

Chapter 2 - Alternatives, Including the Preferred Alternative

Table of Contents

	Page
Introduction	2-1
Alternative Development Process	2-1
Benchmarks	2-3
Alternatives Eliminated From Further Detailed Study	2-7
Alternatives Considered In Detail	2-10
Direction Common to All Alternatives	2-10
Forest-wide Standards and Guidelines Common to All Alternatives	2-12
Management Prescriptions and Management Areas	2-13
Individual Alternative Descriptions	2-15
Preferred Alternative	2-20
Current/RPA Alternative	2-25
Alternative A	2-28
Alternative B	2-33
Alternative B'	2-37
Alternative C	2-37
Alternative D	2-41
Alternative D'	2-46
Alternative E	2-47
Alternative G(SOHA)	2-50
Comparison Of Alternatives	2-53
Comparison Of Economic Effects	2-76

Chapter 2 - Alternatives Including the Preferred Alternative

Introduction

This chapter has 4 sections:

The **Alternative Development Process** section defines alternatives and tells how they were developed. It discusses the regulations that guide alternative development. The range of alternatives is discussed.

The **Benchmarks** section describes the characteristics and purpose of benchmarks. It also describes each benchmark and tells what was learned from it.

The **Alternatives Considered But Eliminated From Detailed Study** section describes alternatives which were considered and gives the reason for not considering them in detail.

The **Alternatives Considered in Detail** section discusses management direction common to all alternatives, describes each alternative and uses tables to compare the alternatives.

Alternative Development Process

Description of an Alternative

An alternative is a management plan that provides enough detail to guide the condition of the land and resources of the Forest from the current state to a desired condition in the future.

According to the regulations for NFMA, a primary goal in developing alternatives is to provide a means to identify the alternative that comes nearest to maximizing net public benefits consistent with resource integration and management requirements. Net public benefits are the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. (Refer to Appendix D for further details on net public benefit.)

Alternatives are designed to address issues (refer to Chapter 1). Alternatives propose different combinations of activities which would result in various levels of outputs, goods and services.

Each alternative identifies a combination of management areas. Management areas are areas with unique locations that have common management direction called a management prescription. Management prescriptions are composed of specific activities or practices scheduled for application on the management area. Each prescription also has an associated set of standards and guidelines which provide constraints on the proposed activities.

The NEPA regulations (40 CFR 1502.14) require a thorough exploration of all reasonable alternatives and a discussion of those alternatives that were eliminated from detailed study. The NFMA regulations (36 CFR 219.12 (f)) establish criteria for the development of alternatives:

1. Alternative resource outputs shall be distributed between the minimum and maximum resource potential to reflect the full range of uses and values that could be produced from the Forest. Alternatives shall reflect a range of resource outputs and expenditure levels.
2. Alternatives should allow opportunity costs, resource use and environmental trade-offs to be analyzed.
3. Alternatives should allow analysis of present net value (PNV), benefits and costs of achieving various outputs and uses that are not assigned monetary values but that are provided at specified levels.
4. Alternatives shall provide different ways to address and respond to the major issues.
5. Reasonable alternatives which may require a change in existing law or policy to implement shall be formulated, if necessary to address a major issue.
6. At least 1 alternative shall be developed which incorporates the RPA Program's tentative resource objectives for the Forest as displayed in the Regional Guide.
7. At least 1 alternative shall reflect the current level of goods and services provided by the Forest and the most likely amount of goods and services expected to be provided if current management direction continues.
8. Each alternative shall represent, to the extent practicable, the most cost-efficient combination of management prescriptions that can meet the objectives of the alternative.
9. Each alternative shall state at least:
 - The Forest condition and uses that will result from long-term application of the alternative;
 - The goods and services to be produced, the timing and flow of these resource outputs and the associated costs and benefits;
 - Resource management standards and guidelines; and
 - The purposes of the management direction proposed.

Description of the Process Used to Develop Alternatives

The alternative development process included the following steps:

1. Public issues were identified through a public involvement process, called scoping described in Chapter 1 and Appendix A. Management concerns and resource opportunities originating

within the Forest Service organization were combined with the public issues to form an integrated list referred to as issues. Major issues were identified and used to develop alternatives.

2. Based on the issues, criteria called key indicators were developed for the collection and use of resource data. The ID Team selected the key indicators for their ability to display differences between alternatives.
3. A data base consisting of multiple layers was designed and used to store and report information relating to the alternatives. Quantitative alternative effects were estimated by applying data base information to various models.
4. An analysis was conducted to determine which activities are suitable on specific units of land. Geographically distinct capability areas were also identified. The capability areas were then combined into analysis areas based on similar physical attributes, suitability, productivity and major issues.
5. These analysis areas formed the basis for putting information into FORPLAN, a linear programming model described in Appendix B. FORPLAN is used to schedule outputs and calculate costs over time. All possible modeling prescriptions that could be applied to each FORPLAN analysis area were determined. All timber management options, including custodial care, were considered applicable to all capable and available timberlands.

Resource output coefficients were developed by the ID Team for the application of each possible modeling prescription to each analysis area based on data from a wide range of sources. These data sources include timber yield tables, past monitoring information, professional judgment and research information.

6. An analysis of the Forest's existing management situation was conducted to determine maximum and minimum resource outputs, resource conditions, resource opportunities, demand projections and needed changes in management direction. Both FORPLAN and the Forest's data base were useful in establishing the boundaries within which a range of feasible alternatives could be developed. This analysis is documented in a series of papers called the Analysis of the Management Situation (AMS). The AMS is the basis for Chapter 3 of this EIS, the Affected Environment.
7. The maximum and minimum resource outputs were used to define benchmark alternatives. These benchmarks are the maximum goods and services that could be produced if there were no constraints and multiple use management was not required. The benchmarks thereby define the upper range of land management alternatives. More information on benchmark alternatives can be found later in this chapter and in Appendix B.

The analysis of the benchmarks was also used to validate the FORPLAN model. The validity of the cost and yield tables, the ability of the model-

ing prescriptions to estimate realistic outputs, the sensitivity of outputs to the modeling prescriptions and the costs of various possible management constraints in terms of resource outputs foregone were checked.

8. Alternative Teams composed of public representatives and Forest employees developed 4 multiple use alternatives (refer to Appendix A for details). Each alternative emphasized 1 or more resource areas while providing for multiple use. The resources emphasized were as follows: 1) timber, 2) recreation and visual quality, 3) wildlife and biological diversity and 4) water quality and fish habitat. Members of the ID Team designed several additional alternatives, including the no change from current management and an alternative which emphasizes amenity values, to provide a full range of alternatives.

Each alternative responds to the issues differently. No alternative has outputs that exceed resource capabilities. Each alternative has a unique mixture of management prescriptions. Each alternative was designed to produce the most cost-efficient mixture of benefits consistent with its resource emphasis.

Management requirements (MRs) and implementation requirements (IRs) provide constraints for all alternatives and are discussed later in this chapter. Each alternative may have additional constraints unique to its resource emphasis. These additional constraints and the rationale for each are discussed in Appendix B.

9. FORPLAN was used to allocate lands to various management areas, to schedule activities and to estimate the outputs that would result under each alternative. The FORPLAN program finds the most economically-efficient schedule of activities that achieves the desired goal of each alternative.

This is accomplished by maximizing PNV for each alternative once parameters are specified. The parameters used include management areas, resource yield and cost tables and a set of constraints that provide environmental protection by modeling the standards and guidelines. PNV is the measure of cost efficiency used by the Forest Service.

FORPLAN solutions for each alternative were checked against the data base and suitability analyses to assure that they were spatially logical and implementable on the ground. The constraints were adjusted as necessary.

10. The resulting outputs were reviewed by the ID Team and by the many members of the public who choose to participate in the Citizens Participation Program (refer to Appendix A). The modeling procedures were modified when necessary, to meet the intent of each alternative.
11. Lastly, the alternatives were compared in terms of PNV, output levels, effects and response to issues. Based on this information, the Forest Supervisor and her management team combined portions of the existing alternatives and

designed standards and guidelines to develop the Preferred Alternative. The Preferred Alternative was recommended to the Regional Forester whose staff proposed some changes in the standards and guidelines.

Other changes in the Preferred Alternative were generated, after the Draft EIS was circulated, by the response to public comments and by the signing of the Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management (BLM) Planning Documents Within the Range of the Northern Spotted Owl which corresponds to the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest-Related Species Within the Range of the Northern Spotted Owl (FSEIS). Provisions in the ROD for the FSEIS (USDA Forest Service and USDI BLM, 1994) have been incorporated into the Preferred Alternative.

Establishing a Range of Alternatives

Physical characteristics, laws and judicial requirements limit the possible range of alternatives. These limitations are covered in the next section under Management Requirements. Many of these areas overlap and many acres are double-counted.

Through the development of benchmarks it was possible to analyze a broad range of reasonable alternatives for each resource or combination of resources. This includes a minimum management level benchmark at the lower end and a series of single resource emphasis benchmarks at the upper end.

The following factors demonstrate that a broad range of alternatives has been considered in this document:

1. The range of alternatives is well distributed between the minimum level benchmark and the maximum single resource benchmarks. Table 2-1 shows the benchmark outputs.
2. The range of alternatives responds to the issues. Each alternative may respond differently to a given issue based on the overall goal of the alternative. Table 2-15 shows the treatment of issues by the alternatives.
3. A wide variety of management practices would be applied to the land base in the various alternatives. Tables 2-6 through 2-13 show the allocation of each alternative to various land uses.
4. Various resources show a wide range of outputs between alternatives. Table 2-4 shows the range of resource outputs.

Benchmarks

Role and Use

Benchmarks display physical, ecological and technical capabilities. They are not limited by Forest Service policy or budget, discretionary constraints, spatial feasibility or program and staffing requirements like the

alternatives considered in detail. Benchmarks are physically and technically implementable, but may not be operationally feasible. They are not alternatives in one sense because they do not provide a total integrated program of management.

Benchmarks are used to provide a reference point for comparing alternatives. They also provided the analytical base for developing alternatives. They display the resource potential, current resource condition and need for change. They frame the decision space within which change can occur.

Conclusions Reached From Study and Analysis of Benchmarks

This section describes 10 benchmarks and the conclusions related to each. Appendix B discusses how each benchmark was modeled.

Table 2-1 displays selected outputs for 4 of the benchmarks. Four other benchmarks would have the same outputs as those displayed in Table 2-1. The other 2 benchmarks were not analyzed as explained in the following discussion.

FLW - Maximum PNV with Flow and Long-Term Sustained Yield Constraints Benchmark. This benchmark demonstrates the most economically efficient level of resources that can be produced with only those constraints applied that assure technical feasibility. MRs are not applied to this benchmark (refer to next section in this chapter and to Appendix B for more information on MRs). Therefore, it is also used as the basis for evaluating the effect of MRs on PNV. The objective function of the FLW Benchmark is to maximize PNV.

Although this benchmark produces the greatest PNV possible from the Forest, it does not meet legal requirements associated with water quality and wildlife diversity. Adequate habitat would not be provided to maintain minimum viable populations of some wildlife species. In addition, FLW responds poorly to visual quality maintenance and enhancement issues.

The FLW Benchmark established a maximum physical and biological capacity of 436 MMBF per year in the first decade for timber outputs. This high rate of timber harvesting was the major factor in generating the highest water yield of any benchmark. This benchmark, therefore, established the maximum capacity for water yield for the forest. Recreational demands were also met.

Later seral stage wildlife habitat on suitable timber lands would be deficient for wildlife needs because of intensive stocking control on recently harvested areas and a more rapid removal of mature timber stands. Viability for Threatened and Endangered (T&E) species would not be maintained and the viability of species associated with large blocks of older over-mature timber could not be assured. A large amount of

**Table 2-1. Benchmarks: Average Annual Outputs and Activities,
Decades 1 through 5**

BENCHMARK*				
Activity/Resource	FLW	MLV	MR	TBR
Water				
Water Yield (M** acre feet)	Base Year (1987)		3,952	
Decade 1	4,019	3,952	4,000	4,000
Decade 5	4,161	3,952	4,033	4,036
Wildlife				
Eagle/Falcon (number of pairs)	Base Year (1987)		5/14	
Decade 1	0	5/14	5/14	5/14
Decade 5	0	5/14	5/14	5/14
Spotted Owls (number of pairs)	Base Year (1987)		183	
Decade 1	0	183	183	183
Decade 5	0	134	134	134
Goshawks (number of pairs)	Base Year (1987)		160	
Decade 1	0	179	179	179
Decade 5	0	208	208	208
Deer (M animals)	Base Year (1987)		77	
Decade 1	72	72	72	72
Decade 5	73	73	73	73
Wildlife User Days (WUDs)	Base Year (1987)		53.9	
Decade 1	59.3	59.3	59.3	59.3
Decade 5	86.8	86.8	86.8	86.8
Fish				
Resident Fish - Other than T&E (M pounds)	Base Year (1987)		43.2	
Decade 1	41.0	39.9	41.0	41.0
Decade 5	41.0	39.9	41.0	41.0
Anadromous Fish - Sport (M pounds)	Base Year (1987)		117.9	
Decade 1	109.0	108.6	109.0	109.0
Decade 5	109.0	108.6	109.0	109.0
Anadromous Fish - Commercial Harvest (M pounds)	Base Year (1987)		220.4	
Decade 1	210.0	208.7	210.0	210.0
Decade 5	210.0	208.7	210.0	210.0
Fish User Days (M FUDs)	Base Year (1987)		88.0	
Decade 1	96.8	96.8	96.8	96.8
Decade 5	163.1	163.1	163.1	163.1
Recreation				
Developed Recreation (M RVDs)	Base Year (1987)		150	
Decade 1	165	0	165	165
Decade 5	242	0	242	242
Dispersed Recreation (M RVDs)	Base Year (1987)		437	
Decade 1	481	197	481	481
Decade 5	704	197	704	704
<p>* FLW - Maximum Present Net Value (PNV) with Flow and Long-term Sustained Yield (LTSY) Constraints Benchmark; MLV - Minimum Level of Management Benchmark; MR - Management Requirements Benchmark TBR - Maximize Timber Outputs Benchmark</p> <p>** Refer to the end of the table for abbreviated terms and meanings.</p>				

**Table 2-1. Benchmarks: Average Annual Outputs and Activities,
Decades 1 through 5**

BENCHMARK*				
Activity/Resource	FLW	MLV	MR	TBR
Wilderness				
Wilderness (acres)	Base Year (1987) 381,100			
Decade 1	381,100	381,100	381,100	381,100
Decade 5	381,100	381,100	381,100	381,100
Timber				
Allowable Sale Quantity (MMBF)	Base Year (1987) 128			
Decade 1	435	0	214	242
Decade 5	434	0	254	246
Long-term Sustained Yield				
Million Cubic Feet (MMCF)	80	0	55	56
Million Board Feet (MMBF)	533	0	368	375
Range				
Grazing Potential (M AUMs)	Base Year (1987) 34			
Decade 1	34	0	34	34
Decade 5	34	0	34	34
Economics				
Present Net Value (PNV) (MM\$ - 160 years)	257.4	86.4	175.9	180.1
Total Cost - Undiscounted (MM\$)	Base Year (1987) 26			
Decade 1	49	89	34	37
Decade 5	52	89	40	40
<p align="center">** Abbreviated Terms and Meanings for this Table:</p> <p>M = Thousand MM = Million \$ = Dollars AUMs = Animal Unit Months FUDs = Fish User Days MMBF = Million Board Feet MMCF = Million Cubic Feet PNV = Present Net Value RVDs = Recreation Visitor Days T&E = Threatened and Endangered WUDs = Wildlife User Days</p>				

early seral stages would be created by the high level of harvest.

MLV - Minimum Level of Management Benchmark. The MLV Benchmark shows the unavoidable costs and benefits of public ownership of the forest. It establishes a basis for comparing controllable outputs and discretionary costs and benefits of the various alternatives. Management activities are limited to those needed to protect life, health and safety; to prevent environmental damage; and to manage unavoidable land uses. Production activities such as timber harvesting, developed recreation and livestock grazing are not included. The objective function is to minimize costs.

While the MLV Benchmark can be achieved with a significant decrease in costs, it also has a significant decrease in PNV. The PNV is the lowest of any benchmark. The MLV Benchmark does not conform to existing legislation governing management of the forest nor does it satisfactorily address forest issues.

MR - Maximum PNV-Assigned Values-Management Requirements Benchmark. This benchmark, when compared to the FLW Benchmark, illustrates the opportunity costs involved in collectively meeting MRs. MRs are basic resource protection requirements attributable to laws and regulations which are beyond the Forest Service's ability to change. This benchmark also forms the basis for evaluating alternative requirements in addition to the MRs. The objective function is to maximize PNV.

This benchmark fully responds to the issues relating to economic levels of all priced outputs and associated consequences. It also responds to issues relating to maintaining water quality, vegetative diversity and viable populations of wildlife species. It does not fully respond to non-priced benefits such as visual quality, sensitive plans and semi-primitive recreation. It also does not respond to fire control issues and results in over 50,000 acres burned annually.

A series of analyses was performed in conjunction with this benchmark to show the marginal effects and costs of each of the major MRs. The following elements of the MR Benchmark were individually examined in a series of sensitivity analyses:

- non-declining yield policies analysis;
- T&E species requirements (HCAs for northern spotted owls, bald eagle habitat and peregrine falcon habitat do not have programmed timber yields);
- viable population (50-11-40 requirement on non-HCA acres: a minimum of 50% of forested acres of 11-inch minimum diameter and 40% minimum crown cover must be maintained. In addition, goshawk territories do not have programmed timber yields);
- dispersion requirements;
- riparian area management requirements (riparian areas do not have programmed timber yields and RMZs have stand maintenance prescriptions).

The conclusions reached after analyzing each of the above sensitivity analyses are discussed later in this chapter.

A timber output of 214 MMBF was achieved under Benchmark MR in the first decade, which equates to a decrease of 49% from FLW.

All recreational demands were met.

Later seral stage wildlife habitat on tentatively suitable timber lands are reduced, but not to the level which occurred under the FLW Benchmark. Viability for all species would be maintained. Enhancement of T&E and selected species habitats would occur. Furbearer and Sensitive species requirements were not specifically addressed.

H₂O - Water Yield Maximization Benchmark. The objective of this analysis was to define the maximum capability of the Forest to provide water during the planning period, subject to MRs and maximization of PNV. On the Forest, only 26% of the water yield is currently used and assigned a monetary value. MR Benchmark generated the highest water yield of the benchmarks with management requirements at 4,000 thousand acre feet per year, only 1% over background level. This indicates that water yields can be increased only slightly from naturally occurring levels. Because of this, H₂O Benchmark is considered equivalent to the MR Benchmark in terms of outputs and effects.

MKV - Maximum PNV - Market Values Only Benchmark. The objectives of this benchmark were to display the outputs and costs which would result from maximizing the PNV of outputs having market prices and to provide the relative proportion in PNV between market and assigned (or non-market) outputs when compared with the MR Benchmark analysis.

Only timber, grazing, developed recreation and anadromous fish production are assigned monetary values. On the Forest the number of recreation visitor

days (RVDs), wildlife user days (WUDs) and fish user days (FUDs) are dependent on population trends and not on program level. In general, there is more supply than demand. There were no resource allocation tradeoffs identified that would affect the level of these values. Because of this, MKV Benchmark is considered equivalent to the MR Benchmark in terms of outputs and effects.

RGN - Range Maximization Benchmark. The intent of this analysis was to define the maximum capability of the forest to provide commercial livestock grazing over the next 50 years, subject only to MRs. The objective function of this benchmark is to maximize livestock forage. Large amounts of transitory range exist on the Forest due to periodic wildfires and timber harvesting. Much of it is not utilizable, but historically the supply of suitable transitory range exceeds the demand. There is a demand on the eastside of the Forest for higher quality permanent range, but not for an increase in total animal unit months (AUMs). For this reason RGN outputs and effects are considered equivalent to the MR benchmark with 34,000 AUMs per year.

TBR - Maximize Timber Outputs Benchmark. The intent of this analysis was to establish the maximum timber production level subject to timber policy constraints, MRs and economic efficiency. The objective function of this benchmark was to maximize timber outputs in the first decade. While this analysis fully responded to timber issues, it did not adequately respond to non-timber issues:

When comparing this analysis with the MR analysis, timber volumes harvested were 13% higher with only a 3% increase in PNV. However, the 242 MMBF ASQ causes a 9% increase in cumulative watershed effects (as displayed through the ERA outputs). This increase in watershed disturbance would also affect the fisheries programs and create the need for increased habitat improvement work in order to meet future demands for both anadromous and resident fisheries.

TBD - Maximize Timber Outputs for One Decade-Departure Benchmark. The purpose of this benchmark was to establish the maximum timber output which could be attained in the first decade subject to MRs with the non-declining yield policy removed. There is no change in volume with this constraint removed, indicating that other constraints control the harvesting level. Outputs and effects would be the same as TBR Benchmark.

WLN - Maximum Wilderness Benchmark. The purpose of this analysis was to evaluate the impacts of assigning all further planning areas to wilderness. This alternative was not analyzed since no areas on the Forest were designated as further planning in the 1984 California Wilderness Act.

NON - Maximum Non-Wilderness Benchmark. This benchmark was not analyzed as there were no options as explained above in WLN.

Conclusions About Resource Interactions and Capabilities Under the Benchmark Analysis

General - The maximum resource potential for timber, range and water indicate an upper production limit that is not realistic due to unacceptable trade-offs with other resources.

Fire Management - The higher burned acre level occurs as a result of reduced fire organizations. The base fire organization is constant except for MLV in order to simplify the analysis.

Fish - The effect on fish habitat parallels the effect on watersheds as shown by the ERAs that result from each benchmark. Management requirements would be met by mitigation of effects. No change in anadromous fish outputs would be expected (319,000 pounds) except for MLV (317,000 pounds).

Range - Range outputs under any of the benchmarks except MLV are the same as current existing levels of use for forage.

Recreation - Except for MLV, RVD outputs always go to the demand cutoff and are the same as current levels.

Timber - Timber capabilities in the first decade of the planning period range from a high of 436 MMBF under the FLW Benchmark to a low of 0 MMBF in MLV Benchmark. When MRs are applied to the analysis, volume decreases to a high of 242 MMBF in TBR. The addition of legal, nondiscretionary requirements to the model had a substantial effect on both PNV and timber outputs in the first decade of the planning period.

The effect of the non-declining yield constraint on first decade timber outputs is not significant.

Regeneration cutting and reforestation ranges from 4,800 acres per year in the MR Benchmark to 10,800 acres per year in FLW. The Forest average in the recent past is about 5,000 acres/year.

With a relatively unconstrained model, most of the tentatively suitable timber land is allocated to even-aged management using clearcutting for the final harvest. The analysis demonstrated that this combination is the most cost efficient.

Differences between maximum timber objectives and maximum PNV are primarily due to changes in activity timing rather than changes in activity.

High volume stands are scheduled for harvesting in the early decades due to the PNV objective.

Visual Quality - Visual quality effects are directly related to the number of acres being developed and the intensity at which they are developed. There are no constraints relating specifically to visual quality.

Water Quality - Outputs in ERAs provide a comparison of the level of water quality which could occur

under each benchmark. The levels are directly related to the amount of acres that are disturbed. All benchmarks are below the 8% threshold for the Forest as a whole. ERA outputs vary by 19% among the benchmarks.

Water Yield - Water production outputs do not vary by more than 2% when compared to a background water yield of 3,952,000 acre feet per year.

Wildlife - The viability of the management indicator species (MIS) is generally related to the proportion of lands allocated to timber emphasis prescriptions. Timber emphasis prescriptions tend to reduce the amount of wildlife habitat relationship (WHR) seral stages 3A, 4A, 4C and older to the 5% level which is the MR for diversity. T&E species, dispersion and habitat diversity requirements are met on a Forest-wide scale.

Alternatives Eliminated From Further Detailed Study

NEPA requires that agencies rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss the reasons for eliminating those not developed in detail.

In addition to the 10 benchmarks described previously, a total of 20 individual alternatives were analyzed. Out of this total 11 alternatives are described in detail later in this chapter.

Nine alternatives were eliminated from detailed study for 1 or more of the following reasons:

- Failure to adequately address issues;
- Not reasonably attainable without changes in basic statutes and regulations of the National Forests;
- The outputs and effects of an alternative were similar (not significantly different) to 1 selected for detailed study (for example, duplicate and redundant alternatives).

Descriptions of these 9 alternatives including their themes, resource objectives and rationale for elimination are summarized below.

Table 2-2 displays selected average annual outputs and potential outputs for these alternatives.

Karuk Alternative

In 1988 the Karuk Tribe of California proposed an alternative. The main features of this alternative are incorporated in the alternatives considered in detail. The 3 ceremonial areas proposed for special management are included in all alternatives considered in detail. The proposals to manage fisheries are similar to those in Alternatives Preferred, D and D'. The other features are not consistent with current laws and regulations.

Table 2-2. Alternatives Eliminated from Detailed Study Outputs and Activities		
Alternatives		
Activity/Resource	CEF	LBU
Water		
Water Yield (M ^{ac} acre feet)	Base Year (1987) 3,952	
Decade 1	3,995	3,952
Decade 5	4,030	3,952
Wildlife		
Eagle/Falcon (# of pairs)	Base Year (1987) 5/14	
Decade 1	5/14	5/14
Decade 5	5/14	5/14
Spotted Owls (# of pairs)	Base Year (1987) 183	
Decade 1	183	183
Decade 5	134	134
Goshawks (# of pairs)	Base Year (1987) 160	
Decade 1	179	179
Decade 5	208	208
Deer (M animals)	Base Year (1987) 77	
Decade 1	72	72
Decade 5	73	73
Wildlife User Days (M WUDs)	Base Year (1987) 53.9	
Decade 1	59.3	59.3
Decade 5	86.8	86.8
Fish		
Resident Fish - Other than T&E (M pounds)	Base Year (1987) 43.2	
Decade 1	41.0	39.9
Decade 5	41.0	39.9
Anadromous Fish - Sport (M pounds)	Base Year (1987) 114.7	
Decade 1	109.0	108.6
Decade 5	109.0	108.6
Anadromous Fish- Commercial Harvest (M pounds)	Base Year (1987) 220.4	
Decade 1	210.0	208.7
Decade 5	210.0	208.7
Fish User Days (M FUDs)	Base Year (1987) 88.0	
Decade 1	96.8	96.8
Decade 5	163.1	163.1
Recreation		
Developed Recreation (M RVDs)	Base Year (1987) 150	
Decade 1	165	0
Decade 5	242	0

Table 2-2. Alternatives Eliminated from Detailed Study Outputs and Activities		
Alternatives		
Activity/Resource	CEF	LBU
Recreation (continued)		
Dispersed Recreation (M RVDs)	Base Year (1987) 437	
Decade 1	481	197
Decade 5	704	197
Wilderness		
Wilderness (acres)	Base Year (1987) 381,100	
Decade 1	381,100	381,100
Decade 5	381,100	381,100
Timber		
Allowable Sale Quantity (MMBF)	Base Year (1987) 128	
Decade 1	196	20
Decade 5	200	20
Long-term Sustained Yield		
Million Cubic Feet(MMCF)	55	0
Million Board Feet(MMBF)	368	0
Range		
Grazing Potential (M AUMs)	Base Year (1987) 34	
Decade 1	34	34
Decade 5	34	34
Economics		
Present Net Value (PNV) (MM\$ - 160 years)	169.1	69.4
Total Cost - Undiscounted (MM\$)	Base Year (1987) 26	
Decade 1	33	19
Decade 5	39	19
** Abbreviated Terms and Meanings for this Table: CEF= Constrained Economically Efficient with Forest Constraints LBU= 25 Percent Budget Reduction M = Thousand MM = Million \$ = Dollars AUMs = Animal Unit Months FUDs = Fish User Days MMBF = Million Board Feet MMCF = Million Cubic Feet PNV = Present Net Value RVDs = Recreation Visitor Days T&E = Threatened and Endangered WUDs = Wildlife User Days		

Klamath Forest Alliance Forest and Watershed Rehabilitation Alternative

During the public comment period on the Draft EIS and Forest Plan, the Klamath Forest Alliance proposed an alternative. Analysis showed that the majority of features in this alternative were included in other alternatives considered in detail, primarily in the Preferred Alternative. Those features not included in another alternative were found to be unimplementable under current law, regulation or policy. For these reasons, the Klamath Forest Alliance alternative was not considered in detail. Refer to Appendix K, Response to Public Comment for the response to each proposal that was part of the Klamath Forest Alliance alternative.

Alternative CEE (Constrained Economically Efficient)

Theme. Alternative CEE's theme is to portray the most economically efficient mixture of allocations and schedules subject to meeting MRs and IRs. It also demonstrates the opportunity cost of the IRs taken collectively. It also forms a base analysis to be used in evaluating Forest-level direction common to all alternatives. IRs include viewshed agreements with the State of California along scenic highways and Sensitive species habitat which use only stand maintenance prescriptions.

Resource Objectives. Under this alternative, resource objectives were to maximize PNV in the most economically efficient manner subject only to MRs and IRs. High market outputs are attained while amenity values and outputs are minimized.

Reasons for Elimination. This alternative was eliminated because it did not incorporate additional Forest-wide direction needed to fully respond to major issues. There was a 9% difference in timber volume (195 MMBF) from MR Benchmark.

Alternative CEF (Constrained Economically Efficient Alternative With Forest Constraints)

Theme. The theme is similar to Alternative CEE. CEF also analyzes the opportunities and costs of adding Forest-wide management direction which is common to all alternatives in addition to the MRs and IRs of Alternative CEE. The Forest has determined that these requirements are important enough to be imposed on every alternative, regardless of the theme.

Resource Objectives. This alternative determines the maximum level of outputs and PNV attainable for alternatives with forest level management requirements applied. High market outputs are achieved while providing adequate protection for soils, water and wildlife.

Reasons for Elimination. There were so many combinations of allocations and activities available to choose from between alternatives, that no large similarities were found to be common to all. This alternative was eliminated because it was basically the same as CEE and did not respond to issues.

Alternative LBU (25% Budget Reduction)

Theme. The expected outputs and services that could be provided in the future were analyzed as if the current (CUR normalized 1987 dollars) budget was reduced by 45%. This alternative corresponds to the 1995 Basic Program level budget developed by the Forest leadership team.

Resource Objectives. Resources would be managed to meet minimum requirements prescribed by laws, regulations and Forest Service management direction. Most output levels would be reduced from current levels to meet the budget constraint. Activities would be concentrated where roads currently exist. Timber harvesting would consist of 20 MMBF of salvage.

Reasons for Elimination. This alternative was not considered in detail because the budget limitations would not allow an adequate response to local and National needs for wood products. The risk to forest health from insects, disease and fire would be high in spite of a large increase in fuel reduction activities as a prevention measure. No timber stand improvement activities would occur. There would be an 84% reduction in timber outputs compared to the Current Alternative.

Alternative MKT (Market Emphasis)

Theme. The primary purpose of this alternative was to emphasize market outputs such as timber, range and minerals with non-market outputs managed at economically efficient levels.

Resource objectives. The objective is to provide a mixture of goods and services emphasizing commodity outputs and economic efficiency.

Reasons for Elimination. This alternative was eliminated from detailed study because it was very similar to Alternative Current/RPA.

Alternative PFD/Departure (Preferred Alternative/Departure)

Theme. The theme of this alternative is identical to the Preferred Alternative (PFD), except that departure of non-declining yield is allowed for 5 decades. The purpose of analyzing this departure alternative was to determine whether multiple-use objectives could be better met by regulating the planned sale and harvest of timber volume in a manner that deviates from the principle of non-declining yield.

Resource Objectives. Resource objectives are the same as those shown for the Preferred Alternative discussed later in this chapter.

Reasons for Elimination. The harvesting level is the same as the Preferred indicating that non-declining yield is not the limiting factor.

WLI - Wilderness Emphasis with Capital Investment Mitigation

Theme. The purpose of this alternative is to balance wilderness allocations with increased commodity emphasis on the non-wilderness acres.

Resource objectives. The objective is to increase management intensity on acres outside of wilderness as a balance to those not programmed for timber yields.

Reasons for Elimination. This alternative was eliminated because of its similarity to Alternative A.

Alternatives Considered In Detail

Introduction

This section summarizes direction common to all alternatives, identifies the management areas and management prescriptions related to each land use category, presents each alternative and associated tables showing land use allocations, outputs and costs, and compares the alternatives. Maps for each alternative are in a packet accompanying this EIS.

Direction Common to All Alternatives

Five types of requirements are common to all alternatives: 1) Management Requirements; 2) Implementation Requirements; 3) Timber Policy Requirements; 4) Regional Vegetative Management Policy (use of herbicides) and 5) Forest Constraints. (Refer to Appendix B for information on how these requirements were modeled.) Some standards and guidelines are also common to all alternatives. All alternatives would also use an ecosystem approach to management.

Management Requirements

MRs are designed to meet basic requirements and are taken from NFMA regulations at 36 CFR 219.27. They generally represent requirements beyond the Forest Service's authority to change. They are based on statutes and regulations rather than on agency policy. They are absolute minimum requirements and apply to all alternatives considered in detail and to most of the benchmarks.

MRs as they would be applied by the Forest are listed below. Many of the areas overlap each other causing some of the acres below to be double-counted. Table 2-14 displays some of this same information without any double-counting of acres.

Capable, Available, Suitable Lands - Timber yields shall not be programmed (contribute to the ASQ) on lands identified as not capable, available and suitable (CAS) for timber production. Timber may be harvested from unsuitable lands for salvage, to meet multiple-use needs other than timber or for testing and evaluation of silvicultural practices to obtain growth and yield data.

Capable land is forested and can produce 20 cubic feet per acre per year of commercial timber on a sustained basis. Approximately 18,400 acres of land which were designated by the Secretary of Agriculture as the Butte Valley National Grassland (BVNG) are unforested. About 276,000 acres with extremely low productivity have been identified as being non-capable and would be unregulated (would not have programmed timber yields).

Available land has not been withdrawn from timber production by Congress or by the Secretaries of Agriculture and Interior. Congress has designated approximately 381,100 acres of wilderness which include the Marble Mountain, Siskiyou, Trinity Alps, Russian and Red Butte Wildernesses which are not available.

Suitable land must be able to support a sustained timber yield. The technology and knowledge must exist to ensure timber production without irreversible damage to soils productivity or watershed conditions. Active slides, toe zones of rotational slumps and earthflow deposits, inner gorges developed on unconsolidated material and severely dissected and weathered granitic soils were determined to be unsuitable because they did not meet this criteria. These unsuitable areas comprise approximately 53,600 acres (outside wilderness and the BVNG).

Existing technology and knowledge must provide reasonable assurance that adequate stocking can be attained within 5 years of final harvest.

Adequate information must be available to project responses to timber management activities.

Threatened and Endangered Species - Habitat determined to be critical to the continued survival of designated T&E species shall be identified and measures taken to prevent the destruction or adverse modification of such habitat.

