (10a).

Conduct a Water Use; Needs, and Availability Survey where stream diversions or flow changes are proposed, except for FERC-regulated projects for which intensive studies are required. Allow new consumptive use only of those waters surplus to current uses, future PNF needs, and need needed instream flows. Base conclusions for Class I, II, and III streams on Instream Flow Incremental Methodology (IFIM) or comparable method approved by the Forest Service.

Annually update the Water Uses and Needs Inventory.

Protest to the State Division of Water Rights all water developments that may decrease water supply or quality to the detriment of needed instream flows or existing or anticipated PNF needs.

Secure water rights for existing and foreseeable PNF consumptive uses.

Improve water yield (increase volume and delay snowmelt) from

Where silvicultural and logging system needs are met and planning and

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the Red Fir zone by timber harvest adjustment (10a).

implementation costs are minimal, or financial assistance is available from State or local agencies, create shaded openings by limiting the dimension to 1-2 tree heights. Confine program to areas where induced runoff will not cause water quality degradation. Concentrate activities on north-facing slopes.

Watershed Protection

Preserve watershed conditions so that soil productivity and water quality are maintained (10a,11a,14a).

In areas of oversteepened slopes (over 60%), low effective ground cover density, and very high erosion potential or having a high risk of landslide, expose no more than 5% of the areas to bare mineral soil per decade. Modify these disturbance limits upon specialist recommendation on a case-by-case basis.

Complete the Watershed Improvement Needs Inventory (WIN) and update annually by identifying all lands contributing to watershed degradation thru analysis of NFS watersheds on a priority basis and by individual project assessment. Analyze and mitigate on a total watershed basis, not only on project areas.

Protect highly sensitive watersheds thru cumulative impact planning and rehabilitate highly disturbed watersheds (10b).

Cooperate with local, State, and Federal agencies as well as private land owners in long-range watershed planning. Use an interdisciplinary approach. Analyze no larger than 3rd order watersheds or land units of similar size.

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At the project planning level, assess cumulative watershed impacts within 3rd order or smaller watersheds. If the cumulative disturbance is at or near a threshold of causing disproportionate damage, limit additional disturbance by deferring activities and/or by rehabilitation.

Streamside Management Zones (SMZ)

Limit disturbance in Streamside Management Zones (9a).

Establish Streamside Management Zones (SMZ's) according to the guidelines shown in Appendix M, Guidelines for Widths of Streamside Management Zones.

Prepare and adhere to a Streamside Management Zone plan for any activity within an SMZ. This plan shall establish site specific resource objectives and include at least the following:

- objectives for vegetation management based upon the needs of riparian-dependent resources, and objectives to maintain or enhance water quality.
- manipulation practices and maximum amount of vegetation manipulation allowable to meet the stated objectives.
- maximum area of soil exposure allowable, and needed erosion control measures to meet the stated objectives, while maintaining at least 75% effective organic ground cover. This cover includes humus, duff, litter, and vegetation in contact with the ground and at least 2" thick (or the existing thickness if less than 2" in the area), interwoven

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Channel Maintenance and Flood Control

Protect life and property from flooding and stream channel degradation where threat is moderate to high (10b).

- with sticks, branches, limbs, and logs.
- an analysis of project areas within the SMZ having over-steepened slopes (over 60%) with a very high erosion potential or high instability, and procedures to limit soil disturbance to no more than 5% of these areas per decade.
- opportunities and procedures for restoration of any deteriorated area.
- prescription for roads, skid trails, landings, and other harvesting facilities.

Remove hazardous trees (trees leaning over the channel at angles over 30 degrees) only if the number of trees already down are adequate for habitat and channel stability maintenance or substantial channel degradation may otherwise occur.

As needed remove excavated material from the floodplain.

Revegetate disturbed areas within floodplains to stabilize soil, benefit fish and wildlife, and restore the natural flood control qualities.



Soil

Prevent significant or permanent impairment of soil productivity (11b).

During project activities, minimize excessive loss of organic matter and limit soil disturbance according to the Erosion Hazard Rating (EHR) as follows:

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- EHR 4-8: Conduct normal activities
- EHR 9-10: Minimize or modify use of soil-disturbing activities.
- EHR 11-13: Severely limit soil-disturbing activities.

