United States
Department of
Agriculture

Forest Service

Pacific
Northwest
Region

990

Land and Resource Management Plan

Siuslaw National Forest

LAND AND RESOURCE MANAGEMENT PLAN

for the

SIUSLAW NATIONAL FOREST

Pacific Northwest Region

Lead Agency:	USDA Forest Service
Responsible Official:	John Butruille Regional Forester Pacific Northwest Region
For Further Information	*Forest Supervisor* Siuslaw National Forest 4077 SW Research Way P.O. Box 1148 Corvallis, OR 97339 Telephone· (503) 750-7000

PREFACE

This Forest Land and Resource Management Plan (Forest Plan) has been prepared according to Secretary of Agriculture regulations (36 CFR 219) which are based on the Forest and Rangeland Renewable Resources Planning Act (RPA) as amended by the National Forest Management Act of 1976 (NFMA). The plan has also been developed in accordance with regulations (40 CFR 1500) for implementing the National Environmental Policy Act of 1969 (NEPA) Because this plan is considered a major federal action significantly affecting the quality of the human environment, a detailed statement (environmental impact statement) has been prepared as required by NEPA. The Forest Plan represents the implementation of the Preferred Alternative as identified in the Final Environmental Impact Statement (FEIS) for the Forest Plan

If any particular provision of this Forest Plan, or the application thereof to any person or circumstances, is found to be invalid, the remainder of the Forest Plan and the application of that provision to other persons or circumstances shall not be affected

TABLE OF CONTENTS

Page

PREFACE i-1

LIST OF TABLES i-5

LIST OF FIGURES i-6

CHAPTER I - INTRODUCTION

Purpose I-1
Plan Relationship to Other Documents I-1
Plan Structure I-2
Forest Overview I-3

CHAPTER II - SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

Introduction II-1
Resource and Economic Potentials II-1
Key Issue Discussion II-2
Alternatives in Relation to Supply and Demand II-4
Demand Projections II-5
Informational Needs II-8

CHAPTER III – RESPONSE TO ISSUES, CONCERNS, AND OPPORTUNITIES

Introduction III-1
Issues III-1

CHAPTER IV – FOREST MANAGEMENT DIRECTION

Introduction IV-1
Forest Management Goals IV-1
Desired Future Condition of the Forest IV-4
Forest Management Objectives IV-7
Resource Summaries IV-10
Timber IV-10
Recreation IV-22
Wilderness IV-25
Visual Resources IV-26
Undeveloped Areas IV-27
Wildlife Habitat IV-27
Watershed Condition and Fish Habitat IV-34
Transportation Facilities IV-35
Research Opportunities IV-36
Rivers Included in the National Rivers Inventory IV-36
Cultural Resources IV-36
Range IV-37
Insects and Disease IV-37
Landownership IV-37

Municipal Watersheds IV-37
Electronic Sites IV-38
Rights-of-Way IV-38
Forest-wide Standards and Guidelines IV-39
Project Planning and Implementation IV-39
Recreation IV-40
Cultural Resources IV-42
Visual Quality IV-43
Threatened, Endangered and Sensitive
Animals and Plants IV-43
Wildlife IV-47
Fish IV-48
Riparian Areas IV-49
Range IV-50
Timber IV-50
Soil and Water IV-51
Municipal Watersheds IV-54
Minerals and Geology IV-54
Research IV-55
Lands IV-55
Transportation IV-56
Protection IV-57
Air Quality IV-58
Facilities IV-58
Management Area Prescriptions IV-59
Management Area Boundaries IV-59
Management Area Modification IV-59
Management Area 1 - Silverspot Butterfly Habitat IV-62
Management Area 2 - Old Growth IV-66
Management Area 3 - Northern Spotted Owl Habitat IV-69
Management Area 4 - Bald Eagle Habitat IV-73
Management Area 5 - Special Interest Areas IV-76
Management Area 6 - Cascade Head Scenic Research Area IV-81
Management Area 7 - Cascade Head Experimental Forest IV-85
Management Area 8 - Sand Lake IV-87
Management Area 9 - Sutton Area IV-89
Management Area 10 - Oregon Dunes NRA IV-93
Management Area 11 - Undeveloped Areas IV-96
Management Area 12 - Wilderness IV-99
Management Area 13 - Research Natural Areas IV-104
Management Area 14 - Scenic Viewsheds IV-108
Management Area 15 - Timber/Wildlife/Fish/
Dispersed Recreation IV-112

CHAPTER V – IMPLEMENTATION AND MONITORING

Implementation Direction V-1
Project Scheduling V-1
Consistency With Other Instruments V-2
Budget Proposals V-2
Environmental Analysis V-3
Monitoring and Evaluation V-3
Monitoring V-3
Evaluation V-45
Amendments and Revisions V-45
Plan Amendments V-45
Plan Revisions V-46

REFERENCES REF-1
ACRONYMS ACR-1
GLOSSARY GLOS-1

APPENDICES

A – Timber Sale Schedule A-1
B – Other Resource Schedules B-1
B-1 Watershed Activity Schedule B-1
B-2 Fish Activity Schedule B-3
B-3 Wildlife Activity Schedule B-5
B-4 Recreation Activity Schedule B-9
B-5 Trail Activity Schedule B-11
B-6 Road Activity Schedule B-13
B-7 Bridge Activity Schedule B-16
B-8 Facilities Activity Schedule B-17
C – Landownership Adjustment Plan C-1
D – Road and Area Closure Plan D-1

LIST OF TABLES

Page

II-1 Decision Space and Demand Projections for Major Issues Indicators II-6

III-1 Allocated and Managed Old-Growth Stands, Acres III-3

IV-1 Projected Average Annual Resource Outputs, Activities, and Costs IV-7
IV-2 Lands Suitable for Timber Production, Acres IV-11
IV-3 Management Area Land Stratification for Timber Production IV-13
IV-4 Characteristics of Lands Suitable for Timber Production IV-14
IV-5 ASQ and Timber Sale Program Quantity IV-15
IV-6 Distribution of Annual Timber Harvest by Ranger District IV-17
IV-7 Distribution of Annual Timber Harvest IV-19
IV-8 Vegetation Management Practices IV-20
IV-9 Management of Lands Suitable for Timber Production IV-21
IV-10 Forest Vegetative Conditions IV-22
IV-11 Needed Developed Site Capacity IV-23
IV-12 Wilderness Trail Miles IV-25
IV-13 Viewshed Visual Quality Objectives IV-26
IV-14 Habitat Areas and Acres in Mature Conifer IV-28
IV-15 Spotted Owl Habitat Areas (SOHAs) IV-29
IV-16 Spotted Owl Habitat by MA IV-29
IV-17 Bald Eagle Habitat by MA IV-32
IV-18 Projected Operational Status of Forest Road System IV-36
IV-19 Description and Size of Each Management Area IV-60
IV-20 Resources (Chapter-III Issues) Linked with Management Areas . . . IV-61
IV-21 Wilderness Primitiveness, Trail Miles, Recreation Capacity IV-102

V-1 Monitoring Questions – Cultural Resources V-6
V-2 Monitoring Questions – Economic and Social V-7
V-3 Monitoring Questions – Fish V-10
V-4 Monitoring Questions – Recreation and Scenery V-12
V-5 Monitoring Questions – Research Natural Areas V-16
V-6 Monitoring Questions – Soil and Water V-17
V-7 Monitoring Questions – Timber V-22
V-8 Monitoring Questions – Transportation V-27
V-9 Monitoring Questions – Wildlife V-28

A-1 Timber Sale Schedule - Fiscal Year 1990 . . . . . A-2
A-2 Timber Sale Schedule - Fiscal Year 1991 . . . . . A-6
A-3 Timber Sale Schedule - Fiscal Year 1992 . . . . . A-10

LIST OF TABLES (continued)

Page

B-1 Watershed Activity Schedule B-2
B-2 Fish Activity Schedule B-2
B-3 Wildlife Activity Schedule B-5
B-4 Recreation Activity Schedule and Associated Road Projects B-7
B-5 Trail Activity Schedule B-9
B-6 Road Activity Schedule B-11
B-7 Bridge Activity Schedule B-13
B-8 Facilities Activity Schedule B-14

C-1 Approximate Acreages for Acquisition and Disposition C-2
C-2 Management Areas and Landownership Groups C-3

D-1 Restrictions on the Use of Motor Vehicles in Forest Areas D-4
D-2 Trails Closed to Motor Vehicles D-5
D-3 Roads Closed to Motor Vehicles D-6

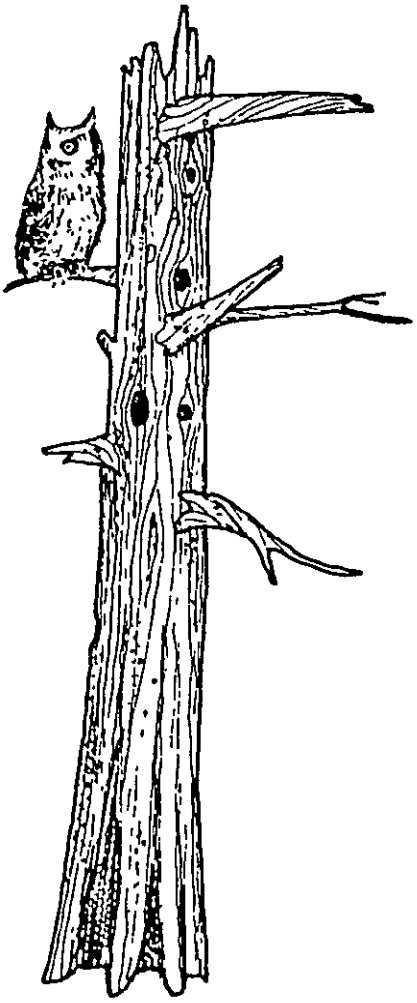
LIST OF FIGURES

I-1 Location of the Siuslaw National Forest I-5

II-1 Benchmark Decision Space for Major Indicators II-2

IV-1 ASQ and LTSYC by Decade IV-16
IV-2 Spotted Owl Habitat Areas IV-30

V-1 Decision Flow Diagram for the Evaluation of the Forest Plan V-45



CHAPTER I
Introduction

CHAPTER I

INTRODUCTION

PURPOSE

The Forest Land and Resource Management Plan guides all natural resource management activities and establishes management standards and guidelines for the Siuslaw National Forest It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management

The Forest Plan establishes.

- Forest-wide multiple-use goals and objectives,
- Forest-wide standards and guidelines to fulfill requirements of the National Forest Management Act (NFMA) applying to future activities,
- Management area direction including management area prescriptions and standards and guidelines applying to future management activities in specific management areas;
- Allowable timber sale quantity and designation of land suitable for timber management;
- Monitoring and evaluation requirements

The Forest Plan embodies the provisions of the National Forest Management Act of 1976, the implementing regulations, and other guiding documents Land use determinations, prescriptions, and standards and guidelines constitute a statement of the Plan's management direction, however, the projected outputs, services and rates of implementation are dependent on the annual budgeting process

This plan will guide Forest Service programs on the Siuslaw National Forest beginning in 1990 It will ordinarily be revised on a 10-year cycle, but at least every 15 years The Plan may be amended or revised at any time if the Forest Supervisor determines that conditions in the area covered by the Plan have changed significantly, or if project level environmental analysis demonstrates the need to make a change.

FOREST PLAN RELATIONSHIP TO OTHER DOCUMENTS

Relationship to the Environmental Impact Statement and the Record of Decision

This Forest Plan is based on the various considerations and analyses documented in the accompanying Final Environmental Impact Statement (FEIS) and the Record of Decision (ROD), and represents the Preferred Alternative (Alternative E) from the FEIS. The planning process and the analysis procedures

used in developing the Preferred Alternative and the other alternatives are described or referred to in the FEIS

Relationship to the Regional Guide

The Regional Guide for the Pacific Northwest Region as amended December 8, 1988, provides direction for National Forest Plans. It includes standards and guidelines addressing the major issues and management concerns considered at the Regional level to facilitate Forest planning

Relationship to Special Area Plans

The regulations [36 CFR 219 2(b)] guiding the development of Forest Plans state that "if, in a particular case, special area authorities require the preparation of a separate special area plan, the direction in any such plan may be incorporated without modification " This direction applies to two areas on the Forest.

The Cascade Head Scenic-Research Area Plan (11/16/76) and the Oregon Dunes National Recreation Area Plan (1/10/77, as amended 5/29/79) are incorporated without change in the Forest Plan The plans for these two areas were developed under special authority of the enabling legislation (Public Law 93-535 and Public Law 92-260, respectively), and were developed through the National Environmental Policy Act process

The Forest Plan summarizes the overall management direction for these areas (see Chapter IV, Management Areas 6 and 10), however, the individual plans should be reviewed for detailed management direction Issues regarding the management of these areas will continue to be monitored. The management direction in the Plan could be changed if it is determined that another alternative provides a higher net public benefit

Relationship to Other Plans

The Forest Plan serves as the single land management plan for the Siuslaw National Forest All other land management plans, with the exceptions noted above, are replaced by the direction in this Forest Plan (see Chapter V for a list of existing plans that this Forest Plan supersedes).

The management direction provided by this Forest Plan comprises the framework within which site-specific project planning and activities take place. Environmental analyses will be conducted for all proposed projects not addressed in the Forest Plan, in accordance with the National Environmental Policy Act (NEPA) requirements.

More site specific analysis will be conducted to guide management activities for certain resource management situations. Examples of such analyses are for fire management and Wilderness management

PLAN STRUCTURE

The Forest Plan document is composed of five chapters and four appendices.

Chapter I describes the purpose of the Plan, the types of management direction included, the relationship of the Plan to other documents, and the Forest's geographic location

Chapter II summarizes the current situation, and the supply and demand of significant market and nonmarket goods and services on the Forest

Chapter III shows the Plan's response to the major public issues, management concerns, and resource opportunities identified during the planning process

Chapter IV is the heart of the Plan and contains the management direction for the Forest for the next 10 to 15 years. It includes the Forest management goals, resource objectives, and projected resource outputs and activities necessary to meet the objectives The outputs and activities are based on available inventory data and assumptions and are subject to the annual budget In addition, Chapter IV provides a list of Forest-wide standards and guidelines and specific management area standards and guidelines The management areas are described and the management prescriptions that define the types of activities that can occur in those areas are described The specific locations of various management areas within the Forest are shown on the map labeled "Preferred Alternative "

Chapter V contains the implementation direction, a plan for monitoring and evaluating Forest Plan implementation, and a description of the process for Plan amendment and revision Project-level planning and schedules are discussed As the Forest Plan is implemented, it will be monitored to determine whether the outputs and "Standards and Guidelines" in Chapter IV are being met and whether the standards and guidelines are effective in achieving the desired conditions

Following Chapter V are appendices which provide a Ten-year Timber Sale Schedule, other resource activity schedules for the projected budget, a landownership adjustment plan, and road and area closure plan The general locations of the closures are shown on a map accompanying the Forest Plan, labeled "Road and Area Closures " A glossary, a list of acronyms, and a list of references are also provided

FOREST OVERVIEW

The Siuslaw National Forest is located in the Coast Range of western Oregon, adjacent to the Pacific Ocean The Forest contains over 630,000 acres extending south from Tillamook to Coos Bay (Figure I-1). Primarily steep forest land covers some 604,000 acres, while 27,000 acres of sand dunes and wetlands stretch along the coast from Heceta Head, south of Yachats, to Coos Bay

Corvallis, a city of approximately 40,000 people, and Eugene-Springfield, with a population of about 112,000, lie just east of the Forest To the west are the coastal cities and towns of Tillamook, Lincoln City, Newport, Waldport, Florence, Reedsport, North Bend, and Coos Bay, with populations ranging from 2,500 to 14,000 Smaller communities are found along main roads throughout the Forest Approximately 655,000 people reside in the eight counties in and around the Forest Communities along the coastal strip rely on fishing, tourism, and wood products; other communities are closely tied to the timber uses and amenities associated with forested land in western Oregon Many of these communities depend on Forest streams for their domestic water supplies

The principal resources on the Siuslaw National Forest are timber, habitat for wildlife and anadromous fish, clean water, unique scenery, and recreational opportunities along the Oregon coast The Siuslaw is one of the highest producers of wood fiber in the National Forest system and also has the most miles of stream inhabited by anadromous fish of any Forest outside of Alaska The mild and wet climate encourages rapid plant growth, hence the presence of dense stands of tall trees, a thick undergrowth of vegetation, and a diversity of wildlife habitat The Forest supports a large elk population and is a significant source of habitat in the Coast Range for the bald eagle and Oregon silverspot butterfly

(threatened species) and the northern spotted owl (a species proposed for federal listing as a threatened species)

The Forest is headquartered in Corvallis, Oregon Ranger District Offices are located in Hebo, Alsea, Waldport, Mapleton, and Reedsport (Oregon Dunes National Recreation Area).