The recovery objectives for bald eagles are to provide habitat for 5 nesting pairs and to protect known nest sites as well as the communal winter roost sites identified in the USFWS recovery plan. About 7,200 acres have been identified as critical bald eagle habitat.

The recovery objectives for peregrine falcons are to provide for 14 pairs and to protect the area within 1/2-mile of each nest site. About 6,300 acres have been identified as critical peregrine falcon habitat.

Habitat management for northern spotted owls and marbled murrelets will be consistent with the final USFWS recovery plan.

For all species, prescriptions shall be applied that provide high and moderate habitat capability as defined in habitat capability models. Objectives for management of the marbled murrelet, if found on the Forest, will be consistent with the final USFWS recovery plan.

Viable Wildlife Populations - Fish and wildlife habitat adequate to maintain viable populations shall be maintained. A viable population is one that has the estimated numbers and distribution of reproductive individuals to insure its continued existence throughout its range.

Adequate snags shall be left during vegetative manipulation activities to provide for the viability of snag dependent species. This would average at least 1.5 snags per acre. This includes 1.2 snags per acre between 15 and 24 inches diameter breast height (DBH), greater than 20 feet high and 0.3 snags per acre larger than 24 inches DBH, greater than 20 feet high.

Diversity of Plant and Animal Communities - Management prescriptions shall preserve and enhance diversity so that it is at least as great as that which would be expected in a natural forest. Reductions in diversity would be prescribed only when needed to meet overall multiple-use objectives.

Riparian Areas - Riparian areas management shall emphasize protection of riparian-dependent resources. As a minimum, riparian areas will include 100 feet horizontal distance from the edge of standing bodies of water, 100 feet horizontal distance on each side of perennial stream channels and all wetlands. No more than minimal timber yields would be programmed from these areas.

Soil and Water Productivity - Best Management Practices (BMPs) shall be used to conserve soil and water resources and prevent significant or permanent impairment of the productivity of the land. Cumulative watershed thresholds will be used to limit disturbance in individual watersheds. Consolidated inner gorge and riparian areas would be managed for watershed values; no more than minimal timber yields would be programmed (Regulation Class 3).

Wild and Scenic Rivers - Approximately 43,000 acres have been designated by the Secretary of Interior as Wild and Scenic Rivers (WSRs). This includes the Klamath River, Salmon River, Wooley Creek, North Fork Salmon River, part of the South Fork Salmon River and part of the Scott River. These areas shall be managed in accordance with direction based on their classification. Proposed additions to the WSR system would have an interim corridor of 1/4-mile on each side managed according to their proposed classification until the actual corridor boundaries were designated.

State of Jefferson National Scenic Byway - The route from Yreka along Highway 263 to Highway 96, along Highway 96 to Happy Camp and from Happy

Camp along the Grayback Road to O'Brien, Oregon (designated in November of 1992 by the Chief of the Forest Service) shall be managed as a National Scenic Byway.

Cultural Sites - Approximately 6,000 acres containing known sacred area cultural sites shall receive adequate protection to preserve the cultural values.

Implementation Requirements

IRs are used to ensure that alternatives are minimally acceptable and implementable on the ground. They are specified by the Region. They are within agency control, but little discretionary control exists regarding their application at the Forest level. They apply to all alternatives but not to the benchmarks. An explanation of how the Forest would implement IRs follows:

Sensitive Species - Sensitive plants, animals and fish species would receive special management to prevent their placement on Federal T&E species lists.

Approximately 100 acres on Gunsight Ridge would be unregulated to protect *Calochortus persistens* populations. Approximately 13,000 acres along the Military Pass Road would have seasonal restrictions on site-disturbing activities to protect *Phacelia cookei*.

Visual Resource - Areas on NFS land (does not include the BVNG) within 1/2-mile (foreground) and areas 1/2 to 5 miles distant (middleground) of designated State Scenic Highways or those highways agreed to in the 1970 State Master Plan will be managed for nearly natural landscapes (Partial Retention VQO). Included are Highways 3, 96, 97 and 263.

Timber Policy Constraints

Programmed timber yields shall meet sustained yield, culmination of mean annual increment (CMAI), harvest flow and dispersion requirements. A perpetual timber harvest at sustained yield level will be ensured by the end of the planning horizon. All even-aged stands scheduled for harvesting will have reached CMAI of growth. When non-declining yield is not applied, a harvest flow constraint will be applied to prevent wide fluctuations of timber outputs and maintain community stability. A dispersion rule will be used to prevent regeneration units which are still openings from being adjacent to each other.

Regional Vegetative Management Policy

On February 27, 1989, the Regional Forester of the Pacific Southwest Region of the USDA Forest Service issued a Final EIS and Record of Decision for Vegetation Management for Reforestation.

This Forest Plan EIS hereby incorporates by reference the detailed discussions and analyses of the preferred alternative (continuation of the current policy); alternatives to the preferred (including no vegetation management, no application of herbicides and no aerial application of herbicides); and the consequences of

these alternatives on the environment as found in the Final EIS for Vegetation Management for Reforestation.

Based on the preferred alternative in the Vegetation Management for Reforestation Final EIS, a full range of alternative treatment methods including mechanical, prescribed fire, biological and chemical methods are available for use in the alternatives described in the Forest Plan EIS.

The selection of any particular treatment method will be made at the project level based on a site-specific analysis of the relative effectiveness, environmental effects and costs of the feasible alternatives. Monitoring and enforcement plans to implement specific measures will be developed for site-specific projects and described in the environmental analyzes for these projects.

Forest Constraints

Forest constraints are requirements imposed at the Forest level in addition to MRs and IRs. They are applied to all alternatives considered in detail.

Special Interest Areas - The 4 areas totalling about 3,300 acres currently being managed as SIAs would be recommended for designation as Botanical SIAs. They are Little Shasta Meadows, Lake Mountain Fox-tail Pine, Seiad Baker Cypress and Indian Creek Brewer Spruce Botanical Areas. Medicine Lake Glass Flow, which was designated as a Geologic SIA by the Record of Decision for the Modoc National Forest Plan EIS and is partially within the Klamath National Forest boundary, would be managed as an SIA. Management activities will be limited to those which enhance the values of the SIAs. These areas would be unregulated.

Research Natural Areas - The designation process will be completed for 9 areas, totalling about 12,500 acres which are currently being managed to protect RNA values. These areas will continue to be managed as RNAs; they would be unregulated.

National Natural Landmarks - No National Natural Landmarks will be recommended for designation (refer to Chapter 3 - Specially Designated Area Management).

Existing Administrative Sites and Developed Recreation Sites - Existing sites will be maintained.

Poorly Stocked Lands - A portion of the ASQ must come from poorly stocked suitable timberlands.

Burned Areas - An additional dispersion rule was applied to large contiguous areas that burned in the 1987 wildfires so they would not all be harvested at the same time.

Forest-wide Standards and Guidelines Common to All Alternatives

A unique set of Forest-wide standards and guidelines were developed for each alternative. The standards and guidelines for each alternative are included in the planning records. A detailed list of the standards and guidelines for the Preferred Alternative can be found in Chapter 4 of the Forest Plan.

Forest-wide standards and guidelines require specific resource protection measures to be used during the implementation of project activities. Standards and guidelines are used in conjunction with the management practices prescribed for each management area and provide the means to mitigate or minimize adverse effects.

The alternative development teams for all of the alternatives considered in detail chose to incorporate the standards and guidelines summarized below:

Ecosystem Management - An ecological approach would be used to analyze site-specific projects. Ecosystem management involves viewing the resources in the project area as interrelated parts of a unified whole and using landscapes as the unit of analysis for each project. The goal would be to manage for a diversity of dynamic ecosystems that are healthy, productive and sustainable.

Soils - Soils would be managed to maintain soil productivity and to prevent excessive surface erosion, mass wasting, soil compaction and cumulative watershed effects.

Water - A number of areas were identified as having watershed concerns due to their current condition. They would be managed to improve their watershed condition. Until they met certain recovery standards, no more than minimal timber yields would be removed from these areas and then only if the removal aided in improving watershed health.

Air - Prescribed burning would occur only when conditions were favorable to meet burning objectives, to provide for smoke dispersion and to meet air quality standards. Air quality would be monitored in the Marble Mountain Wilderness.

Sensitive Plants - Species Management Guides would be developed to provide guidance for resource management activities within essential habitat.

Fisheries - The objective is to maintain shade on 80% of the surface of all flowing water.

Visual Resources - Designated wilderness would be managed to show ecological changes only (Preservation VQO). Until corridor boundaries are established for existing WSRs, an interim distance of 1/4-mile on either side of the rivers would be managed for natural-appearing landscapes (Retention VQO).

Recreation - The Forest Recreation Strategy would be incorporated. OHV use would be prohibited in

wilderness, on the Pacific Crest Trail (PCT), on the Boundary and Clear Creek National Recreation Trails and on part of the Kelsey National Recreation Trail.

Wilderness - Wilderness would be managed to maintain a wild character and to provide primitive and semi-primitive non-motorized recreational opportunities.

Lands Program - Landownership would be adjusted through exchange, purchase, sales and grants to meet both public and private ownership goals, reduce land use conflicts, resolve title claims and reduce the costs of rights-of-way acquisition and property boundary surveys. Utility corridor proposals would be analyzed on a site-by-site basis as proposals were received.

Law Enforcement - Federal laws and regulations would be enforced on NFS land in cooperation with Federal, State and local law enforcement agencies.

Minerals - The orderly development of minerals resources would be encouraged. Plans of Operations would require the reclamation of lands disturbed by mining to a level that meets the management objectives for the area. RNAs and proposals for Wild Rivers would be recommended to the BLM for withdrawal from mineral entry. Mining activities would have to meet special requirements on lands which have TE&S habitat, cultural resources, SIAs, geologically unsuitable and sensitive features as well as designated and proposed Scenic and Recreational Rivers in the WSR System.

Timber - Logging residues would be available for personal-use firewood, energy-producing wood-burning plants and other appropriate uses.

Hardwoods would not be managed as commercial timber. The standards and guidelines for snag and hardwood retention as outlined for each alternative would be followed during all vegetative manipulation.

All logging methods would be available for removing timber to meet resource objectives.

Fire - All feasible treatment methods would be used to achieve the objectives of the fuel reduction program. Marketing of biomass (wood fiber) would be encouraged as an alternative method of treating fuels created by timber management activities.

Range - A range program would be maintained throughout the Forest where compatible with management goals and objectives. Range management on the westside of the Forest would be primarily extensive; grazing strategies would not be used. Livestock would be released on the range at the beginning of the season and gathered in the fall. Use of transitory range would be largely incidental to use on permanent rangeland.

Cultural Resources - All cultural sites would be protected until the significance of sites could be deter-

mined. Cultural surveys would respond to project needs.

Social - A Rural Development Program would assist rural, forest-dependent communities to stabilize and revitalize their economies. Activities would include such things as removing barriers that impede the flow of financial and technical assistance and developing opportunities for special forest products.

All resources would be managed to provide sustained levels of outputs over time. This would provide the basis for a stable local economy.

Common to All Alternatives, Except Preferred

Selection of any of these alternatives for implementation would require coordination with the Regional Interagency Executive Committee and the Regional Ecosystem Office (USDA Forest Service and USDI BLM, 1994, page 58) or they would have to be made consistent with the direction in the ROD for the FSEIS.

Management Prescriptions and Management Areas

Each alternative proposes land allocations by management areas which are distinct geographical areas with specified objectives. Each management area has associated management prescriptions which are strategies for managing the resources of an area of land. The management areas selected, the management area boundaries and the associated management prescriptions may differ from alternative to alternative according to the resource areas emphasized by each alternative. This provides a broad range of alternatives.

Management prescriptions for management areas consist of objectives, management practices, a description of areas to which the prescription can be applied and specific standards and guidelines that apply to the prescription. Each management prescription, when applied to the management area, would provide a set of outputs.

Some areas have overlapping management area prescriptions. Wherever this occurs and the management direction is in conflict, the more restrictive direction for that resource will prevail. For example, when RNAs lie within wilderness, the prescription for the Wilderness Management Area would take precedence.

Detailed management prescriptions for each alternative can be found in the planning records. The detailed management prescription for the Preferred Alternative can be found in Chapter 4 of the Forest Plan.

Maps of the alternatives in the accompanying map package display groupings and subdivisions of the management areas by similar land uses. The Preferred Alternative is the only alternative with sig-

nificant changes between the Draft and Final EIS based on the public comment received. The Final Preferred Alternative Land Allocation map shows management areas as modified for the Final EIS; some management areas are grouped and the Special Habitat is divided into 2 categories. Table 2-3 summarizes the management areas and management prescriptions associated with each of these land uses.

Table 2-3: Summary of Management Areas and Prescriptions by Land Use

Not all alternatives contain all management areas or all sub-divisions of management areas.

Congressionally Designated

This includes the Wilderness and the BVNG Management Areas. Wilderness will be managed in accordance with the National Wilderness Preservation Act of 1964, the California Wilderness Act of 1984 and associated regulations. Emphasis is placed on maintaining natural landscapes and ecosystems. The BVNG will be managed in accordance with the BVNGs Act of February 28, 1991 and agreements made by the Butte Valley Coordinated Resource Management and Planning effort and the Butte Valley Resource Conservation District. Emphasis is placed on grasslands management, wildlife use and livestock grazing.

Wild Rivers

This includes the Designated Wild River and Recommended Wild River Management Area. The Wild designation is reserved for those rivers that are free flowing, free of impoundments and generally inaccessible. The areas are managed to maintain the natural, free flowing and primitive character. Those rivers currently designated as Wild, or those recommended for inclusion in the National WSR System as Wild would be managed in this manner. Preservation of the river's free-flowing condition and outstandingly remarkable values are of greatest importance.

Threatened, Endangered and Sensitive Species

This includes several management areas. The T&E Species Habitat Management Area includes habitat for the bald eagle, peregrine falcon and northern spotted owl. The Sensitive Species Habitat Management Area includes habitat for *Calochortus persistens*, northern goshawk, fisher and marten. The Special Habitat Management Area includes habitat for late-successional species, bald eagles, peregrine falcon and *Calochortus persistens*. The Managed Wildlife Area includes late-successional habitat. The objective for T&E species is to maintain the viability of all T&E species on the Forest. The objective for Sensitive species is to manage them so they won't need to be listed as T&E species. The objective of management areas managed for late-successional habitat is to provide for all species that use this habitat in an ecosystem

approach. A number of plant, animal and fish species have been designated as Sensitive and would be managed in accordance with species management plans. Special management would be accorded to the habitat of the species described below.

- *Bald Eagle and Peregrine Falcon* - Recovery plans have been written for both of these species. The objective of the recovery plans is to return the species to a status that no longer requires a T&E designation. Bald eagle and peregrine falcon habitat will be managed to comply with these recovery plans.
- *Northern Spotted Owl* - Special management areas will be managed to recover the species to the point where it no longer needs listing as a T&E species.
- *Calochortus persistens* - Special habitat will be designated and protected from ground disturbing activities. Habitat and population enhancement opportunities will be actively pursued according to the species management guide.
- *Goshawk* - Goshawk Management Areas will be designated and managed to provide for nesting and dispersal needs.
- *Fisher and Marten* - Suitable habitat would be managed to provide adequate crown closure, snags and CWD. The objective is to maintain viable populations in a distributed pattern throughout the range.

Special Management

This includes the RNA, SIA and Cultural Areas Management Areas. The objective of RNA management is to observe how specific ecosystems function when human activities are excluded. They would provide non-manipulative research opportunities and provide "control sites" to compare with similar areas where active management is applied. SIAs would be managed to protect unique botanical, geologic or scenic features. Inam, Cottimien and Helkau are areas sacred to the Karuk Tribe of California and would be managed to protect the ceremonial values. Management would be coordinated with the Karuk Tribe. Cultural areas can also include identified cultural sites for which a significance determination may or may not have been made.

Backcountry

This includes the Backcountry Management Area. These are areas outside existing wilderness which will remain unroaded and provide semi-primitive non-motorized recreational opportunities. Natural-appearing landscapes would be maintained with only subtle modifications such as trails or primitive campsites.

Habitat Linkage

This includes the Habitat Linkage Management Area. These areas connect large blocks of wildlife habitat and are designed to provide for wildlife dispersal and the long-term migration of plant and animal species through a range of elevations. These linkages will also

provide fish habitat, "old growth" and increased opportunities for non-developed recreation.

Retention (Visual Quality Objectives)

This includes the Retention Visual Quality Objective Management Area. The objective is to provide natural-appearing landscapes by assuring that management activities are not visually evident. Maintenance of scenic quality is emphasized. Timber yields, recreational developments and road construction would be allowed at low levels.

Scenic Rivers

This includes the Designated Scenic River and Recommended Scenic River Management Areas. These areas are managed for multiple uses with an emphasis on recreation and scenic quality as directed by the National WSR Act. Management activities will be designed to maintain the outstandingly remarkable values associated each river. Those rivers currently designated as Scenic or those recommended for inclusion in the National WSR System as Scenic would be managed in this manner.

Recreational Rivers

This includes the Designated Recreational River and Recommended Recreational River Management Areas. These areas are managed for multiple uses as directed by the National WSR Act. Management activities will generally be at moderate intensities. The outstandingly remarkable values associated with each river will be maintained. Those rivers currently designated as recreational and those recommended for inclusion in the National WSR System as Recreational, would be managed in this manner.

Riparian Management

This includes the RR or the RMZ Management Areas. The objective is to maintain or enhance riparian areas and water quality by emphasizing streamside and wetland management. Management activities will be designed to enhance riparian area dependent resources such as fish habitat, wildlife habitat, vegetation and water quality.

Big Game Habitat Management

This includes the Big Game Habitat Area and Winter Range Management Areas. The objective is to maintain or improve winter range and forage production for deer, elk and non-game species. Silvicultural prescriptions would recognize the need for an adequate level of forage and cover to maintain and increase the population levels. The density of roads would be limited to a moderate level where possible.

Partial Retention (Visual Quality Objectives)

This includes the Partial Retention Visual Quality Objective Management Area. Management activities would be designed to provide for near natural landscapes that are visually subordinate to the char-

acteristic landscape. These areas would be managed for multiple uses including recreation, timber production and wildlife habitat.

Forage Management

This includes the Forage Management Area. The objective is to maintain or improve forage production for deer, pronghorn and elk.

General Forest

This management area includes everything that does not fit in the other management areas. These areas are managed for multiple uses including timber production, soil productivity, wildlife needs and visual quality. Generally, the programmed timber yields would be higher than those programmed from the management areas in the land use categories described above, but all regulation classes and unregulated lands may be included here as well. This is displayed on the maps by the 3 general forest land use categories. The map for the Final Preferred Alternative does not show this level of detail.

Individual Alternative Descriptions

Following are the highlights of each alternative considered in detail. Tables 2-4 and 2-5 display the outputs, costs and key comparisons associated with each alternative in comparative form. Each alternative is then described in 4 parts. 1) The **Alternative Theme** gives the intent or philosophy that distinguishes each alternative. 2) A **table** displays the acres that would be associated with each Land Use group for each alternative. 3) **Resource Program Direction** shows emphasis areas and management standards and guidelines for each alternative. The information covered in the Direction Common to All Alternatives section is not repeated here; therefore, some resource areas are not addressed in this section. 4) The **Environment to be Created** provides an image of what the Forest would look like in 50 years if each alternative were implemented.

Table 2-4 displays the outputs and costs associated with each alternative. Table 2-5 displays additional key comparisons for each alternative.

The silvicultural treatment information in Table 2-5 displays how silvicultural prescriptions were modeled for the first decade in FORPLAN for each alternative to allow comparisons between alternatives. An average or relative picture of silvicultural prescriptions is portrayed to give an indication of priorities. Refer to the resource program direction for each alternative to see what range of silvicultural prescriptions would be used in actual practice. Timber salvage could use any of the prescriptions listed. Salvage acres are included in those estimates.

Table 2-4. Comparison of Average Annual Outputs by Alternative for Decades 1 and 5[@]

Resource Element	Base Year 1987	1990 RPA Goals	Decade	PFD	CUR	A	B	B'	C	D	D'	E	G (SOHA)
Physical Environment													
Water													
Quality (MM Acre Feet at or above standards)	3,911	-	1 5	3,959 3,930	3,973 3,855	3,981 3,912	3,996 3,886	3,977 3,885	3,969 3,957	3,993 3,916	3,977 3,914	3,961 3,886	3,984 3,828
Increased Quantity (MM Acre Feet)	3,952	-	5	27 30	48 54	54 49	68 52	48 46	44 59	61 55	44 54	30 33	60 46
Watershed Improvement (Acres)	325	575	1 5	2,100 2,100	325 325	1,426 1,426	1,157 1,157	1,157 1,157	337 337	2,100 2,100	2,100 2,100	1,843 1,843	204 204
Biological Environment													
Threatened Endangered (T&E) and Sensitive Wildlife Species													
Bald Eagle (# managed pairs)	5	5	1 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5
Peregrine Falcon (# managed pairs)	14	9	1 5	14 14	14 14	14 14	14 14	14 14	14 14	14 14	14 14	14 14	14 14
Spotted Owl (M Acres of Suitable Habitat)	458	-	5	552	481	458	526	480	504	570	538	NA	508
Acres/Structures of Direct Habitat Improvement													
Big Game	600/0	-	1 5	900/0 900/0	600/0 600/0	600/0 600/0	1,100/0 1,100/0	1,100/0 1,100/0	1,100/0 1,100/0	1,100/0 1,100/0	1,100/0 1,100/0	1,100/0 1,100/0	600/0 600/0
All Other Species (Except T&E)	100/0	-	1 5	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6	890/6 890/6
Fish													
Resident Fish (M Pounds)	43.2	-	1 5	44.3 44.3	43.2 43.2	44.9 44.9	45.4 45.4	45.4 45.4	42.6 42.6	45.0 45.0	45.0 45.0	46.1 46.1	39.9 39.9
Habitat Improvement													
Riparian Habitat (Acres)	966	-	1 5	1,277 1,277	966 966	1,277 1,277	1,277 1,277	1,277 1,277	966 966	1,277 1,277	1,277 1,277	1,617 1,617	966 966
Resource Management Programs													
Visual Quality													
Visual Quality Index	80	-	5	77	73	77	79	79	83	74	74	87	73
Recreation													
Total WUDs	53,900	-	1 5	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819	59,296 86,819
Total FUDs	88,000	111,000	1 5	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100	96,800 163,100
Developed Public (M RVDs)	150	-	1 5	165 242	165 242	165 242	165 242	165 242	165 242	165 242	165 242	165 242	165 242

@ = Abbreviated terms and meanings are listed at the end of the table.

Table 2-4. Comparison of Average Annual Outputs by Alternative for Decades 1 and 5[@]

Resource Element	Base Year 1987	1990 RPA Goals	Decade	PFD	CUR	A	B	B'	C	D	D'	E	G (SOHA)
Recreation (cont'd)													
Dispersed (M RVDs)	437	-	1 5	481 704	481 704	481 704	481 704	481 704	481 704	481 704	481 704	481 704	481 704
Wilderness (M RVDs)	71	77	1 5	78 114	78 114	78 114	78 114	78 114	78 114	78 114	78 114	78 114	78 114
Total RVDs (M RVDs)	658	763	1 5	724 1,060	724 1,060	724 1,060	724 1,060	724 1,060	724 1,060	724 1,060	724 1,060	724 1,060	724 1,060
Open Usable OHV Areas -- Summer (M Acres)	407	-	1 5	407 407	407 407	407 407	407 407	407 407	407 407	407 407	407 407	407 407	407 407
Open Usable OHV Areas -- Winter (M Acres)	402	-	1 5	402 402	402 402	402 402	402 402	402 402	402 402	402 402	402 402	402 402	402 402
Trail Construction		-	1 5	10 10	0 0	10 10	10 10	10 10	12 12	10 10	10 10	12 12	0 0
Land and Minerals													
Minerals (# plan of operations)	250	300	1 5	80 80	80 80	80 80	80 80	80 80	80 80	80 80	80 80	80 80	80 80
Land Acquisition (Acres)	200	-	1 5	200 100	200 100	200 100	200 100	200 100	200 100	200 100	200 100	200 100	200 100
Transportation and Facilities													
Road Construction (Miles)	24	15 5	1 5	10 5	23 23	24 24	28 28	20 20	15 15	23 23	21 21	12 12	24 24
Road Reconstruction (Miles)	22	-	1 5	20 40	21 21	22 22	27 27	19 19	14 14	21 21	19 19	11 11	22 22
Road Maintenance (Miles)	5,114	-	1 5	5,214 5,414	5,341 6,249	5,349 6,289	5,398 6,534	5,317 6,129	5,266 5,869	5,114 5,114	5,114 5,114	5,234 5,709	5,349 6,289
Dams and Reservoirs (Number) Forest Service Owned/Leased	0	-	1 5	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Administrative Sites (Number) Forest Service Leased	7	-	1 5	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7
Timber													
ASQ (MMCF)		-	1 5	7.6 13.4	19.2 25.9	19.8 26.8	17.4 25.6	14.1 19.7	17.8 24.4	19.1 26.1	18.5 24.6	7.6 13.4	22.8 30.9
ASQ (MMBF)		145	1 5	51.0 89.2	127.9 172.5	132.2 178.6	116.1 170.2	94.0 131.3	118.8 162.4	127.3 173.9	123.1 164.0	50.7 89.4	151.9 205.9
Long-Term Sustained Yield (MMCF)		-	-	19.2	38.9	43.5	46.4	34.1	38.0	44.4	39.3	19.6	46.9
Long-Term Sustained Yield (MMBF)		-	-	128.3	259.5	290.1	309.5	227.5	253.5	296.1	262.1	130.7	312.8
Reforestation (Acres)		-	1 5	2,850 2,850	5,900 5,900	5,170 5,170	5,010 5,010	5,200 5,200	6,480 6,480	7,360 7,360	7,120 7,120	3,150 3,150	6,830 6,830

@ = Abbreviated terms and meanings are listed at the end of the table.

Table 2-4. Comparison of Average Annual Outputs by Alternative for Decades 1 and 5

Resource Element	Base Year 1987	1990 RPA Goals	Decade	PFD	CUR	A	B	B'	C	D	D'	E	G (SOHA)
Timber (cont'd)													
Timber Stand Improvement (acres)		-	1 5	10,000 10,000	5,040 5,040	9,110 9,110	2,350 2,350	2,080 2,080	1,960 1,960	2,770 2,770	2,450 2,450	770 770	2,330 2,330
Wood Products Other Than Sawtimber													
Firewood (M Cords)		-	1 5	1,210 1,420	2,380 2,380	2,660 2,660	2,160 2,160	1,740 1,740	2,210 2,210	2,300 2,300	2,230 2,230	770 770	2,830 2,830
Fire Management													
Total Fuel Treatment (acres)		-	1 5	27,108 27,108	5,708 5,708	13,973 13,973	8,327 8,327	7,988 7,988	9,975 9,975	11,278 11,278	11,169 11,169	5,214 5,214	6,700 6,770
Fire-Related Treatment (acres)		-	1 5	9,375 9,375	400 400	4,000 4,000	2,000 2,000	2,000 2,000	2,000 2,000	2,000 2,000	2,000 2,000	2,000 2,000	400 400
Timber-Related Treatment (acres)		-	1 5	3,183 3,183	5,298 5,298	4,873 4,873	3,770 3,770	3,438 3,438	5,425 5,425	6,118 6,118	6,009 6,009	2,064 2,064	6,360 6,360
Other Fuel Treatment (acres)		-	1 5	14,550 14,550	10 10	5,100 5,100	2,550 2,550	2,550 2,550	2,550 2,550	3,160 3,160	3,160 3,160	1,150 1,150	10 10
Expected Acres Burned by Wildfire													
Low Intensity		-	1 5	700 3,900	700 1,100	700 2,200	700 1,600	700 1,500	700 1,800	700 1,900	700 1,900	700 1,000	700 1,200
Moderate Intensity		-	1 5	12,000 9,000	12,000 9,000	12,000 9,700	12,000 9,100	12,000 8,900	12,000 9,200	12,000 9,300	12,000 9,300	12,000 8,600	12,000 8,400
High Intensity		-	1 5	3,900 3,700	3,900 6,800	3,900 4,700	3,900 6,000	3,900 6,200	3,900 5,600	3,900 5,400	3,900 5,500	3,900 7,000	3,900 6,600
Range													
Grazing (M AUMs)	34	34	1 5	34 34	34 34	34 34	34 34	34 34	34 34	34 34	34 34	29 29	34 34
Social and Economic Environment													
Human Resources													
Programs (# Enrollees)	130	-	1 5	635 800	635 800	635 800	635 800	635 800	635 800	635 800	635 800	635 800	635 800
Economics													
Total Budget (MM \$)	26	-	1 5	41 37	29 28	37 37	37 38	36 35	33 32	38 39	38 39	31 33	29 29
Total Cost - Undiscounted (MM \$)		-	1 5	50 47	41 40	50 50	49 50	48 47	45 44	50 41	50 51	43 45	41 41

@ Abbreviated Terms and Meanings for this Table:

\$ = Dollars ASO = Allowable Sale Quantity AUMs = Animal Unit Months FUDs = Fish User Days M = Thousand MMBF = Million Board Feet
 MMCF = Million Cubic Feet NA = Information Not Available OHV = Off-Highway Vehicle RVDs = Recreation Visitor Days T&E = Threatened and Endangered
 MM = Million WUDs = Wildlife User Days

Table 2-5. Additional Key Comparisons by Alternative

Element	Alternative									
	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)
Land Allocation (%)										
Regulation Class 1	0	13	16	0	0	7	10	10	0	16
Regulation Class 2	18	21	12	22	22	22	18	18	20	26
Regulation Class 3	3	7	14	30	16	9	16	9	3	9
Unregulated	79	59	58	48	62	62	56	63	77	49
CAS Land (M Acres)	354	680	710	877	630	645	741	634	386	846
Silvicultural Treatment (Average Acres per Year)										
Clearcut	0	3,060	0	0	0	0	0	0	0	3,030
Green Tree Retention	3,210	0	4,780	1,180	900	2,230	2,800	2,870	4,750	0
Seed Step Shelterwood	0	2,150	0	0	0	2,610	2,000	2,020	0	3,330
Removal Step Shelterwood	0	470	430	0	0	420	0	0	0	0
Group Selection	580	0	0	2,270	2,540	340	260	180	560	0
Stand Maintenance	250	400	910	1,530	800	540	700	560	180	430
Total	4,040	6,080	6,120	4,980	4,240	6,140	5,760	5,630	5,490	6,790
Fuel Treatment (Average Acres per Year)										
Site Preparation	3,183	5,298	4,873	3,770	3,438	5,425	6,118	6,009	2,064	6,360
Fire Hazard Reduction	9,375	400	4,000	2,000	2,000	2,000	2,000	2,000	2,000	400
Wildlife Habitat Enhancement	4,300	0	2,000	500	500	500	500	500	500	0
Range Improvement	500	0	500	500	500	500	500	500	500	0
Wilderness Ignitions	8,000	0	1,500	1,500	1,500	1,500	1,500	1,500	100	0
Cultural Site Detection	250	10	100	10	10	10	160	160	10	10
Watershed Fuel Reduction	1,500	0	1,000	40	40	40	500	500	40	0
Total	27,108	5,708	13,973	8,327	7,988	9,975	11,278	11,169	5,214	6,770

Preferred Alternative

Alternative Theme

The Preferred Alternative (PFD) provides for multiple use with an emphasis on maintaining and restoring ecosystem health. In particular, providing habitat for aquatic and late-successional species to recover at-risk populations would be emphasized. Providing assistance to help stabilize local communities in these times of shrinking timber programs through a rural development program is a priority.

Specific areas of the Forest would be managed to emphasize water quality and fish habitat, wildlife habitat, high quality scenery and backcountry recreation. An Adaptive Management Area (AMA) would be established on the Gooseneck Ranger District to encourage the development and testing of technical and social approaches to achieving desired objectives. Opportunities for semi-primitive nonmotorized recreation would be emphasized. Providing for the needs of a multi-cultural public and for mobility impaired individuals would be emphasized during the construction and reconstruction of developed recreational facilities.

Salvage and restoration after catastrophic events is a priority. Stand and landscape patterns would be designed to mimic "natural" patterns. An aggressive fuel reduction program would be emphasized to minimize the risk from future high intensity wildfires. A comprehensive, long-term watershed restoration program would be emphasized to maintain and restore the health of watersheds and aquatic ecosystems.

Land Allocations

Table 2-6 shows acreage estimates by land allocations. Refer to *Final Preferred Alternative Land Allocation Map* in map packet. Only acres that are currently mapped are included. For instance, many smaller streams are not included in the Riparian Reserves (RRs) estimate. This map includes the changes made to the Preferred Alternative for the Final EIS. Mapped categories are individual management areas, groups of management areas, subdivisions as in the case of the Special Habitat Management Area, and a category for harsh sites and non-capable land. Categories are included to show how these land allocations would relate to land allocations in the ROD for the FSEIS (President's Plan).

Some acres may fall into more than 1 category, such as a Wild River that lies within a wilderness (Congressionally Designated). To avoid double-counting acres, they are mapped and displayed in the category which would likely have the most constraining standards and guidelines, the category that is closest to the top of the list. There would actually be more acres of suitable eagle and falcon habitat than displayed, as some would be included in the acreage for Late-successional Reserves (LSRs).

Table 2-6. Preferred Alternative Land Allocations

Land Allocations	Acres
Congressionally Designated	399,900
Late-successional Reserves	369,300
Eagles, Falcons, Sensitive Plants	11,700
Special Management	17,300
Backcountry Management Area	9,600
Wild Rivers Management Area	600
Riparian Reserves Management Area	104,000
Winter Range Management Area	41,800
Harsh Sites, Non-capable	139,600
Managed Wildlife Habitat Management Area	5,400
Scenic Rivers Management Area	2,600
Forage Management Area	43,800
Retention Management Area (Visual Quality Objective)	25,700
Recreational Rivers Management Area	23,000
Partial Retention Management Area (Visual Quality Objective)	223,700
General Forest Management Area	262,000
Total	1,680,000

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality. All unstable and potentially unstable land would be managed as RRs to maintain and restore the health of aquatic ecosystems; this includes all lands unsuitable for timber production due to instability. No timber yields would be programmed from these areas; timber harvest would be permitted only if it served to meet the Aquatic Conservation Strategy objectives.

Managing for slope stability would be coemphasized with other resource objectives on all other geologically sensitive lands; moderate timber yields would be programmed from these areas (Regulation Class 2).

Soils

Soil productivity objectives would provide for a minimum of 50% of the soil surface to be covered by fine organic material following project implementation, when available. Maintaining a minimum of 85% of the existing soil organic matter in the upper 12 inches of soil would also be an objective.

Water

Priorities for watershed restoration and improvement projects would be those which restore, protect or enhance domestic water; those in streams which support TE&S species of fish; and those in watersheds which do not meet water quality objectives. Priorities would be determined through watershed analysis. Watershed restoration would focus on removing and upgrading roads.