Determine adequate ground cover for disturbed sites outside of streamside management zones during project planning on a case-by-case basis, based on specialist evaluation, using the following table as a guide:

EHR	Minimum Effective Ground Cover*
Low (4-5)	40%
Mod. (6-8)	50%
High (9-10)	60%
Very High (11-13)	70%

* Material that impedes rain drop impact and overland flow of water, including organic residues 1/2" thick, exposed roots, stumps, surface gravels more than 3/4", and living vegetation.

To avoid land base productivity loss due to soil compaction, dedicate no more than 15% of timber stands to landings and permanent skid trails. Measurement will be along the travel way and shall not include width of cut and fill slopes.

Develop specific soil evaluation and mitigation measures for each project site as needed.

Incorporate measures for protection of long-term soil productivity in controlled burn prescriptions through an interdisciplinary pro-

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Enhance soil productivity on selected sites (11b).

cess. Specify objectives for organic material retention for maintenance of ground cover.

Identify areas suitable for production enhancement and fertilization.

- Where justified, fertilize regenerated stands that meet R-5 nutrient deficiency levels.
- Increase range forage by fertilization where potential exceeds current production.

Eliminate excessive soil loss (11a).

Develop and apply erosion control plans to road construction, mining, recreation development, and other site disturbance projects. Develop specific mitigation measures for each project site as needed.

Conduct Order II Soil Surveys by timber compartments to help predict the need for soil protection measures.

Document observations of slope failures, significant erosion of and from road surfaces, erosion of mine spoils, and any other sources of sediment that are affecting water quality or channel stability. Use for future erosion control planning.

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Air Quality

Adjust activities to prevent violation of air pollutant standards (12a).

Conduct prescribed burning only on designated "burn days" or secure a variance from the local APCD.

Use the most cost-efficient means of effective dust abatement during construction and logging activities.



Minerals and Materials

Encourage mineral and materials development that reasonably protects surface resources, and provides for land reclamation (13a).

Require a Plan of Operations if earth moving equipment is used (other than small dredges), or where occupancy is necessary.

Minimize disturbance and contamination of resources thru appropriate conditions in operating plans, permits, and leases; coordinate with applicable State and Federal agencies.

Before authorizing a Plan of Operations for a major land-altering operation, determine that the probability of sufficient mineral occurrence warrants the proposed land disturbance; obtain a mining engineer's opinion in questionable cases.

Require that Plans of Operation meet State requirements of Waste Discharge Permits and Streambed Alteration Permits and State Water quality objectives.

Require that tailing ponds and down-slope catchment basins will withstand no less than a 25 year, 6 hour storm. Require seepage control and winterization of all ponds and other structures.

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Maintain and update a materials source inventory for Forest uses (13a).

Require that tailings ponds and downslope catchments be constructed to withstand overflows without failures and should overflows occur prearranged contingency plans will be activated.

Require containment and neutralization of any toxic materials from mining operations. Prevent downstream degradation by requiring reuse of mine wastewater via settling ponds or clarifiers, confinement in evaporation ponds, or treatment to eliminate toxicity.

Allow rainwater ponds in mined areas if desirable, safe, and non-stagnant. Otherwise, require permanent drainage and reclamation.

Require preparation of a Spill Prevention, Control, and Countermeasure Plan in accordance with regulations if fuel, lubricant, or any other hazardous material is to be used.

Require reclamation of disturbed areas.

Require bonds sufficient to cover reclamation costs as a part of any Plan of Operations.

Conduct a materials source investigation if a sufficient quantity and quality of material is not readily available, or if better sources may be available.

Require preparation of a material source development and rehabilitation plan for each project involving more than 1,000 cubic yards.

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Recommend withdrawal from mineral entry areas valued for other purposes (13a).