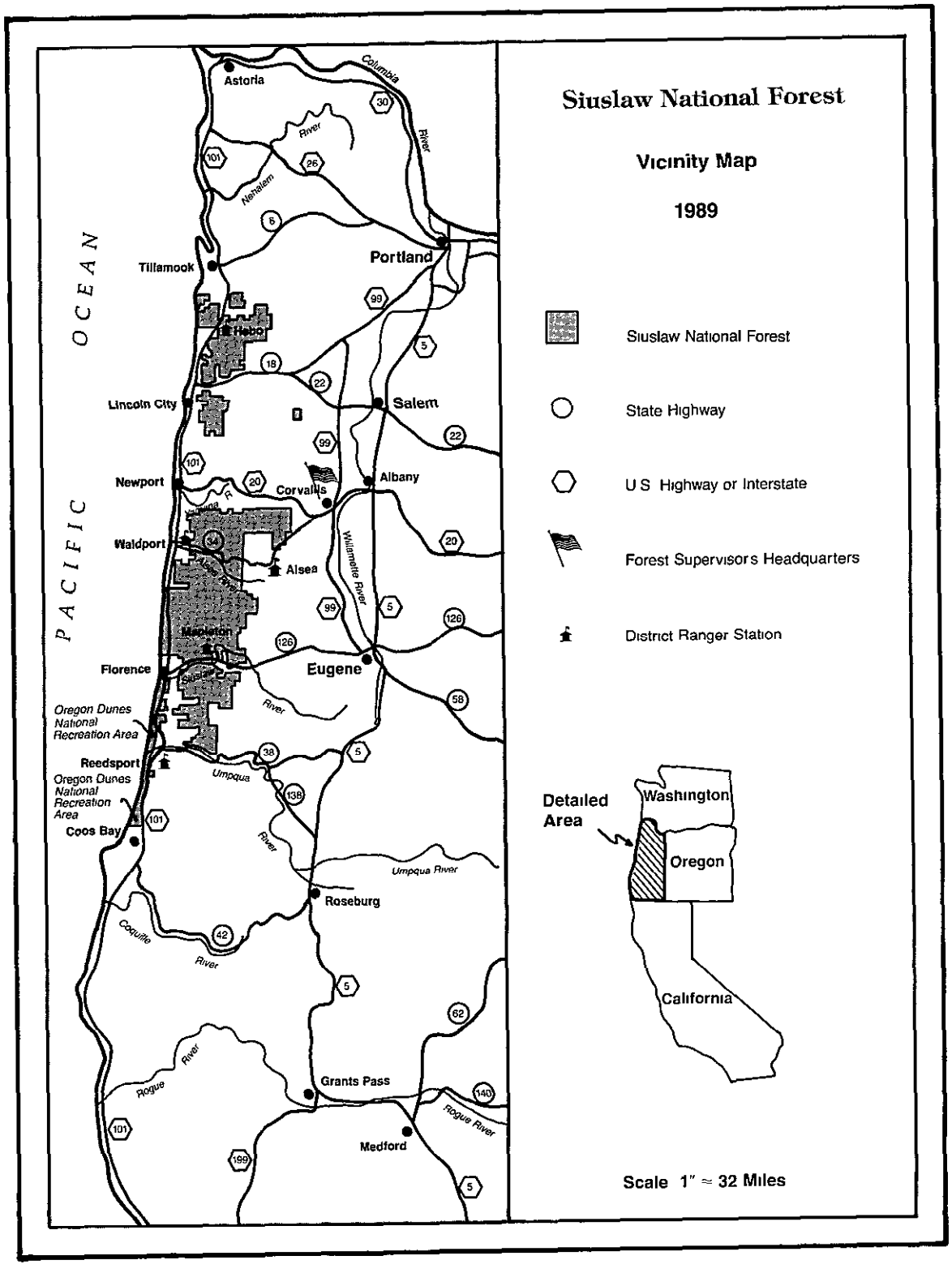


FIGURE I-1. LOCATION OF THE SIUSLAW NATIONAL FOREST

CHAPTER II
Resource Potentials

CHAPTER II

SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

INTRODUCTION

This chapter summarizes potential resource and economic outputs, projections of demand for resources, and informational needs for the Siuslaw National Forest. For more information on these aspects, see the accompanying FEIS (Chapters II and IV and Appendix B) and the Analysis of the Management Situation (AMS) document on file at the Forest Supervisor's Office (USDA Forest Service 1985b)

RESOURCE AND ECONOMIC POTENTIALS

Resource and economic potentials of the Forest were identified in the AMS by a set of eight management scenarios called benchmarks, as required by 36 CFR 219 12(e) In turn, these potentials defined the decision space in which the alternatives could be developed. The benchmarks are described in detail in FEIS, Appendix B "Benchmark Formulation". Outputs and effects associated with the benchmarks are displayed in FEIS, Chapter II (Table II-39B), and summarized as follows

- **Current Direction Benchmark** estimates the outputs and effects of maintaining management direction and policy presently found in existing unit plans This benchmark does not meet all wildlife Management Requirements (MRs)

- **Minimum Level Benchmark** estimates the minimum costs (with resultant outputs and effects) necessary to retain NFS lands in federal ownership, subject to constraints necessary for protection of life, health, and safety of incidental users This benchmark did not meet all MRs at the time the AMS was written

- **PNV Benchmark** estimates the highest present net value the Forest might attain by maximizing market and nonmarket returns under a timber harvest policy of nondeclining flow (NDF) Its primary purposes are to serve as a basis for economic comparisons among benchmarks and alternatives and as a basis for determination of effects of various constraints on outputs and costs This benchmark was rerun between draft and final EIS to reflect changes in data and assumptions made in the alternatives

- **Timber Benchmark** estimates the highest sustainable timber harvest on the Forest, subject to MRs and NDF This benchmark was rerun between draft and final EIS to reflect changes in data and assumptions made in the alternatives

- **Departure Benchmark** estimates the highest PNV for the Forest when timber harvest scheduling is **not** based on NDF

- **Recreation Benchmark** estimates the capability of the Forest to provide a mixture of recreational opportunities, including semiprimitive nonmotorized (SPNM), semiprimitive motorized (SPM), roaded natural, and developed recreation. Unlike the previous benchmarks, it does not represent the potential of the Forest to produce the maximum of each type of opportunity, because the various types of recreation are mutually exclusive (e g , SPNM and SPM) Instead, this benchmark provides a mixture of uses.

- **Nongame Wildlife Benchmark** estimates the capability of the Forest to provide habitat for nongame species of wildlife. Habitat is provided for these species at levels well above MRs, but not at each species' highest potential level Like the Recreation Benchmark, it was designed to balance several mutually exclusive needs.

- **Fish Benchmark** estimates the capability of the Forest to produce fish habitat

Key Issue Discussion

The benchmark decision space for four major indicators (ASQ, PNV, fish habitat, and spotted owls) is shown in Figure II-1. A discussion of the benchmark analysis for these and other key issues and concerns follows. Where appropriate, reference is made to RPA targets or other agency or state goals

Between draft and final EIS, the Timber and PNV benchmarks were rerun with updated information (see FEIS, Chapter II and Appendix B for why the others were not updated) and the results highlighted in Table II-39B. The discussion in this section pertains to the eight original AMS benchmarks that were included in the DEIS. This is to avoid mixing original and updated data for the Timber and PNV benchmarks and to present a decision space produced at the same time with the same models. Some of the results from the updated benchmarks are used in the following "Alternatives in Relation to Supply and Demand"

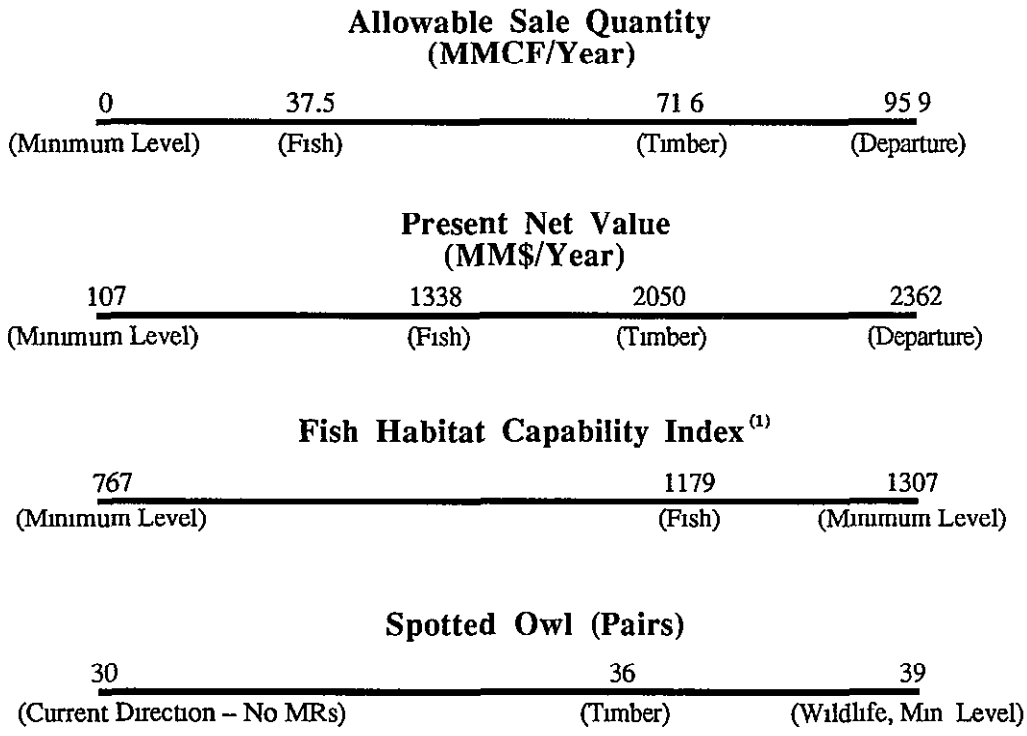


FIGURE II-1. BENCHMARK DECISION SPACE FOR MAJOR INDICATORS (1st Decade)

Timber

The maximum amount of timber volume that could be offered for sale in the 1st decade is 95 9 MMCF/yr (Departure Benchmark) This is 16.1 MMCF higher than the RPA target, and about 33 MMCF higher than the average annual volume sold from 1979 through 1988 In the Departure Benchmark, timber sale levels would drop after the 1st decade until a base level of 65 MMCF/yr (a total reduction of 25%) would be reached and maintained in the 6th decade

The highest 1st-decade timber sale level for a benchmark that did not depart from NDF was 73 9 MMCF/yr for the Current Direction Benchmark, followed closely by the Timber Benchmark at 71.6 MMCF/yr The PNV Benchmark would produce a volume of 70.5 MMCF/yr With the exception of the Minimum Level Benchmark (where no timber harvest is scheduled), the lowest volume would be 37 5 MMCF/yr in the Fish Benchmark

Old-growth Forest

All of the benchmarks (except Current Direction) would maintain at least 20,400 acres of existing old-growth trees This amount is the minimum because it is either in areas which have been withdrawn from scheduled timber harvest (e g , Wilderness) or needed to meet MRs All of the existing old growth would be maintained in the Nongame Benchmark.

Fish Habitat

All benchmarks would provide enough habitat to maintain viable fish populations The Coho Smolt Habitat Capability Index (CSHCI - a method of measuring capacity of fish habitat) in the 1st decade would range from 767 in the Departure Benchmark to 1307 in the Minimum Level Benchmark CSHCI estimates for these benchmarks were made using an older version of the Fish Habitat Index model (see FEIS, Chapter II "Benchmark Analysis")

Wildlife Habitat

All benchmarks (with the exception of Current Direction) would maintain sufficient amounts and types of habitat to at least sustain viable populations of wildlife Except for the Minimum Level Benchmark, the Nongame Benchmark would provide the most nongame wildlife habitat through retention of spotted owl habitat areas (SOHAs), harvest rotations of 100 years, and retention of dead and defective trees for cavity nesters

The Nongame Benchmark also would provide sufficient elk habitat to sustain expanding populations The Departure Benchmark would provide the least amount of nongame wildlife The Minimum Level Benchmark would provide the most habitat for wildlife dependent on older forest conditions and the least for wildlife dependent on younger forest In other benchmarks, wildlife habitat would vary according to objectives of the benchmark.

Recreation

All benchmarks would provide various recreational opportunities, from rural (in a substantially modified environment) to SPNM (in a predominately natural or natural-appearing environment). The Recreation Benchmark would provide the most recreational capacity. This would be accomplished in part by maintaining the largest undeveloped areas and Special Interest Areas, meeting all recommended Visual Quality Objectives, and providing more capital investments for trails, dispersed camps, and developed facilities Total potential recreational use that could be provided in the 5th decade varies from about 2300 MRVDs/yr in the Recreation Benchmark to 1900 MRVDs/yr in the Timber, Departure, PNV, Nongame, Fish, and Minimum Level Benchmarks

Undeveloped and Special Interest Areas

Three areas on the Forest (outside Wildernesses and the Oregon Dunes National Recreation Area) that could qualify for undeveloped areas of 5,000 acres or more are the Hebo-Nestucca area (13,170 acres), Wassen Creek (7,660 acres), and several parcels adjacent to the Drift Creek Wilderness (5,810 acres)

Four potential Special Interest Areas were identified on the Forest - Cape Perpetua Scenic Area, Marys Peak Scenic-Botanical Area, Mt. Hebo Scenic-Biological Area, and Kentucky Falls Scenic Area

Economic Values

All benchmarks, except the Minimum Level Benchmark, define the management scenario which would maximize PNV of the Forest while achieving the resource objectives of the benchmark. The Departure Benchmark represents the management scenario which would maximize overall economic value of the Forest while meeting MRs. PNV of the Forest under this benchmark would be $2 3 billion PNV of all other benchmarks would be less than this due to management objectives which affect the amount of land suitable for timber production, the objective of the timber program (whether to maximize PNV or timber production), and timber harvest flow objectives.

The Minimum Level Benchmark represents the management scenario which would minimize cost of federal ownership of NFS land. Minimum cost of managing the Forest is $5 million/year, of which operation of the Angel Job Corps Center is $2.2 million. Remaining costs are for managing real estate, facilities, fire, and general administration.

ALTERNATIVES IN RELATION TO SUPPLY AND DEMAND

Table II-1 outlines the alternative decision space for major indicators (uses, outputs, goods, services) of the degree of issue resolution. The following levels for each indicator were estimated for each of the RPA planning periods (i e , 5 decades) and displayed for the 1st and 5th decades in Table II-1

- **Production Under Current Management Direction** (No-Action Alternative A). The level provided under current management direction, as constrained by current Forest budgets, and the most likely level expected to be provided under probable budgets if current direction continues

- **Resource Demand Projections**. These demand estimates are explained in the section following Table II-1

- **Maximum Production Potential** The highest level (from benchmarks or alternatives) that could be produced over time considering legal and other requirements (not a goal with sediment).

- **Production Under the Preferred Alternative** The level provided by Alternative E(PA), the alternative selected by the Regional Forester It takes advantage of opportunities available to permit and promote use and development of the various resources, including land status and adjustment situations.

To allow direct comparisons of production potentials with outputs of Alternatives A and E(PA) and demand figures in Table II-1, data from the updated Timber and PNV benchmarks and other more recent analyses are used when appropriate in Table II-1

Demand Projections

Demand estimates shown in Table II-1 reflect future output/effect levels anticipated by several public agencies, including the Forest Service. These projections are discussed several places in the FEIS, including Chapters III and IV, and are summarized below

Timber

Demand estimates for timber reflect two perspectives of the amount of timber needed from the Forest to meet future needs First, a timber harvest objective of 80 MMCF/year was developed for the 1980 RPA program and distributed to the Forest in the Regional Guide (USDA Forest Service 1984a) This objective was based on existing plans, management direction, and other available information used to develop the RPA program in the late 1970s It reflects the Nation's resource management priorities as determined in 1980 by Congress and the administration, with extensive public participation.

Demand projections were not made specifically for hardwoods, although demand for hardwood is directly related to demand for lumber and wood products in general In 1980, annual hardwood production in Oregon was estimated to be 20 MMCF, of which 50% was assumed to be for lumber and the rest for veneer logs, pulpwood, and firewood (ODF 1980) Statewide and nationally, it appears that there is an abundance of hardwood timber It is assumed that future demand for hardwoods on the Forest will steadily increase above past harvest levels of 6-18 MMBF/year as markets develop to use this source of fiber

Watershed

Demand was not projected specifically for water quality However, it is assumed that demand will continue at current levels or increase as more people move into areas adjacent to the Forest and as the amount of fishing increases

Fish and Wildlife Habitat

Objectives developed by the Oregon Department of Fish and Wildlife reflect the goal to maximize the amount of habitat available for fish and wildlife, especially game species The objectives displayed in Table II-1, as well as objectives for nongame species, are discussed in more detail in FEIS, Chapter IV "Consistency with Plans or Programs of Other Agencies "

Table II-1. Decision Space and Demand Projections for Major Issues Indicators

OUTPUT/EFFECT	Unit of Measure	Current Direction (Alt. A)	Demand Projection	Production Potential	Preferred Alternative (E)
TIMBER					
Long-Term Sustained Yield Capacity	MMCF/Yr	69 4	NA	83 4	72 5
Allowable Sale Quantity	MMCF/Yr				
1st Decade		65 9	80 (1)	95 9	61 2
5th Decade		65 9	Unknown	71 6	61 2
Land Suitable for Timber Production	MAcres	381	NA	404	357
EXISTING OLD GROWTH					
Existing Old Growth Retained					
1st Decade (2)	MAcres	27	NA	34	31
5th Decade		21	NA	34	23
WATERSHED					
Sediment	M Cu Yd/Yr				
1st Decade		76	NA	101	67
5th Decade		44	NA	51	55
FISH HABITAT					
Coho Smolt HCI, 5th Decade	M Smolts	858	1,960	1,147	936
WILDLIFE HABITAT					
Spotted Owl Habitat					
Managed Habitat Areas	# of SOHAs	22	NA	39 (3)	29
Habitat Capability	# of Pairs				
1st Decade		53	NA	62	55
5th Decade		37	NA	87	42
Elk Habitat Capability, 5th Decade	HCI (#)	8,020	10,400 (4)	12,840	9,220
Bald Eagle Habitat					
Managed Habitat Sites	# of Sites				
1st Decade		23	NA	23	23
5th Decade		23	NA	23	23
RECREATIONAL USE, 5TH DECADE	MRVDs/Yr				
Rural & Roaded Natural Dispersed		705 7	730 5	1,513 4	730 5
Semiprimitive Motorized		482 0	482 0	482 0	482 0
Semiprimitive Nonmotorized (5)		28 3	122 8	118 0	30 4
Total Dispersed Recreation Use		1,216 0	1,335 3	2,113 4	1,242 9
Developed		1224 0	1,224 0	1,835 9	1224 0

SEE END OF TABLE FOR FOOTNOTES AND ACRONYMS

Table II-1 Cont. Decision Space and Demand Projections for Major Issues Indicators

OUTPUT/EFFECT	Unit of Measure	Current Direction (Alt A)	Demand Projection	Production Potential	Preferred Alternative (E)
SPECIAL INTEREST AREAS					
Amount Recommended	Acres	2,920	NA	7,420	7,100
VISUAL RESOURCES					
Protection of Scenic Viewsheds	% Fully Protected	44%	100% (6)	100%	49%
WILDERNESS					
Amount of Development	Trail Mi	20 5	NA	64 5	27 5
UNDEVELOPED AREAS					
Amount Maintained	MAcres	0	NA	36 (7)	7
RESEARCH NATURAL AREAS					
Potential RNAs Recommended	# Areas	1	NA	3 (8)	3
LOCAL COMMUNITIES, 1ST DECADE					
Employment	M Jobs/Yr	9 4	NA	12 1	9 3
Payments to Counties	MM$/Yr	18	NA	27	18
ECONOMICS					
Net Cash Flow	MM$/Yr				
1st Decade		38	NA	78	38
5th Decade		68	NA	83	61
Noncash Benefits	MM$/Yr				
1st Decade		25	NA	26	25
5th Decade		32	NA	34	33
Present Net Value	MM$	2,100	NA	2,362	2,031

(1) All species, Regional disaggregation of RPA Program
(2) Includes both old-growth stands and old-growth trees
(3) Two more than in Alternative H
(4) Oregon Department of Fish & Wildlife recommendations
(5) This includes wilderness use
(6) Demand for the visual resource is the recommendation of the Visual Management System
(7) Number of acres in an undeveloped condition is higher in Alternative H than in the Recreation Benchmark (the latter had 29,890 acres) This is because more undeveloped acres are now available than were originally analyzed in the AMS
(8) RNAs were not considered in the benchmarks

CF = cubic foot, HCI = habitat capability index, M = thousand, MM = million, NA = not applicable, RVD = Recreation Visitor Day, SOHA = Spotted Owl Habitat Area

Recreation

Future recreational use (including recreation associated with wildlife and fish habitat), which is displayed in the FEIS (Table II-1), was estimated for most types of recreation based on growth rates developed for the Statewide Comprehensive Outdoor Recreation Plan (Oregon Department of Transportation 1978), and the amount and mix of recreational use on the Forest between 1979 and 1981 One exception was that projections for SPNM recreation are based on estimates in the Regional Guide (USDA Forest Service 1984a). In general, growth rates reflect anticipated population growth, changes in the rates that people participate in different types of recreation, and characteristics of different recreational sites These demand estimates were also used to project how well the alternatives responded to issues concerning Special Interest Areas, undeveloped areas, and development in Wildernesses

Visual Resources

Demand for protection for scenery was based on an inventory of environmental aspects of the Forest as well as chacteristics of people who use the Forest and adjacent travel corridors

Research Natural Areas

Demand was not specifically projected for Research Natural Areas. However, it is assumed that demand will continue at current levels or increase as fewer areas are left in an undeveloped state

INFORMATIONAL NEEDS

This section lists informational, inventory and research needs in several program areas that have been identified for the Siuslaw National Forest It recognizes gaps in data or scientific knowledge that it would be desirable to fill prior to preparation of the next Forest Plan The concept used to organize and develop these needs recognizes that biological, physical, and social systems are the foundation for the planning process

This system perspective has been used to develop a comprehensive framework for identifying and organizing information, inventory, and research needs. This framework is intended to encourage integrated research approaches that address interdisciplinary needs rather than traditional functional approaches. The system approach has been used to meet planning needs, and should also help organization of informational needs

Of the many ecosystems found in wildlands, several were identified as having particular current importance in forest planning Old growth and riparian/aquatic ecosystems are examples where more information would be desirable to test planning assumptions as future plans are developed Human visitors to the Forest are an integral part of these ecosysytems, and people's needs and expectations should be considered in forest planning.