Biological Environment

Biological Diversity

The Preferred Alternative would emphasize management at the regional, landscape and site level for biological diversity. The Preferred Alternative would be consistent with the ROD for the FSEIS (USDA Forest Service and USDI BLM, 1994). An ecosystem approach, which includes a rigorous landscape/watershed analysis at the landscape level would be used. The ecosystem approach would also include establishing LSRs and managing other areas of the Forest to provide for late successional species as well as using an Aquatic Conservation Strategy to provide for aquatic species. The Aquatic Conservation Strategy would include the establishing of RRs and Key Watersheds, the use of watershed analysis and a watershed restoration program.

Land allocations that are in large tracts would provide for species which need large blocks of habitat. These land allocations include wilderness, LSRs, Sensitive species habitat and backcountry recreation.

Connectivity between these large tracts would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, RNAs, sacred cultural sites, SIAs, Wild Rivers, Scenic Rivers and their viewsheds, RRs and Scenic Highways. An additional type of connectivity would be provided through the use of a green tree retention (GTR) requirement on regulated land.

Approximately 79% of the Forest would be unregulated; no timber yields would be programmed from these areas. However, due to the large proportion of the Forest in unregulated land, an estimated average

of about 20 MMBF per year of unprogrammed yields is anticipated to meet ecosystem health objectives. Salvage and thinning would likely be the most common activities generating these unprogrammed yields. A variety of stand structures and vegetative compositions would be provided primarily in the later seral stages.

About 3% of the Forest would be managed as Regulation Class 3 for resources other than timber with minimal timber yields programmed. About 18% would be managed as Regulation Class 2, coemphasizing timber and other resources with moderate timber yields programmed. A variety of seral stages would be provided in these areas. A large amount of materials would be left after any timber harvesting activity to maintain structural attributes for wildlife needs in all regulation classes. Timber management would not be solely emphasized on any lands. (Refer to Timber Management later in this section for explanation of terms.)

In landscapes where little late-successional habitat exists, at least 15% of the area would be maintained in late-successional patches.

Key Watersheds and associated standards and guidelines would be established. The goals for Key Watersheds would be to provide high quality water, to provide essential habitat to maintain biological diversity and the health of identified fish populations, to minimize the risk to anadromous salmonids and resident fish populations which are already identified as being at moderate to high risk of extinction, and to improve or maintain riparian habitat conditions. These Key Watersheds are listed in Chapter 4 of the Forest Plan and a map overlay showing their location is included in the Final map packet.

Terrestrial and aquatic communities would be managed to maintain a level of biological diversity similar to that currently existing on the Forest or within the range of natural variability of the Forest.

A proactive approach to watershed management and fuels reduction would be emphasized. Both planned and unplanned ignitions would be permitted in the LSRs when habitat is not threatened. Up to 4,000 acres of LSR would be treated by prescribed fire annually as a tool for assuring long-term viability of forest structure.

Management activities would be promoted that increase the populations of desirable plant species with limited distributions or low population levels. Species of concern include, but are not limited to, Brewer spruce, Port-Orford-cedar, Pacific yew and sugar pine.

Use of the bio-regional coordination group to coordinate habitat management for species whose habitat extends beyond the Forest boundaries would be emphasized.

Riparian Areas

Interim RRs would be used until the criteria for RR boundaries are identified through landscape/watershed analysis and final boundaries are established through site analysis. The RRs for fish-bearing streams would extend from the edges of the active stream channel to the top of the inner gorge, or to the outer edge of the 100-year flood plain, or to the outer edges of riparian vegetation, or to a distance equal to the height of 2 site-potential trees, or 300 feet slope distance, whichever is greatest. RRs for permanently flowing non-fish-bearing streams would have the same criteria except 1 site potential tree distance would be used instead of 2 and 150 feet slope distance instead of 300.

The RR for lakes and natural ponds would extend to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of 2 site-potential trees, or 300 feet slope distance, whichever is greatest. The RR for constructed ponds and reservoirs, and wetlands greater than 1 acre would have the same criteria except 1 site-potential tree distance would be used instead of 2 and 150 feet slope distance instead of 300.

RRs would also be established for seasonally-flowing or intermittent streams, wetlands less than 1 acre, and unstable and potentially unstable areas. All RRs would be unregulated. Salvage and fuelwood cutting would be allowed only after catastrophic damage had occurred and if those activities helped achieve the management objectives of the area.

Wildlife

Northern Spotted Owl - LSRs and the management planned for other land allocations would provide habitat for spotted owls and other late successional species consistent with the ROD for the FSEIS on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. There would be no programmed timber yield from this area. This management is consistent with current direction.

Furbearers - The system described above, plus a Managed Wildlife Area on the westside of Indian Creek, would provide habitat for furbearers. Minimal timber yields would be programmed from the Managed Wildlife Area.

Goshawks - Interim direction would provide for the establishment of a Primary Nest Zone and a Foraging Habitat Zone around occupied territories as well as Network Goshawk Management Areas until surveys provide sufficient data to determine if the species is adequately provided for by large reserves.

Big Game Habitat - Winter Range and forage for deer, elk and pronghorn would be provided on 8% of the total Forest on the eastside.

Special Habitat Provisions - An average of 5 snags per acre in a variety of sizes and decay classes would be maintained on a landscape basis. The actual number of snags maintained at the site level would vary, depending on the number of snags available in the surrounding landscape. Enough live conifers would be maintained within regeneration harvest units to provide replacement snags at the desired densities throughout the rotation. Snags and replacement snags would be retained in clumps where possible.

In addition, adequate numbers of large snags and green tree replacements for future snags would be retained within the species range of the white-headed woodpecker and flammulated owl to provide for 100% population potential; no snags over 20 inches DBH would be removed unless for safety reasons.

Five to 15 large (20-inch diameter) conifer or hardwood logs of varying decay classes per acre would be maintained to provide coarse woody debris (CWD) for wildlife and soil productivity needs.

A hardwood component of 10 to 35 square feet basal area (BA) would be maintained in areas where oak stands occur with conifer stands.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations, wildfire and activities on private land.

Fisheries

The Aquatic Conservation Strategy would provide habitat for fish and other aquatic species. The width of RRs would vary, depending on the stream or wetland features (refer to Riparian Areas above).

Fisheries habitat restoration would include instream, riparian and upslope improvements that benefit riparian-dependent species. In-stream structures would only be used in the short-term, not as mitigation for poor management practices.

Resource Management Programs

Visual Resource Management

Scenic quality would be maintained by adopting the Visual Quality Objectives (VQOs), currently in use with some changes. The changes are to add VQOs for designated and recommended WSR corridors and viewsheds as well as to allow greater degrees of alteration from natural-appearing in background views.

Natural-appearing (Retention VQO) landscapes would be maintained along eligible State Scenic Highways, along the foreground of designated and proposed Scenic River segments of WSRs and in the foreground of high sensitivity travel routes.

In the middleground of high sensitivity roads and in the foreground of travel routes with a moderate visual

sensitivity, scenery would be near-natural in appearance and evidence of management activities would remain subordinate to the characteristic landscape (Partial Retention VQO).

Designated Scenic Character would be defined at the landscape/watershed scale and achieved or furthered through project implementation.

(Refer to Chapter 3 - Visual Resource Management for an explanation of terminology).

Recreation Management

Recreational facilities would be constructed, maintained or improved to meet site objectives and public demand. Opportunities to provide barrier-free access to mobility impaired individuals would be explored during construction or reconstruction of developed recreational facilities. Opportunities to construct or modify facilities to provide for multi-cultural needs would also be explored.

Camping would be discouraged within 300 feet of critical wildlife and livestock watering areas.

The information and interpretation programs would inform visitors of recreational opportunities and resource needs, as well as enhancing their enjoyment of Forest resources. Trail conditions and maps would be available to match user needs with site opportunities.

OHV use would be prohibited in Wild River corridors, RNAs and non-motorized recreation areas in addition to the areas currently closed to OHV use.

Trail management objectives would be developed for all trails on the Forest. All trails would be inspected regularly to identify trail maintenance needs. The trail system would be managed to accommodate all types of use, such as mountain biking, hiking and equestrian, as well as administrative uses, such as wildfire suppression. When uses are found to be incompatible, separation of uses or other restrictions may be established based on management objectives.

Wilderness

Both planned and unplanned ignitions would be allowed to burn within wilderness when management objectives would be achieved. A target of 8,000 acres per year would be planned for treatment by prescribed burning.

Released Roadless Area Management

About 29,000 acres would be allocated for back-country recreation to enhance semi-primitive opportunities. This would include the upper portions of Condrey Mountain Area along the PCT and the Kangaroo Area from the western boundary of Oak Knoll Ranger District to the East Fork of Seiad Creek.

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be achieved.

Wild and Scenic River Management

Only ecological changes (Preservation VQO) would be noticeable in designated and proposed Wild Rivers corridors. Areas in the middleground of these rivers would be managed to provide natural-appearing landscapes. The area beyond 5 miles (background) would be managed to provide near-natural landscapes.

Scenic River corridors would be managed for a Retention VQO. Recreational Rivers would be managed for a Partial Retention VQO except where superceded by State Scenic Highways which would have a Retention VQO. Areas in the middleground of these rivers would be managed for a Partial Retention VQO.

WSR corridor width would vary to contain key resources adjacent to the river.

Lands Program Management

Land adjustments would emphasize acquisition of lands necessary to meet management area resource objectives. Examples are private land within RNAs, cultural sites, SIAs, critical TE&S species habitat, RRs, big game winter range, and Retention visual quality areas.

Transportation and Facilities Management

Transportation planning would be an integral part of ecosystem management. During landscape/watershed analysis and site analysis, existing road management objectives would be reviewed and road management objectives would be developed for proposed roads.

Roads would be closed to meet specific resource needs and when not needed to meet road management objectives.

Forest Highway 93 from Butler Creek to Cecilville would be reconstructed to the minimum extent necessary to meet safety standards. This work would be phased in over the first 2 decades.

There would be a slightly higher emphasis on surfacing roads than in the current situation.

No new roads would be constructed in roadless areas within Key Watersheds. The intent is to reduce road mileage in Key Watersheds.

Timber Management

Both even-aged and uneven-aged silvicultural systems would be used. GTR would be the predominant silvicultural prescription used on lands which co-emphasized timber and other resource objectives (Regulation Class 2).

In this alternative, the GTR prescription (formerly called "regeneration with reserves") would retain at least 15% of the area. To the extent possible, the largest, oldest trees associated with each regeneration unit should be left with 70% of the area in clumps, 1/2 to 2 1/2 acres in size, and the remainder in individual trees or smaller clumps. (Refer to Appendix F for descriptions of all silvicultural systems).

For even-aged silvicultural prescriptions which include GTR and seed step shelterwood: openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

Catastrophic damage salvage would be a priority in areas where timber harvesting is compatible with the management objectives.

Commercial tree stands which are infeasible to manage for timber production due to harsh sites would be unregulated.

A full range of pest management activities would be used including detection, surveillance, prevention, suppression, monitoring and evaluation.

Control of competing vegetation would be emphasized. Herbicides would be used only as a last resort.

Non-traditional forest products and products used traditionally by Native Americans such as mushrooms and acorns would be encouraged and made available.

Fuelwood would be made available in areas where the public can reach it. Utilization of other non-merchantable material such as for chips or energy conversions would also be encouraged by placing it at designated locations. Selling commercial firewood contracts, selling logs for chips and issuing firewood permits would also encourage better utilization of forest material.

Utilization or removal of residues would be emphasized over prescribed burning where feasible for timber-related activities.

Fire Management

Fire use would be emphasized. An average of 27,000 acres per year would be targeted for prescribed burning or other fuel reduction treatments. Re-establishing fire's key ecological role within the Klamath Mountains Province would be a major objective.

The wildfire detection, prevention and initial attack organization would need to increase in order to meet the objectives of this alternative.

The Fuel Management Program would include whatever methods of treatment are available and environmentally sound. The use of prescribed fire and prescribed natural fire (PNF) to reduce fuels and meet

other management objectives would be emphasized. (Refer to Chapter 3 - Fire Management for a definition of PNF).

Where feasible, unmerchantable material from timber harvesting would be utilized to lower the fire hazard consistent with wildlife and watershed objectives.

Range Management

Livestock management actions on permanent rangelands on the eastside of the Forest would be consistent with wildlife objectives. Winter range areas would be unregulated. Minimal timber yields would be programmed from forage areas.

Wild Horse Management

One herd of wild horses would be managed on the eastside of the Forest at the current population levels.

Cultural Resources Management

An additional \$50,000 per year for a decade would be requested for the Heritage Resource Program to accelerate the determination of whether previously recorded cultural sites are significant.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California. These areas would not have a programmed timber yield and no harvest activities would be planned.

Social and Economic Environment

The public information and rural development programs would be emphasized. One objective of encouraging the use of special forest products would be to stimulate the local economy.

Environment To Be Created

By the year 2040, 24% of the Forest would show primarily only ecological changes. There would be traces of human use in some of these areas, such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual forest visitor on approximately 34% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 25% of the Forest. On approximately 83% of the Forest, human activities would not dominate. This area includes major travel routes and high use recreational areas. Landscapes would appear modified on the remaining 17% of the Forest.

More areas would have larger sized trees than today. There would be fewer acres of even-aged plantations than currently. Those that exist would be due to high intensity wildfires and regeneration cuts. There would be slightly fewer acres burned in high intensity wildfires than in the current situation.

Developed recreational sites would provide for diverse cultural groups and for the mobility impaired. Backcountry recreational opportunities would be available.

Current/RPA Alternative

Alternative Theme

The Current Alternative is the "no change" alternative. It shows what the Forest would be like with a continuation of current management throughout the planning period. This alternative reflects the expected outputs and services that would be possible if current land allocations, direction and policy were to continue.

These practices are very similar to the management scheme proposed in the Forest and Rangeland Renewable Resources Planning Act (RPA). Therefore, in most cases, these 2 alternatives are described together.

The 1990 RPA Program proposed 4 themes. These themes include enhancement of outdoor recreation, wildlife and fisheries resource outputs; increasing sensitivity to the environment where commodities are produced; improving scientific knowledge about natural resources and responding to global resource issues. Special attention is focused on resources which NFS lands can provide at a comparative advantage.

The RPA Alternative differs from the Current Alternative in its goals (refer to Table 2-4). This results in a difference in proposed road construction miles as the RPA goals limit the amount for the RPA Alternative. One other difference is in the budget; the budget displayed for the Current Alternative would not be adequate to achieve the RPA goals.

Land Allocations

Table 2-7 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative Current/RPA Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in each land use table in the land use category which would likely have the most constraining standards and guidelines, the category that is closest to the top of the list.

Table 2-7. Current/RPA Alternative Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	0
Threatened, Endangered and Sensitive Species	312,700
Special Management	11,100
Backcountry	0
Habitat Linkage	0
Retention (Visual Quality Objective)	74,000
Scenic Rivers	1,100
Recreational Rivers	10,100
Riparian Management Zones	93,700
Big Game Habitat	109,900
Partial Retention (Visual Quality Objective)	246,400
Forage Management Area	22,500
General Forest - No Scheduled Harvest	48,700
General Forest - Limited Scheduled Harvest	0
General Forest	349,900
Total	1,680,000

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality. Minimal timber yields would be programmed from these areas. Other geologically sensitive lands, including granitic soils, would be managed on a site-specific basis and would be managed as Regulation Class 1 or 2 if no other resource constraints existed.

Biological Environment

Biological Diversity

Forest-wide biological diversity would be provided through land allocations and standards and guidelines.

Large tracts of land would be allocated to management areas whose objectives are consistent with species viability objectives. These land allocations include wilderness and HCAs.

Connectivity between these large tracts would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred cultural areas, SIAs, Wild Rivers, Scenic Rivers, RMZs, Scenic Highways, Preservation VQO areas, Retention VQO areas and lands managed to meet the 50-11-40 rule.

Approximately 59% of the Forest would be unregulated. A variety of stand structures and vegetative compositions would be provided, primarily in the later seral stages. About 7% of the Forest would be managed for resources other than timber resulting in minimal timber yields. About 21% would co-emphasize timber and other resources. A variety of seral stages would be provided in these areas. About 13% of the Forest would be managed intensively for timber production; primarily early and middle seral stages would be provided.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

Unique or vegetative species with limited ranges would be managed to maintain them at their current levels of diversity. These species would include Pacific yew, Port-Orford-cedar and specific species of hardwoods.

Riparian Area Management

RMZs would extend a minimum of 100 feet on either side of perennial streams.

Wildlife

Northern Spotted Owl - The management strategy implemented on the Forest in 1990 would be used. HCAs would provide for spotted owl habitat. No timber yield would be programmed from these areas. The 50-11-40 rule would be implemented outside HCAs.

Goshawk - A network of 200-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. No timber yields would be programmed and activities related to commodity outputs would be prohibited within these areas which are about 14,400 acres.

Furbearers - Management areas that promote late seral stage vegetation would provide habitat for the American marten and Pacific fisher.

Species Re-Introduction - Re-introduction would occur on a site-by-site basis.

Big Game Habitat - The objectives would be to provide quality habitat for deer, elk and antelope while producing timber products on 3% of the Forest on the eastside and on 5% on the westside. Moderate timber yields would be programmed from these areas. Additional areas of the Forest within other management areas that have special habitat values for deer and elk would be managed to promote those values.

Special Habitat Provisions - The objectives for snags and hardwoods are listed below as per acre averages. Distribution would not occur evenly on every Forest acre.

- 1.2 snags, less than 24 inches DBH;
- 0.3 snags, greater than 24 inches DBH;
- 2 to 4 square feet BA of hardwoods on Regulation Class 1 lands;
- 6 square feet BA of hardwoods on Regulation Class 2 lands; and
- 8 square feet BA of hardwoods on Regulation Class 3 lands.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Fisheries objectives would be to maintain bank stability and provide habitat structure as well as to maintain shade on 80% of the surface of all flowing water.

Habitat improvement would be accomplished by constructing instream structures as well as through resource management which provides for habitat structure, bank stability and reduced sedimentation.

Resource Management Programs

Visual Resource Management

Scenic quality would be maintained by adopting the VQOs currently in use. This would include Inventoried VQOs (IVQOs) with some changes. High sensitivity travel routes would be managed for near natural landscapes in the foreground and middleground. On the westside of the Forest, the background of sensitive travel routes would be managed for a modified appearance.

Recreation Management

Recreational opportunities would be maintained or enhanced in accordance with recreational demand. Developed recreational sites would be reconstructed to meet changing public needs.

Wild and Scenic River Management

WSR corridors would be a uniform 1/4-mile wide on either side of the river.

Lands Program Management

Land acquisition priorities would be to consolidate ownership in Congressionally designated areas.

Transportation and Facilities Management

The standards of selected arterial and collector roads would be upgraded to increase safety, to reduce maintenance and hauling costs and to better accommodate passenger vehicles.

Roads providing access to areas of interest would be maintained. No significant changes in classifications would be planned. Seasonal road closures would occur to prevent damage to road facilities, to minimize disturbance to adjacent resources such as critical wildlife habitat and to protect highly erosive soils.

RPA limits new road construction to only a 3% increase in the first decade, approximately 15 miles of new road per year. Although this limit was modeled and is displayed throughout this document, it is not a realistic limit for the management objectives displayed. It does not reflect a continuation of the current situation.

All facilities would be operated in a reasonably safe and efficient condition. This may require construction, reconstruction and/or obliteration of some buildings or systems.

Timber Management

A mixture of silvicultural systems would be used to meet management objectives. Even-aged systems would be emphasized on lands allocated to intensive timber management. Clearcutting would be the primary prescription on these lands.

For even-aged silvicultural prescriptions which include clearcutting and seed step shelterwood, openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

Regenerating poorly growing, understocked stands would be emphasized on lands allocated for intensive timber management. Stands receiving regeneration cuts would be the first priority for reforestation, while openings created by wildfires and other catastrophic events would be the second priority.

Reducing fire damage to tree plantations would be a priority. Fuel management plans would be developed to reduce the build-up of hazardous fuels both inside and immediately adjacent to plantations.

Maintaining stand vigor to avoid pest infestations would be an objective of timber management. Control of pests would be planned on a site by site basis.

Fire Management

Prevention, detection and suppression efforts would be maintained at current levels. The organization would include 14 engines, 2 helicopters, 1 air attack aircraft, 9 lookouts and 2 fire prevention patrols per district. An airtanker reload base at Siskiyou County Airport and the centralized dispatch operation shared with CDF would also be included.

Protection of high value areas such as private property, developed sites and plantations would be em-

phasized. The goal is to suppress all wildfires in a timely manner through appropriate fire suppression efforts.

Range Management

On the eastside of the Forest, forage production would be emphasized in areas of permanent and temporary range. The development of water sources to meet domestic livestock and wildlife needs would also distribute grazing use.

Wild Horse Management

The 2 existing wild horse herds on the eastside of the Forest would be maintained at about the current population levels.

Cultural Resources Management

Cultural surveys to support the timber program would be first priority.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California. These areas would not have a programmed timber yield and no harvest activities would be planned.

Potentially significant cultural sites would be managed to protect cultural resource values.

Social and Economic Environment

Continuation of the current public contracting opportunities would continue.

Environment To Be Created

By the year 2040, 23% of the Forest would show primarily only ecological changes. There would be traces of human use in some of these areas such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual Forest visitor on approximately 5% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 28% of the Forest. Human activities would not dominate on approximately 56% of the Forest. These areas would include major travel routes.

Management activities would dominate but be well blended with surrounding features on 29% of the Forest. On about 15% of the Forest, management activities would be dominant. Approximately 44% of the Forest would allow human activities to dominate. In these areas openings of approximately the same size as those in the Forest today would be evident. These openings would provide visual contrasts with surrounding areas.

Almost twice as many acres per year would have burned in high intensity wildfires as do today.

Developed recreational sites would be available.

Alternative A

Alternative Theme

Alternative A provides for multiple uses with an emphasis on timber management. Specific areas of the Forest would be managed to emphasize high quality scenery, backcountry recreational opportunities, motorized recreational opportunities, wildlife habitat, water quality and fish habitat. While providing amenity values, a reasonable and sustainable timber output would also be provided. Land allocations were carefully designed to avoid conflicts among resources and forest uses.

Alternative A would manage for ecosystem, species and genetic diversity.

Returning as much land as possible to timber production through the restoration of areas with watershed concerns, through salvage and recovery of areas after catastrophic damage has occurred, through reforesting unstocked stands and through the determination of significance on cultural sites would be priorities of the alternative. An intensive fuels management program to protect resource values is also a priority.

The intent is to provide scenic diversity ranging from natural-appearing to altered throughout the Forest.

Land Allocations

Table 2-8 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative A Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in each land use table in the land use category which would likely have the most constraining standards and guidelines, the category that is closest to the top of the list.

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality.

Minimal timber yields would be programmed from these areas. Other geologically sensitive lands would be managed on a site-by-site basis and would be managed as Regulation Classes 1 or 2 if no other resources were constraining.

Table 2-8. Alternative A Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	8,800
Threatened, Endangered and Sensitive Species	368,800
Special Management	10,500
Backcountry	12,700
Habitat Linkage	0
Retention (Visual Quality Objective)	35,100
Scenic Rivers	4,100
Recreational Rivers	28,300
Riparian Management Zone	80,200
Big Game Habitat	56,600
Partial Retention (Visual Quality Objective)	98,700
Forage Management Area	44,000
General Forest - No Scheduled Harvest	76,000
General Forest - Limited Scheduled Harvest	139,600
General Forest	316,700
Total	1,680,000

Soils

A minimum of 50% of the site's fine organic material would be maintained on the soil surface during site disturbing activities. A minimum of 85% of the existing organic matter would be maintained in the upper 12 inches of soil on a case by case basis.

Harsh sites on the eastside where precipitation is extremely limiting would be managed for wildlife, range and timber objectives.

Water

Watersheds which don't meet water quality objectives would be a priority for restoration projects.

Biological Environment

Biological Diversity

Forest-wide biological diversity would be provided through land allocations and standards and guidelines.

Large tracts of land would be allocated to management areas whose objectives are consistent with species viability objectives. These land allocations would include wilderness, HCAs, furbearer habitat and back-country.

Connectivity between these large tracts would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred cultural sites, SIAs, Wild Rivers, Scenic Rivers, RMZs and lands managed to meet the 50-11-40 rule.

Approximately 58% of the Forest would be unregulated. A variety of stand structures and vegetative compositions would be provided, primarily in the later seral stages.

About 14% of the Forest would be managed for resources other than timber resulting in minimal timber yields. About 12% would co-emphasize timber and other resources. A variety of seral stages would be provided in these areas. About 16% of the Forest would emphasize timber management; primarily early and middle seral stages would be provided.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

A minimum of 5% of "old growth" habitat would be protected within each landscape unit. The 72% of the Forest that is unregulated or managed as Regulation Class 3 is expected to provide for mature and "old growth" seral stages.

Minor conifer species would be maintained in their current range at about current population levels. Additional inventories, seed collection and reforestation would be emphasized to maintain existing populations. Species of concern include but are not limited to Brewer spruce, Port-Orford-cedar, Pacific yew, sugar pine and western white pine.

Riparian Area Management

RMZs would extend 100 feet from the streambank on either side of all perennial streams, designated intermittent or ephemeral channels as well as around meadows, lakes, ponds, seeps, springs and bogs. The width of all other RMZs would be variable depending on the type of vegetation, the classification or designation of the stream, the width of the vegetation's "drip zone" as well as on the width of the valley bottom; actual widths would be determined through site-specific project planning.

The objective for RMZs is to maintain continuous vegetative cover. Silvicultural prescriptions and timber harvest activities would be designed to maintain a mosaic of continuous vegetation cover in all seral stages from early successional to over-mature timber vegetation within the RMZ. site-specific conditions would dictate specific silvicultural prescriptions. These would be managed as Regulation Class 3.

Wildlife

Northern Spotted Owl - HCAs would be established. The management objective for HCAs is to improve spotted owl habitat; no timber yield would be programmed. Outside HCAs, the 50-11-40 rule would be implemented. Management areas managed for later seral stages would provide additional habitat for the owl.

Goshawk - A network of 200-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. These areas comprise about 14,400 acres. No timber yields would be programmed, but timber harvest would be allowed if it would improve habitat around goshawk nest sites. Vegetative patterns in other areas of the Forest might also provide suitable goshawk habitat.

Furbearers - Lands would be allocated specifically to provide optimum habitat for marten and fisher on both the westside and the eastside of the Forest. These land allocations would provide for movement and distribution of these species. Minimal timber yields would be programmed from these areas.

Big Game Habitat - Wildlife, range and timber objectives would be co-emphasized on 3% of the total Forest on the eastside. Forage production for deer, elk and pronghorn would be the wildlife objective. Moderate timber yields would be programmed from these areas.

Special Habitat Provisions - The objectives for snags and hardwoods which would be implemented on a landscape unit basis are listed below as per acre averages.

Lands where minimal timber yields are programmed:

- 2 dead trees per acre, greater than 12 inches DBH;
- 3 green trees for snag recruitment per acre, greater than 12 inches DBH;
- 4 small green trees for snag recruitment per acre, 6-12 inches DBH; and
- 20 square feet of BA per acre of mast-producing hardwoods greater than 10 inches DBH.

Lands where moderate timber yields are programmed:

- 2 dead trees per acre, greater than 12 inches DBH;
- 2 green trees for snag recruitment per acre, greater than 12 inches DBH;
- 3 small green trees for snag recruitment per acre, 6-12 inches DBH; and
- 10 square feet of BA per acre of mast-producing hardwoods greater than 10 inches DBH.

Lands where high timber yields are programmed:

- existing snags would be left where possible;
- 1.2 green trees for snag recruitment per acre, between 15 and 24 inches DBH;

- 0.3 live trees for snag recruitment per acre, greater than 24 inches DBH;
- 5 square feet of BA per acre of mast-producing hardwoods greater than 10 inches DBH.

Snags and/or green trees would be left in clumps. The snag recruitment standard would be monitored on a landscape unit basis. Existing shelterwoods would be exempt from the tree recruitment policy.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Forest-wide standards and guidelines, specifically those for RMZs, were designed to improve the quality of fish habitat. Silvicultural prescriptions would be implemented within RMZs to promote streambank stability, maintain short- and long-term levels of CWD, provide stream shade and to reduce the amount of sediment entering streams.

Water quality and fish habitat objectives would be emphasized in areas which have watershed concerns. Fish habitat restoration would include instream and riparian improvements.

Resource Management Programs

Visual Resource Management

VQOs would be assigned by management area consistent with the management intensity with the exception of certain areas. Areas with special visual considerations include the foreground of designated and proposed Wild and Scenic segments of WSRs and the foreground of developed recreational sites which would be managed for natural-appearing landscapes. Natural-appearing landscapes would also be maintained along existing and candidate State Scenic Highways. Scott River Road, Forks of the Salmon Road and Round the Mountain Road would be recommended as candidates to the State Scenic Highway Program.

RNAs and SIAs would be managed for a Preservation VQO which allows ecological changes only. The Backcountry Recreation areas as well as the corridors for Wild and Scenic segments of WSRs would be managed for natural-appearing landscapes.

Recreation Management

Recreational facilities would be constructed, maintained or improved to meet site objectives and public demand. An active and visible educational and interpretive program would be initiated to describe Forest Service programs, activities and local history.

In many cases facilities would occur together to support a variety of purposes within the same site or area. Some would be designed for a large number of people and for special activities. Examples include swimming

areas, ski areas, picnic areas, viewpoints, resorts, recreational residences, organizational sites, snow play sites and interpretive sites. Developments can occur as a substantial modification of, or as an addition to, the natural environment.

OHV use would be prohibited in Wild River corridors, RNAs and non-motorized recreation areas in addition to the areas currently closed to OHV use.

Wilderness

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be met. Approximately 1,500 acres per year would be treated by prescribed fire.

Released Roadless Area Management

About 32,500 acres of the lands examined during the RARE II process would be allocated to Backcountry Recreation to enhance semi-primitive non-motorized opportunities. An efficient trail system and appropriate recreational facilities would be developed. This would include the upper portions of Condrey Mountain Area along the PCT; the Kangaroo Area from the western boundary of Oak Knoll Ranger District to the East Fork of Seiad Creek and the area around Meek, Ruffey and Smith Lakes of the Russian Area.

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be achieved.

Wild and Scenic River Management

Wild and Scenic River segments would be managed for natural-appearing landscapes while Recreational segments could have a modified appearance in the short-term and a near-natural appearance in the long-term.

WSR corridors would have variable widths. They would extend only to the high water line when passing through communities along the river and would be 1/4-mile wide on each side of the river elsewhere.

Lands Program Management

Land adjustments would emphasize river access to important fisheries and recreational streams. Coordinated resource management plans would be sought in areas where mixed ownership created potential resource conflicts.

Alternative A would provide opportunities for the expansion of the following localities through the land adjustment program: Sawyers Bar, Happy Camp, Somes Bar, Scott Bar, Forks/Nothing, Yreka and Cecilville.

Transportation and Facilities Management

A road management plan would be developed for specific management areas, such as primitive recrea-

tion areas, TE&S species habitat, RMZs and furbearer habitat, where the emphasis would be to limit road densities. Road management objectives would not necessarily limit new road construction but would describe road closure alternatives to meet long-term access needs for resource protection and vegetation management.

Road management plans would investigate the possibility of road closures to meet management objectives, including fire and fuels management needs.

New facilities would be permitted when they are consistent with the objectives and goals of the management area. The Wild River, RNA, SIA and T&E Species Habitat Management Areas would discourage the construction of new facilities.

Timber Management

A mixture of silvicultural prescriptions would be used to meet management objectives. All silvicultural prescriptions would be available for use.

Stand maintenance, commercial thinning and shelterwood cutting would be the primary prescriptions used on lands where timber is not emphasized. Uneven-aged systems would be applied when appropriate for the logging system, the topography, resource protection and silvicultural objectives.

For even-aged silvicultural prescriptions which include GTR and seed step shelterwood, openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

An aggressive salvage policy would be pursued. Salvage harvest volumes would be counted as part of the ASQ.

Reforestation currently understocked stands and stands burned by past wildfires which are currently unstocked would be priorities.

Protection efforts in high value plantation areas would be emphasized. Fuels management plans would be developed to reduce the build up of hazardous fuels both inside and immediately adjacent to plantations. Utilization of non-coniferous vegetation would be stressed rather than leaving or burning it within plantations.

Commercial tree stands which are infeasible to manage for timber production due to economics, harsh sites or access problems would be managed as Regulation Class 3.

A full range of pest management measures would be integrated into resource management planning and activities. Detection, evaluation and control of pest-caused damage would be intensively practiced on lands managed as Regulation Class 1.

Fire Management

The wildfire detection, prevention and initial attack organization is similar to the current situation with the exception that there would only be 12 fire engines instead of 14.

Where feasible, fuels from timber harvesting would be reduced to abate the fire hazard while meeting the needs for wildlife and watershed protection through utilization of unmerchantable material. The wildlife, watershed and cultural prescribed fire budgets would be increased to provide a means to re-introduce fire as a management tool.

Prescribed fire and PNF would be used in wilderness and backcountry areas to attain the management objectives of reducing the risk of future fires and introducing fire to ecosystems where it was suppressed in the past.

Range Management

Permanent rangelands on the eastside of the Forest would be managed to meet livestock, wildlife and timber production objectives. Moderate timber yields would be programmed. Vegetation management would be an important tool in accomplishing objectives.

Wild Horse Management

The 2 existing wild horse herds on the eastside of the Forest would be maintained at about the current population levels.

Cultural Resources Management

An additional \$50,000 per year for a decade would be requested to accelerate the determination of whether previously recorded cultural sites are significant. Potentially significant cultural sites would be managed to protect cultural resource values.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California. These areas would not have a programmed yield and no timber harvest would be planned.

Social and Economic Environment

Alternative A would offer the community non-traditional employment opportunities. These opportunities would include, but not be limited to, the following types of stewardship contracts: plantation maintenance (combining planting, survival exams and release treatments); plantation thinning and pruning; integrated resource inventory; monitoring and sensitive land/animal survey. All current public contracting would be encouraged and additional contracts for timber cruising, professional burning, habitat restoration projects and environmental impact statement writing would be offered.

Alternative A would also encourage the development of local wood-fueled power plants to use the biomass produced within the Forest.

The expansion of recreational opportunities and maintenance of high quality scenery is expected to spur tourism which would generate additional income for the local area.