Request withdrawal or continuation of withdrawal, subject to valid existing rights, of:

- Administrative sites.
- Recreation and Scenic Zones of the Wild and Scenic River (Rx-2).
- Special Interest Areas (Feather Falls Scenic Area, Soda Rock Geologic Area, Butterfly Valley Botanical Area).
- Challenge Experimental Forest (Rx-4).
- Recreation Areas (Rx-5).
- Developed Recreation Sites (Rx-6).
- Research Natural Areas (Rx-17).
- Wild Trout Streams portions of the Middle Fork of the Feather River, Yellow Creek, and Nelson Creek.
- Selected areas of unique botanic, geologic, or ecologic value (as identified in the Management Area direction).
- Selected gold panning and dredging streams (as identified in the Management Area direction).
- Selected National Register sites
- Traditional Native American religious properties (as shown in the Planning Records).
- Important materials sources (as identified in the Management Area Direction).
- Scenic roadside corridors along Highways 70 and 89 and the Gold Lake Highway.



Geology

Protect public safety and Forest resources from slope failure (14a).

Avoid or provide special treatment of unstable areas to avoid triggering mass movement.

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Prevent loss of groundwater quality and quantity (14b).

Use the PNF Land Stability Risk Classification data for preliminary assessment of instability problems on all projects which disturb the land surface. Provide geotechnical evaluation of projects with a moderate or higher potential to initiate or accelerate landslides.

Allow no land-disturbing activities on extremely unstable land unless a geotechnical investigation determines certain activities are appropriate.

Avoid earthquake fault zones whenever possible when designing roads and other facilities.

Review geotechnical evaluations of private proposals such as hydroelectric developments.

Conduct a geotechnical assessment of all groundwater development projects or any other project which might adversely impact the groundwater table.



Energy

Reserve firewood sufficient to meet increase in local demand (15b).

Examine all opportunities to provide fuelwood, encourage utilization where resource protection needs can be met.

Facilitate hydroelectric development that provides protection of all resources (15a).

Coordinate Forest protection requirements with those of DFG and the State Historic Preservation Officer, and the Regional Water Quality Control Board.

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Require applicants to furnish adequate plans and environmental studies.

Apply consistent environmental protection requirements through recommended conditions for water rights protest dismissal, "4 (e)" letter conditions for any FERC license, and any Special Use Permit issued by the Forest.



Lands

Special Uses and Corridors

Allow for land uses by the private sector or other agencies thru permits, if compatible with Management Area direction, use of other lands is not feasible, environmental impacts are mitigated, and the public interest is protected (16b).

Issue permits for a maximum of 10 years, unless a longer period can be justified. Review fees every five years; adjust as needed.

Require applicants to furnish necessary environmental studies and encourage applicants to provide funds for construction liaison.

Limit electronic permits to existing sites unless an analysis justifies a new site.

Underground all new utility lines except those for power transmission in excess of 35 kv, unless an analysis shows that PNF resources and environmental values are better protected by aerial construction.

Designate transportation and utility corridors where needed to avoid proliferation of rights-of-way. Prohibit corridors through Wilderness and the Wild and Scenic Zones of the Wild and Scenic River. Where possible,

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locate new corridors along existing corridors. Avoid recreation areas, summerhome sites, Special Interest Areas, Semi-Primitive Areas, high site timberland, ridgetops, and canyon crossings.

Land Lines

Survey and mark property lines as needed to avoid management uncertainty (16a).

Survey, mark, and post to FS standards all needed property lines prior to management activity.

Occupancy Trespass

Resolve unauthorized occupancies (16a).

In a timely manner, resolve occupancy trespass by land exchange, issuance of Special Use Permit, title transfer by the Small Tracts Act, or removal, as best serves the public interest.

Landownership Adjustment

Accomplish ownership adjustment that maintains timber productivity and that consolidates lands, or results in acquisition of Wild and Scenic River lands, Threatened or Endangered Species habitat, critical deer range, critical rangeland watering sources, or areas crucial to recreation management (16a).

Consider applications on a case-by-case basis under the Sisk Act, or other authority.

Base the land adjustment program on a PNF Landownership Adjustment Plan developed to implement the Management Area direction herein.

Assure that lands scheduled for exchange are kept free of encumbrances such as permits or constraints that exceed two years, are not substantially reduced in timber value (>20%), and receive only minor investment in surveys, roads, and other resource management.