Information needed to address these concerns falls into the following six general categories. This list is not intended to be inclusive, and may expand as changing conditions, monitoring, and evaluation indicate additional needs.

Interactions/Processes - This category includes information leading to a better understanding of interactions within and between ecosystems, effects of one resource on others, and physical, biological, social, and political processes that influence these interactions and resources

- Clarify responses of wildlife and fish (especially management indicator species) to patterns of habitat changes caused by management activities and natural succession
- Further assess relationships between high-intensity storms, landslide rates, and channel response
- Improve understanding of interactions between forest composition (and management) and incidence and severity of pathogens and insects, especially those between *Phellinus weirii* (root rot) and resistant and immune species of trees
- Improve knowledge of distribution and habitat requirements of spotted owls and wildlife associated with old-growth forests and conifer/deciduous mix conditions
- Clarify relationships between old-growth characteristics and ecological and visual diversity, associated plant and wildlife species, and maintenance of natural gene pools
- Determine effects of vertebrate species on other ecosystem components (e g., effects of bears on plantations)
- Identify more precisely the ecological conditions required for growth of unwanted trees and brush to provide basic information for prevention and effective control of these species
- Clarify effects of landscape patterns of timber harvest and road construction on plant and animal diversity (including management indicator species) and stability of special habitat areas such as SOHAs
- Improve total tree biomass information that is needed to evaluate harvesting practices.
- Further evaluate bald eagle use of forage areas near recreation areas.
- Determine minimum flow levels needed in major streams to support fish populations and recreational activities

Long-Term Productivity - This section includes studies leading to better understanding of ecosystem needs in order to maintain various aspects of long-term productivity

- Determine amounts of instream large woody debris needed to maintain stream channel stability and productivity of fish habitat
- Further evaluate effects of soil compaction on long-term productivity
- Assess effects of harvest practices and removing biomass on long-term productivity
- Refine knowledge of baseline productivity levels of resources such as timber, wildlife forage, and fish habitat.
- Establish baseline information on nutrient levels and their distribution by major soil groups and forest associations
- Improve understanding of effects of forest fragmentation on ecosystem integrity and function, including viability of vertebrate species
- Determine more precisely the effects of burning on soils and long-term site productivity

Cumulative Effects - This section includes studies to examine cumulative effects of naturally occurring and human-induced activities on various aspects of selected ecosystems and resources

- Update the procedure to evaluate impacts of sedimentation on anadromous fish populations.
- Improve knowledge of cumulative effects of timber management activities on water quality, stream stability, wildlife habitat, and other resources
- Develop criteria to predict when recreational user patterns change as a result of intensive forestry practices

Management Strategies and Techniques - Studies are identified that are needed to improve understanding of resource responses to prescribed management actions, to develop or improve inventories and monitoring techniques, and to enhance resource protection Information is also needed to evaluate effects of certain management strategies for a variety of resources.

- Further evaluate effects of planting genetically-selected stock on stand growth and yield, pathogen and insect population dynamics, and nutritional quality of forage for wildlife.
- Assess effects of stream enhancement and rehabilitation projects on fish population dynamics, public perceptions of landscape and recreation quality, and stream hydraulics
- Study changes in air quality of nearby communities that will result from alternative timber management strategies
- Identify specific sites and situations where natural regeneration can be a successful management option.
- Improve efficiency of using fire to manage vegetation and as an alternative to herbicide use
- Evaluate costs and benefits (both monetary and non-monetary) of alternative methods of removing logging residue
- Further assess occurrence, distribution, and abundance of T&E species with no recovery plans.
- Update population estimates of spotted owls and snowy plovers on or near the Forest.
- Clarify responses of elk to spatial distribution of timber harvest units and forage enhancement projects.
- Improve understanding of the effects fertilization has on conifer yields, other tree species, water quality, and soils
- Develop sivicultural techniques for managing Sitka spruce
- Determine ways to manage riparian areas to increase levels of large woody debris in streams
- Refine our understanding of effects of land management activities on T&E species.
- Examine effects of slash burning on visibility and suspended particulates. Predict changes in air quality that will result from alternative management strategies

- Further assess alternatives for managing old-growth forests and for maintaining habitat characteristics such as snags and down logs in young, managed forests

- Evaluate alternative methods for managing mature conifer habitat for species associated with this habitat.

- Review the utility of the ecological indicator species concept as a framework for wildlife planning, and investigate alternatives.

- Examine low-yield shore (lodgepole) pine stands near the ocean which were excluded from the timber base because yields could not be predicted. Determine if further study of growth and yield is warranted for ecological or timber purposes

- Clarify what types of campground activities and interpretive services the public wants on the National Forests

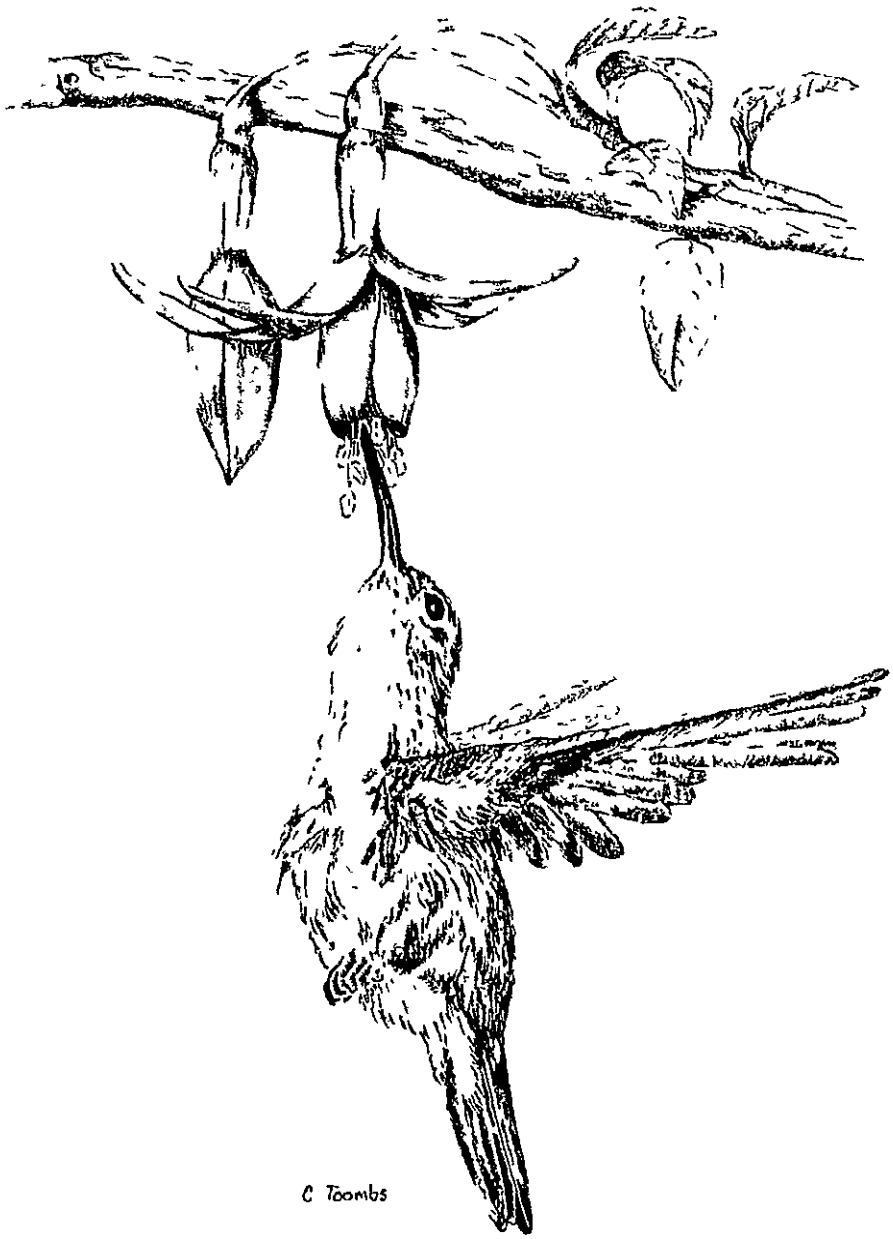
Social-Economic Analyses - Additional studies are needed to increase our understanding of the economic and social effects of many planned wildland activities

- Evaluate social and economic impacts of various alternative harvest plans and aggregate implications of harvest plans for larger areas

- Determine the practical maximum capacity for use of wilderness and other recreational settings

Wildland-Community Relations - The relations and interactions between wildlands and human communities within and around them need to be better understood

- Clarify potential effects of increased human densities in and near the Forest on recreational use, water quality, protection for cultural resources and T&E species, timing and location of timber harvesting operations, and road construction and use, and develop strategies to respond to these effects.


C Toombs

CHAPTER III
Response to Issues

CHAPTER III

RESPONSE TO ISSUES, CONCERNS, AND OPPORTUNITIES

INTRODUCTION

This chapter briefly presents the response of the Forest Plan to planning issues developed in the scoping process An early step in development of this plan was the identification of issues, concerns and opportunities (ICOs) related to management of the Siuslaw National Forest. ICOs were identified through citizen participation, including public meetings, interagency coordination, personal contacts with individuals and groups, and comments to the DEIS and Proposed Forest Plan. FEIS, Appendix A describes the process used to summarize public input into the original ICOs. FEIS, Chapter I describes how the ICOs have been clarified since publication of the DEIS for the Proposed Forest Plan

The Forest identified 25 ICOs which provided the foundation for developing the range of alternatives presented in the FEIS Each alternative responds to the ICOs in a different way, generating a different mix of goods and services from the Forest, how well each alternative resolves the ICOs depends on the benefits gained by various Forest users Complete resolution of all ICOs is not feasible. Because of inter-relationships among Forest resources, a gain to one user may be a loss to another Tradeoffs and compromises are necessary to meet the intent of the Multiple-Use Act of 1960 A discussion of trade-offs that were considered in analyzing all 10 alternatives and in identifying the Preferred Alternative is provided in the FEIS, Chapter II

The Forest Plan is the Preferred Alternative (Alternative E) of the FEIS; it is the alternative the Regional Forester has determined will most benefit the public Compromises were made between major issues to arrive at a mix of resource uses to satisfy the most interests In planning terminology, the Preferred Alternative would maximize long-term net public benefit, which is the value to the nation of all benefits less all associated costs Net public benefit is derived from both quantitative and qualitative criteria rather than from a single measure or index

ISSUES

1. Timber

How much and what kind of timber will be harvested? Where, with what practices, and on what schedule will it be harvested?

The amount of wood that can be offered for sale each year is based upon the amount of land identified as suitable for timber production, the physical and biological capabilities of that land, other resource objectives that must be met when harvesting timber, and the schedule of timber management activities The average annual volume sold on the Forest during the last 10 years (1979-1988) was 338 MMBF (excluding material not chargeable to ASQ); the average annual volume harvested during the same period was 290 MMBF (FEIS, Chap III)

Under the Forest Plan, the area proposed for timber harvest in the next decade will average about 5,200 acres per year, with an estimated average annual volume of 61.2 MMCF (332 MMBF) offered for sale. Hardwood volume makes up 5 2 MMCF/yr (19 MMBF) of the total sale volume The average annual volume harvested is expected to equal the amount offered for sale. The long-term sustained yield capacity (LTSYC) is 72.5 MMCF/yr. If Plan direction were to continue in the future, the allowable sale quantity would reach the LTSYC in 110 years

The average annual harvest in Decade 1 for each Ranger District will be:

Hebo District - 14.6 MMCF (77 MMBF)
Alsea District - 13.6 MMCF (77 MMBF)
Waldport District - 13.6 MMCF (74 MMBF)
Mapleton District - 19 4 MMCF (104 MMBF)

Appendix A lists the timber sales expected to occur during the next ten years. Probable location, timing, and road construction requirements are listed for each sale area, but these may change as site-specific needs are identified.

Timber will be managed on a regulated basis in Management Areas (MAs) 14 and 15 (see MA direction in Chapter IV). Even-age management will be used on all lands suitable for timber production, except where a site-specific silvicultural prescription determines uneven-age management to be more appropriate.

Harvest should generally occur when timber stands reach culmination of mean annual increment, which is about 60 to 80 years on this Forest Of the area managed for timber production, 74% will be managed on 60-80 year rotations, 13% on 90-100 year rotations, and 13% on rotations of 110 years or longer. Approximately 357,000 acres will be available for timber management, of which about 288,700 acres will be managed primarily for wood production, 51,400 acres for wildlife using special silvicultural techniques, and 16,800 acres for both timber and visual quality

Nonchargeable volume will average an estimated 12 MMCF per year This includes submerchantable, salvage, and miscellaneous products Nonchargeable volume may be removed from lands not designated for timber management (outside Management Areas 14 and 15) to meet special needs These needs are described in Chapter IV, Standards and Guidelines

2. Old-Growth Forest

How much of the existing old-growth stands will be maintained?

Of the approximately 33,800 acres of old-growth on the Forest, about 23,300 acres will be maintained for its ecological, wildlife habitat and amenity values Harvest activities in the 1st decade are expected to remove 3,000 of the 10,700 acres of inventoried old growth in the suitable land base. After the first 10 years of plan implementation, 30,800 acres of old growth are expected to remain on the Forest. Table III-1 displays the distribution of old-growth stands by various types of management allocations.

Table III-1. Allocated and Managed Old-Growth Stands, Acres

Allocation	Decade 1	Decade 5
In reserved areas		
Wilderness	2,012	2,012
Cascade Head Scenic-Research Area & Cascade Head Experimental Forest	1,223	1,223
Allocated to Old Growth Management Area	1,000	1,000
Dedicated Old Growth (1)		
Spotted Owl Habitat Areas	13,587	13,587
Other MAs	5,507	5,507
Remaining Old Growth on Suitable Land	7,478	0
TOTAL	**30,807**	**23,329**

(1) Old growth acres allocated to wildlife habitat, (e g, SOHAs, bald eagle sites), vegetation leave areas for watershed protection, visual resource management and other resources

The *old growth acres allocated to the old growth management area are maintained primarily for amenity* value and will be located in areas readily accessible to the public and may be in groves of any size

3. Watersheds

How will land be managed to maintain stable watershed conditions and meet state water quality standards?

The estimated number of landslides associated with management activities is the same as current projections (approximately 79 per year). The projected annual amount of sediment produced (in addition to undisturbed levels) is 67,000 cubic yards in the 1st decade, which is about 5% more than present levels.

Protection is provided for water quality by leaving areas of vegetation on slopes with high risk of landslides and by distributing timber harvests across watersheds to minimize risk of concentrating effects of logging activities within one drainage No more than 15% of municipal watersheds will be harvested in a 10-year period to protect municipal water supplies. In combination with streamside leave areas for riparian protection, the selected measures will be adequate to meet state water quality standards

4. Fish Habitat

What quantity and quality of anadromous fish habitat will be provided?

Management practices to improve anadromous fish habitats began on a large scale in the last 15 years The Forest Plan will continue these practices, which include: 1) streamside buffers to maintain water temperatures and provide a source of large woody debris, 2) management of riparian vegetation to increase the conifer component, 3) improved road building techniques, and 4) site-specific structural improvement projects Practices selected to protect water quality also provide protection of riparian areas and fish habitat.

On lands managed for timber production, streamside buffers will be left along all perennial streams to provide shade and large woody debris, the latter an important source of channel structure. On average, buffers will be within 100' of Class I and II streams and within 60' of Class III streams, and will protect about 75% of riparian areas within timber management areas

A high level of capital investment is proposed for structural improvements About $400,000 per year will be spent on from 5 to 10 miles of anadromous fish streams to enhance opportunities for spawning and rearing This will affect less than 1% of the total miles of anadromous streams per year, and therefore has a limited effect on habitat quality Forest-wide.

Although the proposed practices will help to improve local condition of fish habitat, the effects will not be readily apparent Forest-wide during the next 50 years Past harvesting practices, which included logging of riparian areas, and the resultant scarcity of large woody debris will continue to adversely affect habitat quality for at least 50 years. After the next 50 years, projected habitat levels will be about 8% lower than at present, as measured by the Coho Smolt Habitat Capability Index (CSHCI), representing fish populations and habitat conditions. Planned rates of timber harvests on upland areas will not be low enough to allow rapid recovery

5. Wildlife, and Threatened and Endangered Species Habitat

How much habitat will be provided for wildlife and threatened and endangered species, and what and where will these habitats be managed?

Spotted Owl Habitat

In the next decade, the Forest will provide 29 Spotted Owl Habitat Areas (SOHAs) Habitat for an additional eight pairs of owls is located in reserved areas such as Wildernesses and Cascade Head Scenic-Research Area. Three of the reserved sites and 20 of the SOHAs have had verified pairs of owls during the past five years. The SOHAs average 2,000 acres in size Land within this 2,000-acre nesting and feeding area is designated as not suitable for timber production Standards and Guidelines for Management Area 3, Chapter IV, describe management of SOHAs in further detail

Bald Eagle Habitat

The Forest will provide 23 bald eagle sites of 125 acres each, comprizing a total of 2,875 acres. Habitat in these sites is designated unsuitable for timber management In addition, other activities that may disturb nesting and roosting will be controlled around the sites

Oregon Silverspot Butterfly

The Forest will maintain about 400 acres of prime meadow habitat in order to aid recovery of the Oregon silverspot butterfly, a federally-listed threatened species The habitat will be maintained within a larger, mostly forested management area (MA 1 of about 1,900 acres) The management area is established to protect federally-designated critical habitat at one site and three other butterfly habitats on the Forest

Elk Habitat

Elk habitat will be managed through integrated management with timber, nongame wildlife, and other resources Projected habitat capability at the end of the 1st decade is for 10,170 elk. Timber harvesting will be distributed and meadows created to provide forage sufficient to minimize significant fluctuations in populations Permanent meadows will be created on about 200 acres during the next 10 years.

Mature Conifer Habitat (Pileated Woodpecker and Marten)

Habitat for species dependent on mature conifer will be managed through long rotation management of timber. Mature conifer stands become suitable for primary cavity excavators at about age 80. The suitable habitat will be maintained until at least age 100 Stands will be harvested when suitable replacement stands have been located

Two indicator species, pileated woodpecker and marten, are used to identify the amount and distribution of habitat needs. A total of 162 mature conifer sites will be available, of which 75 are on lands that are not suitable for timber production, (e g , Congressionally designated lands and lands allocated to other uses). Within land managed for timber production, pileated woodpecker habitat will be provided on 22 sites of 500 acres per site; marten habitat will be provided on 65 sites of 250 acres per site The woodpecker sites also serve as additional marten habitat

Dead and Defective Tree Habitat

All forested subbasins will be managed to provide habitat capable of sustaining at least 40% of the maximum biological potential of cavity-nesting birds Projected Forest-wide capability for the 1st decade is 68% of the biological potential

Deciduous-Mix Habitat

No specific management of deciduous-mix habitat is planned Habitat is expected to be available in sufficient amounts to meet needs of the guild of species that use the habitat After 10 years, about 56,000 acres of upland deciduous mix will be available. If no further changes in management occur, there will be about 28,000 acres of upland deciduous mix after 50 years, or at least 5% of the Forest in this vegetative type Additional acres of deciduous mix will be available within riparian areas.