Environment To Be Created

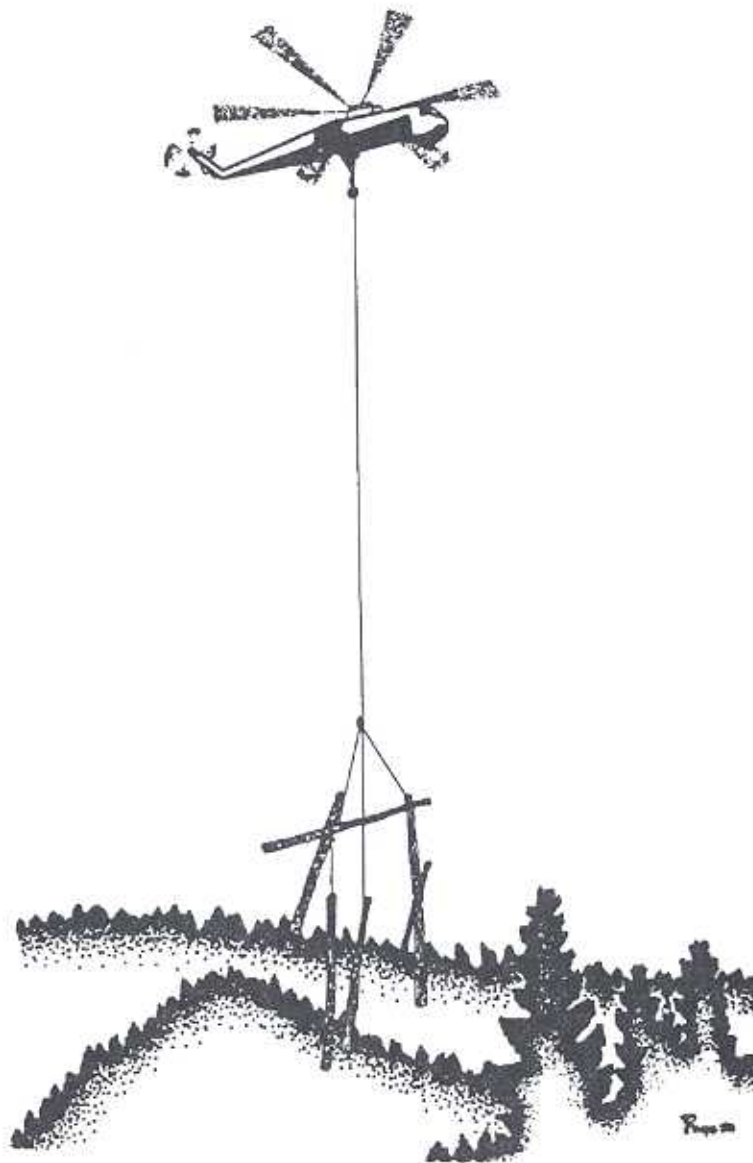
By the year 2040, 23% of the Forest would show primarily only ecological changes. There would be traces of human use in some of these areas such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual forest visitor on approximately 26% of the Forest. Management activities might be evident but would remain subordinate to the characteristic

landscape on approximately 25% of the Forest. Human activities would not dominate on approximately 74% of the Forest. This would include areas along major travel routes and high use recreational areas.

Management activities would dominate, but be well blended with surrounding features, on 5% of the Forest. On about 21% of the Forest, management activities would be dominant. Approximately 26% of the Forest would allow human activities to dominate. Openings would be evident in these areas and would contrast with adjacent areas. Openings would be about the same size as those found in the Forest today, but would generally have more screening and be less obvious.

A wide selection of developed recreational sites would be available, as would Backcountry recreational opportunities.



Alternative B

Alternative Theme

Alternative B provides for multiple uses with an emphasis on visual quality and developed recreational opportunities. Sustained productivity of soil, water, fish, timber, wildlife, vegetation and other resources are emphasized. Timber outputs would be the natural outflow of integrated, multiple use management. Roads and trails would be managed to meet recreational needs.

The integrity of Forest landscapes would be maintained by using the methods and principles of the Forest Service's Visual Management System (VMS). Silvicultural systems, road construction techniques, watershed management activities, range improvements and other management activities would be permitted within each management area if they retain the desired visual condition and are coordinated with other resource needs. If an area has a pleasing appearance, it is expected to exhibit ecosystem health.

The managed introduction of fire into ecosystems where it was suppressed in the past is an objective. The Heritage Resource Program would emphasize a Forest-wide program rather than a project-linked one. The intent is for increased developed recreational opportunities including recreational mining to increase tourism and, consequently, county income.

Land Allocations

Table 2-9 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative B Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in each land use table in the category that would likely have the most constraining standards and guidelines, the category closest to the top of the list.

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality; no

timber yields would be programmed from these areas. Other geologically sensitive areas including granitics would be managed to maintain site productivity with only minimal timber yields programmed from these areas.

Table 2-9. Alternative B Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	900
Threatened, Endangered and Sensitive Species	375,800
Special Management	12,700
Backcountry	0
Habitat Linkage	0
Retention (Visual Quality Objective)	106,000
Scenic Rivers	2,600
Recreational Rivers	19,300
Riparian Management Zone	75,000
Big Game Habitat	56,000
Partial Retention (Visual Quality Objective)	394,500
Forage Management Area	28,000
General Forest - No Scheduled Harvest	30,000
General Forest - Limited Scheduled Harvest	42,600
General Forest	136,700
Total	1,680,000

Soils

Marginally productive lands would be managed with careful consideration of cost/benefit relationships. Alternatives to burning, such as mulching and better utilization of materials, would be considered as a means of reducing fuel loading.

Water

Low intensity timber management Forest-wide in addition to applying BMPs would help maintain water quality. Group selection would be the primary silvicultural prescription used. Watershed restoration and prevention of watershed damage are other important elements of watershed management. The watershed program management budget for the Forest would be twice as much as it is currently.

Biological Environment

Biological Diversity

Forest-wide biological diversity and species protection would be provided through specific land allocations and resource management practices. Lands managed for a near-natural appearance would serve as gene pool reserves for both plant and animal species. These lands, in conjunction with low intensity timber management Forest-wide, would provide habitat connectivity.

Large tracts of land would be allocated to management areas whose objectives are consistent with species viability objectives. These land allocations include wilderness, HCAs and furbearer habitat.

Connectivity between these large tracts would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred areas cultural sites, SIAs, Wild Rivers, Scenic Rivers, RMZs, Scenic Highways and Retention VQO areas.

Approximately 48% of the Forest would be unregulated; no timber yields would be programmed from these areas. A variety of stand structures and vegetative compositions would be provided, primarily in the later seral stages.

About 30% of the Forest would emphasize resources other than timber resulting in minimal timber yields. About 22% of the Forest would co-emphasize timber and other resources resulting in moderate timber yields. A variety of seral stages would be provided in these areas. Timber management would not be emphasized on any lands.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

"Old growth" would be retained in wilderness, in Wild segments of WSRs, in HCAs and other unregulated TE&S critical habitat as well as in areas where it is needed to meet the VQOs.

In other areas, "old growth" would be actively managed utilizing silvicultural systems which maintain the structure of an "old growth" stand as defined by the Society of American Foresters. Moderate timber yields would be programmed from these areas.

Under normal conditions in a healthy stand of "old growth," openings not larger than 2 1/2 acres would be allowed. Catastrophic conditions (wildfire, blowdown, insect epidemic) in "old growth" would be handled on a site-by-site basis. Underburning would be a management tool in managing "old growth" both outside and within wilderness.

Riparian Area Management

RMZs would extend 100 feet from each streambank on either side of perennial streams. They would be

actively managed to protect water quality and fisheries values. There would be no programmed harvest in RMZs and timber harvesting activities would be restricted within the RMZ.

Wildlife

Northern Spotted Owl - HCAs would provide for spotted owl habitat. Timber harvest with minimal scheduled timber yields and PNF would be allowed in HCAs when those activities were judged to directly benefit owl habitat. No disturbance would be allowed adjacent to activity centers and nest sites.

Goshawk - A network of 200-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. No timber yields would be programmed and activities related to commodity outputs would be prohibited within these areas which are about 14,400 acres.

Furbearers - Lands would be allocated to provide optimum habitat for marten and fisher on both the westside and eastside of the Forest. These areas would provide for movement and distribution of these species. These areas would be managed as Regulation Class 3.

Species Re-introduction - Elk re-introduction would be emphasized in Elk Creek on the Happy Camp Ranger District, and on the Gooseneck and Salmon River Ranger Districts. The management objective is for these populations to subsist without supplemental feeding. Hunting would be encouraged as a tool for controlling population levels.

Big Game Habitat - Wildlife, range, visual and timber objectives would be coemphasized on 2% of the total Forest on the eastside. Antelope habitat would be improved so it could support an increased herd size in the Sheep Rock and along Red Rock Road areas. These areas would be managed as Regulation Class 2.

Special Habitat Provisions - The per acre objectives for hardwoods, CWD and snags are listed below. A range of sizes for snag recruitment would be allowed due to site class variability. However, the upper limit is the objective.

Hardwoods Forest-wide

2 to 4 square feet BA of hardwoods on Regulation Class 1 lands;

6 square feet BA of hardwoods on Regulation Class 2 lands; and

8 square feet BA of hardwoods on Regulation Class 3 lands.

All Forest-wide types except Ponderosa Pine:

Downed Log -

Leave 2 to 4 logs greater than 40 cubic feet in size.

Current and Recruitment Snags -

Leave snags in the following size categories depending on site quality (attempts should be made to leave these snags in clumps):

Low Site Quality - 7 per acre:

- 2 dead, greater than 12 inches DBH;
- 2 live, greater than 12 inches DBH;
- 3 live, 6 to 12 inches DBH.

Moderate Site Quality - 9 per acre:

- 2 dead, greater than 12 inches DBH;
- 3 live, greater than 12 inches DBH;
- 4 live, 6 to 12 inches DBH.

High Site Quality - 10 per acre:

- 3 dead, greater than 12 inches DBH;
- 3 live, greater than 12 inches DBH;
- 4 live, 6 to 12 inches DBH.

Ponderosa Pine Type:

Downed Log -

Leave 2 to 4 logs greater than 40 cubic feet in size.

Current and Recruitment Snags -

Leave 7 trees per acre in the following size categories (attempts should be made to leave these snags in clumps):

- 2 dead, greater than 12 inches DBH;
- 2 live, greater than 12 inches DBH;
- 3 live, 6 to 12 inches DBH.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Both anadromous and resident fisheries would be emphasized.

The California Department of Fish and Game (CDFG) would be encouraged to implement "catch and release" policies where appropriate to ensure protection of breeding stock. When proven effective, in-stream habitat improvements would be implemented. Habitat work would be planned and prioritized with strong consideration of cost/benefit relationships. Fisheries values in Antelope Creek would receive special emphasis to support the increased recreational fishing use from its recommendation as a National WSR.

Resource Management Programs

Visual Resource Management

All Forest landscapes would be managed to meet estimated public preferences for visual quality. All eligible State Scenic Highways would be managed for higher VQOs in background distance zones than at

present. The Round the Mountain route which encircles Mount Shasta would be recommended for designation as a National Scenic Byway. Both designated and proposed WSR River corridors and viewsheds (areas that are visible from the river corridor) in the National WSR system as well as high sensitivity travel routes would be managed for Retention VQOs.

A fundamental principle for this alternative is that the visual appearance of the Forest as perceived by the casual Forest visitor, is the single most important factor driving the public's acceptance of overall Forest management. In other words, if the Forest looks good, the public believes that the Forest Service is doing a good job managing the Forest. The Forest Service's VMS is a highly respected method for managing landscapes to meet the expectations of forest visitors. Alternative B would incorporate virtually all of the principles and methods of the VMS with the following exceptions:

- All views as seen from wilderness would not automatically be considered as sensitive areas. Sensitivity Level ratings would be applied to wilderness viewpoints and travelways as warranted by volume of use.
- Landscapes seen only from aircraft would not always warrant special consideration of scenic values.
- VQOs need not be met 100% of the time. The VMS recognizes that it may be neither possible nor desirable to achieve total compliance. The standard shall be to meet VQOs on 85 to 90% of the project area in scenery-impacting projects.

Recreation Management

Key elements in managing for recreation in the future would include improved information dissemination, more coordinated road management and emphasis on staging facilities which support dispersed recreational activities. Recreational use would be monitored utilizing "Limits of Acceptable Change" concepts.

The Forest would market recreational mining or gold panning as a recreational activity. Panning would be allowed to occur at selected campgrounds which have been withdrawn from mineral entry. Recreational panning would be allowed for the same 2-week limitation imposed on camping. Suction dredging would be allowed with a special permit from the Ranger District; 3 inch and smaller dredges would be allowed to operate for 3 days at each site with no more than 7 days of operation at each site per year.

This alternative would adopt and encourage a proposal for an alpine ski area development at West Haight Mountain. However, the proponent would have to fund the in-depth, environmental analysis required by law.

Existing recreational sites and facilities would be eliminated when they are no longer needed. Those retained would be managed in accord with established standards.

Development of recreational facilities would emphasize campgrounds; picnic areas; trail relocation and construction; trailheads for hiking, stock use and mountain biking; river access spots and equestrian camps.

OHV management would require closing certain trails. Also, areas that invite trespass or conflict would be closed.

A number of areas, including all currently developed recreational sites, are recognized as having special recreational attributes. Management of these areas would emphasize protection and enhancement of recreational values. Activities would be modified as needed to minimize impacts to recreational attributes. Additional areas with recreational opportunities would be scheduled for development as funding permits. A complete listing of these 2 types of areas can be found in the planning records.

The Round the Mountain route would be proposed as a scenic byway.

An active interpretive program would provide information on cultural, biological and geological resources.

Wilderness

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be achieved. Approximately 1,500 acres per year would be treated by prescribed fire. The planned use of fire to meet objectives for managing "old growth" would be allowed within wilderness.

A boundary adjustment to the east side of the Russian Wilderness would be pursued.

Wild and Scenic River Management

Classification of the river segments is primarily keyed to the broad multiple-use objectives for the lands across which the rivers flow.

WSR corridors would have variable widths. They would extend only to the high water line when passing through communities along the river and would be 1/4-mile wide on either side of the river elsewhere.

Alternative B would recommend the re-classification of 24.4 miles of currently designated WSR segments from Recreational to Scenic. The Seattle Creek to Gordons Ferry segment (7.5 miles) and the Ti Bar to the mouth of Salmon River segment (15.1 miles) of the Klamath River are the segments.

River corridors would be managed to meet both WSR and VMS objectives. Landscapes outside the corridors which can be seen from viewing areas within the corridors would also be managed in accord with the VMS. Sensitivity level ratings would be assigned to each river corridor based on the level of use which is anticipated at the end of this 50-year planning cycle.

Specially Designated Area Management

Management plans would be developed for each SIA, including specific monitoring plans and interpretive programs.

Lands Program Management

WSR boundaries would be carefully crafted to meet land adjustment needs. If lands are disposed of along rivers or other areas valuable for recreation, access and trail easements would be retained for public use.

Transportation and Facilities Management

Roads would be closed to meet various resource management objectives. Closed roads would provide dispersed recreational opportunities.

The Salmon River Road (Forest Highway 93) would be upgraded over time to meet acceptable safety standards. OHVs would be allowed on service roads which have been closed or blocked to traffic. Management of trail systems would be in accord with implementation plans developed subsequent to the Forest Plan.

The need for each facility would be analyzed and unnecessary facilities removed.

Timber Management

Appropriate timber management activities would be determined by the VQOs for each management area.

A mixture of silvicultural prescriptions would be used to meet management objectives. Uneven-aged systems would be used most frequently with group selection being the primary prescription.

In this alternative, the GTR prescription on the average would leave between 5 and 15 scattered trees per acre to develop a multiple canopy over time and to provide snags for wildlife needs. These reserve trees would not be removed.

For even-aged silvicultural prescriptions which include GTR and seed step shelterwood, openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

Salvage of usable materials would be emphasized.

"Old growth" stands would be actively managed when within the unregulated land base.

Protection efforts in high value plantation areas would be emphasized. Site preparation of plantations would remove vegetative material which could be a fire hazard which is not needed to meet other resource objectives (refer to Special Habitat Provisions under Wildlife).

Fire Management

The wildfire detection, prevention and initial attack organization is similar to the current situation with the exception that there would only be 12 fire engines instead of 14.

Prescribed fire and PNF would be used in wilderness and the larger HCAs to attain the management objectives of reducing the risk of future fires and introducing fire to ecosystems where it was suppressed in the past. Methods other than prescribed fire such as increased utilization of forest products, chipping and mulching slash would be encouraged to reduce fuels.

Range Management

Permanent rangelands on the eastside of the Forest would be managed to meet livestock and wildlife objectives. No timber yields would be scheduled in these areas.

Forest-wide, grazing within plantations for release as an alternative to herbicides would be encouraged; grazing subsidies may be appropriate under these circumstances. Grazing, including sheep, would be considered for fuel break maintenance.

The number of livestock permitted in areas with aesthetic values or where there are conflicts over water quality would be controlled.

Wild Horse Management

The 2 existing wild horse herds on the eastside of the Forest would be maintained at the current population levels.

Cultural Resources Management

Cultural surveys would be planned to meet Forest-wide Program objectives in addition to responding to project needs. Surveys, monitoring and interpretation would be emphasized.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California. These areas would not have a scheduled yield and no timber harvest would be planned.

Potentially significant cultural sites would be managed to protect cultural resource values.

Social and Economic Environment

An attitude of cooperation with communities and individuals dependent on the Forest would be emphasized. For example, special use permits to develop opportunities near local communities would be considered favorably.

Environment To Be Created

By the year 2040, 23% of the Forest would show primarily only ecological changes. There would be

traces of human use in some of these areas such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual forest visitor on approximately 11% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 43% of the Forest. Approximately 54% of the Forest would be natural-appearing. This would include major travel routes and high use recreational areas.

Management activities would dominate, but be well blended with surrounding features on 20% of the Forest. On about 3% of the Forest management activities would be dominant. Approximately 23% of the Forest would allow human activities to dominate.

The overall visual impression of the Forest would be of continuous forest cover. There would be some openings, but they would generally be very small.

Almost twice as many acres would have burned in high intensity wildfire as in the current situation.

There would be many opportunities for developed recreation including campgrounds, picnic areas, trails and water access areas.

Alternative B'

Alternative B' has the same theme, resource program direction and environment to be created as Alternative B. It differs from Alternative B in that no timber yields would be programmed within HCAs and the 50-11-40 rule would be implemented outside HCAs. It would be consistent with the ISC strategy.

Alternative C

Alternative Theme

Alternative C provides for multiple use with an emphasis on maintaining a high degree of stand, ecosystem and forest diversity. Contributing to diversity at the regional, national and global level is an important consideration. This alternative also emphasizes the use of the most recent information on biological and social diversity in forest management.

Maintenance of water quality, the protection of fish habitat and maintenance of scenic quality are also emphasized. Unique recreational opportunities would

be highlighted. Recreational events would be promoted. The importance of nontimber-producing plant communities would be emphasized. Rare and unique plant communities would be managed to maintain or extend population ranges.

The intent is for increased recreational opportunities to generate additional county income from tourism.

Land Allocations

Table 2-10 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative C Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in each land use table in the category that would likely have the most constraining standards and guidelines, the category closest to the top of the list.

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality; no timber yields would be programmed from these areas. Granitic soils that are deeply dissected, steep or part of other geologically sensitive features would be managed as Regulation Class 2 to maintain soil productivity and water quality. The remaining geologically sensitive areas would be Regulation Class 1 or 2 where no other resources were constraining.

Water

Maintenance of water quality and the protection of fish habitat would be provided through relatively low levels of road construction, relatively low levels of regeneration cutting and relatively large buffers on riparian areas.

Air

Alternative C would provide an additional \$40,000 per year to extend air quality monitoring to the Siskiyou, Trinity Alps and Russian Wildemesses as well as to some areas outside wilderness.

Biological Environment

Biological Diversity

Forest-wide biological diversity would be provided through land allocations and standards and guidelines.

Large tracts of land would be allocated to management areas whose objectives are consistent with species viability objectives. These land allocations include wilderness and HCAs.

Table 2-10. Alternative C Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	9,500
Threatened, Endangered and Sensitive Species	375,000
Special Management	16,000
Backcountry	0
Habitat Linkage	79,900
Retention (Visual Quality Objective)	81,100
Scenic Rivers	2,600
Recreational Rivers	11,600
Riparian Management Zone	173,200
Big Game Habitat	0
Partial Retention (Visual Quality Objective)	310,000
Forage Management Area	21,000
General Forest - No Scheduled Harvest	22,500
General Forest - Limited Scheduled Harvest	40,700
General Forest	137,000
Total	1,680,000

Connectivity between these large tracts would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are a special management area called Habitat Linkage. Other lands include eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred cultural sites, SIAs, Wild Rivers, Scenic Rivers, RMZs, Scenic Highways, Retention VQO areas as well as lands managed to meet the 50-11-40 rule.

The low intensity management in these areas would allow the ecosystems to behave in a manner that noted researchers in the biological diversity field term as "functioning naturally."

Approximately 62% of the Forest would be unregulated; no timber yields would be programmed from these areas. A variety of stand structures and vegetative compositions would be provided, primarily in the later seral stages.

About 9% of the Forest would emphasize resources other than timber which would provide minimal timber

yields. About 22% would co-emphasize timber and other resources. A variety of seral stages would be provided in these areas. About 7% of the Forest would emphasize timber management; primarily early and middle seral stages would be provided.

About 182,000 acres would be managed as habitat linkage areas. The objectives for this area are to provide for wildlife dispersal, wildlife migration and later seral stage habitat. Providing long-term stream health in several drainages which support anadromous fish would also be an objective. Habitat linkage areas would be managed as Regulation Class 3 using predominantly salvage prescriptions. Open road density would not exceed 1 mile per section in these areas.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

Emphasis would be placed on non-timber producing plant communities. Hardwood stands consisting primarily of oak, tanoak, chinquapin and madrone would be managed by special prescriptions. Hardwoods would also be maintained in mixed species stands (refer to Special Habitat Provisions under Wildlife). Chaparral would also be actively managed to increase stand diversity.

Management plans for all minor conifer species would be developed to maintain each species at or above its current population levels within its current range. These species include Brewer spruce, Port-Orford-cedar and Pacific yew.

Stands of native grass species would be identified and opportunities developed to maintain or enhance those stands.

Seeding, revegetation and rehabilitation projects would use primarily native plant species. A program to develop sources of appropriate native seeds and plants for project use would be developed.

Gaining increasing knowledge of conditions and functions that are considered to be "natural" by the research community would be emphasized. This goal would be accomplished in part by an active inventory and monitoring program for many aspects of biological diversity.

Riparian Area Management

The RMZ would be 100 feet from the stream bank on either side of perennial streams or extend to the outer edge of the riparian vegetation whichever is greatest. These areas would be unregulated. Road construction would not be allowed in RMZs.

Intermittent and ephemeral streams would be managed to maintain riparian vegetation, fish habitat and moisture-dependent wildlife habitat as well as downstream water quality.

Wildlife

Northern Spotted Owl - HCAs would be managed to provide owl habitat. Outside HCAs, the 50-11-40 rule would be implemented.

Goshawk - A network of 200-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. No timber yields would be programmed and activities related to commodity outputs would be prohibited within these areas which are about 14,400 acres.

Furbearers - Adequate habitat for marten and fisher would be provided on the westside of the Forest by the network of land allocations described under Biological Diversity. Specific lands would be allocated on the eastside to provide furbearer habitat.

Species Re-introduction - Species re-introduction would occur on a site-by-site basis, but would encourage native and desirable non-native wildlife species.

Big Game Habitat - About 3% of the Forest would be managed for deer, elk and pronghorn on the eastside. About 5% of the Forest would be managed for deer on the westside. Timber, wildlife and range would be coemphasized on these lands. Moderate timber yields would be programmed. Prescribed fire and timber management would be used to enhance habitat.

Special Habitat Provisions - The objectives for stand structure which would be implemented on a landscape basis are listed below as per acre averages.

CWD objectives would vary by management area. A minimum of 2 down logs greater than 40 cubic feet in size would be the objective in timber emphasis areas. The objectives would be much higher in wildlife habitat areas.

Lands where minimal timber yields are programmed:

- 2 to 5 snags per acre, 24 inches or greater in DBH; except red fir which would be 16 snags, 10 inches or greater in DBH;
- 3 to 5 green trees for snag recruitment, 24 inches or greater in DBH;
- 3 to 13 hardwoods, 12 inches or greater in DBH or 3 to 6 clumps around conifers.

Lands where moderate timber yields are programmed:

- 2 to 4 snags, 24 inches or greater in DBH; except red fir which would be 12 snags, 10 inches or greater in DBH;
- 2 to 4 green trees for snag recruitment, 24 inches or greater in DBH;
- 2 to 9 hardwoods, 12 inches or greater in DBH or 2 to 6 clumps around conifers.

Lands where high timber yields are programmed:

- 2 to 3 snags, 24 inches or greater in DBH; except in red fir which would be 8 snags, 10 inches or greater in DBH;

- 2 to 3 green trees for snag recruitment, 24 inches or greater in DBH;
- 2 to 6 hardwoods, 12 inches or greater in DBH or 2 to 3 clumps around conifers.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Fish habitat quality would be provided for by RMZ management and the management of intermittent and ephemeral streams. A low level of road construction Forest-wide and the road density restrictions in habitat linkage areas would also protect fish habitat.

Fish habitat enhancement would focus on streambank stability and riparian vegetation rehabilitation.

Resource Management Programs

Visual Resource Management

All Forest landscapes would be managed to meet IVQOs. In addition to RNAs, existing and recommended Wild River corridors and viewsheds in the National WSR System would be managed for a Preservation VQO. The background of all eligible State Scenic Highways, both designated and proposed Wild River and Scenic River corridors and viewsheds as well as high sensitivity travel routes would be managed for a Retention VQO. The Round the Mountain route which encircles Mount Shasta would be recommended for designation as a National Scenic Byway.

Recreation Management

The recreation budget would be twice the current budget. Trail construction and maintenance, promoting recreational opportunities and providing visitor information and interpretation of Forest resources would be emphasized.

Working with public cooperators to develop and promote recreational opportunities regionally and nationally would be emphasized. Recreational events such as organized mountain bike racing, camping, hiking and wildlife viewing would be promoted. Priority would also be given to promoting and interpreting unique features such as WSRs and SIAs. Management plans would be developed for all designated SIAs to meet this goal.

While new recreational construction would respond to any future increases in demand, maintenance and enhancement of existing recreational facilities would be emphasized.

OHV use would be prohibited in Wild River corridors, RNAs, SIAs and non-motorized recreation areas in addition to areas currently closed.

The Round the Mountain Route would be proposed as a National Scenic Byway.

Wilderness

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be achieved. Approximately 1,500 acres per year would be treated through prescribed fire.

Wild and Scenic River Management

Designated and proposed Wild River corridors would be managed for a VQO of Preservation. Scenic River corridors, Recreational River corridors except for the North and South Fork of the Salmon and the mid-dleground of Wild River viewsheds would be managed for a VQO of Retention for both designated and proposed.

The middleground of designated and proposed Scenic and Recreational River viewsheds would be managed a VQO of Partial Retention as would the corridors of the North and South Fork of the Salmon River. Management of the background of all WSR viewsheds would allow for modified landscapes.

WSR corridors would be 1/4-mile wide on either side of the stream.

Specially Designated Area Management

Management plans would be developed for each SIA, including specific monitoring plans and interpretive programs.

Lands Program Management

Land adjustments would emphasize acquisition of areas that meet biological diversity goals such as critical habitat for TE&S species. An interdisciplinary process would be used to prioritize potential exchanges.

Community expansion would be facilitated. Adjustments to Scenic and Recreational River corridor boundaries to allow for community expansion would be analyzed during the boundary designation process.

Transportation and Facilities Management

A road management plan would be developed to address the management of existing roads and to determine if additional roads could be closed. Road closures or seasonal restrictions would be emphasized where appropriate to enhance water quality, wildlife and administration needs.

Construction and reconstruction standards would be changed where necessary to facilitate public safety or to protect resource values.

Construction, reconstruction or removal of buildings and systems would be scheduled to meet the objective of having safe facilities.

Timber Management

A mixture of silvicultural systems would be used to meet management objectives. Even-aged systems using GTR would be the predominant silvicultural prescription used on Regulation Class 1 lands.

In areas which co-emphasize timber and other resources, GTR and uneven-aged selection systems would primarily be used. Stand maintenance prescriptions which do not involve regeneration would be developed to achieve landscape and stand level objectives on lands where other resources are emphasized.

For even-aged silvicultural prescriptions which include GTR and seed step shelterwood, openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

Regulation Class 1 lands would be a priority for conifer release, thinning and stand maintenance. Emphasis would be placed on site preparation of harvested areas for reforestation.

Pest management would occur on a site by site basis. Priority would be given to Regulation Class 1 lands.

Fire Management

The wildfire detection, prevention and initial attack organization is similar to the current situation with the exception that there would only be 12 fire engines instead of 14.

The program would include an increase in prevention, detection and suppression efforts from the current situation. Protection efforts would be emphasized in high economic value areas.

Fuel reduction would be emphasized in plantations to reduce the risk of future fires. Prescribed fire and PNF would be used in wilderness areas to attain the management objectives of reducing the risk of future fires and introducing fire to ecosystems where it was suppressed in the past.

Range Management

Permanent rangelands on the eastside of the Forest would be managed to meet livestock and wildlife objectives. Water sources would be developed. No timber yields would be programmed from these areas.

Wild Horse Management

One herd of wild horses would be managed on the eastside of the Forest at a population level of about 50 head.

Cultural Resources Management

An additional \$50,000 per year for a decade would be requested to accelerate the determination of whether

previously recorded cultural sites are significant. Potentially significant cultural sites would be managed to protect cultural resource values.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California. Minimal timber yields would be scheduled in these areas in recognition of the need for local employment within the Native American community. Opportunities for maintaining and enhancing resources used by the Karuk Tribe such as bear grass, willows and other culturally important plants would be emphasized. The cultural program would also emphasize public outreach and training.

Environment To Be Created

By the year 2040, 24% of the Forest would primarily show only ecological changes. There would be traces of human use in some of these areas such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual Forest visitor on approximately 33% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 29% of the Forest. Approximately 86% of the Forest would be natural-appearing. This would include major travel routes and high use recreational areas.

Management activities would dominate, but be well blended with background features on 13% of the Forest. On about 1% of the Forest management activities would dominate. Approximately 14% of the Forest would allow human activities to dominate. Openings would be evident in these areas, but would generally be smaller than those in the forest today.

Overall the visual impression of the Forest would be of continuous forest cover. Over 1 1/2 times as many acres would have burned in high intensity wildfire as in the current situation.

Developed recreational opportunities and many trails would be available for use.

Alternative D

Alternative Theme

Alternative D provides for multiple uses with an emphasis on providing a balance of commodity and amenity products. Water quality, soil productivity, geologic stability and fish habitat objectives would be emphasized. Maintenance of a stable physical en-

vironment while ensuring biological diversity is emphasized.

Biological diversity would be provided by preserving specific watersheds called refugia as critical habitat for animal and plant populations. Mitigation measures and an active restoration program would provide for habitat improvement for anadromous and resident fish. Sensitive fish populations would receive special attention. Increasing the amount of wildlife habitat in the later seral stages is a goal.

Coordinated resource surveys, cumulative effects analysis, management standards and guidelines and monitoring programs would be emphasis items.

Recreation management would emphasize the more notable natural resources of the Forest while seeking to expand economic opportunities. Interpretive programs and water-based recreation including fishing, rafting, kayaking and camping, would be central to this recreation program.

Alternative D would integrate the alternative proposed by the Karuk Tribe of California by incorporating their intent for Native American use of forest resources.

Land Allocations

Table 2-11 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative D Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in the category that would likely have the most constraining standards and guidelines, the category closest to the top of the list.

Resource Program Direction

Physical Environment

Geology

Unstable lands would be managed to minimize soil movement and reduce levels of landslide activity. The physical environment of sensitive geologic areas including inner gorges would be kept intact. Inner gorges on consolidated material would be managed to maintain productivity and water quality; no timber yields would be programmed from these areas. Dormant landslides and granitic soils with a high geologic hazard rating would be managed primarily for soil stability, only minimal timber yields would be programmed. All other geologically sensitive soils would be managed both to maintain soil stability and for timber production; moderate timber yields would be programmed.

Table 2-11. Alternative D Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	6,300
Threatened, Endangered and Sensitive Species	370,800
Special Management	18,000
Backcountry	0
Habitat Linkage	0
Retention (Visual Quality Objective)	70,300
Scenic Rivers	4,200
Recreational Rivers	16,600
Riparian Management Zone	79,400
Big Game Habitat	108,100
Partial Retention (Visual Quality Objective)	289,500
Forage Management Area	20,900
General Forest - No Scheduled Harvest	35,900
General Forest - Limited Harvest Scheduled	0
General Forest	260,100
Total	1,680,000

Timber harvesting would be allowed on unsuitable ground when it was designed specifically to enhance slope stability; although no timber yields would be programmed from these areas.

A vigorous inventory and monitoring program would be established. Inventories would focus on identifying sediment sources, cave resources and potential rock quarries.

Soils

A minimum of 50% of the site's fine organic material and a minimum of 5 logs per acre would be maintained on the soil surface during site disturbing activities to provide for long-term soil productivity.

Water

Proposed resource management activities would be assessed by determining the potential cumulative impact to affected watersheds. Earth science/geotechnical engineering input would be required for all projects according to the risk and consequences of the proposed activities. Protective measures for management activities would include soil protection guidelines as well as limitations according to cumulative geologic

sensitivity/impact consequences. Vegetation and fire management strategies would emphasize hazard reduction to avoid catastrophic watershed damage from large fires.

Watershed restoration projects would be prioritized based on watershed condition, anadromous fish habitat and domestic water use. Projects would emphasize the most cost effective means to restore watershed integrity and function. Watersheds in poor condition would be actively restored using funds allocated for prioritized site-specific restoration projects. The monitoring plan would identify criteria for determining when recovery is achieved. Once the recovery criteria are achieved, the areas would once again be managed according to the management objectives for the area.

Water quality objectives would be promoted on areas upland of watercourses.

Biological Environment

Biological Diversity

Wilderness and TE&S habitat, including HCAs and furbearer habitat, which form large contiguous blocks of land would be designated refugia. These refugia would be managed to provide continuous vegetative cover and multiple canopy layers in late seral stages.

Connectivity between these refugia would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred cultural areas, SIAs, Wild Rivers, Scenic Rivers, RMZs, Scenic Highways, Preservation and Retention VQO lands as well lands managed to meet the 50-11-40 rule. These areas would provide opportunities for genetic transfer and wildlife movement between refugia.

Approximately 56% of the Forest would be unregulated. A variety of stand structures and vegetative compositions would be provided, primarily in the later seral stages.

About 16% of the Forest would emphasize resources other than timber with resulting minimal timber yields. About 18% would co-emphasize timber and other resources. A variety of seral stages would be provided in these areas. About 10% of the Forest would emphasize timber management; primarily early and middle seral stages would be provided.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

Mountain meadows would be managed to preserve vegetative diversity, maintain productivity, provide for wildlife needs and meet the needs of recreationists. High desert shrub-grasslands would be managed to reduce the dominance of western juniper and increase forage productivity; enough tree-like stands of juniper

and mountain mahogany would be left to provide thermal and hiding cover for wildlife. Minor conifer species would be managed to increase their presence.

Riparian Area Management

Riparian and aquatic ecosystems would be managed to provide stability, maintain productivity and meet water quality objectives. RMZs would be managed to provide adequate long-term CWD for channel stability as well as thermal and hiding cover for fish.