Limit interim timber sales to salvage and/or thinning so as to enhance stand health and value.

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Rights-of-Way

Acquire road rights-of-way needed to meet management goals (16a).

Use land purchase to acquire Wild and Scenic River properties, Threatened and Endangered species habitat, and lands critical to recreation purposes.

Inventory important deer habitats, and identify key or critical portions for retention or acquisition.

Acquire rights-of-way over lands in other ownership as needed to implement direction of this plan.



Facilities

Roads

Construct/reconstruct roads to minimum standards achieving maximum economy and resource protection (17a).

If a road cannot be maintained at the level needed for its purpose, reconstruct it to the appropriate higher or lower standard.

Reconstruct to a lower standard those higher standard roads needing only Level I maintenance (temporarily closed) where the discounted costs of higher level maintenance exceeds the reconstruction cost.

Where year-round, full-time use is needed, construct roads to the minimum all-weather standard that will suffice.

Maximize new road economy by providing needed utility and resource protection at the lowest standard and cost.

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Reduce the impact of roads on soils and water quality (17a).

Construct/reconstruct roads to the specifications shown in Appendix J, according to intended use.

Avoid or minimize road locations on steep slopes (>60%), potentially unstable areas, wet areas, meadows, ground flatter than 10%, and across streams.

Restrict construction in streams to low flow periods.

Design cuts and fills for maximum stability and minimum soil loss.

Stabilize road prisms as needed to prevent sediment yield to watercourses. Revegetate cut and fill slopes where needed.

Provide roadway drainage as needed, especially along stream crossing approaches where sedimentation may occur.

Identify areas of instability and avoid where possible. Proceed through areas of instability only upon recommendation by geotechnical personnel.

Reduce the impact of roads on air quality (17a).

Stabilize roadways and abate dust to avoid unacceptable resource damage or to allow use of otherwise impassable or unsafe roads.

Reduce the impact of roads on wildlife (17a).

Adjust road design and location, or use permanent/seasonal closures, to avoid or reduce impacts on migration routes, streamside management zones, raptor nesting areas, sensitive plant populations, and other key wildlife areas.

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Operate roads at the minimum standards providing utility and resource protection (17a).

Seed or water bar closed roads, intermittently-used roads, or obliterated roads to improve wildlife/fish habitat.

In cooperation with the State DFG, selectively close roads to protect wildlife, if analyses justify closure.

During the planning period, establish road management objectives for each PNF road according to the following:

Maximum and Moderate Access

Open roads for public, commercial, and/or administrative uses. If planned and publicized, allow temporary closures of less than one year.

Maximum Access

Maintain for unrestricted use (safety and convenience) at levels III, IV, or V, commensurate with volume of use.

Moderate Access

Maintain at a level appropriate for sedan travel but do not invite that type of use. Leave primitive appearance within sight distance of the entrance. Maintain at level III.

Limited Access

Regulate road use to protect the roadway, limit maintenance expenditures, and reduce user conflicts.

Maintain for PNF administrative use, dispersed recreation, or for traffic regulated by special permit. Maintain at level II.

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Use advisory signs such as "Limited Maintenance - Not Suitable for Low Clearance Vehicles."

Closed Roads

Close roads between resource management activities for resource or investment protection.

Deactivate roads by ditching or barricading with native material, or obscure road entrances so that they are not noticeable to the casual observer.

Remove major drainage structures and reshape for natural drainage. Maintain at level 1 during deactivation.

Show road as "Inactivated" on administrative work maps.

Fund reopening and subsequent closure from ensuing projects.

Abandoned Roads

Obliterate roads no longer needed.

Deactivate by scarifying and revegetating the road surface within sight distance of the entrance. Scarify entire surface to promote percolation and natural revegetation.

Maintain at Level I until obliterated.

Remove major drainage structures and reshape for natural drainage.

Fund obliteration from project monies or rely on natural overgrowth.

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Provide road signing for information and other purposes (17a).

Facilities Other Than Roads

Provide cost-efficient support facilities (17a).

Show roads as "deactivated for obliteration" on administrative work maps; after obliterated, remove from map. Show no road number.