Other Habitats

Riparian habitat will be available to wildlife in all riparian areas (about 76,000 acres) for the next 50 years, despite some harvest activity in the outer 40 feet of riparian areas along Class III streams Harvested areas are expected to provide dense, brushy riparian conditions within a few years after cutting Most forested riparian areas will be predominantly hardwood until the 5th decade, when some conifer will replace hardwoods.

Grass-forb habitat will be available on about 81,000 acres during the next 10 years, which is nearly the same as existing amounts After 50 years, the habitat will increase slightly to about 86,000 acres

Special Habitats

All special wildlife habitats, such as meadows, marshes, wetlands, and talus outcrops, will be protected from adverse modification as outlined in Forest-wide standards and guidelines. Standards and guidelines

in Chapter IV describe in detail the amount, location, and types of management activities necessary to meet wildlife habitat goals for this Plan.

6. Recreation

What diversity of recreational opportunities will be provided?

Only four of the six categories of recreational opportunities exist on this Forest. They are: semiprimitive nonmotorized (SPNM), semiprimitive motorized (SPM), roaded natural (RN), and rural (R).

SPNM recreation will continue to be provided in the three Wildernesses, two areas in the Oregon Dunes National Recreation Area (NRA), and the Wassen Creek and the Drift Creek Adjacent undeveloped areas. The Plan provides this opportunity on about 34,200 acres (5% of the Forest), which is expected to meet demand until about the year 2000.

SPM recreation is available on only one area of the Forest -- the gentle open sand in the Oregon Dunes NRA where off-road vehicle use is permitted. This area provides approximately 10,300 acres of SPM recreational opportunity, which is expected to satisfy demand until about the year 2015.

RN recreational opportunities are found in the Oregon Dunes NRA, the Cascade Head Scenic-Research Area, the Sand Lake Recreation Area, and the Sutton Recreation Area. These areas total about 15,600 acres. RN recreational opportunities are also available in the Cape Perpetua, Marys Peak, Mt. Hebo, and Kentucky Falls Special Interest Areas, for an additional 7,100 acres Other areas on the Forest, such as Spotted Owl Habitat Areas and scenic viewsheds, also provide this type of recreational opportunity, bringing the total to approximately 52,400 acres (8% of the Forest). There are enough opportunities to satisfy overall total projected demand, although demand specific to each individual area may not be met

R (Rural) opportunities are found across the majority of the Forest, on about 534,400 acres. Supply far exceeds demand.

7. Special Interest Areas

How much of the Forest should be managed as Special Interest Areas (SIAs)?

In addition to the existing SIAs at Cape Perpetua and Marys Peak, the Forest Plan recommends adding two more areas and expanding the Cape Perpetua area The sizes of the SIAs are:

Cape Perpetua Scenic Area	2,780 acres
Marys Peak Scenic-Botanical Area	924 acres
Mt. Hebo Scenic-Biological Area	1,684 acres
Kentucky Falls Scenic Area	1,680 acres

8. Recreation Areas at Sutton and Sand Lake

What mix of recreational opportunities will be provided in the Sutton and Sand Lake areas and will it be compatible with wildlife and plant habitat?

The 2,700-acre Sutton area (MA 9) will provide a wide diversity of recreational opportunities, including off-road vehicle use on about 215 acres Potential damage to sensitive plant and animal species will be minimized by prohibiting use in the habitats of these species.

The existing direction for management of the 990-acre Sand Lake (MA 8) will continue. This area also provides a wide diversity of recreational opportunities, including off-road vehicle use.

9. Visual Quality

Which areas of the Forest will be managed to maintain or enhance visual quality?

The Forest will manage approximately 51,200 acres of viewsheds for scenic protection Landscapes seen from Highway 101 and the major travel routes that cross the Forest are managed to provide retention of natural scenery in the foreground and partial retention in the middleground The levels of protection given to the total acres of viewsheds managed for scenic protection are

24,200 acres of viewsheds with a foreground of retention and middleground of partial retention
6,250 acres with a foreground of partial retention and middleground of partial retention
20,700 acres with a foreground of partial retention and middleground of modification.

Most (66%) of the viewshed acres that will be managed for scenic protection occur in Management Area 14. Standards and guidelines for viewshed management are described in Chapter IV, Management Area 14 The remaining (34%) viewshed acres that will receive scenic protection occur in several other management areas, including MA 15 (timber/wildlife/fish)

10. Wilderness

How will the three Wildernesses on the Forest be managed?

Management plans for the three Wildernesses will be prepared within 2 years of Forest Plan implementation Until then, interim guidelines will be used to manage the Wildernesses, these guidelines are in the planning process records

In order to increase accessibility, and the subsequent capacity of the Wildernesses to provide visitor opportunities, some new trails will be constructed in the 1st decade About 9 miles of trail will be added to Cummins Creek Wilderness, and about 7 miles of trail will be added to Drift Creek Wilderness No trail construction is anticipated in Rock Creek Wilderness.

11. Undeveloped Areas

Which areas of the Forest will be managed as undeveloped areas?

In addition to the four undeveloped portions of the Oregon Dunes National Recreation Area (Tenmile, Threemile Lake, Woahink, and Umpqua Spit), two other areas will be managed for undeveloped recreation opportunities They are Wassen Creek (4,700 acres) and one area adjacent to the Drift Creek Wilderness (2,600 acres)

12. Research Opportunities

Which areas on the Forest will be reserved for Research Natural Areas, and how will management direction for the Cascade Head Experimental Forest be included in the Forest Plan?

In addition to two existing Research Natural Areas (RNAs) - Flynn Creek (in MA 13) and Neskowin Crest (in MA 6) - the Forest will recommend establishment of three new RNAs: Reneke Creek (in MA 13), Sand Lake (in MA 13), and Cummins/Gwynn Creek (in MAs 5 and 12).

Two potential RNAs on the Oregon Dunes NRA (Threemile and Tenmile) will be managed to maintain their potential research values, but determination of whether or not to recommend them for RNA establishment will be made during revision of the Oregon Dunes Management Plan. The Dunes Plan revision is scheduled to occur within 3 years of Forest Plan implementation.

Current management direction for the Cascade Head Experimental Forest (MA 7) has been incorporated by reference in the Forest Plan.

13. Minerals and Energy

How much and where will mineral resources be developed, and what management direction is needed for leasing and development of energy minerals?

No significant amount of oil and gas exploration has taken place recently, and none is foreseen in the immediate future. The Forest will make about 467,000 acres available for exploration and development with few restrictions; about 64,700 acres are withdrawn from exploration

Common minerals (rock and gravel) are available at 22 quarries on the Forest, and the material may be made available to off-Forest uses if available quantities exceed that needed for Forest projects. Direction for management of mineral resources is in Chapter IV, "Forestwide Standards and Guidelines."

14. Local Communities

How will the management of Forest resources affect local communities?

During the first 10 years of Plan implementation, Forest outputs, payments to counties, and expenditures will generate an estimated 9,345 jobs/year in the eight counties where the Forest is located, not accounting for changes in labor productivity. This is 20% more than has been supported in the last 10 years. The projected increase in jobs is due to: 1) timber harvest levels expected to be 15% higher than the average harvest level of 290 MMBF, between 1979 and 1988, and 2) higher revenues expected from the timber sale level

During the 1st decade, an average of $17 5 million/year (in 1982 dollars) should be distributed to the eight counties for school and road programs from the sale of National Forest timber This is 50% more than the average of $11.7 million/year that was paid between fiscal years 1984 and 1988 (in 1982 dollars). Payments are expected to increase primarily because more timber volume is expected to be harvested and the average price paid for timber is expected to be higher

15. Economic Value

What economic value will Forest resources generate in the future?

During the 1st decade of Plan implementation, receipts from Forest outputs are expected to average $70 million/year, and the cost of operating the Forest is expected to average $31 8 million/year If the Plan were to continue to be implemented for 150 years, the present net value (PNV) of Forest outputs would be $2 billion PNV includes the value of all priced outputs minus all management costs for 150 years, discounted to the present at 4% (Note: all costs and benefits have been adjusted for inflation to 1982 dollars)

16. Mapleton Court Decision

How will the Forest comply with the U.S. District Court Decision concerning the Mapleton Ranger District?

The Mapleton Ranger District was enjoined from proceeding with timber sales in April 1984 until completion of the Forest Plan The planning process was to address cumulative effects of logging activities on Mapleton and provide an evaluation of incomplete and unavailable information

In complying with the intent of the court's judgment, the FEIS includes an analysis of the issues raised in the lawsuit and contained in the final opinion The environmental effects specific to the Mapleton District of implementing the Forest Plan (preferred alternative) and nine other alternatives are included in Appendix E, FEIS The FEIS and Forest Plan will be reviewed by the U S District Court to determine compliance with the court decision

17. Cultural Resources

What standards will be used to guide management of cultural resources?

The Forest is mandated by federal laws and regulations to protect significant cultural and historical resources for future generations Standards and guidelines were developed to ensure that proposed projects will not inadvertently harm or destroy important cultural resources (Chapter IV, "Forestwide Standards and Guidelines")

Standards and guidelines specify procedures for complying with all mandates of federal law, acts, executive orders and federal regulations Cultural resource inventories will be conducted for proposed ground-disturbing activities. Sites will be evaluated for their potential to be nominated to the National Register of Historic Places Eligible sites will be nominated to the Register and management plans prepared to ensure their protection Ineligible sites will be evaluated for their potential research or interpretive values Interpretive plans will be prepared for sites selected for public use.

18. Congressionally Established Areas

How will the management direction for congressionally designated areas other than Wilderness (Oregon Dunes National Recreation Area and Cascade Head Scenic-Research Area) be included in the Forest Plan?

Management direction in the current plans for the Oregon Dunes National Recreation Area and Cascade Head Scenic-Research Area will be incorporated without change into the Forest Plan A summary of

the management direction can be found in Chapter IV, Standards and Guidelines for Management Areas 10 and 6, respectively.

New issues concerning management of the Oregon Dunes NRA, such as the public concern over the amount of land open and closed to off-road vehicles , will be evaluated during the revision of the Oregon Dunes NRA Management Plan, scheduled to occur within 3 years of Forest Plan implementation

19. Land Ownership Adjustment

What land ownership adjustments will be made to support resource management goals?

A land ownership adjustment plan for the Forest was developed in 1967, and updated in 1978 and 1979, to establish guidance for land exchanges, land purchases, land donations and land transfers with other Federal agencies. The most recent adjustment plan is incorporated as Appendix C. Standards and guidelines for management of the land ownership adjustment program are included in Chapter IV

The Forest Plan will not affect the land purchase plan authorized and funded annually by Congress.

20. Corridors, Electronic Sites, and Facilities

What areas will be suitable for utility corridors, electronic sites, and roads; and how will they be designed, developed and maintained?

The existing utility corridors and electronic sites will be maintained (A map of the existing utility *corridors is included in the FEIS, Chapter III) Proposals for future utility lines will be analyzed by an* interagency group after consideration of the existing corridors.

Road construction and reconstruction will be planned to ensure cost effectiveness Roads will be designed and maintained to the minimum standard required for safety of users, for the intended uses, and to meet all the resource objectives for the area Road management needs will be reviewed annually by Forest road managers and updated as needed to meet Forest Plan objectives Management direction for roads is described in Chapter IV, Standards and Guidelines.

21. American Indian Religious Freedom

How will Native American Indian religious freedom be assured on National Forest land?

This Plan will ensure that the setting and location of sites once important for religious purposes are protected from disturbance and are available for use Forest personnel will continue to cooperate with the Tribes in identifying and maintaining traditional uses of the Forest.

22. Soil Productivity

How will soil productivity be maintained?

Federal regulations based on the National Forest Management Act of 1976 require Forests to conserve soil and water resources and prevent significant or permanent impairment of the productivity of the land. Specific prevention and mitigation measures were developed to maintain soil productivity The measures include limitations on the amount of disturbed acres in a project, e g , slash burning, erosion

and compaction, and the use of vegetation leave areas to reduce erosion (See Chapter IV "Forest-wide Standards and Guidelines")

23. Herbicide Use

How will herbicides be used?

The Forest Plan is tiered to the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation (USDA Forest Service 1988b) and the Forest will comply with the Record of Decision issued by the Regional Forester The decision provides for the use of all vegetation management techniques, including herbicides, but allows for the use of herbicide only when other methods are ineffective or will increase project costs unreasonably. Emphasis will be given to prevention and early treatment of unwanted vegetation, as well as, full and ongoing public participation to assist with all aspects of project planning and implementation.

24. Wild and Scenic Rivers

What rivers are eligible for Wild and Scenic River classification and how will these areas be managed?

Results of eligibility studies conducted on nine rivers indicated that segments of seven rivers are eligible as potential "Wild", "Scenic" and/or "Recreation" rivers These are: Nestucca River, Alsea River, Siuslaw River, Drift Creek (Siletz), North Fork of the Smith River, Wassen Creek, and Umpqua River, totalling 115 miles Two rivers, the Little Nestucca River and Three Rivers, were found to be ineligible

Four additional rivers that were suggested by the public for study were not evaluated because they have less than 20% frontage along Forest land

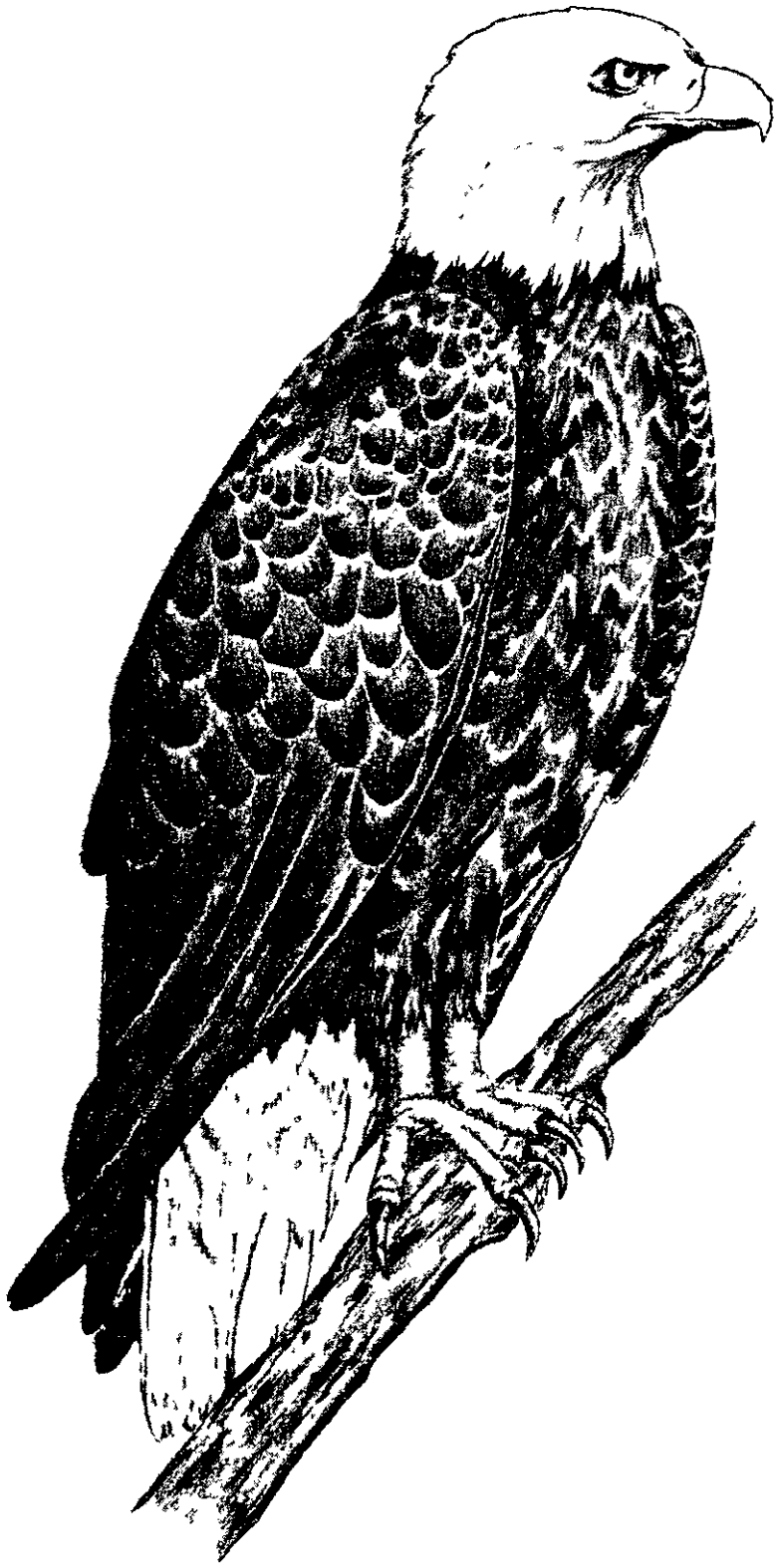
Forest lands adjacent to the seven eligible rivers will be managed to protect the eligibility of the rivers Suitability determinations, which must be made for all eligible rivers, will be conducted during Plan implementation. The Forest will recommend that the two ineligible rivers be removed from the National Park Service's Nationwide Rivers Inventory.

25. Developed Recreation

How many developed recreational opportunities will be provided and how will they be managed?

The Forest will maintain the existing 88 developed recreation sites at a full-service level, while complementing local government efforts to promote tourism along the Oregon coast The developed sites include campgrounds, picnic grounds, observation sites and a visitor center with a combined capacity of 9,660 people at one time. The quality of key coastal recreation sites will be enhanced through the addition of more convenience facilities and improved visitor information services New day use facilities, with an additional capacity of 250 people at one time, are planned for locations primarily along the coast to meet the projected demand.

CHAPTER IV
Standards and Guidelines



CHAPTER IV

FOREST MANAGEMENT DIRECTION

INTRODUCTION

This chapter presents the management goals, objectives, standards and guidelines (S&Gs), and Management-Area (MA) prescriptions that constitute the direction for land and resource management on the Siuslaw National Forest. It includes desired future conditions of the Forest, summaries of various resource programs, Forest-wide S&Gs and S&Gs for MAs, and the Forest Plan map. The Forest Plan map displays the location of each MA, and can be found in the map folder accompanying this document.

FOREST MANAGEMENT GOALS

The Forest will be managed to achieve the following long-term goals These goals are statements describing a desired condition to be achieved some time in the future, and reflect the ICOs listed in Chapter III, as well as applicable laws and regulations Although the goals are expressed in general terms, management objectives and additional direction in subsequent sections are aimed at achieving these goals

1. Timber

Produce wood fiber to satisfy national needs and benefit local economies, while being consistent with multiple resource objectives, environmental concerns, and economic efficiency

2. Old-Growth Forest

Provide relatively large stands of existing stands of old growth in conjunction with areas managed for fish, wildlife, recreational experiences, watershed values, and research Maintain another 1,000 acres of exisiting old growth in smaller groves for viewing, aesthetics, and education Allow other forest stands to naturally develop ecological old-growth characteristics.

3. Watersheds

Provide water quality that meets or exceeds state and federal standards Manage municipal watersheds to provide water which can be treated to be a safe and satisfactory supply

4. Fish Habitat

Protect riparian areas, enhance aquatic habitats, and otherwise provide high quality environments for native and anadromous fish.

5. Wildlife and Threatened and Endangered Species Habitat

Provide diverse habitats that will support viable populations of all native and desirable introduced wildlife. Maintain and, where appropriate, improve habitat to support more big game Provide habitat needed to aid recovery of Threatened and Endangered species in accordance with approved plans.

6. Recreation

Offer a variety of recreational opportunities in both undeveloped and developed forest environments by providing access, facilities, and visitor information appropriate for the recreation setting and necessary to meet a variety of public demands.