RMZs would vary in width according to the sensitivity of the resources present. Perennial streams with anadromous fish habitat, Sensitive species habitat or domestic use would have an unregulated RMZ of 300 feet on either side.

Perennial streams which support resident fish would have a 150-foot unregulated RMZ and an additional 150-foot zone managed as Regulation Class 3. Perennial streams which do not support fish would have an unregulated 150-foot RMZ and an additional 100-foot zone managed as Regulation Class 3. Intermittent, ephemeral and all other designated channels would have a 100-foot unregulated RMZ and an additional 100-foot zone managed as Regulation Class 3.

The objective of silvicultural prescriptions in these areas, including any timber harvesting, in these areas would be to maintain or improve late forest successional stage habitats. Only activities which benefit riparian-dependant resources would be allowed. Other multiple use activities may be prohibited within the RMZ if no benefit to riparian resources can be demonstrated.

Upland species would be excluded in the short-term from RMZs where it was determined that more time was needed to allow plants to complete their life cycles and develop natural densities to improve the long term condition. Riparian shrubs, such as willows, alder and in some cases aspen, would be planted in RMZs to stabilize channels and provide aquatic habitat.

Monitoring plans for fish habitat and water quality would include censuses of resident fish communities, amphibians and invertebrates.

Wildlife

Northern Spotted Owl - HCAs would provide for spotted owl habitat. Timber harvesting with minimal programmed timber yields and PNF would be allowed in HCAs when those activities would directly benefit owl habitat. The primary objective for reforestation prescriptions would be the creation of optimal habitat. The 50-11-40 rule would be implemented outside of HCAs.

Goshawk - A network of 200-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. No timber yields would be programmed and activities related to com-

modity outputs would be prohibited within these areas which are about 14,400 acres.

Furbearers - Lands would be allocated to provide optimum habitat for marten and fisher on both the westside and eastside of the Forest. These areas would provide for movement and distribution of these species. These areas would be managed as Regulation Class 3.

Big Game Habitat - Providing habitat for deer, elk and pronghorn antelope would be co-emphasized with timber management on 26,000 acres on the eastside of the Forest. Moderate timber yields would be programmed from these areas.

Providing deer habitat would be co-emphasized with timber management on 25,000 acres on the westside. Moderate timber yields would be programmed from these areas.

Special Habitat Provisions - The objectives for CWD, snag retention and hardwoods which would be implemented on a compartment basis are listed below as per acre averages:

- 5 logs;
- 1.2 snags, 15 to 24 inches DBH and greater than 20 feet high;
- 0.3 snags, greater than 24 inches DBH and greater than 20 feet high.
- 2 to 4 square feet BA of hardwoods on Regulation Class 1 lands;
- 6 square feet BA of hardwoods on Regulation Class 2 lands; and
- 8 square feet BA of hardwoods on Regulation Class 3 lands.

Snags in excess of 45 snags per 20 acres would not count toward meeting the overall average. Snags would be maintained in clumps. Green standing trees would also be retained.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Streams with outstandingly remarkable fishery values would be nominated for WSR status. Streams which are highly productive would be given special attention to maximize their productive potential. Streams of very high quality that provide good recreational opportunities would be designated as angler emphasis streams.

Streams which have the ability to preserve the genetic diversity of wild anadromous fish stocks would be designated riverscape refugia. The Forest would work closely with CDFG in the management of these areas. The objective of refugia is to provide a complex of aquatic and riparian refuges for the conservation of a wide variety of species. These refuges would provide a source of organisms to repopulate adjacent areas

following disturbances. They would also provide information on the natural variation of various species to compare with more intensively managed reaches.

Methods of increasing water flow in streams which historically have not received adjudicated water quotas or do not currently provide sufficient flows during any salmonid life stage would be studied. An aggressive program of public education including interpretive signing, project tours and volunteer assistance would be a major part of the fisheries program.

Habitat improvement projects would be prioritized by the sensitivity of the fisheries resource affected. The objective would be to re-establish large conifers in riparian areas where they historically provided cover, stream thermal protection and channel stability. In-stream projects where large wood is well below optimum levels would use on-site materials to build small stable structures which would increase stream cover and pool frequency.

The Sensitive species, spring chinook and summer steelhead, would receive special management attention to assure population recovery.

Resource Management Programs

Visual Resource Management

Scenic quality would be maintained by adopting the VQOs which are currently in use with some minor changes to add designated and recommended WSR corridors and viewsheds. High sensitivity travel routes and the corridors of WSRs would be managed for Retention VQOs. The viewsheds of WSRs would be managed for Partial Retention VQOs.

Recreation Management

A public information program would emphasize inland and warm-water fishing opportunities. An active program to emphasize under-utilized sustainable fisheries and to de-emphasize over-utilized fisheries would include managing access, using signs and informing the public. WSRs management would showcase the streams with outstandingly remarkable fisheries and water quality values providing recreational opportunities.

Recreational use of Geologic and Botanical SIAs would be promoted. Cave sites appropriate for recreational use would be promoted. Water-based recreation, fishing, rafting, kayaking and camping would also be promoted. An elk herd which could support hunting would also boost recreational use.

Future campground development would be concentrated near major highways. A study of the potential for developing small to moderate-sized destination resorts would be made with the objective of expanding opportunities for concessionaires.

Wilderness Management

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be achieved. Approximately 1,500 acres per year would be treated by prescribed fires.

Wild and Scenic River Management

WSR management would showcase Forest streams with outstandingly remarkable fisheries, water quality and geological values.

Wild, Scenic and Recreation River corridors would be managed for Retention VQOs. Areas in the mid-ground of WSR viewsheds would be managed for Partial Retention VQOs.

WSR corridor widths would be variable and would average approximately 3/8-mile in width on either side of the river. This average would exceed the maximum allowable of 320 acres per river mile established in the 1986 Amendment to the WSR Act. This alternative could not be implemented without a change in the law.

Lands Program Management

Land adjustments would emphasize acquisition of areas adjacent to streams, lakes and ponds to meet management objectives for water-dependent resources. Obtaining land to provide river access to important recreational fisheries and other recreational streams would also be a priority. Coordinated resource management plans would be encouraged to help resolve problems where mixed ownership is an issue.

Minerals Management

Reclamation bonds would be required on streams with Sensitive fish species to provide for mitigation and rehabilitation. Areas with sensitive water-resource values may be recommended for withdrawal from mineral entry. Hazardous materials would be stored outside the 100-year floodplain.

Compliance with plans of operation would be emphasized. An inventory of hazardous mine wastes would be conducted. Restoration efforts would focus on reclamation of abandoned mine sites and abatement of potential pollutants from hazardous mine wastes.

Transportation and Facilities Management

Road densities would be managed as a coordinated part of watershed protection, resource access, travel management and recreation. A road closure/recovery program would be implemented to restore a mile of road for every mile constructed. Road maintenance would be emphasized to protect watershed values.

An erosion control plan would be included in all road construction and reconstruction. Road standards would be designed for watershed protection and to

provide safe access. Cooperative agreements with adjacent landowners would be actively sought to determine access needs, road standards and to lower road density.

Timber Management

Both even-aged and uneven-aged silvicultural systems would be used. GTR would be the predominant silvicultural prescription. Regeneration unit size would not exceed 40 acres in the Douglas-fir type or 25 acres in all other forest types. There would be no maximum limit for unit size on salvage following catastrophic occurrences; unit size would be determined by a site-specific environmental analysis.

Timber management areas would be managed to reduce fuel loading and to produce high timber yields while imitating patterns of historic, natural disturbances. Timber harvesting and silvicultural treatments would be used to provide early seral stages and achieve horizontal and vertical diversity objectives within landscapes.

Although all harvesting methods would be available for use, those which minimize cumulative watershed impacts such as helicopter logging would be emphasized. Yarding methods and log landing location would be designed to minimize disturbance to watershed values.

Reforestation priorities would be based on watershed maintenance or improvement needs. Plantation maintenance would be emphasized in watersheds where an increase in vegetative density would benefit watershed integrity and where risk from catastrophic fire is low.

Fire Management

The wildfire detection, prevention and initial attack organization is similar to the current situation with the exception that there would only be 12 fire engines instead of 14. Priorities for wildfire suppression would be the protection of life and property first and the protection of watershed values second. Fire retardants that are non-toxic to aquatic life would be used. The first priority for rehabilitation efforts following wildfire would be to minimize adverse effects and risks to watershed values and dependant resources.

The prescribed burning program would be derived from a Forest-wide comprehensive Fuels Management Plan. Site-specific environmental analysis would be used to assure that target acres can be met and short-term watershed impacts are not significant. Program monitoring would adjust targets as needed. Special standards and guidelines would be used to protect soil-, water- and riparian-dependent resources during prescribed burning.

Prescribed fire and PNF would be used to attain the management objectives of reducing the risk of future fire and introducing fire to ecosystems where it was

suppressed in the past in both wilderness and the larger HCAs.

High and moderate hazard fuel concentrations would be treated to reduce the risk of future intense fires. Watersheds identified as sensitive or important for beneficial uses would be the first priority for treatment.

Where feasible, fuels from timber harvesting would be reduced to that needed for watershed protection, soil productivity and wildlife habitat through utilization of unmerchantable material.

Range Management

Permanent rangelands on the eastside of the Forest would be managed to meet livestock objectives. Minimal timber yields would be programmed from these areas. Productivity and diversity of native vegetation would be emphasized. Grazing allotments, including riparian areas, would be actively managed to benefit riparian-dependent resources. Riparian vegetation would be improved by requiring sufficient growing season rest to allow plants to complete their life cycles and develop natural densities. Allotment plans would be updated to include protective measures for valuable riparian resources.

Wild Horse Management

One herd of wild horses would be managed on the eastside of the Forest at the current population level.

Cultural Resources Management

Provisions for meeting the intent of the alternative proposed by the Karuk Tribe of California include the following: the enhancement of fish habitat, provisions for individuals to gather dedicated materials to meet local tribal needs as well as using interpretative material to foster an appreciation of Karuk tribal customs, life style and their contribution to the nation.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California. These areas would not have a programmed yield and no timber harvest would be planned.

An additional \$50,000 per year for a decade would be requested to conduct surveys and inventories as well as to provide interpretive services and training. Potentially significant cultural sites would be managed to protect cultural resource values

Environment To Be Created

By the year 2040, 23% of the Forest would primarily show only ecological changes. There would be traces of human use in some of these areas such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual forest visitor on approximately 7% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 31% of the Forest. Human activities would not be dominant on approximately 61% of the Forest. This would include major travel routes and high use recreational areas.

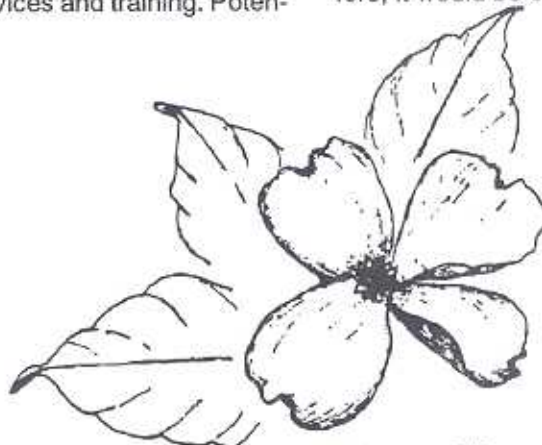
Management activities would dominate, but be well blended with surrounding features on 25% of the Forest. On about 14% of the Forest management activities would dominate. Approximately 39% of the Forest would allow human activities to dominate. Openings would exist, but would generally be smaller than those in the Forest today.

The overall visual impression of the Forest would be of continuous forest cover. Less than 1 1/2 times as many acres would have burned in high intensity wildfires as in the current situation.

Developed campgrounds would be concentrated near major highways. Recreational opportunities would highlight special and unique features such as SIAs, RNAs and WSRs.

Alternative D'

Alternative D' has the same theme, resource program direction and environment to be created as Alternative D. It differs from Alternative D in that no timber management would be allowed within HCAs. Therefore, it would be consistent with the ISC strategy.



Alternative E

Alternative Theme

Alternative E provides for multiple uses with an emphasis on amenity values and on maintaining future options. Emphasis items include providing a mixture of wildlife and fish habitat, scenic quality and a low level of timber outputs.

The alternative emphasizes the maintenance of viable populations of late seral stage wildlife species. It provides a high level of assurance that the northern spotted owl would continue to occupy and flourish in its current range on the Forest. Released roadless areas would be managed for semi-primitive recreational opportunities, maintaining options for future designation as wilderness. The intensity of timber management would be limited to maintain a "continuous forest canopy" and a Forest that is visually pleasing.

Land Allocations

Table 2-12 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative E Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in the category that would likely have the most constraining standards and guidelines, the category closest to the top of the list.

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality; no timber yields would be programmed from these areas. Managing for geological stability would be co-emphasized with other resource objectives on all other geologically sensitive lands; moderate timber yields would be programmed from these areas.

Water

Water quality and fish habitat would be maintained by the relatively small amount of CAS land, the low inten-

Table 2-12. Alternative E Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	11,000
Threatened, Endangered and Sensitive Species	501,100
Special Management	13,600
Backcountry	109,400
Habitat Linkage	0
Retention (Visual Quality Objective)	66,000
Scenic Rivers	5,700
Recreational Rivers	10,600
Riparian Management Zone	44,900
Big Game Habitat	106,700
Partial Retention (Visual Quality Objective)	256,300
Forage Management Area	16,100
General Forest - No Scheduled Harvest	17,200
General Forest - Limited Scheduled Harvest	0
General Forest	121,500
Total	1,680,000

sity of timber management on the CAS land, long rotations on the upland areas managed for timber, relatively low levels of road construction, moderate buffers on riparian areas and the recommendation to designate all suitable WSRs.

Air

Asbestos would not be used as a source for crushed rock for road surfaces.

Biological Environment

Biological Diversity

Forest-wide biological diversity would be provided through land allocations and standards and guidelines.

Large tracts of land would be allocated to management areas whose objectives are consistent with TE&S species viability objectives. These land allocations include wilderness, HCAs, spotted owl critical habitat units, furbearer habitat and backcountry recreational areas.

Connectivity between these large tracts would be provided through a land use pattern which involves no

or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred cultural areas, SIAs, Wild Rivers, Scenic Rivers, RMZs, Scenic Highways, Retention VQOs, "old growth" areas as well as lands managed to meet the 50-11-40 rule.

Approximately 77% of the Forest would be unregulated. A variety of stand structures and vegetative compositions would be provided primarily in the later seral stages. About 3% of the Forest would emphasize resources other than timber resulting in minimal timber yields.

About 20% of the Forest would co-emphasize timber and other resources; long rotations would be used. A large amount of materials would be left after any timber harvest to maintain structural attributes for wildlife needs in those areas. The trees left on-site would be scattered throughout the units. Refer to Wildlife - Special Habitat Provisions below.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

Timber management would not be emphasized on any lands. No clearcutting prescriptions would be used in this alternative. The objective would be to maintain late seral stage habitat on most areas of the Forest. The existing diversity within the Klamath Mountains Province is expected to provide for a mixture of seral stages and a variety of stand structures.

Critical northern spotted owl habitat as defined by the USFWS (August 1991) would be unregulated. Stands identified as "old growth" by a scientific panel on late-successional forest ecosystems would also be unregulated and the 12C strategy in the panels' report would be incorporated into this alternative (Johnson, et. al, 1991).

Rare or unique vegetative components found on the Forest such as Pacific yew, Port-Orford-cedar and specific species of hardwoods would receive special management. The objective for unique vegetative components would be to maintain current population levels.

Riparian Area Management

The RMZ would extend to the edge of inner gorge on either side of perennial streams. RMZs would be managed to meet water quality objectives and would be unregulated. Appropriate management for intermittent streams would be determined on a site-by-site basis.

Wildlife

Northern Spotted Owl - HCAs and critical habitat areas would be managed as habitat for spotted owls. The "old growth" stands as defined by the late successional panel and other land allocations which promote late seral stages would also provide suitable habitat

for owls. Outside HCAs, the 50-11-40 rule would be implemented.

Goshawk - A network of 200-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. No timber yields would be programmed and activities related to commodity outputs would be prohibited within these areas which are about 14,400 acres.

Furbearers - Land on both the westside and eastside of the Forest would be allocated specifically to provide optimum habitat for marten and fisher. These areas would be unregulated. Management areas that promote late seral stage vegetation (77% of the Forest) would provide additional habitat for these species.

Species Re-introduction - Species re-introduction would occur on a site-by-site basis.

Big Game Habitat - About 6% of the Forest would be managed for deer, elk and pronghorn on the eastside. About 5% of the Forest would be managed for deer on the westside. Timber management and wildlife habitat would be co-emphasized on these areas; moderate timber yields would be programmed.

Special Habitat Provisions - The objectives for stand structure which would be implemented on an acre basis are listed below as per acre averages. These levels may or may not actually occur evenly on every acre of Forest. The material left would be scattered:

- 2 to 3 snags, less than 24 inches DBH and 3 to 5 snags, greater than 24 inches DBH;
- 6 hardwoods greater than 12 inches where available;
- 5 logs, greater than 40 cubic feet each.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Fish habitat would be provided for through RMZs and the management of intermittent streams. RMZs would emphasize maintaining and enhancing water quality and fisheries habitat. These areas would be managed to provide maximum fish yields, shade on 80% of the surface of all flowing water, stable stream banks and habitat structure in the form of vegetative materials. Restoration activities for fisheries habitat would include both riparian and instream habitat improvements.

Resource Management Programs

Visual Resource Management

Scenic quality would be maintained by adopting the VQOs which are currently in use with some minor

changes to add VQOs for designated and recommended WSR corridors and viewsheds.

All released roadless areas, designated and proposed Wild River corridors and RNAs would be managed for Preservation VQOs. The foreground of high sensitivity travel routes as well as designated and proposed Scenic River corridors and viewsheds would be managed for Retention VQOs.

In addition, certain travel routes would be managed to maintain or enhance specific VQOs. These travel routes include high-use recreational travelways, high-use roads and trails into wilderness areas. The mid-ground and background views of these travel routes would be managed for Partial Retention VQOs. Only 6% of the Forest would be managed for modified landscapes.

Improving scenic quality would be emphasized along candidate State Scenic Highways and designated WSRs.

Recreation Management

Construction and reconstruction of recreational sites would be emphasized. The objective would be to provide facilities which meet the current and projected future needs of recreationists.

OHV use would be prohibited in Wild River corridors, RNAs and non-motorized recreation areas in addition to areas currently closed to OHV use.

Construction of new trails and the maintenance of the existing trail system would be emphasized.

Wilderness

Both planned and unplanned ignitions would be allowed to burn when it was determined that management objectives would be met. Approximately 100 acres per year would be treated by prescribed fires.

Livestock grazing would not be allowed in wilderness. This alternative could not be implemented without a change in current law and policy which permits livestock use of wilderness.

Released Roadless Area Management

All released roadless areas, about 241,000 acres, would be allocated for backcountry recreation to enhance semi-primitive non-motorized opportunities.

Wild and Scenic River Management

All rivers on the Forest determined to be eligible for the WSR System would be recommended at their highest potential classification. Three designated river segments would be recommended for re-classification from Recreational to Scenic classification.

Designated and proposed Wild River corridors would be managed for Preservation VQOs. Scenic River corridors and viewsheds as well as Wild River viewsheds would be managed for Retention VQOs for both designated and proposed. Designated and proposed

Recreational River corridors and viewsheds would be managed for Partial Retention VQOs.

WSR corridor width would be 1/4-mile on either side of the river.

Lands Program Management

Land adjustments would emphasize consolidation of ownership in Congressionally designated areas, T&E species habitat, areas of special interest and, lastly, for the purpose of consolidating the Forest boundary.

Community expansion would be facilitated as much as possible. Coordination with other resource objectives would occur on a site-by-site basis.

No expansion would be allowed in currently designated Scenic or Recreational Rivers.

Minerals Management

Special stipulations would be placed on mining activities in areas supporting populations of bald eagles, peregrine falcons, spotted owls, goshawks and Sensitive plant species. Special stipulations would also be placed on mining activities in sensitive cultural resource sites.

Transportation and Facilities Management

Selected arterial and collector roads would be upgraded to increase safety, reduce maintenance and hauling costs and to better accommodate passenger traffic. A road management plan would be developed to determine which roads would be closed.

Roads would be allowed where they provided access to commodity outputs or to unique areas of the Forest. Roads needed to meet resource needs would also be left open. Other roads would be closed and reclaimed, especially where reclamation would reduce adverse effects to water quality and reduce wildlife disturbance. Seasonal road closures would occur where necessary to prevent damage to road facilities, minimize disturbance to adjacent resources or protect highly erosive soils.

Timber Management

Both even-aged and uneven-aged silvicultural systems would be used. There would be no Regulation Class 1 lands. The emphasis of silvicultural prescriptions would be to maintain a continuous forest canopy. GTR would be the predominant silvicultural prescription used on Regulation Class 2 lands. In Alternative E, the GTR prescription on the average would leave approximately 20% of the existing trees scattered throughout the area treated. Group selection and stand maintenance prescriptions would also be commonly used.

For even-aged silvicultural prescriptions which include GTR and seed step shelterwood, openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-

aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

Commercial tree stands which are infeasible to manage for timber due to economics, harsh sites or access problems would be unregulated. Emphasis would be placed on regenerating poorly growing, understocked stands. The first priority for reforestation would be areas harvested and the second would be areas burned by wildfires. Fire protection in plantations would be emphasized. Fuel management plans would be developed to reduce fuels both within and immediately adjacent to plantations.

Pest management would occur on a site-by-site basis. Promoting a healthy forest environment would be a priority. Hardwood stands would not be converted to coniferous species. The use of hardwoods for personal use firewood or as biomass for energy-producing power plants would be encouraged. Priority would be given to personal use firewood in areas near population centers or with easy access.

Fire Management

The wildfire detection, prevention and initial attack organization is similar to the current situation with the exception that there would only be 12 fire engines instead of 14.

Funding of the fire protection program would be similar to the current situation. The program would maintain the current level of prevention and detection, but increase suppression efforts. Protection of high value areas such as private property, developed sites and plantations would be emphasized.

Range Management

Livestock grazing would not be allowed in wilderness areas. This alternative could not be implemented without a change in current law and policy which permits livestock use of wilderness areas.

Wild Horse Management

One herd of wild horses would be maintained on the eastside of the Forest at the current population level.

Cultural Resources Management

An additional \$50,000 per year for a decade would be requested to accelerate the determination of whether cultural sites are significant as well as for training and interpretation. Potentially significant cultural sites would be managed to protect cultural resource values.

The sacred areas of Inam, Cottimien and Helkau would be managed through a Memorandum of Understanding with the Karuk Tribe of California.

These areas would not have a programmed timber yield. Access, use and the integrity of traditional cultural sites and locations important to Native American

religious and cultural practices would be important considerations in all planned management activities.

Environment To Be Created

By the year 2040, 40% of the Forest would primarily show only ecological changes. There would be traces of human use in some of these areas such as trails and primitive campsites within wilderness and backcountry recreation areas.

Management activities would not be evident to the casual Forest visitor on approximately 36% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 18% of the Forest. Human activities would not be dominant on approximately 94% of the Forest. This would include major travel routes and high use recreational areas.

On the remaining 6% of the Forest, some evidence of human activities would be noticeable, but the primary visual impression of the Forest as a whole would be continuous forest cover.

There would be a higher proportion of acres covered by vegetation in the later seral stages and less in the earlier stages than currently exists. Almost twice as many acres would have burned in high intensity wildfires as in the current situation.

Developed recreational sites would be available as would many backcountry recreational opportunities.

Alternative G(SOHA)

Alternative Theme

This alternative represents the management practices that were being implemented on the Forest prior to 1987. It is not consistent with current direction and would not be implementable without a change in the laws, policy or regulations. It was included for comparison purposes. This alternative provides for multiple uses with an emphasis on the production of timber and other commodities.

Land Allocations

Table 2-13 shows the number of acres that would be allocated to various land uses. Each land use is composed of one or more management areas, except for the General Forest Management Area which is divided into 3 land use groups. Refer to *Alternative G (SOHA) Land Use Map* in map packet for locations of each land use category.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in the category that would likely have the most constraining standards and guidelines, the category closest to the top of the list.

Table 2-13. Alternative G(SOHA) Land Use

Land Use	Acres
Congressionally Designated	399,900
Wild Rivers	0
Threatened, Endangered and Sensitive Species	135,000
Special Management	13,400
Backcountry	0
Habitat Linkage	0
Retention (Visual Quality Objective)	88,400
Scenic Rivers	1,100
Recreational Rivers	10,300
Riparian Management Zone	108,500
Big Game Habitat	111,300
Partial Retention (Visual Quality Objective)	321,000
Forage Management Area	22,500
General Forest - No Scheduled Harvest	57,100
General Forest - Limited Scheduled Harvest	0
General Forest	411,500
Total	1,680,000

Large tracts of land would be allocated to management areas whose objectives are consistent with TE&S species viability objectives. These land allocations include wilderness and SOHAs. Connectivity between these large tracts would be provided through a land use pattern which involves no or minimal programmed timber yields. Included in these areas are eagle habitat, falcon habitat, goshawk habitat, RNAs, sacred cultural areas, SIAs, Wild Rivers, Scenic Rivers, RMZs, Preservation VQOs and Retention VQOs.

Approximately 49% of the Forest would be unregulated. A variety of stand structures and vegetative compositions would be provided primarily in the later seral stages.

About 9% of the the Forest would be managed for resources other than timber resulting in minimal timber yields. About 26% of the Forest would co-emphasize timber and other resources. A variety of seral stages would be provided from these areas. About 16% would emphasize timber management; primarily early and middle seral stages would be provided.

At least 5% of the Forest would be maintained in each vegetative type/seral stage combination.

Riparian Areas

RMZs would extend a minimum of 100 feet on either side of perennial streams.

Wildlife

Northern Spotted Owl - The management strategy implemented on the Forest prior to 1990 would be used. SOHAs would provide for spotted owl habitat. No timber yield would be programmed from these areas.

Goshawk - A network of 50-acre goshawk territories at a minimum density of 1 territory per 18 square miles with distances of no more than 12 miles between territories would be established. No timber yields would be programmed and activities related to commodity outputs would be prohibited within these areas which are about 3,600 acres.

Furbearers - Management areas that promote late seral stage vegetation would provide habitat for the American marten and Pacific fisher.

Species Re-introduction - Re-introduction would occur on a site-by-site basis.

Big Game Habitat - Wildlife habitat and timber management would be co-emphasized on 3% of the Forest on the eastside and on 5% on the westside. Moderate timber yields would be programmed from these areas. Additional areas of the Forest within other management areas that have special habitat values for deer and elk would be managed to promote those values.

Special Habitat Provisions - The objectives for snags and hardwoods are listed below as per acre averages.

Resource Program Direction

Physical Environment

Geology

Inner gorges on consolidated material would be managed to maintain productivity and water quality. Minimal timber yields would be programmed from these areas. Other geologically sensitive lands, including granitic soils, would be managed on a site-specific basis and would be managed as Regulation Class 1 or 2 depending on other constraining resources.

Biological Environment

Biological Diversity

Forest-wide biological diversity would be provided through land allocations and standards and guidelines.

Distribution would not occur evenly on every Forest acre.

- 1.2 snags, less than 24 inches DBH;
- 0.3 snags, greater than 24 inches DBH;
- 5 downed logs, greater than 40 cubic feet each.
- 2 to 4 square feet BA of hardwoods on Regulation Class 1 lands;
- 6 square feet BA of hardwoods on Regulation Class 2 lands; and
- 8 square feet BA of hardwoods on Regulation Class 3 lands.

Habitat for wildlife species other than those discussed above would be provided throughout the Forest by the variety of seral stages created through land allocations.

Fisheries

Management objectives would include the establishment of 100-foot wide unregulated RMZs on either side of perennial streams. Other streams would be managed site by site. A minimum of 80% shade on streams would be maintained. Habitat structure would be maintained for fisheries by retaining existing vegetation. Riparian and instream restoration would be programmed.

Resource Management Programs

Visual Resource Management

Scenic quality would be maintained by adopting the VQOs currently in use with some changes. High sensitivity travel routes would be managed for Partial Retention VQOS in the foreground and middleground. On the westside of the Forest, the background of sensitive travel routes would be managed for a modified appearance.

Recreation Management

Recreational opportunities would be maintained or enhanced in accordance with recreational demand. Developed recreational sites would be reconstructed to meet changing public needs.

Wild and Scenic River Management

WSR corridors for designated rivers would extend to the first line of riparian vegetation on either side of the river.

Lands Program Management

Land acquisition priorities would be to consolidate ownership in Congressionally designated areas.

Transportation and Facilities Management

The standards of selected arterial and collector roads would be upgraded to increase safety, to reduce maintenance and hauling costs and to better accommodate

passenger vehicles. Roads providing access to areas of interest would be maintained. No significant changes in classifications would be planned. Seasonal road closures would occur to prevent damage to road facilities, to minimize disturbance to adjacent resources such as critical wildlife habitat and to protect highly erosive soils.

All facilities would be operated in a reasonably safe and efficient condition. This may require construction, reconstruction and/or obliteration of some buildings or systems.

Timber Management

A mixture of silvicultural systems would be used to meet management objectives. Even-aged systems would be emphasized on lands allocated to intensive timber management. Clearcutting would be the primary prescription on these lands.

For even-aged silvicultural prescriptions which include clearcutting and seed step shelterwood, openings created would generally be 5 acres or larger in size but 60 acres or less in the Douglas-fir type and 40 acres or less in all other timber types. The average size would probably be between 10 and 25 acres. For uneven-aged and special prescriptions, regeneration openings would generally be less than 2 1/2 acres in size.

Regenerating poorly growing, understocked stands would be emphasized on lands allocated for intensive timber management. Stands receiving regeneration cuts would be the first priority for reforestation, while openings created by wildfires and other catastrophic events would be the second priority.

Reducing fire damage to tree plantations would be a priority. Fuel management plans would be developed to reduce the build-up of hazardous fuels both inside and immediately adjacent to plantations.

Maintaining stand vigor to avoid pest infestations would be an objective of timber management. Control of pests would be planned on a site-by-site basis.

Fire Management

The wildfire detection, prevention and initial attack organization would be maintained at current levels. The organization would include 14 engines, 2 helicopters, 1 air attack aircraft, 9 lookouts and 2 fire prevention patrols per district. An airtanker reload base at Siskiyou County Airport and the centralized dispatch operation shared with CDF would also be included.

Protection of high value areas such as private property, developed sites and plantations would be emphasized. The goal is to suppress all wildfires in a timely manner through appropriate fire suppression efforts.

Range Management

On the eastside of the Forest forage production would be emphasized in areas of permanent and temporary range; no timber yields would be programmed from these areas. The development of water sources to meet domestic livestock and wildlife needs would be used to distribute grazing use.

Wild Horse Management

One of the established wild horse herds on the eastside of the Forest would be maintained at the current population level.

Cultural Resources Management

Cultural surveys to support the timber program would be the first priority. Potentially significant cultural sites would be managed to protect cultural resource values.

The sacred areas of Inam, Cottimien and Helkau would be managed on a site-by-site basis; coordination with the Karuk Tribe of California would be emphasized. These areas would not have a programmed timber yield and no harvest activities would be planned.

Environment To Be Created

By the year 2040, 23% of the Forest would primarily show only ecological changes. There would be traces of human use in some of these areas such as trails and primitive campsites within wilderness.

Management activities would not be evident to the casual Forest visitor on approximately 5% of the Forest. Management activities might be evident but would remain subordinate to the characteristic landscape on approximately 28% of the Forest. Approximately 56% of the Forest would be natural-appearing. These areas include major travel routes.

Management activities would dominate, but be well blended with background features on 29% of the Forest. On about 15% of the Forest management activities would dominate. Approximately 44% of the Forest would allow human activities to dominate. In these areas openings of approximately the same size as those on the Forest today would be evident. These openings would provide visual contrasts with surrounding areas.

Almost twice as many acres would have burned in high intensity wildfires as in the current situation. Developed recreational sites would be available.

Comparison Of Alternatives

The alternatives considered in detail were compared by outputs produced in Table 2-4. Additional key comparisons were highlighted in Table 2-5. This section makes the following additional comparisons:

- CAS acres by alternative,
- Differences in management areas,
- Differences in response to major issues, and
- Economic effects.

CAS Acres Comparison

Table 2-14 displays the land classification for timber by alternative.

The tentatively suitable timber land base would not vary by alternative. However, a wide variation exists among the alternatives in their use of this land for timber production as displayed under the heading Total Suitable Acres.

Management Area Comparison

Table 2-15 compares the acres allocated to various land uses by alternative. Each land use is composed of 1 or more management areas, except for the General Forest Management Area which is divided into 3 land use groups.

The location of the acres in a specific management area may vary by alternative as does the management direction or management prescription. The location of these groups of management areas by alternative is displayed on the Alternative Land Use maps in the map packet.

Some acres may fall into more than 1 land use category. To avoid double-counting acres, they are displayed in the category that would likely have the most constraining standards and guidelines, the category closest to the top of the list.

The alternatives are compared by management area below listed under the appropriate land use group. In the following descriptions, acres are often double-counted when they fit more than 1 management area. The sums of the unnested acres mentioned below will not equal the nested acres listed above in Table 2-15.

Congressionally Designated

Wilderness Management Area. All alternatives would continue to manage currently designated wilderness, approximately 381,100 acres. Alternatives B and B' would explore a boundary change for the eastern boundary of the Russian Wilderness.

Butte Valley National Grassland Management Area. All alternatives would manage the approximately 18,400 acres currently designated as the BVNG to emphasize wildlife and livestock use as well as grassland ecosystem health.

Wild Rivers

Designated Wild River Management Area. The Preferred Alternative would recommend changes in classification for a total of 11.2 miles of Wild River. The other alternatives would retain the 11.7 miles currently

Table 2-14. Land Classification for Timber¹ (M Acres in Decade 1)

	A L T E R N A T I V E									
	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)
Non-forested Land (includes water)	276	276	276	276	276	276	276	276	276	276
Forested Land	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404
Forested Land Currently Withdrawn from Timber Production ²	299	299	299	299	299	299	299	299	299	299
Forested Land Not Capable of Producing Industrial Wood	0	0	0	0	0	0	0	0	0	0
Forested Land Physically Unsited										
– Irreversible Damage to Soils, Watersheds or Productivity Likely to Occur	54	54	54	54	54	54	54	54	54	54
– Unregenerable Within 5 Years of Final Harvest	0	0	0	0	0	0	0	0	0	0
Inadequate Information to Project Responses	0	0	0	0	0	0	0	0	0	0
Tenatively Suitable Timber Base	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051	1,051
Not Suitable ³ for Timber under the Alternative	1,326	1,000	970	803	1,050	1,035	939	1,046	1,294	834
Total Unsuitable Acres	1,050	724	694	527	774	759	663	770	1,018	558
Total Suitable Acres	354	680	710	877	630	645	741	634	386	846
Total National Forest Acres	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680

¹ Some acres may fit in more than one category. They are displayed in the category closest to the top of the list to avoid double-counting.