Temporary Roads

Construct a temporary road when there is only a one-time need for road access.

Obliterate the road and return to resource production at project completion. Fund with project monies.

Install signs in accordance with the "Manual of Uniform Traffic Control Devices", FSH 7109.11, or supplemental direction, with priority given to the higher level roads and to purpose in the following order: hazard, regulation, direction, information.

Continue to use facilities if management objectives can be met, but reduce reliance upon leased facilities when such opportunities arise.

Reconstruct facilities not meeting regulations.

If no facility exists that can meet Forest needs, acquire by trade or construct the minimum facility needed. Lease facilities only if other alternatives are not as cost-efficient.

Meet building code requirements in effect at the time of construction or modification.

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Maintain cost-efficient support facilities (17a).

Comply with requirements of the Federal Water Pollution Control Act, as amended by the Clean Water Act, and all requirements of Federal, State and local agencies governing public water systems and the disposal of wastewater.

Maintain safe facilities for employees and the public.

Inspect existing facilities periodically to identify deficiencies.

Fire and Fuels

Manage fuels to reduce high risk hazard and/or to facilitate cost-efficient resource protection (18a).

Give preference to fuel utilization. Where utilization will not be effective, employ broadcast burning or underburning, pile and burn treatment, and/or fuelbreak system construction.

Meet effective organic ground cover for streamside management zones, minimize erosion, and minimize deposition of ash, sediment, nutrients, and debris into streams and water bodies.

Unless otherwise determined during a project interdisciplinary process, assure that the resulting Suppression Difficulty Index (see Appendix P) meets these requirements:

a) Harvest fuels:

<u>Type of Entry</u>	<u>Index</u>
Pre-Commercial Thinning	8
Commercial Thinning	10
Overstory Removal and Sanitation	10
Regeneration	5

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Make appropriate suppression response to all wildfires (18b).

Provide a timely suppression response to wildfire with appropriate forces (18b).

Use Prescribed fire in the Lakes Basin area to maintain the natural character of the area.



Law Enforcement

Protect resources and provide for safety of the public and employees.

b) Natural fuels: as determined in a project analysis.

Clearly define water quality objectives in Burn Plans. Develop, as part of these Plans, mitigation measures to be used in cases where riparian and water quality standards and guidelines cannot be met.

Implement a strategy of "Control" on all wildfires. Any strategy other than "Control" must be approved by the Regional Forester.

Implement the Fire Management Protection Program described in Appendix N.

Consider the immediate Forest and Regional wildfire situation in determining the appropriate response to each wildfire.

Use a strategy of "Control" for wildfire on private lands protected under agreement with the Calif. Dept. of Forestry.

Implement a PNF Fire Management Action Plan upon adoption.

Develop guides for the use of unplanned ignitions, implementation subject to Regional Forester approval.

Prevent violations of the law by making NF restrictions clear and reasonable, informing the public, and pursuing aggressive enforcement.

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Forest Pests

Control forest pests thru a site-specific approach (19a).

Maintain a Forest Law Enforcement Plan that prescribes actions to eliminate or acceptably reduce law enforcement problems, especially illegal occupancy, timber theft, and incendiary fire.

Select pest management methods based on project-level analyses of the relative effectiveness, environmental effects, and costs of the feasible alternatives.

For each project, develop and implement a monitoring plan to evaluate predicted project effects and adherence to planned treatment methods.



Special Interest Areas

Protect unique botanic values for research purposes (20a).

Consider additional areas for RNA status as need and opportunity arise. Protect established, recommended, and candidate RNA's to preserve their research values.

Protect areas of unique scenic, botanic, or geologic value (18b).

As new areas are identified, or new information about areas already considered is received:

- evaluate qualifications for Special Interest Area status, and determine values that would be foregone by preservation.
- recommend unique areas for formal classification, and define a management prescription and boundary for each.
- determine those areas that should be nominated as National Natural Landmarks or RNA's and so recommend.

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- manage to protect the unique scenic, geologic, botanic, zoologic, or other special values. Where compatible, encourage public use and/or use of other resources.
- where special values exist, but the area does not qualify for official SIA designation, manage to reasonably protect those values.