Fully implement the National Recreation Strategy through the development of partnerships with other local government agencies, and private groups Support local economic development strategies that focus on increased recreation and tourism.

7. Special Interest Areas

Manage these areas to enhance their unusual scenic, historical, research, and other special values

8. Recreation Areas--Sutton and Sand Lake

Provide a variety of recreational opportunities, including horse-back riding, camping, picnicking, hiking, and off-road vehicle use

9. Visual Quality

Provide an attractive forest setting, emphasizing the natural appearance of areas seen from major roads and recreation sites

10. Wilderness

Preserve the values and character of designated Wildernesses. Provide semiprimitive nonmotorized (SPNM) recreational opportunities as directed by the management plan for each Wilderness.

11. Undeveloped Areas

Maintain an undeveloped condition which provides SPNM recreational opportunities.

12. Research Opportunities

Provide units of land in which ecosystems are preserved for the study of natural systems and processes and in which gene pools are preserved

13. Minerals and Energy

Allow exploration, development, and production of a variety of energy resources and minerals on the Forest, considering other resource objectives, environmental effects, and mineral leasing and mining laws

14. Local Communities

Be understanding of, and sensitive to, the role that management of Forest resources plays in economies and lifestyles of local communities. Produce resource outputs to help support economic structures of local communities and counties.

15. Economic Value

Manage the Forest in an economically efficient manner.

16. Management of the Mapleton District

Because of public concern about particularly unstable, landslide-prone land on the Mapleton District (as described in the 1984 Court Decision), ensure that site-specific environmental analyses are correlated to appropriate sections in the Forest Plan and FEIS, recognizing unique and significant environmental issues of each proposal

17. Cultural Resources

Survey National Forest System (NFS) lands for cultural resources Inventory and evaluate sites, and identify those that have research or interpretive potential

18. Congressionally Established Areas

Follow direction from existing plans for these areas, while also using the plans to respond to current and future issues as they arise.

19. Other Lands

Coordinate with adjacent landowners, being responsive to their goals, and exchange land when it is in the public interest

20. Corridors, Electronic Sites, and Facilities

Process applications for special use and development of corridors and electronics sites that are consistent with environmental concerns and objectives of various MAs.

21. Transportation System

Plan, construct, and manage a safe and economical transportation system Provide efficient access for moving people and materials involved in the use and protection of NFS lands

22. American Indian Religious Freedom

Protect and preserve the inherent right and freedom of American Indians to believe, express, and exercise their traditions on federal lands, including but not limited to, access to religious sites and resources, and freedom to worship through ceremonials and traditional rites

23. Soil Productivity

Avoid irreversible damage to soil productivity from erosion, compaction, displacement, and heating

24. Herbicide Use

When controlling competing vegetation, use herbicide only when other methods are ineffective or will increase project costs unreasonably

25. Wild and Scenic Rivers

Manage the outstanding values of adjacent lands and resources to protect options for formal designation of potential wild, scenic, and recreational rivers on the Forest.

26. Developed Recreation

Provide high-quality outdoor recreational opportunities within a forest environment that can be modified for visitor use and satisfaction and to accommodate large numbers of visitors.

27. Protection

Use integrated pest management for the protection of vegetative resources. Control wildfires and use controlled burning programs that are cost efficient and responsive to MA goals, as well as state and federal smoke management regulations

28. Human Relationships

Provide all persons equal opportunity regardless of race, color, creed, sex, marital status, age, handicap, religion, or national origin Communicate openly with the public, other agencies and local governments.

DESIRED FUTURE CONDITION OF THE FOREST

This section describes what the Forest should be like 10 and 50 years (RPA planning horizon) after the Forest Plan is implemented It summarizes the anticipated physical and biological changes which would result from planned practices

The Forest in 10 Years

At the end of the 1st decade, there will be little discernible change in the general appearance of the Forest, although there will be some subtle and significant changes. The following describes the Forest as a whole. A closer view of more local conditions is given with each MA

Timber harvest levels will be similar to those from 1979 to 1988. Clearcuts of 10 to 60 acres will be interspersed with lands left intact to meet other resource objectives Conifers will be harvested and replanted where timber production is the goal. In some areas, a mix of conifer and deciduous trees will be planted to provide wildlife habitat. Some trees will be harvested in riparian areas along Class-III streams, but most vegetation along perennial streams will be left intact Trees will be a variety of ages to meet wildlife habitat requirements Vegetation will be left on unstable slopes and headwalls to minimize the chance of landslides

Approximately 280 miles of new roads will have been constructed to aid management, primarily timber harvesting. About 70 miles of new trails will have been constructed in Wildernesses and elsewhere

Habitat areas for wildlife will provide vegetation needed to sustain viable populations. Most of the old growth in existence at the start of planning period will remain Old growth will be concentrated in SOHAs and reserved areas such as Wildernesses and Cascade Head Scenic-Research Area Other old-growth stands and older trees will be scattered through much of the Forest - primarily in MAs 2, 14, and 15.

Nesting sites for bald eagles will be provided in 125-acre stands with older forest conditions which are generally not readily discernible from surrounding areas Habitat conditions for several species, such as snowy plover and Oregon silverspot butterfly, will have increased slightly. Less habitat will be available for species dependent on mature conifer and hardwood conditions, but more than enough of these habitats will be available to sustain viable populations.

Elk populations will be greater Their habitat will be enhanced through more even distribution of clearcuts, new meadows, and clearcuts seeded with forage

Dead, defective, and other trees will be left standing in clearcuts as habitat for cavity excavators.

Levels of fish habitat will have declined slightly during the last 10 years The declines will not be concentrated in any one watershed. Any runs of anadromous fish existing below carrying capacity of the habitat at the start of the planning period could have been maintained or increased if spawning runs more fully seeded the habitat

Wassen and Drift Creek undeveloped areas will be providing opportunities for SPNM recreation Use of these areas and the three Wildernesses will be close to capacity

The Oregon Dunes National Recreation Area (NRA) and Cascade Head Scenic-Research Area will remain as provided by law The management policies for both areas, including off-road vehicle use in the Oregon Dunes NRA plan, will have undergone review

Cummins and Drift Creek Wildernesses will have additional trails to facilitate access and visitor use The Rock Creek Wilderness will not have any trails.

Five Research Natural Areas will be available for scientific use, including three established during plan implementation. Conditions for Wild and Scenic River eligibility will have been maintained and, if Congress has designated any of the Forest's rivers, they will be managed according to that designation.

Soils will remain productive except where facilities have been constructed Erosion, compaction, nutrient loss, and displacement will be minimal Water quality will remain high.

Principal access roads will appear suitable for passenger car use, with readily identifiable, paved or gravel surfaces Signs will assist travelers in finding their destinations Other less inviting roads will appear rough or primitive, but most will be available for use by more experienced travelers Some are closed

In summary, the outward appearance of the Forest will have changed only slightly despite significant changes in management direction and practices Over time these changes in practices will become more visible and enhance many multiple-use opportunities, as compared to the direction contained in plans replaced by this Forest Plan

The Forest in 50 Years

If Plan direction is continued unchanged, 50 years from now a visitor will readily notice changes from today's condition Much of the land suitable for timber production (about 60% of the Forest) will appear to be intensively managed. Stands will be of different ages; trees of the same size will be evenly spaced within stands; the forest floor will be relatively free from fallen trees, and some large dead trees (snags) will be present Most timber stands in intensively managed areas will be 0 to 90 years old, the amount of recent clearcut land will be slightly more evident than it was 10 years into Plan implementation, and many more of the older plantations will have been thinned.

There will appear to be a mosaic of even-age stands in MAs 14 and 15 This pattern will be disrupted often; in some places it will be barely perceptible, in other places it will be quite noticeable. These disruptions will include widely scattered 1250-acre and 2500-acre blocks of mature conifer which are being harvested on an average 100-year rotation; scattered patches of soil leave areas; and interconnecting bands of mature timber following perennial stream courses and major highways

Approximately two-thirds of the known stands of old-growth present when this Plan was first implemented will be still standing, barring some natural catastrophe. Many of the mature stands on lands unsuitable for timber production at the beginning of the Plan period will be nearing or have reached old-growth conditions

Most of the riparian area will appear undisturbed and in a natural condition. Meeting visual quality objectives will help give the commonly viewed parts of the Forest a more natural appearance

Most, if not all, of the principal road system (with improved or paved surfaces) will be built prior to the year 2000, although some reconstruction activities will be taking place. Other roads will be closed or available for use by experienced forest travelers with high clearance vehicles The planned trail system will have been completed, including those in the Wildernesses

Habitat will be available to maintain viable populations of all wildlife species indigenous to the Forest. Habitat conditions will have improved significantly for certain featured species such as the spotted owl, silverspot butterfly, and bald eagle. Habitat for other wildlife will be approaching conditions necessary to support desired populations. Elk populations will have reached equilibrium with their habitat

Demand for SPNM and semiprimitive motorized recreation will exceed supply Planned recreational facilities in Special Interest Areas, developed sites, and the Oregon Dunes NRA will have been built.

Available habitat for anadromous fish will be still responding to mid-20th-century removals of large woody debris from some stream systems and levels will have declined slightly Forest-wide from the 1st decade. Many riparian areas, disturbed in the mid-20th century, will be nearing recovery and will soon be contributing large woody debris to their stream systems Any fish runs existing below carrying capacity at the end of the 20th century could have been maintained or increased, depending on favorable climatic conditions and ocean fishing regulations allowing spawning stock returns

Water quality will be good and soil productivity will remain high As road construction declines, so will erosion The threat of landslides resulting from vegetation removal will be reduced by more sophisticated identification of potential trouble areas.

In summary, condition of land managed for timber production will have taken on a tree-farm appearance while areas managed for other resources will have retained their natural appearance. Lands managed for wildlife will be noticeable but not obvious. Lands managed either as older forest or for resources other than timber will be much easier to distinguish, as the trees in these areas age and contrast more with younger, surrounding areas

FOREST MANAGEMENT OBJECTIVES

Table IV-1 displays projected resource outputs, activities, and costs that are expected with full implementation of this Forest Plan. Although this is a 10-year Plan, outputs are listed by decade for the next 50 years to illustrate trends that would result from continuation of management initiated in the first period These outputs are annual averages expected for each 10-year period, and accomplishments in a particular year may be above or below the average.

The output schedules are not promises, but best estimates based on available inventory data and assumptions, subject to the annual budget For example, the ASQ in the Final Plan is the maximum amount of chargeable timber volume which may be cut in a year, subject to the broad discretion of the Forest Service to sell timber as part of the multiple-use concept The Plan is subject to change through amendment and revision

Table IV-1. Projected Average Annual Resource Outputs, Activities, and Costs

OUTPUT, ACTIVITY OR COST	NAS Code	UNIT	1st Decade(1)	2nd Decade(1)	3rd Decade(1)	4th Decade(1)	5th Decade(1)
Developed Recreation Use	AN122	MRVDs	817 2	904 1	1000 3	1106 4	1224 1
Dispersed Recreation Use (Nonwilderness)	AN122						
Roaded Natural and Rural		MRVDs	577 9	622 0	664 2	696 9	730 5
Semiprimitive Motorized		MRVDs	415 7	450 6	479 7	482 0	482 0
Semiprimitive Nonmotorized		MRVDs	22 7	30 4	30 4	30 4	30 4
Wilderness Use	AW1	MRVDs	12 8	18 7	18 7	18 7	18 7
Trail Construction/ Reconstruction	AT22	Miles	7 1	3 9	1 7	1 8	1 2
Developed Site Construction/ Reconstruction	AN22	PAOTs(2)	25 0	77 5	90 0	102 5	142 5
Developed Recreation Capacity		PAOT days	7275	17463	17975	21613	28163
Forest-Wide Visual Quality Objectives	AV						
Preservation		Acres	53,314	53,314	53,314	53,314	53,314
Retention		Acres	18,784	18,784	18,784	18,784	18,784
Partial Retention	Acres		39,231	39,231	39,231	39,231	39,231
Modification		Acres	41,808	41,808	41,808	41,808	41,808
Maximum Modification		Acres	478,224	478,224	478,224	478,224	478,224
Viewshed Visual Quality Objectives (Preservation, Retention, and Partial Retention)	AV	Acres	39,402	39,402	39,402	39,402	39,402

SEE END OF TABLE FOR FOOTNOTES AND ACRONYMS

Table IV-1 Cont. Projected Average Annual Resource Outputs, Activities, and Costs

OUTPUT, ACTIVITY OR COST	NAS Code	UNIT	1st Decade(1)	2nd Decade(1)	3rd Decade(1)	4th Decade(1)	5th Decade(1)
Management Indicator Species	CW1						
Bald Eagle		HCI	23	23	23	23	23
Spotted Owls							
Number of Owls		Pairs	55	49	47	43	42
Habitat Areas		Number	29	29	29	29	29
Pileated Woodpecker		HCI	460	403	336	269	200
Elk		HCI	10,170	10,150	9,860	9,470	9,220
Marten		HCI	246	225	218	211	203
Dead and Defective Trees		% Bio Potential	68	62	58	54	50
Old-Growth Stands Maintained		Acres	30,800	24,300	23,400	23,300	23,300
Wildlife Habitat Improvements	CW222	Acres/ Struct	1,976 1,450	1,650 1,210	1,660 1,220	1,670 1,230	1,680 1,230
Wildlife Recreation Use	CW1	M WFUDs	161 5	171.7	176 7	181 7	185 3
Fish Use	CA	M WFUDs	36 3	34 7	34 8	33 8	34 6
Anadromous Fish (Commercial Harvest)	CA	M Pounds	237	226	227	220	226
Coho Smolt Habitat Capability	CA	M Smolts	982	938	942	913	936
Fish Habitat Improvement	CA221	Structures	650	650	650	650	650
Range (Permitted Grazing)	DN122	M AUMs	2	2	2	2	2
Area Available for Specific Resource Uses							
Timber Production		Acres	357,203	357,203	357,203	357,203	357,203
Grazing		Acres	467,271	467,271	467,271	467,271	467,271
Mineral Exploration		Acres	467,271	467,271	467,271	467,271	467,271
Energy Minerals Produced	GM	Billion BTUs	0	0	0	0	0
Non-Energy Minerals Produced	GM	MM$	0 3	0 2	0 2	0 2	0 2
Process Mineral Operating Plans	GM114	Cases	0	0	0	0	0
Sediment (1,000 Cu Yds)		Index	67 0	66 5	58 4	58 7	55 1
Water Yield		M Acre-Ft	3,800	3,800	3,800	3,800	3,800
Watershed Improvements	FW2	Acres	100	100	100	100	100
Fuel Treatment	PF2	Acres	3,810	3,810	3,810	3,810	3,810

SEE END OF TABLE FOR FOOTNOTES AND ACRONYMS

Table IV-1 Cont. Projected Average Annual Resource Outputs, Activities, and Costs

OUTPUT, ACTIVITY OR COST	NAS CODES	UNIT	1st Decade(1)	2nd Decade(1)	3rd Decade(1)	4th Decade(1)	5th Decade(1)
Road Construction	LT22	Miles	30	7	0	0	0
Road Reconstruction	LT22	Miles	76	105	71	71	71
Total Road System Suitable For							
Public Use Passenger Cars	LT	Miles	800	900	900	900	900
High Clearance Vehicles Only		Miles	1,700	1,600	1,700	1,700	1,700
Bridge Reconstruction	LT225	Bridges	1 0	0 2	0 2	0 2	0 2
Cadastral Survey							
Landline Location	JL24	Miles	50	1	1	0	0
Landline Maintenance	JL23	Miles	5	9	9	8	4
Cultural Resources							
Inventory	AC111	M Acres	7 7	7 7	7 6	8 4	8 3
Interpretation	AC	Miles	1	1	1	1	1
Land Exchange	JL263	Acres	3,000	3,000	3,000	3,000	3,000
Timber Offered	ET114 and ET113						
Allowable Sale Quantity		MMCF	61 2	61 2	61 2	61 2	61 2
Allowable Sale Quantity		MMBF	332				
Timber Sale Program Qty		MMCF	63 6	63 6	63 6	63 6	63 6
Timber Sale Program Qty		MMBF	345				
Allowable Sale Quantity by Species							
Conifer		MMCF	56 0	56 2	58 0	54 9	57 6
Deciduous		MMCF	5 2	5 0	3 2	6 3	3 6
Long-Term Sustained Yield Capacity (3)		MMCF 72 5					
Timber Growth (MMCF/Yr)		MMCF	35 8	44 4	53 5	61 4	64 3
Acreages Proposed for Timber Harvest							
Clearcut		Acres	5,170	5,220	5,140	5,930	5,780
Shelterwood		Acres	0	0	0	0	0
Selection Cut		Acres	0	0	0	0	0
Commercial Thinning		Acres	600	174	329	349	1,348
Lands **Tentatively Suitable** for Timber Production		Acres	537,746	537,746	537,746	537,746	537,746

SEE END OF TABLE FOR FOOTNOTES AND ACRONYMS

Table IV-1 Cont. Projected Average Annual Resource Outputs, Activities, and Costs

OUTPUT, ACTIVITY OR COST	NAS Code	UNIT	1st Decade(1)	2nd Decade(1)	3rd Decade(1)	4th Decade(1)	5th Decade(1)
Land Suitable for Timber Production		Acres	357,203	357,203	357,203	357,203	357,203
Lands With Timber Yield Reductions							
Full Yield		Acres	288,751	288,751	288,751	288,751	288,751
50-99% of Full Yield		Acres	68,452	68,452	68,452	68,452	68,452
1-49% of Full Yield		Acres	0	0	0	0	0
Precommercial Thinning	ET25	Acres	2,300	2,600	2,600	2,600	3,000
Reforestation	ET24	Acres	5,200	5,200	5,100	5,900	5,700
Fertilization	ET25	Acres	2,440	4,250	5,040	5,150	5,200
Total Costs		MM$	31 8	30 2	27 8	28 7	29 2
Total Receipts		MM$	69 9	78 4	90 7	85 2	90 6
Payments to Counties		MM$	17 5	19 6	22 7	21 3	22 7

(1) 1st Decade is the Forest Plan period, 2nd-5th decades includes projections for informational purposes only
(2) Does not include PAOTs resulting from dispersed or support facilities (i e , roads, parking lots)
(3) LTSY capacity will be reached in the 11th decade

AUM = Animal Use Month, BF = board feet, BTU = British Thermal Unit, CF = cubic feet, HCI = habitat capability index, M = thousand, MM = million, NAS = National Activity Structure, PAOT = Person at One Time, RVD = Recreation Visitor Day, WFUD = Wildlife and Fish User Day

RESOURCE SUMMARIES

This section summarizes proposed management of Forest resources and activities needed to produce the outputs displayed in Table IV-1. Narratives are supplemented with tables, graphs, and in some cases, activity schedules The planned activities will become the foundation for developing the Forest's annual budget proposal and program of work (see Chapter V, "Budget Proposals" for more information)

Enough information is included here to fully describe and define resource programs and program levels for the Forest Plan period. More detailed project, activity, and capital investment schedules are included in Final Plan, Appendix B

Management of Timber

Timber Land Suitability

There are approximately 835,000 acres of land within the Forest boundary. Of these, 631,361 acres are National Forest System (NFS) land Table IV-2 categorizes NFS lands as forested or nonforested and suitable or unsuitable for timber production.