² Areas withdrawn by an Act of Congress, the Secretary of Agriculture or the Chief of the Forest Service.

³ Lands identified as not appropriate for timber production due to (1) assignment to other resource uses to meet alternative objectives; (2) management requirements or (3) not being cost-efficient in meeting alternative objectives over the planning horizon.

classified as Wild that are in the National WSR System. These areas would be unregulated.

Recommended Wild River Management Area. Alternatives A would recommend the most additional miles, 123.8 miles, for inclusion under the Wild River classification in the National WSR System. Alternative E would recommend 126.6 miles. Alternative C would recommend 112.2 miles. Alternatives D and D' would recommend 102.7 miles. Alternative Preferred would recommend 101.1 miles. Alternatives B and B' would recommend 93.7 miles. Alternatives Current/RPA alternative and G(SOHA) would not recommend any additional Wild River segments. These areas would be unregulated.

Threatened, Endangered and Sensitive Species

Threatened and Endangered Species Habitat Management Area. All alternatives would manage from 7,200 to 7,800 acres for bald eagle habitat and approximately 6,300 acres for peregrine falcon habitat. These areas would be unregulated in all alternatives.

All alternatives except Alternatives Preferred and G(SOHA) would manage approximately 429,000 acres as HCAs for spotted owl habitat. The Preferred Alternative would manage approximately 396,600 acres as LSRs and approximately 6,600 acres as a Managed Wildlife Area, both of which would provide

Table 2-15. Comparison of Land Use in Thousands of Acres

Land Use	Alternative							
	PFD	CUR/RPA	A	B&B'	C	D&D'	E	G (SOHA)
Congressionally Designated	399.9	399.9	399.9	399.9	399.9	399.9	399.9	399.9
Wild Rivers	3.1	0.0	8.8	9.0	9.5	6.3	11.0	0.0
Threatened, Endangered and Sensitive Species/Special Habitat*	388.0	312.7	368.8	375.8	375.0	370.8	501.1	135.0
Special Management	17.3	11.1	10.5	12.7	16.0	18.0	13.6	13.4
Backcountry	9.6	0.0	12.7	0.0	0.0	0.0	109.4	0.0
Habitat Linkage	0.0	0.0	0.0	0.0	79.9	0.0	0.0	0.0
Retention (VQO)	38.3	74.0	35.1	106.0	81.1	70.3	66.0	88.4
Scenic Rivers	1.2	1.1	4.1	2.6	2.6	4.2	5.7	1.1
Recreational Rivers	28.6	10.1	28.3	19.3	11.6	16.6	10.6	10.3
RMZ/RR*	86.2	93.7	80.2	75.0	173.2	79.4	44.9	108.5
Big Game Habitat/Winter Range*	40.1	109.9	56.6	56.0	0.0	108.1	106.7	111.3
Partial Retention (VQO)	286.5	246.4	98.7	394.5	310.0	289.5	256.3	321.0
Forage	52.6	22.5	44.0	28.0	21.0	20.9	16.1	22.5
General Forest - No Scheduled Harvest/Harsh Sites*	66.6	48.7	76.0	30.0	22.5	35.9	17.2	57.1
General Forest - Limited Scheduled Harvest	65.0	0.0	139.6	42.6	40.7	0.0	0.0	0.0
General Forest	197.0	349.9	316.7	136.7	137.0	260.1	121.5	411.5

* Preferred Alternative only.

suitable habitat for late-successional species, including T&E. Alternative G(SOHA) would manage about 126,000 acres as SOHAs. Alternative E would also manage critical habitat for spotted owls.

All alternatives except Alternatives Preferred, B, D and G(SOHA) would be consistent with the ISC strategy for managing owls. The Preferred Alternative would be consistent with the ROD for the FSEIS. Alternatives Preferred, B and D would allow vegetative manipulation activities within LSRs or HCAs to meet habitat goals. HCAs in Alternatives B and D would be managed as Regulation Class 3. The LSRs for the Preferred Alternative, the HCAs for the other alternatives and the SOHAs for Alternative G(SOHA) would be unregulated.

Sensitive Species Habitat Management Area. All alternatives would manage approximately 100 acres for *Calochortus persistens* habitat. This area would be unregulated in all alternatives.

All alternatives but Alternatives Preferred and G(SOHA) would allocate about 14,400 acres for goshawk habitat management. The Preferred Alternative would establish nest and foraging zones around

activity centers through standards and guidelines; these zones could move as goshawk nests move. Alternative G(SOHA) would allocate about 3,600 acres. These areas would be unregulated in all alternatives, except the Preferred Alternative.

All alternatives but Alternatives Preferred, Current/RPA, C and G(SOHA) would designate lands on the eastside and westside of the Forest for furbearer habitat. The Preferred Alternative would provide for furbearers through the land allocations for late-successional species described above. Alternative C would only allocate land on the eastside of the Forest. Alternatives Current/RPA and G(SOHA) would not allocate any land in this management area. Alternative E would manage furbearer habitat as unregulated. The other alternatives would manage furbearer habitat in this management area as Regulation Class 3.

Special Management

Research Natural Area Management Area. All alternatives would recommend the 9 RNAs, approximately 12,500 acres, that are currently in the establishment

process for establishment as RNAs. These areas would be unregulated.

Special Interest Area Management Area. Alternatives D, D' and E would recommend 65 areas of approximately 34,900 acres for establishment as SIAs. Alternative Preferred would recommend 45 areas of about 22,000 acres. Alternative C would recommend 41 areas of about 21,600 acres. Alternative A would recommend 26 areas of about 14,300 acres. Alternatives B and B' would recommend 20 areas of about 27,600 acres. Alternatives Current/RPA and G(SOHA) would recommend 5 areas of about 1,900 acres for establishment as SIAs. These areas would be unregulated.

Cultural Areas Management Area. All alternatives would manage Inam, Cottimien and Helkau, approximately 7,400 acres, to protect the values sacred to the Karuk Tribe of California. Alternative C would manage these areas as Regulation Class 3. They would be unregulated in all other alternatives.

Backcountry

Backcountry Management Area. The Preferred Alternative would manage 2 areas of approximately 29,000 acres for semi-primitive non-motorized recreational opportunities. Alternative A would manage 3 areas of approximately 33,000 acres. Alternative E would manage all the released roadless areas, approximately 241,000 acres as Backcountry. These areas would be unregulated.

Habitat Linkage

Habitat Linkage Management Area. Alternative C would manage approximately 79,900 acres for habitat connectivity. These areas would be managed as Regulation Class 3.

Retention (Visual Quality Objectives)

Retention VQO Management Area. Alternatives B and B' would manage the most acres in this management area. They would be followed by Alternatives G (SOHA), C, Current/RPA, D and D', E, Preferred and A in decreasing order. These areas would be managed as Regulation Class 3.

Scenic Rivers

Designated Scenic River Management Area. Alternatives B, B' and E would recommend changes in classification. Alternative E would have 43.9 miles, while Alternatives B and B' would have 42.1 miles of designated WSRs classified as Scenic if the classification changes were implemented. The other alternatives would all retain the 20.5 miles that are currently classified as Scenic in the National WSR System. These areas would be managed as Regulation Class 3.

Recommended Scenic River Management Area. Alternatives E would recommend the most additional miles, 26.3 miles, for inclusion under the Scenic River classification in the National WSR System. Alternatives B and B' would recommend 15.2 miles. Alternatives D and D' would recommend 12.9 miles. The Preferred Alternative would recommend 10.6 miles. Alternative C would recommend 5.2 miles. Alternative A would recommend the least, 1.0 miles. Alternatives Current/RPA and G(SOHA) would not recommend any additional Scenic River segments. These areas would be managed as Regulation Class 3.

Recreational Rivers

Designated Recreational River Management Area. If recommended classification changes were implemented, Alternative Preferred would have the most designated WSR miles classified as Recreational, 170.6 miles. Alternatives Current/RPA, A, C, D, D' and G(SOHA) would have 170.1 miles. Alternatives B and B' would have 148.5 miles. Alternative E would have 146.7 miles. These areas would be managed as Regulation Class 3.

Recommended Recreational River Management Area. Alternative Preferred would recommend the most additional miles, 59.6 miles, for inclusion under the Recreational River classification in the National WSR System. Alternatives B and B' would recommend 52.8 miles. Alternative A would recommend 50.8 miles. Alternative E would recommend 33.4 miles. Alternatives D and D' would recommend 31.9 miles. Alternative C would recommend the least miles, 14.0. Alternatives Current/RPA and G(SOHA) would not recommend any additional Scenic River segments. These areas would be managed as Regulation Class 3.

Riparian Management

Riparian Reserves/Riparian Management Zone Management Area. Alternative Preferred would manage the most acres in this management area. It would be followed by Alternatives D and D', C, E, B and B', Current/RPA, A and G(SOHA) in decreasing order. Alternatives A and G(SOHA) would manage these areas as Regulation Class 3. This management area would be unregulated in the other alternatives.

Big Game Habitat Management

Big Game Habitat/Winter Range Management Area. Alternative A would allocate the most acres for big game habitat, approximately 500,000 acres on the eastside. Alternatives B and B' would allocate about 336,000 acres on the eastside. Alternatives Current/RPA, C and E would allocate approximately 128,000 acres on both the eastside and westside of the Forest. Alternative Preferred would allocate about 82,900 acres on the eastside. Alternatives D and D' would allocate about 51,000 acres on the eastside. Alternative G(SOHA) would allocate about 43,000

acres on both the eastside and westside. The Winter Range Management Area in the Preferred Alternative would be unregulated. The Big Game Management Areas in the other alternatives would be managed as Regulation Class 2.

Partial Retention (Visual Quality Objectives)

Partial Retention VQO Management Area. Alternatives B and B' would manage the most acres in this management area. They would be followed by Alternatives G(SOHA), C, D and D', Preferred, E, Current/RPA and A in decreasing order. These areas would be managed as Regulation Class 2.

Forage Management Area

Forage Management Area. The Preferred Alternative would allocate the most land to the Forage Management Area, approximately 54,700 acres. Alternative A would allocate about 44,000 acres. Alternatives B and B' would allocate about 28,000 acres. Alternatives Current/RPA and G(SOHA) would allocate about 22,500 acres. Alternative C would allocate about 21,000 acres. Alternative E would allocate about 16,100 acres. Alternative A would manage these areas as Regulation Class 2. Alternatives Preferred, D and D' would manage them as Regulation Class 3. These areas would be unregulated in all other alternatives.

General Forest

General Forest Management Area. Alternative A would allocate the most acres to this management area, approximately 532,300 acres. In Alternative A, 14% of the management area would be unregulated, 26% would be Regulation Class 3 and 60% would be Regulation Classes 1 and 2.

Alternative G(SOHA) would allocate the second most acres to this management area, approximately 468,600 acres. In Alternative G(SOHA), 12% of the management area would be unregulated and 88% would be Regulation Classes 1 and 2.

Alternative Current/RPA would allocate approximately 398,600 acres to this management area. About 12% of the management area would be unregulated and 88% would be Regulation Classes 1 and 2.

Alternatives D and D' would allocate approximately 296,000 acres to this management area. About 12% of the management area would be unregulated and 88% would be Regulation Classes 1 and 2.

Alternative Preferred would allocate approximately 262,000 acres to this management area. About 25% would be Regulation Class 3 and 75% would be Regulation Class 2. Uncapable land and harsh sites that appear as unregulated General Forest in the other alternatives would be identified as a separate category, Harsh Sites, in the Preferred. There would be approximately 66,600 acres in the Harsh Sites Category.

Alternatives B and B' would allocate approximately 209,300 acres to this management area. About 14% of the management area would be unregulated, 21% would be Regulation Class 3 and 65% would be Regulation Class 2.

Alternative C would allocate approximately 200,200 acres to this management area. About 11% of the management area would be unregulated, 20% would be Regulation Class 3 and 69% would be Regulation Classes 1 and 2.

Alternative E would allocate the least acres to this management area, approximately 138,700 acres. About 12% of the management area would be unregulated and 88% would be Regulation Class 2.

Response to Issues Comparison

Table 2-16 compares how each alternative responded to the major issues. Planning questions are included where they help to compare issue response by alternative. Planning questions such as definition of terms are not included here; these responses can generally be found in Chapter 3 under the appropriate resource.

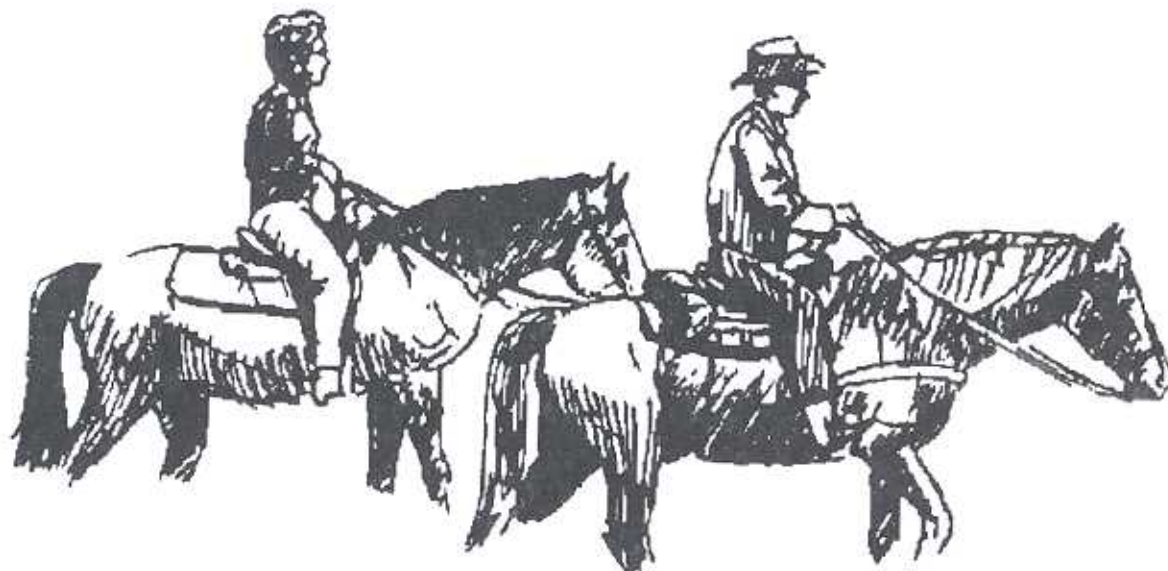


Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)
---	-----	-------------	---	---	----	---	---	----	---	-------------

Physical Environment

Geology

Capable, Available and Suitable Land

Refer to Timber Management Section.

Slope Stability

- What level of emphasis should be placed on avoiding unstable areas?

All alternatives would manage unsuitable lands as unregulated. Alternatives Preferred, B, B', C, D, D' and E would also manage consolidated inner gorges as unregulated. The Preferred Alternative would include these lands in RRs and management would be consistent with Aquatic Conservation Strategy objectives.

Total Landslide-generated sediment (MM cubic yards)

Decade 1	7.403	7.271	6.862	6.491	6.487	7.261	6.534	6.559	6.476	7.281
Decade 5	5.545	6.862	6.091	5.909	5.890	6.788	6.029	6.101	6.048	6.861

- What degree does road construction and timber harvest activity relate to landslide occurrence?

Road construction and timber harvesting would be from 1 to 4% of the total sediment production in all alternatives:

Management Activity Sediment Production (MM cubic yards)

Decade 1	0.095	0.217	0.234	0.134	0.122	0.207	0.201	0.192	0.116	0.292
Decade 5	0.086	0.176	0.206	0.116	0.110	0.179	0.216	0.208	0.133	0.258

- What management practices are appropriate on unstable lands?

Land unsuitable for timber production due to instability would be unregulated in all alternatives. Alternatives CUR/RPA, A and G(SOHA) would manage consolidated inner gorges for watershed values with minimal timber yields programmed. All other alternatives would manage consolidated inner gorges as unregulated. Alternatives B and B' would manage all of the remaining geologically sensitive land as Regulation Class 3. The other alternatives would manage the remaining geologically sensitive land as Regulation Classes 1 and 2. Alternative E would manage the least acres of these geologically sensitive lands as Regulation Class 1 and 2, followed by Alternatives D and D', A, C, Preferred, Current/RPA and G(SOHA) in increasing order. The Preferred Alternative would place all unstable and potentially unstable lands in the RR Management Area; management activities would be consistent with the Aquatic Conservation Strategy objectives.

Hazardous Materials

- What management activities introduce asbestos and radon into the water or air? What mitigation measures are possible?
Quarry operations and road construction in ultramafic rock would occur in all alternatives. All alternatives but Alternative E would use asbestos-bearing rock for road surfacing and riprap following State regulations. Avoidance of use, dust abatement measures or paving roads would be used as mitigation measures in all alternatives. Where ultramafic rock could not be avoided for quarry sites, dust abatement measures would be used in all alternatives. Radon would be mitigated in all alternatives by properly ventilating building basements and crawl spaces.
- What monitoring procedures are needed?
All alternatives would monitor existing levels of hazardous materials to see if required health and safety compliance standards are met. All alternatives would also measure the effectiveness of reducing threats from geological hazards.
- What is the extent of abandoned mines and landfills on the Forest?
A hazardous material inventory is in progress to determine the location of hazards. The inherent risk exists in all alternatives. However, the degree of risk would be less for alternatives which complete the inventory soonest. Alternative E would allocate the most inventory money to assess all geological hazards. The Preferred Alternative would allocate the second highest amount. Alternatives A, B, B', D and D' would allocate the next highest amount.

Geologic Hazards

- How can we respond to volcanic or earthquake activity?
Seismic hazards would be avoided when constructing facilities in all alternatives. If complete avoidance is not possible, structures would be designed to withstand the effects. Volcanic hazards have such a low probability of occurrence that they would not likely affect facility location in any alternative. Alternatives with higher geologic program funding would have a greater ability to anticipate problems associated with this type of minor risk.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)
<ul style="list-style-type: none"> How should the Forest maintain or enhance wildlife dispersal routes between habitat areas for TE&S and MIS? Is establishing corridors the best way? <p>All alternatives would provide for large blocks of land with similar management direction and for connective habitat between these areas. Alternative B would provide the most acres of connective habitat between blocks. It would be followed by Alternatives C, B', G(SOHA), Preferred, E, A, Current/RPA, D and D' in decreasing order. Alternative C would provide the widest connections between wildernesses, followed by Alternative E. Alternative G(SOHA) would provide the narrowest connections between wildernesses. The width of the other alternatives' connections would be between these two. RRs/RMZs provide another type of connection. The Preferred Alternative would have the widest RRs. It would be followed by Alternatives D and D', C, B and B', Current/RPA, A and G(SOHA) in order of decreasing riparian width. All alternatives but Alternatives Preferred, B and G(SOHA) would provide additional dispersal habitat by implementing the 50-11-40 rule for spotted owls.</p>										
<p>Old Growth</p> <ul style="list-style-type: none"> How much candidate "old growth" should be retained? Where will it be located to meet needs of "old growth" habitat-dependent wildlife species? <p>Seral stage projections indicate that the Preferred Alternative would retain "old growth" on 49% of the forested acres by Decade 5, Alternative E would retain it on 41%, Alternative D on 25% Alternatives B and D' on 24%, Alternatives Current/RPA and C on 23%, Alternative G(SOHA) on 22%, Alternative B' on 21% and Alternative A on 20%. The location of these acres would vary by alternative. How should "old growth" forest ecosystems be managed to maintain and protect "old growth" characteristics? <p>All alternatives expect to provide "old growth" in areas managed as unregulated. The Preferred Alternative would maintain at least 15% of the area in late-successional habitat in landscapes where little exists. Alternatives B and B' would actively manage "old growth" as Regulation Class 2 on regulated land to attain "old growth" characteristics; underburning would be an option. Alternative E would manage as unregulated all stands identified as "old growth."</p> <ul style="list-style-type: none"> How does management for biological diversity affect "old growth"? <p>All alternatives expect their management for a variety of seral stages in all forest types to adequately provide for "old growth."</p> </p>										
<p>Vegetative Diversity</p> <ul style="list-style-type: none"> How should less frequent vegetative types of special interest and importance such as riparian areas, hardwoods, chaparral and native grasslands be managed? <p>Riparian areas are discussed below. The objectives for hardwoods listed from highest retention to lowest are Alternative Preferred, A, C, E, Current/RPA, B, B', D, D' and G(SOHA). All alternatives would provide for minor vegetative types. All alternatives would manage the EVNG for native grasslands. All alternatives would emphasize native species on permanent rangelands. Will maintaining 5% of the area in each seral stage be adequate to maintain Forest-wide biological diversity? <p>This is not known, so the alternatives could not be evaluated on effectiveness.</p> <ul style="list-style-type: none"> To what unit of area (for example, district or compartment) will the 5% minimum be applied? <p>The Preferred Alternative does not include the 5% minimum, but has other standards and guidelines to provide for species diversity. Alternative A would apply the 5% minimum to landscapes. All other alternatives would apply it to compartments.</p> </p>										

Riparian

Riparian Management

- What types of management are needed to restore, maintain or enhance riparian resources?
- | | | | | | | | | | | |
|--|---------|-----|-----|-----|-----|-----|---------|---------|-----|-----|
| RR/RMZ Widths on either side of stream in feet | 100-300 | 100 | 100 | 100 | 100 | 100 | 150-300 | 100-300 | 100 | 100 |
|--|---------|-----|-----|-----|-----|-----|---------|---------|-----|-----|
- Widths for the Preferred Alternative are interim; final boundaries would be determined by analyses at watershed and project levels. The Preferred Alternative would establish Key Watersheds and Alternatives D and D' would establish refugia to restore aquatic habitat. Alternatives A and G(SOHA) would manage RMZs as Regulation Class 3. RRs/RMZs would be unregulated in all other alternatives. Refer to Watershed Restoration for comparison of restoration activities.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)																						
Sensitive Plant Species																																
Sensitive Plant Species Management																																
<ul style="list-style-type: none"> What management options are available to maintain population health and prevent Sensitive and candidate species from becoming listed as T&E? All alternatives would have standards and guidelines to maintain viable populations of sensitive species. Species Management Guides would be developed in all alternatives for the purpose of maintaining populations. All alternatives would emphasize ecosystem management. 																																
Wildlife																																
Threatened and Endangered Species																																
<ul style="list-style-type: none"> How should essential habitat of T&E species be managed to meet their recovery goals? All alternatives would allocate land for eagle and falcon habitat that would be unregulated. All alternatives are expected to meet the recovery goals of 5 breeding pair for eagles and 14 breeding pair for falcons. The Preferred Alternative would provide for late-successional species, including T&E species, in an ecosystem approach that includes designating unregulated LSRs and RRs. All alternatives except the Preferred and Alternative G(SOHA) would manage HCAs for spotted owl habitat. HCAs in all alternatives except Alternatives B and D would be unregulated. HCAs in Alternatives B and D would be managed as Regulation Class 3 using silvicultural practices and underburning to improve owl habitat. Alternative G(SOHA) would manage unregulated SOHAs for owl habitat. Alternative E would manage critical habitat units for spotted owl habitat in addition to the HCAs. The "old growth" management area in Alternative E would also provide additional suitable owl habitat. All alternatives except the Preferred, Alternative B and G(SOHA) would apply the 50-11-40 rule outside of HCAs to maintain dispersal habitat. 																																
Sensitive Animal Species																																
<ul style="list-style-type: none"> What habitat management options are available to maintain population health and prevent Sensitive and Candidate species from becoming Federally listed as T&E? All alternatives except the Preferred and G(SOHA) would manage 72 200-acre goshawk nesting habitat areas. The Preferred Alternative would provide for many goshawk activity areas within LSRs and RRs; for those outside reserves, management zones would be established through standards and guidelines. Alternative G(SOHA) would manage 72 50-acre nesting habitat areas. These areas would be unregulated in all alternatives, except the Preferred where management zones could fall in any land allocation. All alternatives would use treatments such as prescribed burning and snag creation to improve nesting habitat. Alternatives Preferred, A, B, C, D, D' and E would treat 600 acres per year. Alternative Current/RPA would treat 200 acres. Alternative G(SOHA) would treat 100 acres per year. 																																
<p>Spotted Owl Habitat Suitability in Decade 5 (Current Cover = 0.479; Current Feeding = 0.485)</p> <table border="1"> <tr> <td>Cover</td> <td>0.543</td> <td>0.509</td> <td>0.500</td> <td>0.531</td> <td>0.503</td> <td>0.502</td> <td>0.537</td> <td>0.518</td> <td>NA**</td> <td>0.506</td> </tr> <tr> <td>Feeding</td> <td>0.549</td> <td>0.519</td> <td>0.509</td> <td>0.539</td> <td>0.510</td> <td>0.513</td> <td>0.546</td> <td>0.527</td> <td>NA</td> <td>0.514</td> </tr> </table>											Cover	0.543	0.509	0.500	0.531	0.503	0.502	0.537	0.518	NA**	0.506	Feeding	0.549	0.519	0.509	0.539	0.510	0.513	0.546	0.527	NA	0.514
Cover	0.543	0.509	0.500	0.531	0.503	0.502	0.537	0.518	NA**	0.506																						
Feeding	0.549	0.519	0.509	0.539	0.510	0.513	0.546	0.527	NA	0.514																						
<p>Marten Habitat Suitability in Decade 5 (Current Cover = 0.442; Current Feeding = 0.442)</p> <table border="1"> <tr> <td>Cover</td> <td>0.507</td> <td>0.482</td> <td>0.464</td> <td>0.501</td> <td>0.501</td> <td>0.471</td> <td>0.500</td> <td>0.500</td> <td>NA**</td> <td>0.478</td> </tr> <tr> <td>Feeding</td> <td>0.573</td> <td>0.490</td> <td>0.472</td> <td>0.509</td> <td>0.509</td> <td>0.479</td> <td>0.508</td> <td>0.508</td> <td>NA</td> <td>0.486</td> </tr> </table>											Cover	0.507	0.482	0.464	0.501	0.501	0.471	0.500	0.500	NA**	0.478	Feeding	0.573	0.490	0.472	0.509	0.509	0.479	0.508	0.508	NA	0.486
Cover	0.507	0.482	0.464	0.501	0.501	0.471	0.500	0.500	NA**	0.478																						
Feeding	0.573	0.490	0.472	0.509	0.509	0.479	0.508	0.508	NA	0.486																						
<p>Fisher Habitat Suitability in Decade 5 (Current Cover = 0.461; Current Feeding = 0.467)</p> <table border="1"> <tr> <td>Cover</td> <td>0.531</td> <td>0.499</td> <td>0.495</td> <td>0.525</td> <td>0.525</td> <td>0.496</td> <td>0.533</td> <td>0.533</td> <td>NA</td> <td>0.506</td> </tr> <tr> <td>Feeding</td> <td>0.582</td> <td>0.526</td> <td>0.515</td> <td>0.549</td> <td>0.549</td> <td>0.509</td> <td>0.553</td> <td>0.553</td> <td>NA</td> <td>0.530</td> </tr> </table>											Cover	0.531	0.499	0.495	0.525	0.525	0.496	0.533	0.533	NA	0.506	Feeding	0.582	0.526	0.515	0.549	0.549	0.509	0.553	0.553	NA	0.530
Cover	0.531	0.499	0.495	0.525	0.525	0.496	0.533	0.533	NA	0.506																						
Feeding	0.582	0.526	0.515	0.549	0.549	0.509	0.553	0.553	NA	0.530																						
<p>**NA = Information not available</p>																																
<p>Alternative E would use RMZs and other management areas for furbearer connectivity; high quality habitat would be provided. In the Preferred Alternative, the interim RRs would provide moderate or better habitat connectivity on the westside; connectivity on the eastside would not be adequate, but would be addressed through the development of an AMA Plan. Alternatives B and C would provide moderate connective habitat throughout the Forest using RMZs and other management areas due to the low intensity of timber management Forest-wide. In Alternatives A, C, D and D', RMZs and other management areas would provide for moderate habitat connectivity, except on the Goosenest. Alternative Current/RPA would use RMZs and other management areas to provide connectivity, but there would be some weak links. The connectivity provided by RMZs and management areas in Alternative G (SOHA) would be of lower quality than in the current situation.</p>																																

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)
Management Direction										
<ul style="list-style-type: none"> How should MIS habitats be managed under various alternatives? 	<p>Some MIS habitats are covered above under TE&S and under Riparian. All alternatives expect land allocations to provide adequate habitat for black bear. All alternatives would establish management areas which provide for deer; refer to Big Game/Winter Range and Forage Management Area comparisons for details.</p>									
	<p>Black Bear Habitat Suitability In Decade 5 (Current Cover = 0.502; Current Feeding = 0.621)</p>									
Cover	0.581	0.552	0.538	0.571	0.571	0.548	0.572	0.572	NA**	0.554
Feeding	0.622	0.621	0.623	0.623	0.623	0.621	0.624	0.624	NA	0.624
	<p>Black-Tailed Deer Habitat Suitability In Decade 5 (Current Cover = 0.552; Current Feeding = 0.664)</p>									
Cover	0.565	0.575	0.545	0.568	0.568	0.572	0.595	0.595	NA	0.567
Feeding	0.638	0.654	0.658	0.651	0.651	0.662	0.663	0.633	NA	0.657
	<p>NA**=Information not available</p>									
<p>The objectives for hardwood retention for the Preferred Alternative would be 10 to 35 square feet BA per acre. Hardwood objectives for Alternative A would range from 5 to 20 square feet BA per acre and would vary by regulation class. The objectives for Alternative C would range from 2 to 13 hardwood trees per acre and would vary by regulation class. The objectives for hardwood retention for Alternatives Current/RPA, B, B', D, D' and G(SOHA) would range from 2 to 8 square feet BA per acre and would vary by regulation class. The objective for Alternative E would be 6 hardwood trees per acre.</p>										
<p>Alternative C would have the highest snag retention objectives, from 4 to 21 snags per acre would be left depending on the regulation class. Alternatives B and B' would leave from 7 to 10 snags per acre depending on the site class. Alternative E would leave from 5 to 8 snags per acre. The Preferred Alternative would leave 5 snags per acre. Alternative A would leave from 1.5 to 9 snags per acre depending on the regulation class. Alternatives Current/RPA, D, D' and G(SOHA) would leave 1.5 snags per acre. Alternatives Preferred and A would measure snags on a landscape basis. Alternatives D and D' would measure them on a compartment basis, all other alternatives would measure them on a stand basis.</p>										
Snag MIS (% of Optimal Snag Density on CAS lands)	100%	40%	40%	40-70%	40-70%	40-100%	60-80%	60-80%	70-100	40%
Species Introduction										
<ul style="list-style-type: none"> What goals for managing Roosevelt elk should be set in cooperation with the California Department of Fish and Game? 	<p>Alternatives B and B' would introduce elk in the Elk Creek drainage on the Happy Camp District and on the Gooseneck and Salmon River Ranger Districts. The objective would be for the populations to subsist without supplemental feeding; hunting would be encouraged. Alternatives D and D' would manage elk herds which could support hunting. There would not be any specific guidelines established in the other alternatives where elk would be managed on a site-by-site basis.</p>									
<ul style="list-style-type: none"> What should the Forest policy be on reintroduction of large predators? 	<p>None of the alternatives established a policy for reintroduction of large predators; it was not considered advisable at this time.</p>									
Fisheries										
Management Effects on Fisheries										
<ul style="list-style-type: none"> How do fish outputs change with various management strategies? 	<p>Projections of fish outputs are based on potential changes in fish habitat conditions on the Forest by proposed management strategy. Due to the effect of off-Forest activities and conditions on anadromous fish production, estimated outputs should be used for comparison only, not as actual population targets.</p>									
Total Smolt Production (Average number per year in thousands)	1,760	1,682	1,683	1,699	1,721	1,622	1,674	1,674	1,746	1,578
Selected Fish (Average number of adults per year in Decade 1)										
Summer Steelhead	1,462	1,343	1,430	1,454	1,454	1,351	1,414	1,414	1,558	1,360
Spring Chinook	375	340	363	372	372	343	362	362	395	344
Rainbow Trout (Eastside)	11,128	11,430	11,156	11,567	11,567	10,817	10,927	10,927	13,104	10,297

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)																																																							
<ul style="list-style-type: none"> How much do fish habitat conditions change with various management strategies? For temperature and stream cover, Alternatives Preferred and E are expected to achieve the criteria soonest; followed by Alternatives A, B, B', D and D'; then C; Alternatives Current/RPA and G(SOHA) would take the longest time to achieve the criteria. For fines and embeddedness, Alternatives Preferred, B and B' are expected to control sediment production best; Alternatives Current/RPA, C and G(SOHA) would be least effective with the other alternatives in between. Alternatives Preferred and E are expected to achieve the pool criteria soonest, then B and B', then A, then C, D, D' and Current/RPA; G(SOHA) would take longest. Alternative E is expected to achieve the CWD criteria soonest, then Preferred, then A, D and D'; then B and B'; then C; Current/RPA and G(SOHA) would take longest. The Preferred Alternative has the highest likelihood of meeting the criteria for riparian ground cover; Alternatives E, D and D' have the second highest likelihood; then Alternatives A, B and B'; then Alternative C; Alternatives Current/RPA and G(SOHA) have the least likelihood. How much emphasis should be placed on anadromous fish? The Preferred Alternative would go the furthest towards taking a more ecosystem approach and concentrating on all aquatic species while still providing for TE&S species. The other alternatives would emphasize TE&S species, anadromous species and MIS. Alternative E is projected to provide the most habitat suitable for anadromous fish, followed by Alternatives Preferred, B and B', A, D and D', C, G(SOHA) and Current/RPA in decreasing order. 																																																																	
Resource Management Programs																																																																	
Visual Resource Management																																																																	
Natural Landscape Conservation																																																																	
<ul style="list-style-type: none"> What viewsheds should be retained in a natural-appearing condition to satisfy public needs? Alternative A would assign VQOs by management areas according to the resource objectives for each area. Alternatives B, B' and C would use IVQOs. All other alternatives would use the VQOs in current use with some minor changes for WSR corridors. How should the Forest identify and manage visual quality within viewsheds that are important to the public? Recommended VQOs (% of total Forest) <table border="1" style="margin-left: 20px;"> <tr> <td>Preservation</td> <td>23</td> <td>23</td> <td>23</td> <td>23</td> <td>23</td> <td>24</td> <td>23</td> <td>23</td> <td>40</td> <td>23</td> </tr> <tr> <td>Retention</td> <td>8</td> <td>5</td> <td>26</td> <td>11</td> <td>11</td> <td>33</td> <td>7</td> <td>7</td> <td>36</td> <td>5</td> </tr> <tr> <td>Partial Retention</td> <td>47</td> <td>28</td> <td>25</td> <td>43</td> <td>43</td> <td>29</td> <td>31</td> <td>31</td> <td>18</td> <td>28</td> </tr> <tr> <td>Modification</td> <td>15</td> <td>29</td> <td>5</td> <td>20</td> <td>20</td> <td>13</td> <td>25</td> <td>25</td> <td>3</td> <td>29</td> </tr> <tr> <td>Maximum Modification</td> <td>7</td> <td>15</td> <td>21</td> <td>3</td> <td>3</td> <td>1</td> <td>14</td> <td>14</td> <td>3</td> <td>15</td> </tr> </table> How will the Forest deal with managing visual quality while managing other resources such as timber? Table 2-4 displays the Visual Quality Index for each alternative. 	Preservation	23	23	23	23	23	24	23	23	40	23	Retention	8	5	26	11	11	33	7	7	36	5	Partial Retention	47	28	25	43	43	29	31	31	18	28	Modification	15	29	5	20	20	13	25	25	3	29	Maximum Modification	7	15	21	3	3	1	14	14	3	15										
Preservation	23	23	23	23	23	24	23	23	40	23																																																							
Retention	8	5	26	11	11	33	7	7	36	5																																																							
Partial Retention	47	28	25	43	43	29	31	31	18	28																																																							
Modification	15	29	5	20	20	13	25	25	3	29																																																							
Maximum Modification	7	15	21	3	3	1	14	14	3	15																																																							
Overall Visual Quality																																																																	
<ul style="list-style-type: none"> How should the Forest identify and manage for the level of viewshed quality that will meet public expectations? Refer to Natural Landscape Conservation. 																																																																	
Recreation Management																																																																	
Recreational Experiences																																																																	
<ul style="list-style-type: none"> What type and amount of recreational opportunities should be emphasized? Where should these recreational opportunities be provided? Locations of opportunities vary by alternative and are dependent on land allocations and management direction. 																																																																	
ROS Class (M Acres)																																																																	
Primitive	208	208	208	208	208	208	208	208	208	208																																																							
Semi-primitive Non-motorized	301	182	272	215	215	281	188	188	302	181																																																							
Semi-primitive Motorized	63	94	44	40	40	83	95	95	217	93																																																							
Roaded Natural	730	711	600	939	939	923	725	725	638	713																																																							
Rural	378	485	556	278	278	185	464	464	315	485																																																							

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/ RPA	A	B	B'	C	D	D'	E	G (SOHA)
---	-----	-------------	---	---	----	---	---	----	---	-------------

- How can the quality of new and existing facilities be optimized?