Preserve existing and potential "champion" trees or groves. Develop a clear, signed boundary for each.

Management Prescriptions

In the Introduction, the concept of prescriptions was introduced. Under Objectives, Forest-wide acreages allocated to each prescription were given. In this section, the prescriptions are defined.

Prescriptions, preceded by a "description," are composed of standards and guidelines with indications of general direction, as discussed in the Introduction of this chapter.

The generalized distribution of the prescriptions Forest-wide is shown on the map of the Preferred Alternative accompanying the EIS. Since many of the prescriptions apply only to relatively small and discontinuous areas, this map is necessarily approximate and simplified. Detailed maps (1:24,000) of the areas allocated to each prescription are a part of the Planning Records and are on file at the Ranger Districts. These will be continually used by the Districts for Forest management activities and occasionally corrected by the Forest Supervisor where boundaries are illogical. In the Management Area Direction section, which completes this chapter, application area(s) of each prescription are seen to often fall within several management areas. This is simply a reflection of the recurrence of identical management needs from place to place.

The Forestwide Standards and Guidelines described in the previous section are applicable to all lands within the Forest whenever and wherever they are relevant, including lands covered by Management Prescriptions.

Each acre of the Forest is allocated to a prescription and only one prescription. Some prescriptions may satisfy several compatible needs. Thus, for example, bald eagle and goshawk territories and spotted owl habitat areas that are located in the Wilderness, the Wild and Scenic River, or Semi-Primitive areas are allocated to those area prescriptions rather than to the species habitat prescriptions. Other wildlife territories occurring in areas suitable for timber production are allocated to the habitat prescriptions.

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Rx-1 . Wilderness Prescription

Description: The purpose is to preserve the wild character of lands designated Wilderness. The prescription provides for public use, consistent with perpetuating wilderness value. It applies to the Bucks Lake Wilderness Area comprised of 21,000 acres.

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Recreation

Provide dispersed recreation (1a).

Develop and implement a Wilderness Management Plan for the designated Wilderness that includes a determination of use capacity and the acceptable limits of change (LAC).

Manage to a ROS class of Primitive and maintain the following:

- a predominately natural or natural-appearing environment,
- low interaction between users,
- little or no evidence of primitive roads,
- subtle onsite controls.

Allow no motor vehicle use. Post boundaries and establish physical controls to prevent motorized entry.

Limit use to carrying capacity. Use the unmanned wilderness trail register stations to collect visitor data.

Develop publications that inform visitors of regulations and stress ground cover protection, no-trace camping, dispersion, control of dogs, and proper use of firearms.

Allow fish planting in selected lakes in cooperation with the Calif. DFG. Maintain existing fishing improvement dams.

Rx-1. Wilderness Prescription (cont'd)

GENERAL DIRECTION	STANDARDS AND GUIDELINES
	Use nonmotorized equipment and native materials for needed repair, if practical.
Improve and expand trails to meet demand (1a).	Expand the trail system as determined in the Wilderness Management Plan. At stream crossings, use fords unless otherwise dictated by safety or route connection needs.
<u>Visual Resources</u>	
Maintain high visual quality (2a).	Meet a VQO of "Preservation".
<u>Cultural Resources</u>	
Inventory special recreation areas and protect significant cultural properties (4a).	Inventory, appraise, and as needed protect significant cultural properties that may be affected by Wilderness use.
<u>Wildlife, Fish, and Sensitive Plants</u>	
Promote wildlife diversity (5a).	Allow natural ecological succession of wildlife habitats. Locate needed endangered, sensitive, and indicator species management areas in the Wilderness wherever possible.
<u>Range</u>	
Maintain use of active allotments on a sustained yield basis (6c).	Allow grazing use to continue.
Allocate sufficient forage to wildlife (6b).	Require parties with recreation stock to carry feed.

Rx-1 . Wilderness Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Timber

Generally harvest no timber on lands committed to Wilderness (7b&c).

Harvest no timber, except as allowed under Pest Management below.

Water

Maintain water flows (10a).

Allow maintenance and operation of existing lake level and streamflow structures.

Minerals and Materials

Protect wilderness character (13a).