Table IV-2. Lands Suitable for Timber Production, Acres

	UNSUITABLE	TOTAL
I. Net Siuslaw National Forest Land		**631,361**
A. Water	4,685	
B Lands Not Forested (e g Dunes)	33,640	
C Lands Developed for Purposes Other Than Timber Production	11,521	
Subtotal of Non-Forested Land	**49,846**	
II. Forested Land		**581,515**
A. Withdrawn From Scheduled Timber Production		
1. Wilderness (MA 12)	21,136	
2 Established Research Natural Areas (MA 13)	688	
3 Others		
Cascade Head Experimental Forest (MA 7)	7,200	
Cascade Head Scenic-Research Area (MA 6)	4,125	
Oregon Dunes National Recreation Area (MA 10)	359	
Subtotal	**33,508**	
B Inadequate Response Information (e g , shore pine)	2,015	
C Irreversible Damage	8,246	
Total Lands Withdrawn	**43,769**	
III. Tentatively Suitable Forest Land		**537,746**
Lands Not Appropriate for Timber Production		
A Meeting **Management Requirements** Precludes Timber Production		
1 Threatened and Endangered Species		
Bald Eagle (MA 4)	2,607	
Silverspot Butterfly (MA 1)	1,320	
2 Spotted Owl (MA 3) SEIS Level	44,688	
3 Water Quality		
Four Acre Leave Areas on High Risk Headwalls	68,284	
Riparian Leave Area - All Perennial Streams	26,698	
Subtotal of Lands to Meet Management Requirements		
Gross (1)	143,597	
Net (2)	**134,077**	**403,669**
B Areas Where Timber Production Is Inappropriate		
1 *Riparian Leave Areas for Fish Habitat (acres in addition to MRs)*	28,109	
2 Special Interest Areas (MA 5)		
Mary's Peak, Mt Hebo, Kentucky Falls, Cape Perpetua	4,656	
3 Old-Growth Groves (MA 2)	1,000	
4 Sand Lake Area (MA 8)	422	
5 Research Natural Areas (Proposed) (MA 13)		
Reneke Creek, Sand Lake, Cummins/Gwynn Creek	626	
6 Visual/Scenery (No Harvest Acres Only)	7,265	
7 Undeveloped Areas (MA 11)		
Drift Creek Adjacent (Boulder Ck), Wassen Creek	7,297	
8 Developed Recreation	451	
9 Additional SOHAs (MA 3)	10,541	
10 Meadow Creation	1,000	
Subtotal of Lands to Meet Management Emphases		
Gross (1)	61,367	
Net (2)	**46,466**	
C Lands Not Cost Efficient to Meet Timber Objectives	0	
IV. Forested Land Suitable For Timber Production		**357,188**

(1) Gross acres are the total needed to meet management objectives
(2) Net acres account for overlap with objectives listed higher in the table

Nonforest land (49,846 acres of water bodies, nonforested acres, and land for nonforest uses such as administrative sites and roads) subtracted from NFS land gives a total of 581,515 acres of forested lands within the Forest boundary.

Next, 43,769 acres are classified as unsuitable for timber production because either. 1) they are in Wilderness, Research Natural Areas, the Cascade Head Scenic-Research Area, the Cascade Head Experimental Forest, or the Oregon Dunes National Recreation Area; 2) there is inadequate response information, i e , information is insufficient to predict timber yields (this land consists of 2,015 acres of shore pine stands, which grow less than 20 cubic feet per acre per year of timber with little or no commercial value); or 3) there is a high potential of irreversible resource damage if vegetation is removed This results in a total of 537,746 acres of land tentatively suitable for timber production. This compares to 508,034 acres that were available for timber production under the amended 1979 Timber Management Plan

Finally, 180,543 acres are identified as not appropriate for timber production due to: 1) meeting other resource objectives of the Forest Plan (46,472 acres), and 2) meeting MRs (35 CFR 219 27) for wildlife and fish habitat and water quality (134,071 acres) That leaves 357,203 acres suitable for timber production.

Table IV-3 displays the total acres of land in each MA, and the acres suitable or unsuitable for timber production. All acres are cost-efficient for timber management under the planning assumptions used.

The land suitability classfication will be reviewed at least every 10 years Land suitability may be adjusted at any time due to changed conditions according to the criteria in NFMA regulations 219.14(a) and (c), and according to procedures for amendments or revisions in 219 10 (f) and (g)

Timber Productivity Classification

The lands suitable for timber production are comprised of a wide range of age classes, from plantations through old-growth. Existing mature stands are typical of the Oregon Coast Range, with Douglas-fir being the predominant species. Site productivity is some of the highest in the world, with growth of over 200 cubic feet per acre per year possible on the average Forest site. Table IV-4 displays the age, existing timber type, and site class of the lands suitable for timber production under this Plan

First Decade Timber Sale Program and Long-Term Sustained Yield Capacity

The allowable sale quantity (ASQ), and timber sale program quantity (TSPQ) are displayed for the Forest in Table IV-5, and by Ranger District in Table IV-6 Volumes are displayed in board feet as well as cubic feet to facilitate conversion from board feet measure to cubic foot measure during the first several years of Plan implementation

The LTSYC is the amount of timber harvest the Forest can sustain indefinitely and is based on the allocations and expected timber yields of managed stands. For the Final Plan, the LTSYC is 72.5 MMCF/yr Under this Plan LTSYC will be achieved by the 11th decade and maintained through the end of the 150 years of the planning horizon.

Table IV-3. Management Area Land Stratification for Timber Production

MANAGEMENT AREA	TIMBER PRODUCTION		
	Suitable Acres	Unsuitable Acres	Total Acres
1 Silverspot Butterfly	0	1,926	1,926
2 Old-Growth Stands	0	1,000	1,000
3 Northern Spotted Owl Habitat	0	46,512	46,512
4 Bald Eagle Habitat	0	2,502	2,502
5 Special Interest Areas	0	5,384	5,384
6 Cascade Head Scenic Research Area	0	4,787	4,787
7 Cascade Head Experimental Forest	0	7,210	7,210
8 Sand Lake	0	991	991
9 Sutton Area	0	2,707	2,707
10 Oregon Dunes National Recreation Area	0	26,513	26,513
11 Undeveloped Areas	0	7,298	7,298
12 Wilderness	0	22,186	22,186
13 Research Natural Areas	0	1,408	1,408
14 Scenic Viewsheds	16,859	16,807	33,666
15 Timber/Wildlife/Fish	340,344	126,927	467,271
TOTAL	**357,203**	**274,158**	**631,361**

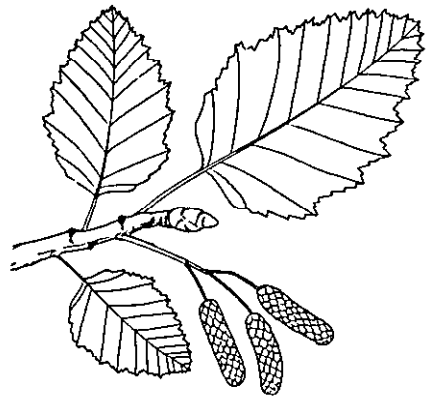


Table IV-4. Characteristics of Lands Suitable for Timber Production

			Site Index (MAcres)				Site Index (% of Suitable)			
	Age	Species	108	119	130	Total	108	119	130	Total
Upland	10	DF	4 3	33 8	12 1	50 2	1 2	9 5	3 4	14 1
	20	DF	3 5	29 5	9 3	42 3	1 0	8 3	2 6	11 9
	30	DF	2 0	16 6	5 6	24 2	0 6	4 6	1 6	6 8
	40	DF	0 4	4 3	1 8	6 5	0 1	1 2	0 5	1.8
	40	DF/RA	0 5	2 5	0 3	3 3	0 1	0 7	0.1	0.9
	60	DF	1 7	26 1	7 3	35 1	0 5	7 3	2 0	9 8
	80	RA/DF	10 9	25 7	5 7	42 3	3 0	7 2	1 6	11 8
	100	DF/RA	5 0	23 7	8 6	37 3	1.4	6 7	2 4	10 5
	100	DF	14 7	0 0	0 0	14 7	4 1	0.0	0.0	4 1
	110	DF	0 0	57 3	0 0	57 3	0 0	16 0	0 0	16 0
	120	DF	0 0	0 0	24 4	24 4	0 0	0.0	6 8	6 8
	200	DF	0 5	5 8	0 5	6 8	0 1	1.6	0 1	1 9
	200	DF/RA	1 5	2 5	0 6	4 6	0 4	0.7	0 2	1 3
SUBTOTAL			45 0	227 8	76 2	349 0	12 5	63 8	21 4	97.7
Riparian	10	RA	0 0	0 1	0 0	0 1	0 0	0 0	0 0	0.0
	20	RA	0 1	0 9	0 3	1.3	0 0	0.3	0.1	0.4
	30	RA	0 0	0 6	0 2	0 8	0 0	0.2	0 0	0 2
	80	RA/DF	1 0	3 9	1 1	6 0	0 3	1 1	0 3	1 7
SUBTOTAL			1 1	5 5	1 6	8 2	0 3	1.6	0 4	2 3
TOTAL			46 1	233 3	77 8	357 2	13 4	68 7	17 9	100
Summary by Age	10		4 3	33 9	12 1	50 3	1 2	9.5	3 4	14 1
	20		3 6	30 4	9 6	43 6	1 0	8.6	2 7	12 3
	30		2 0	17 2	5 8	25 0	0 6	4.8	1 6	7 0
	40		0 9	6 8	2 1	9 8	0 2	1 9	0.6	2 7
	60		1 7	26 1	7 3	35 1	0 5	7 3	2 0	9 8
	80		11 9	29 6	6 8	48 3	3 3	8 3	1 9	13 5
	100		19 7	23 7	8 6	52 0	5 5	6 7	2 4	14 6
	110		0 0	57 3	0 0	57 3	0 0	16 0	0 0	16 0
	120		0 0	0 0	24 4	24 4	0 0	0 0	6 8	6 8
	200		2 0	8 3	1 1	11 4	0 5	2 3	0 4	3 2
TOTAL			46 1	233 3	77 8	357 2	13 4	68 7	17 9	100

Table IV-5. ASQ and Timber Sale Program Quantity

	Allowable Sale Quantity (1)	
HARVEST METHOD	**Sawtimber (MMCF)**	**Other Products (MMCF)**
Regeneration Harvest		
Clearcut	60 3	---
Shelterwood and Seed Tree		
--Preparatory Cut	0	---
--Seed Cut	0	---
--Removal Cut	0	---
Selection	0	---
Intermediate Harvest		
Commercial Thinning	0 9	---
Total	61 2	---
	Additional Sales (2)	
All harvest methods	2 4	---
TOTALS	**(MMCF)**	**(MMBF)**
Allowable Sale Quantity (1)	61 2	332
Timber Sale Program Quantity (3)	63 6	345

(1) *Includes chargeable volumes from suitable lands*
(2) Includes nonchargeable volumes from suitable and/or unsuitable lands
(3) Total of allowable sale quantity and nonchargeable volume

ASQ = Allowable Sale Quantity

The ASQ is the amount of timber that can be harvested from the Forest now, while maintaining a non-declining flow (NDF) into the future For the first 10 years of this Plan the ASQ is 61 2 MMCF/yr (approximately 332 MMBF/Yr) This ASQ level will be maintained through decade 10, at which point the harvest level can be increased to the LTSYC level The ASQ and LTSYC are displayed in Figure IV-1. The ASQ is volume harvested from land suitable for timber production and meeting minimum utilization standards Volume included in the ASQ is also referred to as chargeable Besides green trees, it also includes trees on suitable lands that die for any reason and would normally meet standards for green sales.

In addition to chargeable volume, the Forest will also sell timber that is non-chargeable Included in this category is volume from suitable timberland that does not meet utilization standards for sawtimber From unsuitable timber lands it includes any sawtimber volume, whether green or dead Trees from clearcuts made to create wildlife meadows are included in this category Miscellaneous products such as fuelwood, posts, poles, and cedar blocks from both suitable and unsuitable timberlands are also included with the non-chargeable volume

The chargeable ASQ volume plus the non-chargeable volume comprise the TSPQ. The volumes for all of the above categories are displayed by Ranger District in Table IV-6.

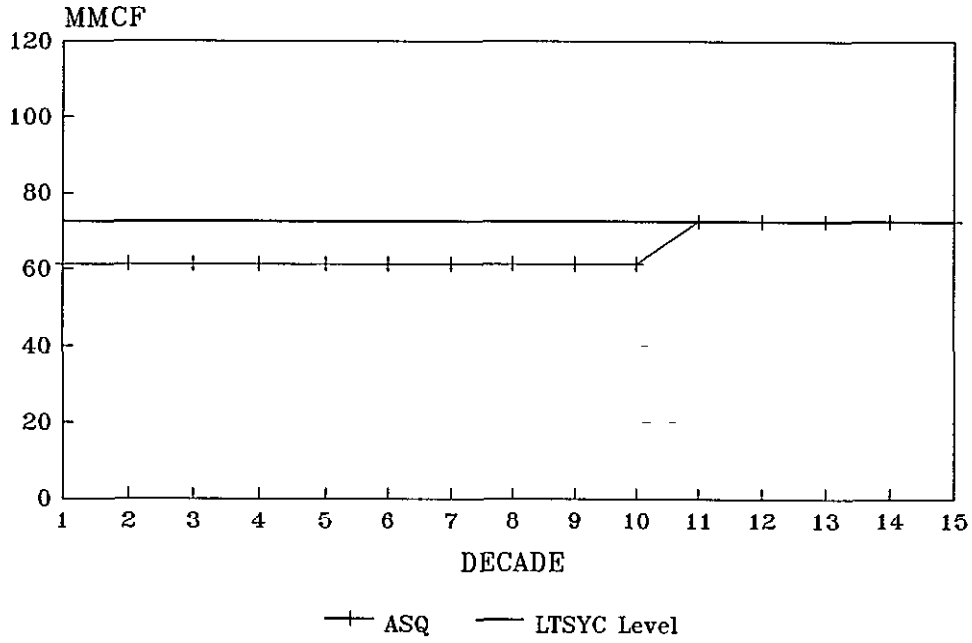


FIGURE IV-1. ASQ AND LTSYC BY DECADE

Planned Sale Program

A detailed presentation of the planned sales can be found in Appendix A. This schedule is tentative and is an estimate of the locations, volumes, and acres. As site-specific analyses are done during project implementation the locations, volumes, and acres will be adjusted as needed.

The overall objective of this Plan is to implement the standards and guidelines outlined later in this chapter. The estimated timber output levels displayed in the above and following tables are based on predictive growth and yield and scheduling models. If contradictions occur between forestwide or management area standards and guidelines and output levels, the standards and guidelines will take precedence

The sale schedule displayed in Appendix A is based on current conditions and information available at the time of Forest Plan development If these conditions change or new information becomes available, the schedule may be modified without amendment to the Forest Plan. The degree of the modification will determine whether or not the Plan needs amendment in accordance with the required process.

Both MAs 14 and 15 have acres suitable for timber production; and for the next 10 years, most of the scheduled timber harvest is in MA 15.

Table IV-6. Distribution of Annual Timber Harvest by Ranger District

		RANGER DISTRICT				
Type of Harvest	**Unit**	**Hebo**	**Mapleton**	**Alsea**	**Waldport**	**Forest Total**
Chargeable Volume:						
Green	MMCF	14 3	19 0	13 3	13 3	59 9
	MMBF	75 2	102 3	75 4	72 5	325 4
Salvage	MMCF	0 3	0 4	0 3	0 3	1 3
	MMBF	1 6	2 2	1 6	1 6	7 0
TOTAL ASQ	MMCF	14 6	19 4	13 6	13 6	61 2
	MMBF	76 8	104 5	77 0	74 1	332 4
Non-Chargeable Volume:						
Non-chargeable green sawtimber from unsuitable lands (1)	MMCF	0 025	0 025	0 025	0 025	0 1
	MMBF	0 15	0 15	0 15	0 15	0 6
Non-chargeable salvage (2)	MMCF	0	0	0	0	0
	MMBF	0	0	0	0	0
Submerchantable (3)	MMCF	0 3	0 4	0 3	0 3	1 2
	MMBF	1 5	2 0	1 5	1 4	6 3
Miscellaneous products (4)	MMCF	0 3	0 3	0 2	0 2	1 1
	MMBF	1 3	1 8	1 3	1 3	5 7
TOTAL NON-CHARGEABLE	MMCF	0 5	0 7	0 5	0 5	2 4
	MMBF	2 9	3 9	2 9	2 8	12 6
TIMBER SALE PROGRAM QUANTITY (ASQ + Non-chargeable)	MMCF	15 1	20 1	14 1	14 1	63 6
	MMBF	79 7	108 4	79 9	76 9	345 0

(1) Green volume from creation of wildlife meadows in lands unsuitable for timber production
(2) Salvage of mortality outside of green sales on suitable lands and mortality from unsuitable lands are allowed but estimated to amount to incidental volumes
(3) Cull and small logs not meeting utilization standards and not included in growth and yield projections for the ASQ
(4) Commercial and personal use firewood, posts, poles, and cedar bolts

Regeneration Harvests - An appropriate regeneration method for each specific stand will be selected at the project planning level at each Ranger District. Appendix G of the FEIS, "Selection of Silvicultural Systems for Forest Planning" lists criteria used to guide selection of the appropriate method.

Projected acres and volumes, for the 1st decade, from regeneration harvest are displayed by timber type and harvest method in Table IV-7

Commercial thinnings - A number of plantations are approaching 30 to 40 years of age and will soon require commercial thinning to maintain stand health. The stands currently projected to require commercial thinning over the next 10 years are included in the ASQ and the sale schedule. As more detailed information is collected and used in the analysis of these individual projects the schedule may be updated and amended. Projected acres and volumes of commercial thinning are also displayed in Table IV-7.

Salvage harvests - Also included in the ASQ is salvage volume. It consists mainly of trees that would otherwise be charged as green (live) volume that are blown down by wind or killed by fire during slash treatment of harvested areas. Blow-down generally occurs around recent clearcut areas and is the result of weakened root structure and exposure to high winds Projections of expected salvage volume have been made for each District (see Table IV-6) and are separated from other sales in the detailed schedule in Appendix A The level of salvage will naturally vary from year to year depending on weather and other factors, so the level of green sales will be adjusted as needed to meet total District ASQ targets

Hardwood harvest levels - The supply of volume to local industry that is dependent on hardwoods has been identified as an issue in this planning process. Table IV-7 displays the expected hardwood harvest levels.

Harvest Methods

Harvest activities will consist of even-age silvicultural methods, primarily clearcutting, as described in Appendix G in the FEIS. Table IV-7 displays the type of harvest methods expected to be used However, a final decision will not be made until a silviculturist has examined the specific site The silviculturist will use the following criteria to determine the optimum harvest method. The selected method will:

- Produce a volume of marketable trees that meet the utilization standards and are designated for harvest
- Use available logging methods
- Be capable of meeting special management objectives
- Permit the control of vegetation to establish desired species composition, density and rates of growth
- Promote a stand structure and species composition which minimize risks from insects, disease, and wildfire
- Ensure that lands can be adequately restocked

Table IV-7. Distribution of Annual Timber Harvest

ASQ BY HARVEST TYPE AND TIMBER TYPE:	Acres	Volume (MMCF)	Volume (MMBF)
Regeneration Harvest (clearcut):			
Douglas-fir	3,464	44 7	248 6
Douglas-fir/Red Alder	1,448	14 0	74 2
Red Alder/Douglas-fir (1)	259	1 7	7 8
Subtotal From Clearcuts (1)	5,171	60 4	330 6
Hardwood Volumn (included above)		5 2	19 0
Commercial Thinning:			
Douglas-fir	600	0 9	2 4
TOTAL ASQ (1)		61 3	333 0

(1) Includes non-chargeable volume from creation of 20 acres of wildlife meadows per year

- Be practical and economical in terms of transportation, logging systems, and preparation and administration of timber sales.
- Not be selected solely because it results in the greatest dollar return or provides the highest timber output
- Not permanently impair site productivity or soil and water resources.