All alternatives except Alternative Current/RPA and G (SOHA) would manage facilities at the standard level. Alternatives Current/RPA and G (SOHA) would manage facilities at low standard. With low standard, there would be limited new construction, some facilities would have to be abandoned due to lack of maintenance and the quality of some high use facilities would deteriorate. The Preferred Alternative would reconstruct facilities to provide for the handicapped and for a multicultural society; new facilities would be restricted within RRs. Alternatives B, B', C and E would bring recreational facilities to standard by the end of the first decade. Alternatives B and B' would have a large amount of additional development. Alternative C would make restoration of existing facilities a priority and would emphasize interpreting those sites. Alternatives A, D and D' would bring recreational facilities to standard by the end of the second decade.

- How should recreational enhancement opportunities be used to optimize the quality and variety of recreational experiences?

Alternatives Preferred, A and E would allocate various amounts of land specifically for semi-primitive non-motorized opportunities (refer to Released Roadless Area Management). Alternatives Preferred, B and B' would provide staging area for facilities and river access. Alternative A would propose 3 additions for the State Scenic Highway System. Alternatives B and B' would develop additional facilities and encourage investigating the feasibility of a ski development on West Haight Mountain. Alternative C would emphasize interpreting developed sites. Alternatives D and D' would have an informational program to highlight less used fishing streams.

- What is the feasibility and cost of improving and maintaining certain Forest roads as Scenic Byways?

All alternatives would manage the State of Jefferson Scenic Byway which was designated in November of 1992. Alternative A would propose 3 additions to the State Scenic Highway System. Alternatives B, B' and C would recommend the Round the Mountain route as an addition to the National Scenic Byway Program.

Trails Management

- How should conflicts between OHV use and hikers be managed?

All alternatives would have restrictions on OHV use. Refer to Road Management. No additional roads would be proposed solely for OHV use in any alternative. All alternatives would allow areas to be closed to OHV use on a site-by-site basis if necessary to meet management objectives.

- Should area closures for vehicular travel be designated?

Refer to Transportation and Facilities Management section for Road Management Objectives.

- Which trail segments should be abandoned or re-routed?

All alternatives would leave these determinations for site-by-site project-level analyses.

- Which historic trails should be maintained or reconstructed? What are the costs associated with this work?

All alternatives would leave these determinations for site-by-site project-level analyses.

- All alternatives would leave these determinations for site-by-site project-level analyses.

Wilderness Management

- What opportunities exist to coordinate wilderness management with other management programs that can meet their respective objectives and can reduce potential resource conflicts? In all alternatives, wilderness would provide habitat for some wildlife species. All alternatives would provide for the maintenance of ecological integrity which would meet some biological diversity objectives.

Wilderness recreational use is expected to increase moderately in all alternatives. All alternatives except Alternatives Current/RPA and G (SOHA) would manage wilderness recreation at standard level. Visitor information would be provided. Monitoring would be conducted to assure that wilderness quality was maintained. Additional trailheads would be constructed. These activities would enhance the recreational experience. Alternatives Current/RPA and G (SOHA) would manage at low standard which would lead to a lower quality recreational experience. To meet wilderness biological diversity and fuel management objectives, Alternatives Preferred, A, C and E would use both prescribed fire and prescribed natural fire (PNF). Alternatives B, B', D and D' would use PNF; prescribed fire would be used only in unusual circumstances. Alternatives Current/RPA and G (SOHA) would suppress all fires in the wilderness and would not use prescribed burning. The Preferred Alternative would treat about 8,000 acres per year. Alternatives A, B, B', C, D and D' would treat about 1,500 acres per year. Alternative E would treat about 100 acres per year. The Preferred Alternative's objective would be to allow fire to play its role as part of the ecosystem. Alternative A's objective would be to maintain wilderness values and vegetative conditions. The objective for Alternatives B, B', D, D' and E would be to maintain wilderness values. The objective for Alternative C would be to reduce the risk of wildfires.

Alternative E would not allow commercial livestock in the wilderness; this would improve the quality of the recreational experience, but would reduce Forest-wide range use. All other alternatives would continue current grazing practices and achieve range objectives in wilderness.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)
Released Roadless Area Management										
Roadless Areas										
<ul style="list-style-type: none"> • What is the appropriate management strategy for each released roadless area on the Forest? Information on how all released roadless areas would be treated by each alternative is presented below. Refer to Appendix C for the proposed treatment of each released roadless area by alternative. Alternative E would manage all released roadless areas, approximately 241,000 acres, as unregulated to provide semi-primitive non-motorized recreational opportunities. Alternative A would manage 3 areas of approximately 22,500 acres and Alternative Preferred would manage 2 areas of approximately 29,000 acres as unregulated for semi-primitive non-motorized opportunities. 										
	Land allocation (%)									
	Unregulated	89	51	36	85	58	52	85	100	33
	Regulation Class 3	2	28	43	9	21	19	4	0	15
	Regulation Class 2	9	4	21	6	15	18	8	0	32
	Regulation Class 1	0	17	0	0	6	11	3	0	20
Wild and Scenic Rivers Management										
River Management										
<ul style="list-style-type: none"> • How should river corridors for the various segment designations be delineated and managed under the impending River Management plan? • Which river or stream segments should be recommended for designation and at what levels of classification? Information on the total miles recommended by alternative is presented below. Refer to Appendix E for recommendations by individual river segment. 										
	Ave. Width in Miles	Varies	1/2	1/2	1/2	1/2	3/4	3/4	1/2	Riparian Uniform
	Configuration	Varies	Varies	Varies	Varies	Uniform	Varies	Varies	Uniform	
Additional River Proposals (Miles)										
	Wild Rivers	101.1	0	93.7	93.7	112.2	102.7	102.7	126.6	0
	Scenic Rivers	10.6	1.0	15.2	15.2	5.2	12.9	12.9	26.3	0
	Recreational Rivers	59.6	50.8	52.8	52.8	14.0	31.9	31.9	33.4	0
	Total	171.3	175.6	161.7	161.7	131.4	147.5	147.5	186.3	0
Specially Designated Area Management										
Research Natural Areas (RNAs)										
<ul style="list-style-type: none"> • Should RNAs be established to study fish, animal, vegetation, geologic and aquatic values? Should they be established to study fire recovery processes? All alternatives would continue the establishment process for the 9 RNAs currently in that process. These RNAs meet Regional targets for vegetative types and 2 geological elements. No RNAs were recommended for other values at this time due to a lack of information on the benefits. • How should the Forest manage the resources in or near an RNA? What protection practices are necessary? In all alternatives, few activities would be permitted within RNAs. Current grazing would continue and pre-existing mining rights would be maintained in all alternatives except for Alternative E which would prohibit commercial grazing in the approximately 9,500 acres of RNAs that are within wilderness. All alternatives would prohibit recreational use which interferes with RNA objectives. • Have we met Region 5 targets for the Klamath Mountains Province element with our current RNA candidates? All alternatives would meet Regional targets for all vegetative types as well as for 2 geological elements. • What advantages or values would RNA designation provide for TE&S Species? In all alternatives, those TE&S species that require late seral stage habitat would benefit from RNA designation because these areas would not be subject to vegetative manipulation. The study of RNAs would also provide information on how ecosystem processes operate where there is little human influence. 										

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)
<ul style="list-style-type: none"> • What opportunities exist to locate RNAs within wilderness? • In all alternatives, about 10,000 of the 12,500 total acres (80%) would be within wilderness. • What are the costs, benefits and resource values associated with each designation? These would be the same for all alternatives and are described in Chapters 3 and 4 of the EIS. 										
Special Interest Areas (SIAs)										
<ul style="list-style-type: none"> • At what intensity should we manage for unique botanical, geological or other special resource elements? SIAs would be unregulated in all alternatives. The number and type each alternative would recommend follows: 										
Botanical & Geologic (number)	6	0	4	3	3	6	5	5	5	0
Botanical (number)	18	4	10	6	6	17	14	14	14	4
Geologic (number)	21	1	16	10	10	18	26	26	26	1
Scenic (number)	0	0	0	1	1	0	1	1	1	0
Total (acres)	22,000	1,930	14,290	27,560	27,560	21,610	34,880	34,880	34,880	1,930

National Natural Landmarks (NNLs)

- What areas should be managed to promote NNL status? NNLs are designated in coordination with the National Park Service. There is a legal moratorium on designation until the National Park Service revises its evaluation and recommendation process.

Butte Valley National Grassland (BVNG)

- How should the BVNG be administered? All alternatives would manage the BVNG to promote the grassland, agriculture and a sustained yield management of soil, water, forage, fish and wildlife resources.

Lands Program Management

Innocent Encroachment

- How can innocent encroachment be resolved to the mutual benefit of all parties involved? The Small Tracts Act would be the primary means of resolution in all alternatives.

Community Expansion

- To what degree should community expansion be facilitated? What options are available? All alternatives would encourage community expansion when it is in the common interest of the Federal government and the local community. The Small Tracts Act, the Townsite Act and land exchange would be options in all alternatives.

Utility Corridors

- Where should these corridors be located? All alternatives would leave the determination of whether existing utility corridors should be expanded or new ones constructed to a site-specific project analysis.

Law Enforcement

Vandalism of Cultural Sites

- How can the Forest reduce or prevent vandalism of cultural sites?

All alternatives would use public information programs to emphasize the importance of cultural sites and to inform people about the requirements of appropriate laws. Employees and the public would be trained to recognize vandalized sites and report them to law enforcement officers. When these methods failed, violators would be prosecuted in the courts.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)																																																																																													
<ul style="list-style-type: none"> • What types of uneven-aged management will be used on the Forest? Where and how much of the forest will be put in this type of management? <p>All alternatives would use some group selection. It would be the primary silvicultural system used in Alternatives B and B' which would treat more than 2,000 acres per year with this method. The Preferred Alternative would treat about 580 acres per year by group selection. Alternative E would treat about 560 acres per year. Alternative C would treat 340. Alternative D would treat about 260. Alternative D' would treat 180. Alternatives Current/RPA and G(SOHA) would treat only incidental amounts with group selection. All alternatives but Alternative Current/RPA and G(SOHA) would use a green tree retention (GTR) prescription which is basically an even-aged system that retains some structural attributes of an uneven-aged system rather than clearcutting. Locations would be determined at the project-level depending on site conditions in all alternatives.</p> <ul style="list-style-type: none"> • At what age should timber stands be harvested? <p>In all alternatives, rotation ages for even-aged silvicultural systems would occur near the culmination of mean annual increment. The age would vary by species, site productivity, stocking and management applied to the stand. Generally, the rotation age would range from 60 to 120 years on well-stocked, intensively managed stands for all alternatives.</p> <ul style="list-style-type: none"> • How many snags and what amount of CWD should be retained on a given site? <p>Refer to Soils - CWD and to Wildlife - Management Direction.</p> <ul style="list-style-type: none"> • What are the current silvicultural practices/spolicies and logging systems? <p>In all alternatives, all logging systems would be available. The following table displays an estimate of the relative proportions of silvicultural cutting practices that each alternative would use.</p>	<p>Silvicultural Treatment (Average Acres per Year)</p> <table border="1"> <tr> <td>Clearcut</td> <td>0</td> <td>3,060</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Green Tree Retention</td> <td>3,210</td> <td>0</td> <td>4,780</td> <td>1,180</td> <td>900</td> <td>2,230</td> <td>2,800</td> <td>2,870</td> <td>4,750</td> <td>3,030</td> </tr> <tr> <td>Seed Step Shelterwood</td> <td>0</td> <td>2,150</td> <td>0</td> <td>0</td> <td>0</td> <td>2,610</td> <td>2,000</td> <td>2,020</td> <td>0</td> <td>0</td> </tr> <tr> <td>Removal Step Shelterwood</td> <td>0</td> <td>470</td> <td>430</td> <td>0</td> <td>0</td> <td>420</td> <td>0</td> <td>0</td> <td>0</td> <td>3,330</td> </tr> <tr> <td>Group Selection</td> <td>580</td> <td>0</td> <td>0</td> <td>2,270</td> <td>2,540</td> <td>340</td> <td>260</td> <td>180</td> <td>560</td> <td>0</td> </tr> <tr> <td>Stand Maintenance</td> <td>250</td> <td>400</td> <td>910</td> <td>1,530</td> <td>800</td> <td>540</td> <td>700</td> <td>560</td> <td>180</td> <td>430</td> </tr> <tr> <td>Total</td> <td>4,040</td> <td>6,080</td> <td>6,120</td> <td>4,980</td> <td>4,240</td> <td>6,140</td> <td>5,760</td> <td>5,630</td> <td>5,490</td> <td>6,790</td> </tr> </table>	Clearcut	0	3,060	0	0	0	0	0	0	0	0	Green Tree Retention	3,210	0	4,780	1,180	900	2,230	2,800	2,870	4,750	3,030	Seed Step Shelterwood	0	2,150	0	0	0	2,610	2,000	2,020	0	0	Removal Step Shelterwood	0	470	430	0	0	420	0	0	0	3,330	Group Selection	580	0	0	2,270	2,540	340	260	180	560	0	Stand Maintenance	250	400	910	1,530	800	540	700	560	180	430	Total	4,040	6,080	6,120	4,980	4,240	6,140	5,760	5,630	5,490	6,790	<ul style="list-style-type: none"> • How do various silvicultural systems affect vegetative diversity and species selection? <p>Refer to Biological Diversity and Wildlife earlier in this table for Forest-wide effects by alternative.</p> <ul style="list-style-type: none"> • How can stand structure be manipulated to achieve "old growth" attributes? <p>Only Alternatives B and B' would manage "old growth" on regulated land to achieve "old growth" characteristics. These alternatives would use appropriate silvicultural systems and underburning. Alternative E would place "old growth" in an unregulated management area. All other alternatives would retain "old growth" when it was located within an unregulated management area and would treat "old growth" on regulated lands the same as the other land in that management area.</p>	<p>Allowable Sale Quantity (ASQ)</p> <ul style="list-style-type: none"> • How much wood fiber should be produced annually? <table border="1"> <tr> <td>ASQ (MMBF) Decade 1</td> <td>51.0</td> <td>127.9</td> <td>132.2</td> <td>116.1</td> <td>94.0</td> <td>118.8</td> <td>127.3</td> <td>123.1</td> <td>50.7</td> <td>151.9</td> </tr> <tr> <td>ASQ (MMBF) Decade 5</td> <td>89.2</td> <td>172.5</td> <td>178.6</td> <td>170.2</td> <td>131.3</td> <td>162.4</td> <td>173.9</td> <td>164.0</td> <td>89.4</td> <td>205.9</td> </tr> </table>	ASQ (MMBF) Decade 1	51.0	127.9	132.2	116.1	94.0	118.8	127.3	123.1	50.7	151.9	ASQ (MMBF) Decade 5	89.2	172.5	178.6	170.2	131.3	162.4	173.9	164.0	89.4	205.9	<p>Fire Effects</p> <ul style="list-style-type: none"> • What standards and guidelines should be followed in the future during recovery efforts from catastrophic fires and natural disturbances? <p>All alternatives would use an interdisciplinary process. Harvesting would be permitted if compatible with the resource objectives of the management area. Salvage would be bound by the same standards and guidelines as the regular timber sale program for all alternatives except the Preferred which would establish special standards and guidelines for salvage in LSRs and RRs.</p> <ul style="list-style-type: none"> • Will fire and other salvage volume be chargeable to the ASQ? <p>All alternatives would charge salvage volume from CAS land to the ASQ. In all alternatives, timber harvesting would be redirected from the regularly scheduled areas to the salvage areas. Salvage on unregulated land which would occur to achieve non-timber management objectives would not be part of the ASQ, but would be part of the projected timber sale quantity.</p>
Clearcut	0	3,060	0	0	0	0	0	0	0	0																																																																																													
Green Tree Retention	3,210	0	4,780	1,180	900	2,230	2,800	2,870	4,750	3,030																																																																																													
Seed Step Shelterwood	0	2,150	0	0	0	2,610	2,000	2,020	0	0																																																																																													
Removal Step Shelterwood	0	470	430	0	0	420	0	0	0	3,330																																																																																													
Group Selection	580	0	0	2,270	2,540	340	260	180	560	0																																																																																													
Stand Maintenance	250	400	910	1,530	800	540	700	560	180	430																																																																																													
Total	4,040	6,080	6,120	4,980	4,240	6,140	5,760	5,630	5,490	6,790																																																																																													
ASQ (MMBF) Decade 1	51.0	127.9	132.2	116.1	94.0	118.8	127.3	123.1	50.7	151.9																																																																																													
ASQ (MMBF) Decade 5	89.2	172.5	178.6	170.2	131.3	162.4	173.9	164.0	89.4	205.9																																																																																													

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)
--	-----	---------	---	---	----	---	---	----	---	----------

- What would be the effect of fire on the forest inventory and sustained yield?
In all alternatives, any area on CAS land catastrophically damaged by a stand-replacing event that was not salvaged and reforested would constitute a loss to the timber inventory. The effect on future growth and yield would be highly variable. Alternative A would have the most aggressive salvage and reforestation program. Alternatives B and B' would have the least aggressive programs. Alternatives Preferred and E would have the least CAS land and, therefore, the least loss.
Fire Acres Not Salvaged or Reforested in Acres/Decade for Decade 5: 10,500 16,300 10,600 35,700 25,400 12,400 17,100 14,400 8,200 20,600
- What is the risk of plantations not surviving to rotation age due to fires?
For all alternatives it was assumed that there was a 22% chance of plantations being destroyed by wildfire before reaching maturity. Alternatives with more plantations would have more plantations destroyed.
Estimated Burned Plantations in Acres/Year for Decade 5: 750 1,200 1,080 780 780 1,160 1,140 1,140 360 1,430

Pest Management

- What Forest conditions determine appropriate use of pesticides?
In all alternatives, pesticide use would be limited to cases where use is necessary to achieve land management objectives. Use is considered necessary when other methods would not be effective or costs of other methods would be unreasonable. All alternatives would determine the conditions on a site-by-site basis.
- Where and when are pesticides essential for reforestation?
Refer to previous answer.
- Are all pest management methods available being used?
In all alternatives, all methods would be available. The Preferred Alternative would specify use of herbicides only where they are essential to achieve a resource objective.
- Are Port-Orford-cedar and sugar pine being adequately managed and protected?
All alternatives would include standards and guidelines to prevent the introduction of Port-Orford-cedar root disease fungus during management activities. All alternatives would include standards and guidelines developed to ensure the future of sugar pine. All alternatives would continue the use of blister rust resistant sugar pine in reforestation.

Other Products

- What opportunities exist for Forest biomass use?
In all alternatives, utilization of non-commercial wood products would vary by management area. Policies would be determined on a site-by-site basis. Hardwoods and snags would be available for marketing and personal use in all alternatives when in excess of the hardwood and snag retention guidelines (refer to Wildlife - Management Direction). The Rural Development Program in all alternatives would encourage expansion of these types of uses.
- Should the Forest's firewood policy be changed?
In all alternatives, firewood would be available for personal use in designated areas only. Firewood cutting would generally be restricted in LSRs/HCA's along major travel routes, near wet areas, in RRs/RMZs and in other areas where standing and down dead material is needed to meet management objectives.
- How will the Pacific yew be protected and used?
In all alternatives, management of Pacific yew would be consistent with interim guidelines to maintain genetic viability of yew and provide for needed taxol collections until the Inter-Regional EIS is completed. Upon completion of the EIS, those guidelines would be followed.

Fire Management

Fire Suppression

- Are the initial attack strategies and fire suppression organization the most cost-efficient to meet resource objectives?
The Preferred Alternative would have the largest, most expensive fire organization; it is expected to hold the average acres burned in fires to 110,000 acres each decade. The Current/RPA and G(SOHA) Alternatives would have the second largest organization; they would hold acres burned to 189,810 acres per decade. All other alternatives would have the smallest, least expensive organization; this organization is projected to hold the average acres burned in fires to approximately 203,370 acres per decade.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)
--	-----	---------	---	---	----	---	---	----	---	----------

Prescribed Fire

- Should prescribed fire by planned ignitions continue to be used to reduce resource damage?
Table 2-5; Fuel Treatment displays the fuel management program proposed for each alternative. The Preferred Alternative would have the largest program followed by Alternatives A, D, D', C, B, B', G(SOHA) and Current/RPA in decreasing order.
- What role should fire play in the management of wilderness?
Refer to Wilderness Management earlier in this table.
- How should timber management residues and natural fuels outside of wilderness be managed?
Refer to Table 2-5; Fuel Treatment.
- What intensity of wildfire is predicted in a given area based on past management activities?
Refer to Table 2-4; Expected Acres Burned by Wildfire.
- What is the chance that a fire will occur in each analysis area under the various management strategies?
Forecasting future wildfire is difficult and was only done on a Forest-wide basis for all alternatives.

Effects on Future Fires

- How do the historic fire patterns affect Forest management options in the future?
The various alternatives developed standards and guidelines and placed differing emphasis on treating fuels based on their goals and their assessment of historical fires. Refer to Table 2-5; Fuel Treatment.
- What will be the impact of future management actions on the size and intensity of future fires?
Table 2-4; Expected Acres Burned by Wildfire displays the projected effect of future management activities on future wildfire intensity by alternative. No estimates were made on fire size; it is expected to be as variable in the future as it has been in the past.

Range Management

Resource Management

- How will forage for livestock be allocated?
In all alternatives, forage allocations would be consistent with standards and guidelines. Actual allocations would be determined on a site-specific basis through project-level environmental analyses and through Annual Operating Instructions.
- How should riparian areas be managed to reduce potential conflicts with wildlife and water quality?
The Preferred Alternative would require any range use to be consistent with RR goals. Alternative C would resolve any conflicts between livestock use and riparian-dependent resources through cooperation with the permittee. All other alternatives would specify the use an interdisciplinary approach and involve permittees, CDFG and other affected individuals and groups to resolve any conflicts on a site-by-site basis.
- What opportunities should be pursued for utilization and improving livestock management?
Alternatives Current/RPA and G(SOHA) would construct about 15 structural improvements per year and treat 100 acres per year with non-structural improvements. All alternatives except Current/RPA, E and G(SOHA), would emphasize restoration of damaged sensitive areas.
- What opportunities exist for the utilization of transitory range?
Alternative G(SOHA) would generate the most acres of transitory range due to timber harvesting. It would be followed by Alternatives E, Current/RPA, C, D', D, A, B, B' and Preferred in decreasing order. The Preferred Alternative would generate the most acres of transitory range due to prescribed burning. It would be followed by Alternatives A, D, D', C, B, B', G(SOHA), Current/RPA and E in decreasing order.
- What is the current and desired condition and trend of range vegetation?
Alternatives Current/RPA and G(SOHA) would continue to have 52% of the rangeland in satisfactory condition and 62% in a static or upward trend on the eastside permanent range with a projected decline in local areas on the westside at the end of the fifth decade. Alternative E would likely have an improvement in condition and trend in riparian areas within wilderness. All other alternatives would result in incremental improvements starting in the first decade; however, change in overall ecological status is very slow and would not be significant for several decades.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)
--	-----	---------	---	---	----	---	---	----	---	----------

- How can livestock be managed to reduce conflicts with recreational values?
All alternatives would use fencing of sensitive areas and creation of water developments to redistribute livestock use. Alternative E would prohibit commercial livestock use of wilderness.
- How can livestock be managed in wilderness to reduce conflicts with wilderness values?
Alternative E would prohibit commercial grazing in wilderness. All other alternatives would have standards and guidelines to provide for the distribution of livestock numbers at the site level to prevent deterioration of the wilderness resource.

Wild Horse Management

- How should wild horse herds and their territories be managed in relation to domestic range and wildlife?
Alternatives Preferred, D, D', E and G(SOHA) would maintain 1 herd of about 15 animals in the Three Sisters area. Alternatives Current/RPA, A, B and B' would maintain 1 herd of about 15 head in the McGavin Peak area and 1 herd of about 10 head in the Three Sisters area. Alternative C would maintain 1 herd of about 50 head in the Three Sisters area. Except for Alternative C, the Three Sisters herd in all alternatives would be within the carrying capacity of the area. The Three Sisters herd in Alternative C and the McGavin Peak herd in alternatives where it was maintained when added to other uses would exceed the carrying capacity for those areas. Range in these areas would be in a downward trend.

Cultural Resources Management

Program Management

- Should the Forest Heritage Resource Program be expanded beyond the project-level?
Alternatives B, B' and E would emphasize a Forest-wide program rather than a project-level program. Alternative E would provide the best balanced program. Alternatives Preferred, A and C would fund a small amount of surveys Forest-wide. In all other alternatives, surveys would be project-driven.
- What level of funding should be associated with the Heritage Resource Program under various alternatives?
Alternative E would request the largest budget. Alternatives Preferred, B and B' would have the second largest budget. They would be followed by Alternatives A, C, D and D'. Current/RPA and G(SOHA) in decreasing order.
- Will project-level inventories be adequate to meet Forest Service program direction over time?
Alternative E would meet the spirit and the letter of the law for cultural surveys. Alternatives Preferred, A, B, B' and C would complete programmed and unprogrammed surveys and meet legal mandates. Alternatives Current/RPA, D and D' would complete programmed surveys; legal compliance would be at the absolute minimum. Alternative G(SOHA) would complete project surveys most of the time; however the quality might be such that a legal challenge for adequacy could not be sustained.

Site Management

- What level of cultural and historical resource inventory should be associated with a given management strategy?
Refer to previous response.
- Is the Forest being adequately inventoried to detect cultural and historic resource values before project work?
The surveys associated with Alternative G(SOHA) might not be adequate. The surveys associated with Alternatives Current/RPA, D and D' might be only marginally adequate. All the other alternatives would be adequate.
- Is avoidance of archeological sites an appropriate way to manage them? What will the desired future condition of these avoided areas become over time?
All alternatives would use avoidance until a determination of significance of the site could be made. Alternatives Preferred, A, C, D, D' and E would request additional money to speed up this determination. Once determinations were made, some sites might continue to be avoided and others would likely be excavated or released to use.

Karuk Territory

- How should these culturally important areas be managed?
All alternatives would manage Inam, Cottimien and Heikau as a Special Management Area through a Memorandum of Understanding with the Karuk Tribe of California. These areas would be unregulated in all alternatives but Alternative C and no timber harvesting would be allowed. Alternative C would manage these areas as Regulation Class 3; minimal yields would be programmed.
- What adjustments or provisions should be made in managing these ceremonial areas?
All alternatives would coordinate with the Karuk Tribe of California to see what activities are consistent with protection of sacred values.

Table 2-16. Treatment of Issues Comparison (cont'd)

Public Issue/Question Response Alternative	PFD	CUR/RPA	A	B	B'	C	D	D'	E	G (SOHA)
--	-----	---------	---	---	----	---	---	----	---	----------

• Are traditional territories and ceremonial areas adequately being considered in the Forest Plan? Traditional territories of tribes overlap and apparently changed throughout time. Ceremonial areas are discussed above.

Social and Economic Environment

Social

Quality of Life

- How will communities be affected by the various alternatives? All alternatives would have timber programs well below historical levels which could cause hardship to local communities. Alternative D would generate the most jobs. It would be followed by Alternatives A, G(SOHA), D', B, Preferred, C, Current/RPA, B' and E in decreasing order.

Average Annual Jobs in Decade 1	2,309	2,703	2,998	2,859	2,550	2,746	3,000	2,947	1,995	2,957
---------------------------------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
- What options will be available to workers displaced as a result of various alternatives? All alternatives would continue the Rural Development Program which pursues opportunities for currently underutilized resources. All alternatives would encourage the use of biomass and forest products other than timber. Refer to Timber - Other Products. All alternatives would use partnerships to create new job opportunities and would encourage service contracts. Alternative A would offer stewardship contracts.

Economics

Economic Opportunities

- How can the Forest stimulate revenue generation in its area of economic influence? The effects of each alternative's management program on revenue generation (in MM \$) for Decade 1 are displayed below.

Average Annual Personal Income	48.7	57.0	63.2	60.2	54.6	57.9	63.2	62.1	42.0	62.3
Average Annual Return to Treasury	14.0	23.0	24.0	21.0	17.0	22.0	23.0	22.0	9.0	28.0
Average Annual County Revenues - 25% Receipts	4.0	6.0	6.0	5.0	4.0	5.0	6.0	5.0	2.0	7.0
Average Annual Yield Tax	0.4	0.7	0.7	0.6	0.5	0.6	0.7	0.6	0.3	0.8
- How can untapped Forest resources, such as elk re-introduction and unused recreation capacity, be marketed? Recreation supply exceeds demand and is expected to do so in all alternatives in the near future. Refer to Recreation Management - Recreational Experiences for emphasis items by alternative. Refer to Wildlife - Species Introduction for how alternatives would manage elk. The Preferred Alternative would emphasize the public information program and use it to keep visitors informed of recreational opportunities. Alternative A would have an active and visible educational and interpretive program. Alternatives B and B' would market recreational mining and gold panning and emphasize the interpretive program. Alternative C would work with public cooperators to develop and promote recreational opportunities and would promote and interpret unique features such as SIAs and WSRs. The information program for Alternatives D and D' would emphasize fishing opportunities, especially underutilized fishing streams, and would showcase WSRs as well as promoting recreational use of SIAs, caves, water-based recreational activities and a hunttable elk herd.
- How will a non-declining flow of receipts affect the outputs on the Forest? It is uncertain whether receipts would be non-declining as many factors outside the control of the Forest Service affect them such as inflation, supply and demand. Receipts could have some effect on outputs in all alternatives as Congress tends to fund outputs which show a monetary return at a higher level than those with no receipts.
- What are the outputs that can significantly affect receipts? In all alternatives, timber yield has the greatest effect on receipts. This effect is expected to increase as timber availability becomes more scarce. Recreational use, range permits and special use permits also would generate a small amount of receipts in all alternatives.
- What level of sensitivity does the local economy display to the Forest's management practices? Due to the high amount of NFS land in the Forest's area of influence, local economies are very sensitive to Forest management practices. Refer to Employment and Receipts Generated by each alternative presented above.

Comparison of Economic Effects

The purpose of this section is to compare economic values and significant tradeoffs as they relate to the 10 alternatives considered in detail. Refer to Appendix B of the EIS for a detailed and technical discussion of the models and assumptions used in these comparisons.

Several economic terms used here require a brief explanation. Present Net Value (PNV) is mentioned frequently in this section. PNV is an estimate of the market value of forest resources after all costs have been subtracted. Refer to Appendix D of the EIS for a discussion of PNV and its relationship to costs, values and Net Public Benefit.

Net cash flow is the difference between Federal costs and returns to the Treasury which include the cash receipts from timber sales, campground use and other chargeable items. Both PNV and net cash flow are indicators of concern to the Federal taxpayer as they measure the responsiveness of each alternative to the national issues of economy in government and deficit reduction.

Table 2-17 displays a Summary Comparison of Economic Effects. This table is a comprehensive summary of costs, benefits, county revenues and social effects. Benefits are categorized as cash and non-cash. Cash benefits are actual collections for sales of timber, fees for recreation use, firewood and Christmas tree cutting permits and special use permit fees from operators of commercial businesses on NFS lands.

Cash benefits (labeled as returns to the U.S. Treasury in Table 2-17) vary primarily as a result of the timber harvesting level and timber value over time. Other minor benefits include recreation and range. The timber harvesting level increases each decade for all alternatives. The real value of timber is projected to increase 1% annually. This results in all alternatives showing an increase in cash benefits over time. All alternatives show a negative cash flow in the first decade.

By the fifth decade all but Alternatives Preferred, B' and E show a positive cash flow. Non-cash benefits are assigned to resources which have a monetary value but for which no collection is made. These resources include water, wildlife, fish, wilderness recreation, dispersed recreation and free-use developed recreation sites. Overall, non-cash benefits far exceed cash benefits.

Many identified outputs do not have any associated benefits, but still have an opportunity cost. LSRs and HCAs are a good example of this. Providing for T&E species is an identified national resource value which does not have a readily measured cash benefit value, but does have a opportunity cost in terms of unharvested timber.

Water production would vary little by alternative. All alternatives would meet the demand for developed, dispersed and wilderness recreation. Wildlife and fish user days would also be constant among alternatives, following population trends rather than program levels. Animal Unit Months would be the same in all alternatives but Alternative E. This is a reflection of historic demand, rather than supply limitations.

The cost and benefit figures displayed in Table 2-17 are in constant 1987 dollars (multiply by 1.24 to express in 1993 dollars). Total cost is presented and then adjusted for cooperative funds from non-Federal agencies (private and public) to obtain Federal costs. Total cost is adjusted once again by deducting emergency fire fighting funds.

The total budget, composed of Congressionally appropriated funds, is equal to Federal costs less the cost of fighting forest fires. When compared to the 1987 base year, the alternative costs vary from a slight increase in Alternative G(SOHA) to a 41% increase in the Preferred Alternative. Most cost increases are for qualitative resource improvements that can not readily be measured in monetary terms.