(Wilderness designation includes withdrawal status, subject to valid existing rights.)

In the Wilderness Management Plan, develop site-specific guidelines for protection of Wilderness values should mining occur.

Lands

Consolidate ownership and protect the Wilderness character (16a).

Attempt to acquire all private lands and terminate special rights and uses, unless excepted by the Wilderness Act.

Allow for plant collection or wilderness research by educational institutions on a case-by-case permit basis.

Allow commercial Wilderness use only where use of other lands is infeasible (16b).

Limit commercial wilderness activities by permit to those that meet public needs which cannot be provided elsewhere. Do not issue permits for training activities.

Rx-1 . Wilderness Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Fire and Fuels

Reduce preventable human-caused wildfire (18b).

Use fire suppression strategy and tactics that least alter the landscape or disturb the land surface (18b).

Erect no posters. Contact visitors or use warning media outside the Wilderness.

Obtain prior approval for emergency use of the following suppression activities:

Forest Supervisor approval:
Retardant, other than short-term or fugitive-dye
Wheeled vehicles
Generators

Regional Forester approval:
Helispot construction
Dozers
Chain saws, for other than tree falling

Use low-impact suppression tactics including reliance upon natural barriers, unless more direct attack is necessary to protect life or adjacent property or resources.

If long-term disturbance is minimized, use portable pumps and chain saws. Favor use of water over direct disturbance tactics; favor cold-trailing over hand-line construction.

Undertake no pre-suppression activity that disturbs the land surface.

Locate incident camps and helispots outside of the Wilderness wherever possible.

Rx-1 . Wilderness Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Use prescribed fire to preserve Wilderness value (18a).

Obliterate incident camps, heli-spots, evidence and damage from vehicles, and other disturbance resulting from emergency fire suppression action.

Develop guidelines for use of prescribed unplanned ignition in the Wilderness Management Plan, subject to approval of the Regional Forester.

Forest Pests

Rely on natural processes where adjacent resources are not threatened (19a).

Control insect and disease epidemic only if significant resources outside of the Wilderness are threatened or an unnatural, significant loss of Wilderness character will occur as a result of exotic pests.

Rx-2 . Wild and Scenic River Prescription

Description: The Middle Fork of the Feather River and its immediate environment were established as a Wild and Scenic River by Congress in 1968. Designated Recreation, Scenic, and Wild Zones are intended to provide the complete spectrum of recreation experiences. Preservation of the River's free-flowing condition and the area's outstanding values are the paramount management goals. The California Dept. of Fish and Game has designated the area from Sloat to Lake Oroville as a Wild Trout Stream. This prescription applies to the following area:

<u>Zone</u>	<u>Length</u>	<u>PNF</u>	<u>Acres</u>	
			<u>Pvt</u>	<u>Total</u>
Bald Rock Canyon Wild Zone	5.4 miles	2075	40	2115
Milsap Bar Scenic Zone	3.6 miles	1930	--	1930
Upper Canyon Wild Zone	27.5 miles	8405	630	9035
English Bar Scenic Zone	6.1 miles	1725	--	1725
Recreation Zone	<u>35.0 miles</u>	<u>5000</u>	<u>4035</u>	<u>9035</u>
TOTAL	77.6 miles	19135	4705	23840

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Recreation

Implement the Wild and Scenic Rivers Act and provide a variety of forest-related recreation (1a).

Cooperate with Plumas and Butte Counties, and the City of Portola, to establish zoning that assists implementation.

Through use of brochures, signs, and other media, increase public understanding of the management direction for the Wild and Scenic River.

Manage lands within the Wild and Scenic River according to their appropriate Recreation Opportunity Class.

Within the Recreation Zone, provide for recreation dependent on the free-flowing nature of the river (1a).

Except in developed recreation sites, require users to pack out all refuse. Require pack and saddle stock users to confine stock and carry feed.

Rx-2 . Wild and Scenic River Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Within the Scenic Zone, provide for recreation in a near-natural setting, but permit other compatible uses (1a).

Within the Wild Zone, provide for recreation in a primitive setting which offers considerable physical challenge and requires well-developed outdoor skills (1a).