Clearcutting usually meets the above criteria, however, shelterwood systems have been used successfully on some areas of the Forest, and will be considered along with clearcutting during analysis of each proposed harvest unit

Harvest on Unsuitable Lands

Unless otherwise noted in the management area standards and guidelines, trees may be cut or removed from land unsuitable for timber production for the following reasons, provided that the management direction for the area can still be achieved:

- Salvage trees or stands killed or substantially damaged by fire, windthrow, or other catastrophe,
- Control the spread of insect or disease outbreaks,
- Conduct research;
- Provide for the safety of Forest users (this includes hazard tree removal in camp and picnic grounds, in administrative sites, and along roads open to the public);
- Maintain or enhance fish and wildlife habitats;
- Improve the visual resource by opening scenic vistas or by improving visual variety,

- Construct new facilities such as roads, trails, administrative facilities, recreation facilities, and so forth.

Vegetation Management Practices

Much silvicultural work will occur in addition to timber harvest activities. Reforestation activities will include site preparation, planting, control of animal damage, and release Stand density will be controlled through precommercial thinning. Fertilizer will be applied to stands where its application will improve the conifer growth.

The silvicultural practices to be used on lands suitable for timber production over the next decade are displayed in Table IV-8. These are estimates of the planned activities, not targets. The actual amount of work will be determined by District silviculturists after site-specific evaluations of the areas in question.

Present and Future Vegetation Conditions

As the future management prescriptions outlined in this Plan are implemented, the Forest will approach the desired conditions and stand characteristics will change Table IV-9 displays the projected future management prescriptions to be applied to the acres harvested annually in the 1st decade as well as the entire land base suitable for timber production under this Plan. These are acres projected with FORPLAN model and they will be evaluated and adjusted as the Plan is implemented

Harvest acres shown in Table IV-9 above that are managed for timber and wildlife are in MA 15, while acres managed for future visual objectives represent MA 14

Under these management prescriptions, old growth and hardwoods will initially decrease, but eventually increase. Table IV-10 compares the current condition with the expected condition 150 years from now.

Table IV-8. Vegetation Management Practices

PRACTICE	ACRES PER YEAR
Regeneration Harvest	
Clearcut	5,171
Shelterwood and Seed Tree	
--Preparatory Cut	0
--Seed Cut	0
--Removal Cut	0
Selection	0
Commercial Thinning	600
Timber Stand Improvement	
Precommercial Thinning	2,300
Fertilization	2,400
Reforestation (1)	5,171

(1) Virtually all reforestation is artificial

Table IV-9. Management of Lands Suitable for Timber Production

Current Timber Type:	Harvest 1st Decade Acres/yr (1)	Total Suitable Macres
Douglas-fir managed for		
Timber Emphasis	3,014	209 2
Mature Conifer Habitat	306	40.7
Visual Quality	144	11 5
Total	3,464	261 4
Douglas-fir/Red Alder managed for		
Timber Emphasis	1,274	31 2
Mature Conifer Habitat	149	12 1
Visual Quality	25	1 9
Total	1,448	45.2
Red Alder/Douglas-fir managed for		
Timber Emphasis	252	46 9
Mature Conifer Habitat	7	0 4
Visual Quality	0	3 3
Total	259	50.6
ALL TIMBER TYPES MANAGED FOR.		
Timber Emphasis	4,540	287 3
Mature Conifer Habitat	462	53 2
Visual Quality	169	16 7
TOTAL	5,171	357 2

(1) Includes 20 acres unsuitable land harvested each year for creation of wildlife meadows

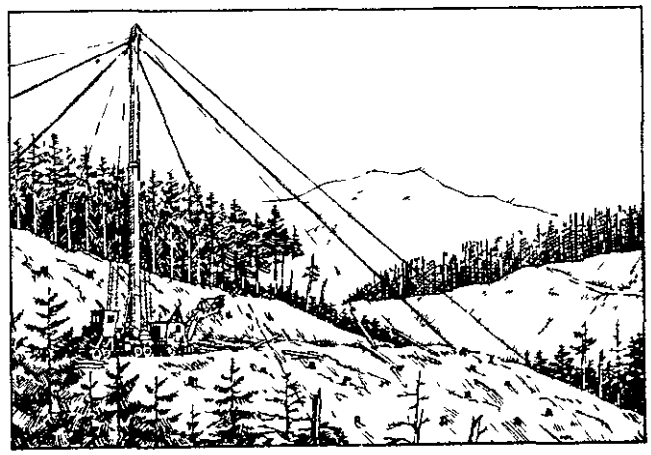


Table IV-10. Forest Vegetative Conditions (1)

INVENTORY AND GROWTH		
Condition	**Unit of Measure**	**Suitable Land Volume**
Present Forest		
Growing Stock	MMCF	2,349 0
Annual Net Growth	MMCF	35 8
Future Forest		
Growing Stock	MMCF	2,291 5
Annual Net Growth	MMCF	67 2

ROTATION LENGTHS FOR FUTURE MANAGED STANDS	
Rotation Ages	**Percent of Suitable Acres**
60 years	70%
70 years	5%
100 years	13%
110 years	6%
120 years	4%
130 years	1%
140 years	1%

AGE CLASS DISTRIBUTION, ALL FORESTED ACRES		
Age Class	**Present Forest**	**Future Forest**
Less than 10 years	56,981 (10%)	53,317 (9%)
10-59 years	107,354 (18%)	208,320 (36%)
60-89 years	160,789 (28%)	53,757 (9%)
90-199 years	220,524 (38%)	75,741 (13%)
200+ years	33,807 (6%)	188,321 (33%)

(1) Future conditions are those anticipated after 150 years

Potential Timber Supplies

All acres identified as tentatively suitable, except those needed to meet MRs or other resource objectives are included in the suitable timber land base There are no acres identified as unsuitable for cost efficiency reasons Therefore, there is no potential to increase the ASQ under this Plan due to changes in economic conditions

Management of Recreation

Virtually all of the 631,361 acres of National Forest System (NFS) lands within the Forest boundary are available for recreational purposes While not every acre of NFS land is capable of providing every possible recreational opportunity, the Forest contains a broad mix of lands that can provide a range of recreational opportunities within specific areas Because of its location where forest meets the ocean, the Forest has a unique potential to provide a variety of opportunities that take advantage of its present developed sites on the Coast as well as its proximity to major urban areas of the Willamette Valley. The objectives behind managing Forest resources for recreational purposes are to:

- Encourage and facilitate public enjoyment and understanding of the Forest, coastal environment and history;

- Provide a variety of recreation opportunities and settings that can enhance the quality of life for area residents and recreationists;
- Provide opportunities for Forest visitors to observe, participate in, and learn about the management of National Forests, and
- Assist in building a diversified, strong and stable economy adjacent to the Forest.

Management direction to meet the above objectives is focused on·

- Providing high-quality destination recreation sites in a coastal setting;
- Providing a variety of recreation opportunities easily accessible to the large urban areas in the Willamette Valley,
- Promoting recreation opportunities that link the coastal and inland forest settings, and
- Providing a broad range of public interpretation and information services in various settings within the Forest

A variety of recreational opportunities are available, ranging from developed to highly dispersed.

Developed Recreation

Developed recreational opportunities are provided in sites such as campgrounds and picnic grounds Capacity will be adequate to meet projected demand New sites will be constructed if necessary The quality of many of the coastal destination sites will be improved with added convenience facilities and improved visitor information services All existing sites will be managed as cost effectively as possible All or some portions of sites may be closed when use is low The developed-site capacity needed to meet projected demand is shown by decade in Table IV-11 The proposed recreation capital investment schedule is in Appendix B

Table IV-11. Needed Developed Site Capacity

		DECADE				
	Existing	1	2	3	4	5
Capacity (PAOT) (1)	9 7	9 9	10 7	11 6	12 6	14 0

(1) PAOT = persons at one time (in thousands)

Off-road Use of Vehicles

Most of the off-road vehicle (ORV) use on the Forest takes place in the ODNRA and the Sand Lake and Sutton Recreation Areas The remainder of the Forest will be open to ORV use except for.

1 Wilderness, undeveloped areas, SIAs, Oregon silverspot butterfly habitat, CHSRA, Cascade Head Experimental Forest, Research Natural Areas, and

2 Other locations specified in S&Gs See Appendix D for specific locations where ORV use would be limited or prohibited.

Recreation Areas

Specific direction for management of these areas is found in S&Gs for each MA

Oregon Dunes National Recreation Area

Management of the Oregon Dunes NRA will follow the existing management plan (USDA Forest Service 1979c) summarized in the discussion of MA 10 and incorporated by reference in this Forest Plan.

Cascade Head Scenic-Research Area

Management of the CHSRA will also follow the existing management plan (USDA Forest Service 1976) summarized in the discussion of MA 6 and incorporated by reference in this Forest Plan.

Sand Lake

Management of the Sand Lake Area will be consistent with the existing management plan (USDA Forest Service 1980b) summarized in the discussion of MA 8.

Sutton Area

Management of the Sutton Recreation Area is summarized in the discussion of MA 9.

Special Interest Areas

In addition to the existing SIAs at Cape Perpetua and Marys Peak, this Plan adds two areas The following gives the size of each:

SIA	Acres	Ranger District
Cape Perpetua	2780	Waldport
Marys Peak	924	Alsea
Mt. Hebo	1684	Hebo
Kentucky Falls	1680	Mapleton

Management direction for SIAs except for Mt. Hebo is included in MA 5. S&Gs for Mt. Hebo are in MA 1, along with those for habitat of the Oregon silverspot butterfly

Wildernesses and Undeveloped Areas

All Wildernesses and undeveloped areas provide SPNM opportunities Each is discussed later

Wild and Scenic Rivers

See "Management of Rivers Included in the National Rivers Inventory" later in this chapter.

Trail Use and Development

Due to steep, brushy terrain on the Forest, amounts of pedestrian travel are closely related amounts of trail available. Currently, the Forest's trail system includes 99 miles. The proposed trail development schedule for the 1st decade is shown in Appendix B. About 71 miles of trail will be constructed in the 1st decade, with a total of 157 miles of new trail constructed by the 5th decade.

Hunting and Fishing

Hunting and fishing opportunities will be managed by providing habitat for fish and game and by managing vehicle access of Forest users The amount and quality of habitat affects wildlife and fish populations When populations are higher, opportunities for hunting and fishing are greater The Oregon Department of Fish and Wildlife regulates seasons and limits (See the fish and wildlife management discussions in this chapter)

Management of Wilderness

The Oregon Wilderness Act of 1984 established three Wildernesses on the Forest Cummins Creek, Drift Creek, and Rock Creek. These total about 22,200 acres No further areas are considered for Wilderness designation in this Plan

Because of their small size, short time required to walk out of these areas, and the nearby sounds of logging and road traffic, each of the Wildernesses is allocated to the semiprimitive wilderness class. As semiprimitive Wildernesses, these settings will be managed as predominantly unmodified natural environments The concentration of users will remain low, with the potential for occasional contacts with other parties. The Wildernesses will be managed to provide moderate opportunities for exploring and experiencing isolation, independence, closeness to nature, tranquility and self reliance Opportunities for moderate to high degrees of challenge and risk will be available

In accordance with Forest Service standards and guidelines for managing semiprimitive wildernesses, facilities (including trails) will be harmonious with the natural landscape Campsites will continue to provide a moderate degree of solitude and be set back from trails, meadows and streams Trails will be constructed and maintained to more and most difficult standards

The degree of primitiveness present in each Wilderness is directly related to the miles of trail present Miles of trail to be constructed in the 1st decade, and the total by the 5th decade, are shown in Table IV-12

Objectives for managing the three Wildernesses are described in MA 12 Each will eventually be managed according to Wilderness Management Plans developed within the next 2 years Until such time, management will proceed according to Interim Wilderness Management Plans Final plans will be based on the goals, desired conditions, and S&Gs described in MA 12, and will be incorporated into the Forest Plan

Table IV-12. Wilderness Trail Miles

Wilderness	Trail Construction 1st Decade(Miles)	Total Trails 5th Decade (Miles)
Cummins Creek	9 0	12 0
Drift Creek	7 0	15 5
Rock Creek	0 0	0 0
TOTALS	**16 0**	**27 5**

Management of Visual Resources

The visual resource, or scenery, is managed by establishing standards for the appearance of all Forest land, and planning projects to meet those standards. The standards are called visual quality objectives (VQOs; USDA Forest Service 1974). VQOs prescribe how much modification of the landscape is allowed, and are included in MA S&Gs.

Scenery that is visible from most of the heavily travelled roads on the Forest are considered sensitive viewsheds. Table IV-13 shows which of the viewsheds will be protected, and the VQOs assigned for each Recommendations of the Visual Management System (USDA Forest Service 1974) are given as well Refer to MA 14 for a description of how viewsheds are managed, and to the Glossary for more information on VQOs.

Table IV-13. Viewshed Visual Quality Objectives

Viewshed	Viewshed Acres
Foreground: Rentention *Middleground: Partial Retention*	
Highway 101 - Coastal	4,286
Highway 101 - Hebo	6,294
Highway 38	2,609
Highway 34	7,689
Highway 18	1,836
Highway 126	1,532
Foreground Partial Rentention *Middleground· Partial Retention*	
Marys Peak Road	6,254
Foreground Partial Rentention *Middleground· Modification*	
Three Capes Road	3,154
Mercer Road	54
Highway 36	4,128
Highway 22	3,256
Mt Hebo Road	1,710
Sand Beach Road	2,413
Nestucca River Road	2,620
Little Nestucca River Road	2,913
Highway 229	416
Canal Creek Campground	45
Big Elk Campground	24

Management of Undeveloped Areas

Six areas are proposed for management as undeveloped areas on the Forest. This includes four areas totalling approximately 20,000 acres in the ODNRA (MA 10), and two areas in MA 11 The two areas in MA 11 and their acreages are as follows

Wassen Creek	4,700 acres
Drift Creek Adjacent	2,600 acres

New trails planned in the 1st decade, and total trail length anticipated by the end of the 5th decade outside of the ODNRA are as follows:

Wassen Creek	--	12 5 miles of new trail in 1st decade
	--	12 5 miles total by 5th decade
Drift Creek Adjacent	--	4 5 miles of new trail in 1st decade
	--	4 5 miles total by 5th decade

Management of Wildlife Habitat

Wildlife habitats needed to support populations of various wildlife species are displayed in the following narratives and tables Specific direction for wildlife habitat management, such as spacing of habitat areas, is included in S&Gs later in this chapter More detailed activity and project schedules are included in Appendix B

Mature Conifer Habitat

Two indicator species, the marten and pileated woodpecker, and the species they represent are dependent on mature conifer habitat for food, cover, and nesting sites Forty-five habitat areas (at least 500 acres each) of mature coniferous habitat will be provided for the pileated woodpecker and 117 habitat areas (at least 250 contiguous acres each) for the marten

Mature conifer habitat is attained in conifer stands over 80 years of age This habitat occurs naturally in undisturbed areas which are dominated by conifers (such as Wildernesses and SOHAs) However, because these areas are not evenly distributed across the Forest, they can provide only a portion of the needed habitat.

To provide the remaining habitat, some timber in MAs 14 and 15 will be harvested on 100-year rotations Habitat areas for the woodpecker in MAs 14 and 15 will average 2,500 acres in size, of which 500 acres will be mature at any time 40bitat areas for the marten in MAs 14 and 15 will average 1,250 acres in size, of which 250 contiguous acres will be mature at any time

Table IV-14 displays the requirements for mature conifer habitat for the pileated woodpecker and marten Marten habitat can overlap with that of the woodpecker and spotted owls, so that only 65 separate marten sites will need to be provided through management

Table IV-14. Habitat Areas and Acres in Mature Conifer

Total Number of Habitat Areas		Acres of Mature Habitat Per Habitat Area		Total Areas Requiring Management	
Woodpecker	Marten	Woodpecker	Marten	Woodpecker	Marten
45	117	500	250	22	65

Deciduous-Mix Habitat

Deciduous mix stands depend on periodic disturbance -- either by fire or through timber harvest. As a result of conditions on the Forest, there will be at least 30,000 acres of such habitat at all times. Associated wildlife include the sharp-shinned hawk, western grey squirrel, and several species of warblers. As the acres of habitat fluctuate over time, the Forest's ability to support these species will change proportionately

Northern Spotted Owl Habitat

The northern spotted owl - listed as threatened by the State of Oregon and as sensitive by the Pacific Northwest Region of the Forest Service, and proposed as threatened by the U S Fish and Wildlife Service - is associated with well-spaced, old-growth conifer habitat. A multi-layered stand with large dead and defective trees, both standing and fallen, is preferred. Normally, this condition will occur late in the natural succession of a timber stand Although the preferred condition is old growth, mature timber has also been included in habitat areas to meet minimum size requirements

The northern spotted owl was selected as the indicator species for old-growth habitat, although other wildlife such as the flying squirrel are also dependent on this habitat

The 29 Spotted Owl Habitat Areas (SOHAs) shown in Table IV-15, each being approximately 2,000 acres, will be provided Twenty of these SOHAs have been verified as being occupied by pairs of owls in the last 5 years. The other nine either have single birds or were selected to meet distribution requirements. Figure IV-2 shows general locations of the proposed SOHAS (the numbers on the map correspond to the SOHA numbers shown in Table IV-15

MA 3 consists of sites managed primarily for the spotted owl Other MAs also include suitable habitat, as shown in Table IV-16 The management of spotted owl habitat is compatible with the primary resource management in these other MAs; no timber harvesting will be scheduled in any of these MAs

Table IV-15. Spotted Owl Habitat Areas(SOHAs) (1)

RANGER DISTRICT			
Hebo	**Mapleton**	**Alsea**	**Waldport**
Name and Identification numbers of SOHAs With Verified Pairs of Owls			
Skunk (5) Cedar (6)	Wassen (8) West Perkins (9) Peach (10) Mid Fork Smith (11) No Fork Smith (12) Cleveland (17) Porter (18) Prong (37) Jump (38)	Deadwood (20) Camp (21) Franklin Ridge (27) Chinquapin (28) Trail (46) Minister	Cougar (32) Arnold (33) Table (45)
SOHAs Without Verified Pairs of Owls but Needed for Distribution of Habitats			
Drift (4) Crazy Powder Ridge	East Perkins (7) Bailey Ridge (15) Menerva (16) Misery (19)	Stoney (26) Randall (29)	

(1) The numbers in the table correspond to the SOHA numbers shown on the map in Figure IV-2

Table IV-16. Spotted Owl Habitat by MA

Management Area	Acres of Spotted Owl Habitat
1. Silverspot Butterfly Habitat	140
3. Northern Spotted Owl Habitat	46,512
5 Special Interest Areas	2,345
6 Cascade Head Scenic-Research Area	2,133
7 Cascade Head Experimental Forest	3,819
11 Undeveloped Areas	5,746
12 Wilderness	10,824
13 Research Natural Areas	108
TOTAL	70,595