County revenue figures include 25% receipt shares and county yield tax revenues. These revenues plus estimates of area income and employment generated by Forest expenditures and outputs provide a picture of the effect on local communities due to the various alternatives. The level of timber harvesting determines county revenues. Revenues in the first decade would range from an increase of \$1 million for Alternative G(SOHA) to a decrease of \$4 million for Alternative E when compared to the 1987 level.

Income and employment estimates are based on the amount of recreational use, timber volume, range use, wildlife and fish user days and the Forest budget level by alternative. These output levels are multiplied by income and employment multipliers developed in an Input Output model called IMPLAN (refer to Appendix B). In 1987, timber harvesting accounted for 47% of total jobs and income, budget level accounted for 33%, recreation for 16%, wildlife and fish use for 3% and grazing for less than 1%. There is a negligible change in recreation, wildlife and fish use and grazing outputs between alternatives.

Jobs and income vary almost entirely by harvesting and budget levels. Jobs and income due to budget level would vary from an increase of 2% in Alternative G(SOHA) to an increase of 42% in the Preferred Alternative when compared to 1987. Jobs and income due to harvesting levels would vary from a decrease of 40% in Alternatives Preferred and E to an increase of 19% in Alternative G(SOHA) when compared to 1987.

Economic efficiency indicators are displayed in the form of discounted benefits, discounted costs, PNV and benefit/cost ratios. Discounted benefits include the values for timber, burned acres, recreation,

Table 2-17. Summary Comparison of Economic Effects
(Millions of 1987 Dollars)

	A L T E R N A T I V E									
	PFD	CUR	A	B	B'	C	D	D'	E	G (SOHA)
1. Total Benefits	[Base Year (1987) 102]									
Decade 1	94	102	103	100	95	100	101	100	99	106
Decade 2	100	109	110	106	101	107	109	108	106	114
Decade 3	108	119	120	116	109	117	119	117	114	126
Decade 4	116	134	135	131	121	131	134	131	123	143
Decade 5	125	149	150	148	136	146	149	146	135	159
2. Returns to the U.S. Treasury	[Base Year (1987) 23]									
Decade 1	14	23	24	21	17	22	23	22	9	28
Decade 2	17	26	27	24	19	25	26	26	12	31
Decade 3	21	33	34	30	24	31	32	31	16	39
Decade 4	24	43	44	40	31	40	43	40	21	51
Decade 5	28	53	55	52	41	50	54	50	28	63
3. Non-cash Benefits	[Base Year (1987) 79]									
Decade 1	80	79	79	79	78	78	78	78	90	78
Decade 2	83	83	83	82	82	82	83	82	94	83
Decade 3	87	86	86	86	85	86	87	86	98	87
Decade 4	92	91	91	91	90	91	91	91	102	92
Decade 5	97	96	95	96	95	96	95	96	107	96
4. Total Costs	[Base Year (1987) 41]									
Decade 1	50	41	50	49	48	45	50	50	43	41
Decade 2	47	39	49	47	45	44	49	49	42	40
Decade 3	48	40	50	48	46	44	49	48	43	41
Decade 4	47	39	49	47	45	43	48	48	43	40
Decade 5	47	40	50	50	47	44	41	51	45	41
5. Non-Federal Costs	[Base Year (1987) 1]									
Decade 1	1	1	1	1	1	1	1	1	1	1
Decade 2	1	1	1	1	1	1	1	1	1	1
Decade 3	1	1	1	1	1	1	1	1	1	1
Decade 4	1	1	1	1	1	1	1	1	1	1
Decade 5	1	1	1	1	1	1	1	1	1	1
6. Federal Costs	[Base Year (1987) 29]									
Decade 1	49	29	49	48	47	44	49	49	42	40
Decade 2	46	27	48	46	44	43	48	48	41	39
Decade 3	47	28	49	47	45	43	48	47	42	40
Decade 4	46	27	48	46	44	42	47	47	42	39
Decade 5	46	28	49	49	46	43	40	50	44	40

1. **Total benefits** include both cash returns to the U.S. Treasury and non-cash benefits. Total benefits are the estimated total amount that consumers would be willing to pay for Forest outputs, whether or not this amount is actually collected by the U.S. Government.

2. **Returns to the U.S. Treasury** are the estimated payments by consumers of Forest outputs collected by the Federal Government.

3. **Non-cash benefits** are the difference between the total estimated amount that consumers would be willing to pay or Forest outputs and the actual collections by the Federal Government. At present, it is National policy to provide most Forest outputs at either no charge to consumers or at a charge less than the total willingness to pay value.

4. **Total costs** include the Federal and non-Federal costs needed to produce Forest outputs.

5. **Non-Federal costs** include all costs paid by non-Federal cooperators (examples include State Fish and Game habitat improvement expenditures, range capital investments made by the permittee, etc.).

6. **Federal Costs** are all borne by the Federal Government. Includes cost paid from general tax receipts, costs paid from funds set aside from receipts (such as KV) and costs paid by accepting in kind payments in lieu of cash (such as purchaser road credits). Federal cost also equal total cost less non-Federal cooperator cost.

Table 2-17. Summary Comparison of Economic Effects
(Millions of 1987 Dollars)

A L T E R N A T I V E										
	PFD	CUR	A	B	B'	C	D	D'	E	G (SOHA)
7. Total Budget	[Base Year (1987) 29]									
Decade 1	41	29	37	37	36	33	38	38	31	29
Decade 2	37	27	36	35	33	32	37	37	30	28
Decade 3	38	28	37	36	34	32	37	36	31	29
Decade 4	37	27	36	35	33	31	36	36	31	28
Decade 5	37	28	37	38	35	32	39	39	33	29
8. 25% Receipt Shares	[Base Year (1987) 6]									
Decade 1	4	6	6	5	4	5	6	5	2	7
Decade 2	4	7	7	6	5	6	7	6	3	8
Decade 3	5	8	8	8	6	8	8	8	4	10
Decade 4	6	11	11	10	8	10	11	10	5	13
Decade 5	7	13	13	13	10	13	13	13	7	16
9. County Yield Tax Revenues	[Base Year (1987) 0.7]									
Decade 1	0.4	0.7	0.7	0.6	0.5	0.6	0.7	0.6	0.3	0.8
Decade 2	0.5	0.8	0.8	0.7	0.6	0.7	0.8	0.7	0.4	0.9
Decade 3	0.6	1.0	1.0	0.9	0.7	0.9	0.9	0.9	0.5	1.2
Decade 4	0.7	1.3	1.3	1.2	0.9	1.2	1.2	1.2	0.6	1.5
Decade 5	0.8	1.5	1.6	1.5	1.2	1.5	1.6	1.5	0.8	1.8
10. Income (Decade 1) (MM\$/year)	48.7	57.0	63.2	60.2	54.6	57.9	63.2	62.1	42.0	62.3
11. Employment (Decade 1) (M Person-years [Jobs])	2,310	2,700	3,000	2,860	2,590	2,750	3,000	2,950	2,000	2,960
12. Discounted Benefits	2,662.9	3,006.1	3,029.2	2,955.9	2,775.4	2,947.6	3,000.9	2,953.7	2,540.9	3,174.3
13. Discounted Costs	964.0	670.8	904.7	874.8	835.7	809.0	942.5	930.0	776.0	681.4
14. Present Net Benefits	1,700.0	2,335.3	2,124.5	2,081.1	1,939.7	2,138.6	2,058.5	2,023.7	1,764.3	2,492.9
15. Benefit/Cost Ratio	2.8	4.5	3.3	3.4	3.3	3.6	3.2	3.2	3.3	4.7
<p>6. Federal Costs are all borne by the Federal Government. Includes cost paid from general tax receipts, costs paid from funds set aside from receipts (such as KV) and costs paid by accepting in kind payments in lieu of cash (such as purchaser road credits). Federal cost also equal total cost less non-Federal cooperator cost.</p>										
<p>7. Total budget is equal to Federal cost less the cost of fighting forest fires (FFF).</p>										
<p>8. 25% of returns to the U.S. Treasury are distributed back to the counties in proportion to the Klamath National Forest's acreage in the counties.</p>										
<p>9. Under California law a yield tax, currently equal to 2.9% of the timber harvest value, is levied on the timber operators.</p>										
<p>10. Total personal income including wages, salaries, proprietor's income and rents was estimated for the Forest's zone of influence. Refer to Appendix B of this EIS for a description of the input-output model used to make estimates.</p>										
<p>11. Employment generated by the Forest Service in the zone of influence was estimated with an input-output model. Refer to Appendix B of this Draft EIS.</p>										
<p>12. Discounted benefits over the planning period.</p>										
<p>13. Discounted costs over the planning period.</p>										
<p>14. Discounted benefits less total discounted costs.</p>										
<p>15. Discounted benefits divided by total discounted costs.</p>										

fisheries, wildlife and range. Discounted benefits vary by alternative based primarily on timber harvesting levels and on reductions in future wildfire acres burned. Alternative G(SOHA) would have the most discounted benefits while Alternative E would have the lowest discounted benefits.

There is also a measure of efficiency imbedded in the benefit/cost ratios. Alternatives may show different rankings based on benefit/cost ratio rather than PNV. Additional dollars invested may have a positive PNV, but the marginal value of those additional investments may be less due to higher costs. Alternative G(SOHA) would have both the highest PNV and the highest benefit/cost ratio. The Current Alternative would be second highest in both categories.

Table 2-18 displays the economic effect of each major group of management requirements (MRs).

The PNV, cost and benefit entries in Table 2-18 are the marginal or incremental values minus those values for the Minimum Level of Management (MLV) Benchmark. As the MLV Benchmark represents the background benefits and costs associated with simple maintenance of the Forest, then the values in the body of the table represent the costs and benefits of active management. The reductions in PNV generally follow corresponding reductions in timber harvesting levels.

Direct comparisons of the cost and benefit categories for individual resources can be misleading. Many outputs have common costs of production that cannot be reliably separated and attributed to individual resources.

While roads are displayed in the cost category, they also contribute to the value of timber and recreation and have benefits which are included in those benefit categories. Similarly, the costs of vegetation management for timber production may increase the value of wildlife habitat.

The MRs would cost a total of \$815 million in terms of reduced PNV. This is a reduction of 51% caused by the timber harvesting reduction of 221 MMBF. The T&E constraint would have the greatest effect, followed by watershed constraints and then by dispersion requirements.

The T&E constraint would maintain sufficient suitable spotted owl, eagle and falcon habitat, so that the continued existence of an adequate number and distribution of reproductive pairs is ensured throughout the existing range. The cost of this constraint in terms of reduced PNV is \$444 million or a 55% drop in PNV between the FLW and MR Benchmarks.

This reduction in PNV is caused primarily by reduced timber revenues. The next most significant management limitation in the MRs is the allowance for watershed concerns. Active slides, toe zones of dormant slides, severely dissected granitics and unconsolidated inner gorge areas were removed from the regulated land base. Other sensitive watershed areas

have stand maintenance prescriptions which limit harvest to 5% of the standing inventory. These constraints would account for 16% of the drop in PNV.

Dispersion ensures that the harvesting pattern is distributed so that adjacent cutting blocks or openings will be separated in time by an average of 10 years. This was modeled by directing cutting activities to fall below a given level of inventory. Non-declining yield and diversity showed no significant effects on PNV. The remaining \$203 million reduction is due to overlap in constraints.

PNV declines another \$68 million when the implementation requirements (IRs) are applied (Alternative CEE). Timber harvesting is reduced 18 MMBF. The IRs consist of timber harvesting restrictions to maintain visual quality along State Scenic Highway travel corridors and of sensitive species habitat allocated to minimal timber yields.

Table 2-19 displays the alternatives in order of decreasing PNV. The associated PNV, benefits and costs for each alternative are itemized for comparison. Alternative CEF and the MLV benchmark are displayed to provide a frame of reference.

As in the benchmark analysis, the MLV benchmark describes the background outputs and fixed costs associated with maintaining the Forest. All cost and benefit figures shown in Table 2-19 are the difference between each alternative's cost or benefit figure and the corresponding cost or benefit figure for the MLV benchmark. Alternative CEF incorporates all MRs and IRs.

Discounted benefits range from \$2,364 million in Alternative CEF to \$1,453 million in Alternative E. Resources contributing the most to these changes are timber and fire. Timber benefits range from \$1,268 million in Alternative CEF to \$416 million in Alternative E. This is a function of the timber harvesting level. Fire benefits depend on the size of the fire organization. Water and recreation have large contributions to the amount of total benefit, but there is little, if any, change between alternatives.

Discounted costs vary from \$740 million in the Preferred Alternative to \$447 million in the Current Alternative. The largest changes in total program amounts are attributed primarily to timber, fire and roads. The greatest percentage changes appear in the other resource areas which generally have smaller program budgets.

Timber costs range from \$308 million in Alternative CEF to \$137 million in Alternative E. Fire costs range from \$158 million in the Preferred Alternative to \$46 million in Alternatives Current and G(SOHA). Road costs vary from \$44 million in the Preferred Alternative to \$128 million in Alternative D.

PNV varies from \$1,691 million in Alternative CEF to \$835 million in the Preferred Alternative. Changes in PNV are caused primarily by variations in timber har-

Table 2-18. Present Net Value Comparison - Marginal Cost of Constraints
(Millions of 1987 Dollars)

	FLW (PNV without MRs)	MR Constraints			Balance Due to Overlap	MR (PNV with MRs)	IR Constraints		CEE= CEF	MLV ⁵ (Minimum Level)
		T&E Species	Water- shed Water/Soil	Dis- per- sion			State Scenic Highway	Sensitive Species		
Discounted Costs by Resource⁴										
Timber	544	425	509	535		326			308	1
Roads	101	84	96	100		70			67	33
Fire Program	153	153	153	153		153			153	73
Fisheries	5	5	5	5		5			5	23
Recreation	10	10	10	10		10			10	8
Minerals/Geology	4	4	4	4		4			4	23
Soil/Water/Air/Wild- life/Range	6	6	6	6		6			6	22
Other ¹	179	149	170	176		124			120	40
Discounted Benefits by Resource⁴										
Timber	2,466	1,863	2,287	2,419		1,360			1,268	0
Burned Acre Value	915	915	915	915		915			915	-1,172
Recreation	146	146	146	146		146			146	81
Water	44	37	42	43		31			30	1,884
Fisheries	0	0	0	0		0			0	200
Wildlife	0	0	0	0		0			0	85
Other ²	6	6	6	6		6			6	10
Change in Discounted Benefits		-610	-182	-48	-280	-1,119	-29	-64	-1,212	
Total Discounted Benefits	3,576					2,457			2,364	1,088
Change in Discounted Costs		-166	-49	-13	-77	-304	-8	-18	-330	
Total Discounted Costs	1,003					698			673	224
Change in PNV ³		-444	-132	-35	-204	-815	-22	-46	-882	
PNV	2,574					1,758			1,691	864

1. Other discounted costs include G.A. and overlapping costs.
2. Other discounted benefits include range and commercial anadromous fish.
3. All changes are measured incrementally from the PNV without MRs.
4. Costs and benefits are the net of the minimum level benchmark.
5. The minimum level benchmark (MLV) shows naturally occurring background benefits and fixed costs associated with maintaining the National Forest in Federal ownership.

Abbreviated Terms and Meanings:

CEE = Constrained Economic Efficiency CEF = Constrained Economically Efficient Alternative with Forest Constraints
 FLW = Flow and Long-term Sustained Yield IR = Implementation Requirements MLV = Minimum Level Benchmark
 MR = Management Requirements PNV = Present Net Value T&E = Threatened and Endangered

**Table 2-19. Present Net Value Comparison - Comparison of Alternatives
(Millions of 1987 Dollars)**

	CEF	G	CUR	C	A	B	D	D'	B'	E	PFD	MLV ⁵
Discounted Costs by Resource⁴												
Timber	308	226	199	233	272	180	252	239	157	137	201	1
Roads	67	70	88	63	69	123	128	122	113	87	44	33
Fire Program	153	46	46	54	65	54	54	54	54	54	158	73
Fisheries	5	5	5	22	37	37	37	37	37	36	21	23
Recreation	10	19	19	40	26	43	34	34	43	43	84	8
Minerals/ Geology	4	0	0	0	12	12	9	9	12	12	18	23
Soil/Water/Air/ Wildlife/Range	6	4	6	61	71	70	70	78	72	78	78	22
Other ¹	120	88	85	111	130	133	135	133	124	105	136	40
Discounted Benefits by Resource⁴												
Timber	1,268	1,032	868	815	893	821	863	820	647	419	495	0
Burned Acre Value	915	877	877	872	872	872	872	872	872	872	915	-1,172
Recreation	146	146	146	146	146	146	146	146	146	146	146	81
Water	30	27	22	21	25	23	26	22	17	10	13	1,884
Fisheries	0	0	0	0	0	0	0	0	0	0	0	200
Wildlife	0	0	0	0	0	0	0	0	0	0	0	85
Other ²	6	6	6	6	6	6	6	6	6	6	7	10
Change in Dis- counted Bene- fits		-278	-446	-504	-423	-496	-451	-498	-676	-911	-789	
Total Dis- counted Benefits	2,364	2,086	1,918	1,860	1,941	1,868	1,913	1,866	1,687	1,453	1,575	1,088
Change in Dis- counted Costs		-215	-226	-88	8	-22	46	33	-61	-120	67	
Total Discounted Costs	673	458	447	585	681	651	719	706	612	553	740	224
Change in PNV ³		-62	-220	-417	-431	-474	-497	-532	-616	-791	-856	
PNV	1,691	1,629	1,471	1,274	1,260	1,217	1,194	1,159	1,075	900	835	864

1. Other discounted costs include G.A. and overlapping costs.
2. Other discounted benefits include range and commercial anadromous fish.
3. All changes are measured incrementally from the CEF alternative. Alternatives are listed in order of change in PNV.
4. Costs and benefits are the net of the Minimum Level Benchmark.
5. The minimum level benchmark (MLV) shows naturally occurring background benefits and fixed costs associated with maintaining the National Forest in Federal ownership.

Abbreviated Terms and Meanings:

CEF = Constrained Economically Efficient Alternative with Forest Constraints MLV = Minimum Level Benchmark
 PFD = Preferred Alternative PNV = Present Net Value

vesting levels in Alternatives G(SOHA), Current and CEF.

Changes in PNV are caused primarily by variations in resource program levels in Alternatives Preferred and A through E.

Table 2-20 displays the average annual cash flows and non-cash flow benefits for each alternative. The total Federal costs are subtracted from returns to the U.S. Treasury to obtain net cash flow. Net cash flow is then a net cash position after Federal outlays are deducted from cash receipts for timber sales, recreation use and various permits. Net cash flow does not account for non-cash benefits, whereas PNV does.

Expenditures would be greater than returns to the treasury in all alternatives in the first decade. However, by the fifth decade all alternatives would have significantly improved their cash flows with only Alternatives Preferred, B' and E still having negative cash flows.

The primary reason for negative cash flows in the first decade is the relatively small amount of dollars returned to the treasury compared to program costs for all resources except timber. By the fifth decade cash flows improve because returns to the Federal treasury increase while total Federal costs actually decrease. The primary reasons for this trend are reduced road-building costs and a real price increase of 1% for timber.

The ranking of the alternatives by net cash flow shows that Alternative CEF would have the highest cash flow and the Preferred Alternative would have the lowest. The return on timber harvested is the largest contributor to benefits on the Forest and fluctuates the most between alternatives. As noted before, many resource program outputs do not have an associated cash or non-cash benefit value. For these reasons timber harvesting levels and program cost levels are the major determinants of PNV.

Since timber harvesting levels are estimated by regulation class, allocation of lands into higher or lower classes has a direct effect on ASQ and PNV. Regulation Class 1 corresponds to timber emphasis, Regulation Class 2 with co-emphasis of resources corresponds to moderate timber yields and Regulation Class 3 with amenity emphasis has minimal timber yields. Table 2-21 displays indicators of responsiveness to major national concerns.

All PNVs are net of minimum level (MLV Benchmark) costs and benefits. Ranking of PNV includes CEF and the 10 alternatives considered in detail. Two major factors determine PNV. They are land allocations and program budget level. Land allocations by alternative are displayed in Table 2-22. Program budget levels are discussed by alternative in Table 2-23. Those areas mentioned were emphasized by the alternative.

In general, all program levels were higher than the Current Alternative. The budgeting process is currently

undergoing change. In accordance with the concepts of ecosystem management, budgets are likely to become more integrated in the future with funding pooled from many functional areas to accomplish projects. At the present time, outyear budgeting is still planned by functional staff area. This will likely result in double counting project dollars in some cases and budget estimates could also be high for this reason.

Budget estimates are also difficult when the organization as a whole is undergoing change. In the past, historic data records and trends were used to project future outputs. This method has limited value in the present resource management environment. There is a cost to change itself, in experimentation with new techniques. At lower production levels for timber outputs, fixed costs can set a lower limit on unit costs. With a small regulated land base, higher costs will be associated with access and other implementation factors. The corresponding large unregulated land base will result in greater expenditures for activities in these areas to reduce risks of catastrophic loss to valued resources other than timber and to promote forest health. For all of these reasons total budget estimates are increasing, but are no longer necessarily correlated with ASQ levels.

Table 2-22 compares land allocations to the various timber regulation classes by management area for each alternative where there were important differences. The intensity of timber management and the relative trade-offs that each alternative would make for other resources has a substantial effect on PNV.

A blank in a particular column does not mean that the issue was not addressed, but rather that the issue may be covered by other more constraining land allocations or standards and guidelines. A special land allocation for a resource indicates that additional constraints were considered necessary or it was felt that the allocation would complement the management of that resource. The amount of acres in each management area vary considerably by alternative which also affects PNV. (Refer to Appendix B for relative acre allocation comparisons by management concerns).

The major differences in PNV by alternative due to land allocations are primarily a reflection of differences in ASQ. Table 2-22 shows the factors that affect the ASQ for each alternative. Allocation of land to management practices that are more restrictive than the minimum requirements as displayed by Alternative CEF would have the biggest effect on PNV.

Table 2-23 summarizes the reasons for changes in PNV by alternative. This table compares the alternatives in order of highest to lowest PNV. Alternative CEF is used as the basis of comparison. The 2 main reasons for changes in the PNV are the amount of timber production and the level of expenditures for resource programs which do not have associated valued benefits. Many of the reasons for changes from

Table 2-20. Average Annual Cash Flows and Non-cash Benefits
(Millions of Undiscounted Dollars Per Year)

Alternative*	Decade 1				Decade 5			
	Net Cash Flow	Total Federal Cost	Returns to Treasury	Non-cash Benefits	Net Cash Flow	Total Federal Cost	Returns to Treasury	Non-cash Benefits
CEF**	-7	43	36	79	25	49	74	98
G(SOHA)	-12	40	28	78	13	40	63	96
CUR	-15	38	23	79	14	39	53	96
C	-22	44	22	78	7	43	50	96
A	-25	49	24	79	6	49	55	95
D	-26	49	23	96	14	40	54	95
D'	-27	49	22	78	0	50	50	96
B	-28	49	21	79	3	49	52	78
B'	-30	47	17	78	-5	46	41	95
E	-33	42	9	90	-16	44	28	107
PFD	-35	49	14	80	-18	46	28	97

* Alternatives are ranked by Decade 1 Net Cash Flow.
** CEF = Constrained Economically Efficient Alternative with Forest Constraints.

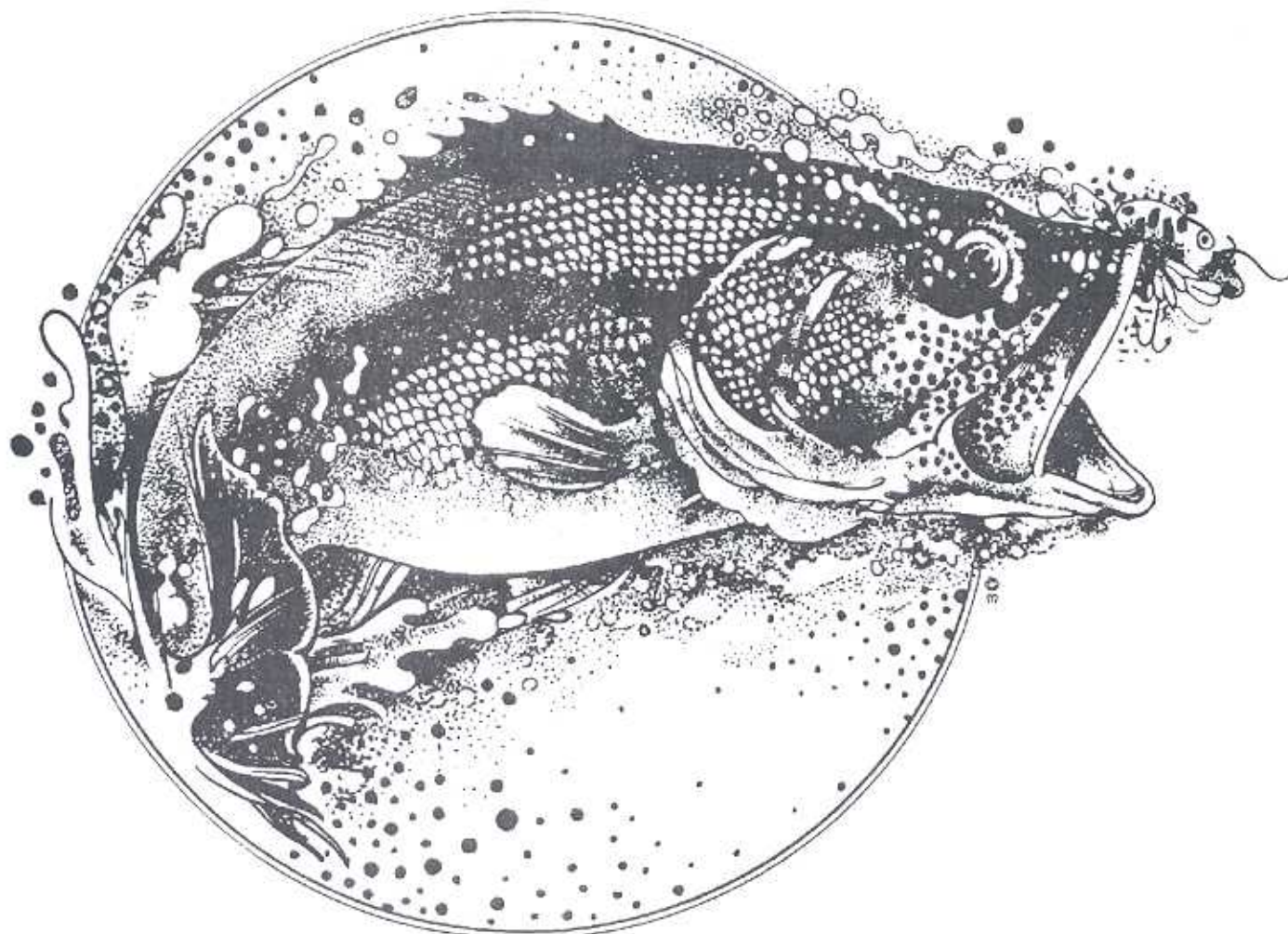


Table 2-21. Indicators of Responsiveness to Major Issues and National Concerns

Community Effects						
Alternative	PNV* (MMS)	Net Cash Flow (MMS/Year Decades 1,5)	Total Personal Income (MMS/Year Decade 1)	Average Annual Em- ployment (Persons/Year Decade 1)		
CEF**	1,691	-7				
G(SOHA)	1,629	-12	62	2,960		
CUR**	1,471	-15	57	2,700		
C	1,274	-22	58	2,750		
A	1,260	-25	63	3,000		
B	1,217	-28	60	2,860		
D	1,194	-26	63	3,000		
D'	1,159	-27	62	2,950		
B'	1,075	-30	55	2,590		
E	900	-33	42	2,000		
PFD	835	-35	49	2,310		

Timber Effects						
Alternative	PNV* (MMS)	ASQ (MMBF/Year Decade 1)	Regulation Class 1 (M Acres/ % of Total Forest)	Regulation Class 2 (M Acres/ % of Total Forest)	Regulation Class 3 (M Acres/ % of Total Forest)	Unregu- lated (M Acres/ % of Total Forest)
CEF**	1,691					
G(SOHA)	1,629	152	263/16	440/16	143/9	834/49
CUR**	1,471	128	214/13	348/21	118/7	1,000/59
C	1,260	119	125/7	367/22	153/9	1,035/62
A	1,274	132	273/16	201/12	237/14	969/58
B	1,217	116	0/0	366/22	511/30	803/48
D	1,194	127	173/10	303/18	265/16	939/56
D'	1,159	123	173/10	303/18	158/9	1,046/63
B'	1,075	94	0/0	366/22	264/16	1,050/62
E	900	51	0/0	333/20	53/3	1,294/77
PFD	835	51	0/0	296/18	58/3	1,327/79

* PNV is the net of the minimum level values. Alternatives are ranked by PNV.
 ** CEF = Constrained Economically Efficient Alternative with Forest Constraints. CUR = No Action/No Change.



Table 2-22. Regulation Class Comparisons by Management Area

Management Area	Alternative								
	CEF	PFD	CUR	A	B&B'	C	D&D'	E	G (SOHA)
Wild Rivers	U	U	U	U	U	U	U	U	U
T&E Species Habitat									
– Spotted Owls - CHUs								U	
Sensitive Species Habitat/ Special Habitat	3	3	**	3	3	3	3	U	**
SIAs (1)		H	L	M	H	H	H	H	L
Cultural Areas									
– Sacred sites		U	U	U	U	3	U	U	U
– Unknown significance			U	U	U	3	U	U	U
Backcountry		U		U				U	
Habitat Linkage						3			
Scenic Rivers	2	3	3	3	3	3	3	3	3
Recreational Rivers	2	2	3	3	3	3	3	3	3
RRs/RMZs	3	U	3	3	U	U	U	U	3
Big Game Habitat/Winter Range		U	U	2	U	U	3	U	U
Partial Retention VQO									
– Scenic Highways				2					
Forage		3	2	2	2	2	2	2	2
General Forest/Other									
– Inner gorge consolidated	3	U	3	3	U	U	3	U	3
– Geologic sensitive land		2	2	2	3	2			2
– "Old Growth"								U	
– Wild River - Midground	2	3			3	3	2	3	
– Scenic River - Midground	2	2			3	2	2	3	
– Recreational R - Midground	2	2			2	2	2	2	
– Visual Consideration (2)	E	E	E		I	I	E	E	E
– Harsh sites		U		3				U	

U = Unregulated.
3 = Regulation Class 3.
2 = Regulation Class 2.
H = High number of acres in SIAs.
M = Moderate number of acres in SIAs.
L = Low number of acres in SIAs.
(1) All SIAs would be Unregulated. **H**=High number of acres in SIAs, **M**=Moderate number of acres in SIAs, **L**=Low number of acres in SIAs.
(2) Regulation Class varies by VQO, but alternatives with "I" would generally have higher quality VQOs and, therefore, more restrictive regulation class designation than alternatives with "E".
****** Not a requirement at time alternative was modeled.

CEF due to timber production levels are displayed in Table 2-22 and are not repeated below.

Table 2-23. Summary Listing of Reasons for Changes in Present Net Value

Alternative CEF (Constrained Economically Efficient Alternative With Forest Constraints)

- PNV = \$1,691 million; Used as the Basis for Comparison
- Net Cash Flow (Decade 5) = \$25 million

This alternative is the most economically efficient as it has the highest PNV. It contains all MRs and IRs. Low budget levels and high timber volumes are the reason it ranks first in PNV. Approximately 747,000 acres are in the regulated land base, most of them in Regulation Class 1.

Alternative G(SOHA)

- PNV = \$1,629 million
- Change in PNV = - \$62 million
- Net cash flow (Decade 5) = \$13 million

Alternative G(SOHA) ranks second in PNV. This alternative differs from the Current Alternative because it would allocate SOHAs instead of HCAs to provide for spotted owl habitat. Because there would be more acres suitable for timber management and because harvesting levels are not constrained by the 50-11-40 rule, the harvest level would be higher than the Current Alternative. Higher harvests result in a greater PNV.

Alternative Current

- PNV = \$1,471 million
- Change in PNV = - \$220 million
- Net cash flow (Decade 5) = \$14 million

The Current Alternative ranks third in PNV. It has the highest PNV of any implementable alternative. There are no additional recommendations for WSRs or SIAs. Other resource programs are maintained at their average level for the period 1984 through 1988. Timber harvesting prescriptions emphasize even age regeneration.

Alternative C

- PNV = \$1,274 million
- Change in PNV = - \$417 million
- Net cash flow (Decade 5) = \$7 million

Alternative C ranks fourth in PNV. Additional resource program dollars would be budgeted for air quality, inventory and monitoring for biological diversity, prescribed fire, recreation trail construction, interpretation programs and cultural inventories.

Alternative A

- PNV = \$1,260 million
- Change in PNV = - \$431 million
- Net cash flow (Decade 5) = \$6 million

Alternative A ranks fifth in PNV. It would have the highest harvesting level of any implementable alternative. Approximately 703,000 acres would be in the suitable timber land base, the highest of the implementable alternatives. Unique to this alternative, visual objectives were defined by other resource objectives rather than the visual management system. More dollars would be programmed for silvicultural treatments, cultural inventories and watershed restoration than in the current situation.

Alternative B

- PNV = \$1,217 million
- Change in PNV = - \$474 million
- Net cash flow (Decade 5) = \$3 million

PNV in Alternative B ranks sixth. The difference between this alternative and Alternative B' is that HCAs would be allocated to Regulation Class 3, minimal programmed timber yields and the 50-11-40 rule would not be a constraint. This would result in more timber harvesting and a higher PNV. Other budget items would be same as in Alternative B'.

Alternative D

- PNV = \$1,194 million
- Change in PNV = - \$497 million
- Net cash flow (Decade 5) = \$14 million

PNV for Alternative D ranks seventh. Unlike Alternative D', HCA acres of condition class 3P would be included in timber suitable lands. This would result in increased timber harvest. Other programs are the same as in Alternative D'.

Alternative D'

- PNV = \$1,159 million
- Change in PNV = - \$532 million
- Net cash flow (Decade 5) = 0

PNV for Alternative D' ranks eighth. Programs for watershed restoration, Sensitive species management, fisheries interpretation, road closures, prescribed fire and cultural surveys would be increased from the current situation.

Alternative B'

- PNV = \$1,075 million
- Change in PNV = - \$616 million
- Net cash flow (Decade 5) = - \$5 million

PNV in Alternative B' ranks ninth. Additional money would be budgeted for the recreation program including road upgrades and prescribed fire.

Alternative E

- PNV = \$900 million
- Change in PNV = - \$791 million
- Net cash flow (Decade 5) = - \$16 million

PNV for Alternative E ranks tenth. There would be increased program dollars identified for recreation, prescribed fire, cultural resources and road closures.

Alternative Preferred

- PNV = \$835 million
- Change in PNV = - \$856 million
- Net cash flow (Decade 5) = - \$18 million

PNV for the Preferred ranks last. Additional dollars would be budgeted for prescribed fire, recreation improvements, road closures and surfacing, cultural resources, public information and fisheries programs.