Develop day-use recreation sites near the river according to the Recreation Zone Recreation Management Plan (2/15/80).

Permit no camping. (Rely on private sector campground development on adjacent lands.)

Construct campgrounds and other developments which enhance recreation use. To the extent possible, design and manage recreation developments (including access) to avoid areas of high fire hazard and to prevent ignition and spread of wildfire.

Permit overnight use of undeveloped places. Establish and enforce occupancy rules as needed.

Construct inconspicuous developments for safety and sanitation but not for public comfort and convenience.

Permit overnight use of undeveloped places. Establish and enforce occupancy rules as needed.

Construct or improve trails, or mark travel routes as needed, to properly disperse recreation use and promote safe travel in the zone

Permit no additional motorized access routes to the river and no motorized transportation along the river. Permit motorized access on the Cleghorn Bar, Stag Point, Deadman Springs, and Little California Mine roads

Rx-2 . Wild and Scenic River Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Visual Resources

Maintain high visual quality objectives (2a).

and close all others at their junctions with system roads.

Meet VQO of "Retention".

Cultural Resources

Interpret selected National Register sites (3a).

Establish a long-term inventory and appraisal program. Develop an interpretive plan for the entire area.

Wildlife

Protect and improve wild trout habitat (5a).

Coordinate with Calif. Dept. of Fish and Game for all projects affecting the Scenic and Wild Zones of the river. Prepare and implement a wild trout habitat management plan. Maintain sufficient flows in the river to meet needs of the Wild Trout fishery.

Range

Implement grazing systems to protect streams and streambanks (6c).

Permit no domestic livestock grazing within the Wild Zone.

Timber

To protect recreational, scenic, and fish and wildlife values, use appropriate special cutting methods for unscheduled yields without forest regulation (7b&c).

Harvest timber only to maintain or enhance use safety and scenic quality, protect special habitat, or prevent insect or disease epidemic.

Rx-2 . Wild and Scenic River Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Soil and Water

Meet requirements of the Wild and Scenic Rivers Act.

Permit no river channel straightening, structural bank stabilization, riprapping, or other modification of the waterway.

Minimize soil loss and improve water quality (10a, 11a).

Control or prevent erosion that damages scenic quality or endangers water quality and the fishery. Establish ground cover on denuded areas to prevent erosion.

Work closely with the Regional Water Quality Control Board to detect and control pollutant emissions and spills.

In cooperation with the Regional Water Quality Control Board, establish water quality objectives for the river that meet Federal standards.

Minerals and Materials

Implement the Wild and Scenic Rivers Act.

Within the Recreation Zone, permit material extraction only if it reestablishes a channel and improves visual and water quality.

Within the Wild and Scenic Zones, permit no common variety material extraction.

Identify and determine validity of all mining claims on public lands.

Provide for recreational gold panning and dredging (13a).

Recommend withdrawal, or continuance of withdrawal, from mineral entry.

Allow no gold dredging in the Wild Zone of the river.

Rx-2 . Wild and Scenic River Prescription (cont'd)

GENERAL DIRECTION

STANDARDS AND GUIDELINES

Lands

Acquire land and easements to implement the Wild and Scenic Rivers Act and to facilitate management of other resources (16a).

Acquire lands and easements according to the Landownership Adjustment Plan - Wild and Scenic Zones (1978), and Recreation Zone (1980), and the Recreation Zone Recreation Management Plan (1980). A summary of the major provisions of these plans is as follows:

- Acquire easements to preclude undesirable private development immediately adjacent to the river.

- By purchase or exchange, acquire private land needed for public use or for prevention of undesirable private development.

- Within the Recreation Zone, obtain easements on private lands where necessary to allow maximum public recreation use, including safe vehicular and foot access to and along the river shore, and parking space, if otherwise unavailable within a five minute walk of the river. Where appropriate, mark limits of public use easements.

- Permit no refuse disposal within any Zone. Ensure thru acquisition of easements on private land, where necessary.

- Within the Wild and Scenic Zones, acquire easements for public access and to prevent degradation of scenic quality. Within the Wild Zone acquire, if possible, fee title to all private land.