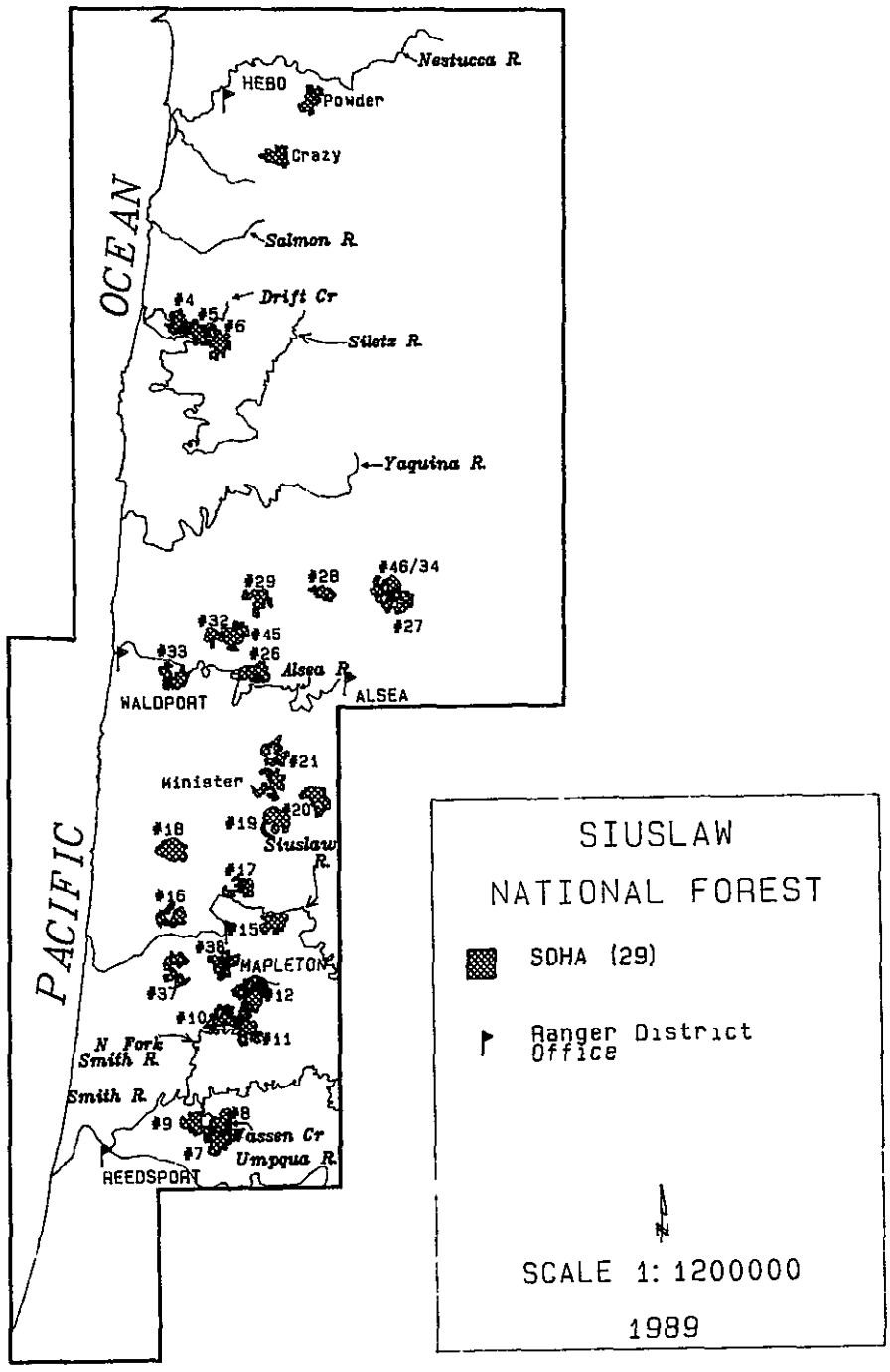


FIGURE IV-2. SPOTTED OWL HABITAT AREAS

Other Habitats

Grass-Forb Habitat - This habitat is found in both natural and man-made meadows. In addition, grass-forb habitat will be produced during the 1st decade of regrowth in clearcut units. Due to the number and relatively even distribution of clearcuts proposed in this Forest Plan, grass-forb habitat will not be limiting and no additional areas are needed to meet habitat goals Populations of species associated with grass-forb habitat are directly related to the acres of such habitat available

Riparian Habitat - This habitat is located adjacent to streams and rivers and consists of the community of plants that has developed as a result of either seasonal or permanent elevated water tables. Riparian habitat can also serve as a movement or migration corridor for dispersing animals Due to the extent and wide distribution of riparian areas on the Forest, riparian habitat will not be limiting and no additional areas are needed to meet habitat goals Populations of wildlife associated with riparian areas are directly related to acres of such habitat

Dead and Defective Tree Habitat

Between 50 and 70 wildlife species - including downy and hairy woodpeckers, flickers, and bluebirds - depend upon dead and defective trees Such trees are usually abundant after fires and in mature, overmature, and old-growth stands This habitat is potentially limited in supply and is included as a management requirement A group of dependent primary cavity excavators has been identified as the indicator for this habitat

The number of dead and defective trees in MAs 14 and 15 will average at least 1 4 trees per acre This equates to a 40% population level MAs where natural conditions will be maintained provide a 100% population level.

Silverspot Butterfly Habitat

The Oregon silverspot butterfly, a federally-listed threatened species, lives on Mt Hebo and at several sites along the Pacific Ocean near the Rock Creek Wilderness Habitat for the species will be managed in similar ways at all sites The 1926 acres of this habitat is in MA 1 and consists of meadows and adjacent forest To maintain desired conditions in the meadows, and to modify areas that are not presently suitable, some burning, mowing and brush control will be required Some trees may be cut at the Mt Hebo area to enhance its ability to provide food and protection to the adult butterflies Trees will not be cut at other sites immediately adjacent to the Wilderness

Bald Eagle Habitat

The bald eagle, also a federally-listed threatened species, requires habitat consisting of scattered old-growth conifer trees There are presently seven active nest sites on the Forest Habitat for the bald eagle is provided in two primary ways 1) prohibiting timber harvest , and 2) keeping activities away from nest sites to prevent disruption of eagle reproduction (see MA 4 for specific information)

Twenty-three, 125-acre bald eagle sites are established - a total of 2,875 acres. MA 4 consists of sites managed primarily for eagles, and is relatively evenly distributed throughout the Forest Other MAs also provide suitable habitat, as shown in Table IV-17 (management of bald eagle habitat is compatible with resources emphasized in these other MAs)

Table IV-17. Bald Eagle Habitat by MA

Management Area		Acres of Bald Eagle Habitat
3	Northern Spotted Owl Habitat	422
4	Bald Eagle Habitat	2,502
5	Special Interest Areas	68
6	Cascade Head Scenic-Research Area	173
9	Sutton Area	40
10	Oregon Dunes National Recreation Area	252
12	Wilderness	42
13	Research Natural Areas	80
	TOTAL	3,538

Bald eagle habitat potential on the Oregon Dunes NRA will be further refined through revision of the NRA Management Plan. In the meantime, the Forest will continue to meet its recovery goals as determined by the U.S. Fish and Wildlife Service (USFWS 1986).

Roosevelt Elk Habitat

The best foraging habitat for elk is meadows or pastures These occur naturally or can be created through clearcut timber harvesting High habitat capability for elk is maintained by careful scheduling of timber harvest and seeding of forage Hunting and transplanting of elk are also important, but are responsibilities of the Oregon Department of Fish and Wildlife It is assumed that the agencies will cooperate in management, including a program of transplanting elk to augment low populations in some areas. The elk habitat management program will be further analyzed to develop the most efficient blend and timing of activities

In addition to proper distribution of timber harvest units, 1000 acres of meadows will be created by the 5th decade. One-fifth, or 200 acres, should be created in the 1st decade. Seeding for forage, closing some roads, and transplanting animals will also be used to manage elk habitat

There will be meadows in all MAs, but this habitat will be managed for elk only in MAs 14 and 15, in which timber is harvested intensively

Threatened and Endangered Species

Federally-listed threatened and endangered (T&E) species on the Forest are bald eagle, Aleutian Canada goose, brown pelican, peregrine falcon, and Oregon silverspot butterfly (see discussions of bald eagle and silverspot butterfly earlier in this section) The goose, pelican, and falcon are occasional winter residents and have little habitat on the Forest. No action will be taken which would adversely affect recovery of the above species, and to the extent possible, management activities will facilitate their recovery.

The Forest consulted with the U S. Fish and Wildlife Service about the effect of the DEIS alternatives on T&E species, and the USFWS issued a no-jeopardy opinion in March 1987. The USFWS also approved the Forest's updated list of T&E species in May 1989 Final consultation on the FEIS and Forest Plan occurred in December 1989, and the USFWS again determined that the alternatives would not have adverse effects on the listed T&E species. Correspondence related to this consultation is on file at the Forest Supervisor's Office, Covallis, Oregon.

Sensitive Species Habitat

In addition to the T&E species, 15 Forest animals are listed as sensitive by the State of Oregon and/or the Regional Forester (see the following list)

COMMON NAME	SCIENTIFIC NAME
Aleutian Canada Goose	*Branta canadensis leucopareia*
American peregrine falcon	*Falco peregrinus anatum*
American white pelican	*Pelecanus erythorhynchos*
brown pelican	*Pelecanus occidentalis*
California mountain kingsnake	*Lampropeltis zonata*
California wolverine	*Gulo gulo luteus*
ferruginous hawk	*Buteo regalis*
long-billed curlew	*Numenius americanus*
marbled murrelet	*Brachyramphus marmoratus*
northern bald eagle	*Haliaeetus leucocephalus*
northern spotted owl	*Strix occidentalis caurina*
Oregon silverspot butterfly	*Speyeria zerene hippolyta*
Pacific western big-eared bat	*Plecotus townsendii townsendii*
red-legged frog	*Rana aurora*
northwestern pond turtle	*Clemmys marmorata marmorata*
western snowy plover	*Charadrius alexandrinus nivosus*
white-footed vole	*Arborimus albipes*
common loon	*Gavia immer*
Alsea micro caddisfly	*Ochrotrichia alsea*
Haddock's caddisfly	*Rhyacophilia haddocki*

All except the big-eared bat are documented on the Forest (See "Northern Spotted Owl Habitat" in this section for more discussion on that species)

The following 23 plants are listed ae sensitive for the Forest.

COMMON NAME	SCIENTIFIC NAME
pink sandverbena	*Abronia umbellata breviflora*
Oregon anemone	*Anemone oregana felix*
Saddle Mountain bittercress	*Cardamine pattersonii*
birdbeak	*Cordylanthus maritimus palustris*
shining flatsedge	*Cyperus rivularis*
subalpine daisy	*Erigeron peregrinus peregrinus*
glacier-lily	*Erythronium elegans*
Queen-of-the-forest	*Filipendula occidentalis*
prairie smoke	*Geum triflorum companulatum*
water pennywort	*Hydrocotyle verticillata*
Columbia lewisia	*Lewisia columbiana rupicola*
Frye's moss	*Limbella fryei*
bog clubmoss	*Lycopodium inundatum*
montia	*Monita diffusa*
adder's-tongue	*Ophioglossum vulgatum*
moss	*Pholia sphagnicola*
Alas plantain	*Plantago macrocarpa*
Kellogg's bluegrass	*Poa kelloggii*
loose-flowered bluegrass	*Poa laxiflora*
Hitchcock's saxifrage	*Saxifraga hitchcockiana*
Flett's groundsel	*Senecio flettii*
hairy-stemed checker-mallow	*Sidalcea hirtipes*
Douglas' silene	*Silene douglassii oraria*

The eight sensitive plants documented on the Forest are *Abronia*, *Cardamine*, *Erythronium*, *Filipendula*, *Lycopodium*, *Ophioglossum*, *Poa laxiflora*, and *Sidalcea* Other species may occur, but have not been found. Management of sensitive animals and plants is described in S&Gs found later in this chapter *No action will be taken which would lead to classification of any sensitive species as T&E.*

Special Habitats

Other habitats such as lakes and ponds, freshwater marshes, rocky ocean beaches, talus slopes, and colony nesting areas will be managed in a manner that would not significantly diminish their unique characteristics

Management of Watershed Condition and Fish Habitat

Management of watershed and fish habitat resources consists of two major components: 1) protective measures, such as maintenance of vegetation along streams, and 2) habitat restoration and enhancement projects (More detailed activity and project schedules are included in Appendix B) The protective measures incorporated in this Plan are

- Not scheduling timber harvest near most perennial streams (stream buffers)
- Not scheduling timber harvest on slopes with a high risk of landslides (areas called vegetation leave areas).

- Limiting the proportion of land in a watershed that is made up of clearcuts and plantations less than 10 years old to less than 20% in each decade

Many of the practices used to manage watersheds and fish habitat on the Forest are intended to avoid, improve, or restore degraded conditions. Examples are constructing and maintaining roads in ways that reduce accelerated landslides, managing vegetation in the riparian zone to benefit fish habitat and stream structure, building structures to create spawning and rearing habitat for fish, modifying blockages to fish passage, and providing resting pools in streams with a bedrock bottom.

These kinds of projects are often effective, but those confined to stream channels are generally feasible only in those streams (probably less than 5% of the total) that are accessible to heavy equipment such as front-end loaders. Moving of large woody debris into channels using logging equipment set up for nearby timber sales, however, could increase the proportion of streams that could be improved

For the watershed program (primarily dealing with fragile soils and unstable slopes, stream channel degradation, and sedimentation), the amount of work proposed is directly related to the amount of timber harvested and the need to correct projected damage to watershed conditions Approximately 100 acres of watershed improvement will be done each year (Table IV-1) Conifer planting in riparian areas, unstable road sidecast pullback are the primary improvement techniques (See FEIS, Chapter II for the relative size of the timber program)

Restoration projects for fish habitat can be funded by Knutsen-Vandenberg (K-V) monies collected from timber sales (projected to be $34 per acre) Like the watershed program, the relative amount of money spent on K-V projects is directly related to the timber harvest

As noted above, access to streams is limited Nevertheless, because of the sheer size of the stream network on the Forest, a large program is planned to restore and improve existing fish habitat conditions Fish are also benefited by management for other resources such as undeveloped areas, spotted owl habitat, and Wildernesses Protective measures are planned in MAs 14 and 15, in which timber is being harvested on a scheduled basis

Management of Transportation Facilities

Roads

A road system is developed as needed to respond to resource management objectives Most roads are constructed to aid timber management in MAs 14 and 15 Roads are also constructed to facilitate recreational use, Forest administration, and resource protection, but no detailed plan for access has been developed in other MAs; therefore the RMOs are used as the guidelines to manage roads in those areas.

About 80% of the land suitable for timber production can be reached by the 2500 miles of existing roads This Final Plan calls for the construction of about 300 miles of roads and the reconstruction of 760 more in the 1st decade Table IV-18 shows the projected operational status of the Forest road system

Table IV-18. Projected Operational Status of Forest Road System

Decade	Passenger Car Mileage	High Clearance Vehicle Mileage	Year Round Closure Mileage	Total Forest Mileage
Current	900	1,450	160	2,500
First	800	1,600	200	2,600

More detailed requirements concerning construction, maintenance, and environmental protection are in the Forest-wide S&Gs and MA Prescriptions later in this chapter. More detailed capital investment schedules are included in Appendix B.

Trails

Due to the steep, brushy terrain on the Forest, the amount of non-vehicular recreational use is closely related to the amount of trail There are 81 trail miles at present, and 71 more will be constructed in the 1st decade This includes trail construction in Wildernesses.

Management of Research Opportunities

The Forest presently contains two Research Natural Areas (RNAs) Flynn Creek (in MA 13) and Neskowin Crest (in MA 6) The following areas will be be studied for potential designation as RNAs:

- Reneke Creek (in MA 13)
- Sand Lake (in MA 13)
- Cummins/Gwynn Creek (in MAs 12 and 5)

The Cascade Head Experimental Forest (CHEF) has been a center for research related to growing trees in the coastal environment The existing management plan is incorporated in this Plan. The western third of CHEF is included in MA 6 and will be retained in a relatively natural state. It will be used primarily for recreation and as a control area for research. Research involving vegetation changes would be concentrated in the eastern two-thirds of CHEF, which makes up MA 7

Management of Rivers Included in the National Rivers Inventory

Drift Creek (Siletz), Wassen Creek, and the North Fork Smith, Umpqua, Alsea, Nestucca, and Siuslaw rivers are eligible for inclusion in the National Wild and Scenic Rivers System Suitability will be determined within 5 years Although Lake Creek and the Lower Siuslaw, Siletz, and Smith rivers appear to be eligible as "recreational" rivers, the small amount of NFS land which fronts on the rivers did not warrant further Forest Service study to determine the rivers' suitability The Forest will not take any actions that would prevent such designation (see the Forest-wide S&Gs) The Little Nestucca River and Three Rivers do not have any outstandingly remarkable values, and should be deleted from the National Rivers Inventory.

Management of Cultural Resources

Program goals of identification, protection, and enhancement of historic and prehistoric cultural resources will be accomplished through inventories prior to, and following, all ground disturbing activities. Sites identified will be evaluated, significant sites protected, and selected sites enhanced and interpreted

Sites will be evaluated according to procedures established by the National Historic Preservation Act, and by working with the Oregon State Historic Preservation Office.

Cultural resource inventories are conducted in response to ground disturbing projects, such as timber sales, land exchanges, road or trail construction, recreation site development, and renovation or disposal of historic structures Highest priorities are sites in project areas Known sites not in project areas are either evaluated on an incidental basis or when conducive to furthering other agency objectives such as public education, scientific research, or public enjoyment Forest areas such as wilderness or units amenable to study (e g, watersheds) will be scheduled for inventory and subsequent treatment of identified cultural resources when project inventories are completed for a 5-year period Maintenance, protection, and interpretation of selected properties will be ongoing Significant sites will be monitored regularly to ensure that they are not deteriorating due to vandalism or natural forces

A pre-project inventory is conducted prior to planned ground disturbing projects An Inventory Plan designed especially for the Siuslaw NF and agreed to by the Oregon State Historic Preservation Office requires a post-disturbance survey on all areas where heavy ground cover makes it impossible to see the ground surface prior to the project Contract clauses protect any cultural resources discovered during project implementation Post-disturbance surveys are designed to discover and inventory sites uncovered by the project This methodology is designed to maximize opportunities for finding cultural resources

Management of Range

The livestock grazing program will center largely on administering existing permits and allotments There may be some work on the use of sheep to control competing vegetation on harvested areas There are currently 18 allotments totaling 2280 AUMs of use Use is expected to continue at this level More activity schedules are included in Appendix B

Management of Insects and Disease

Actions to reduce timber losses due to insect and disease will be taken when compatible with MA direction. Control will generally be aimed at reducing the risk of infestations through silvicultural treatments in high and moderate risk stands

An Integrated Pest Management program will form the basis of treating infestations of insects, diseases, or other pests that could damage resources

The Forest will prepare, implement, and maintain a fire management program that is cost effective. This level of protection is determined through the National Fire Management Analysis System.

Management of Landownership

Landownership will be adjusted, as opportunities arise, to consolidate NFS lands, reduce work in property lines, acquire lands in federally-designated areas, obtain lands needed for administrative or research purposes, improve resource conservation and production, or otherwise to clearly serve the public interest Landownership objectives for the Forest are found in Appendix C

Management of Municipal Watersheds

There are 57 public water systems that withdraw water from lakes and streams draining over 66,000 acres of Forest lands. Of these, two municipalities (Corvallis and Toledo) have long-standing agreements

with the Secretary of Agriculture; these agreements require special coordination with the cities regarding activities other than timber management and watershed protection

With the exception of some restrictions on use of the Corvallis Watershed, activities will be managed uniformly in all municipal watersheds Measures used to protect fish habitat on all lands, as well as special restrictions on use of herbicides and timber harvest rates in watersheds, protect water quality for municipal uses.

Municipal watersheds overlap with a number of different MAs Thus, management direction for the watersheds is provided in S&Gs for the MAs as well as Forest-wide S&Gs.

Activities associated with managing water quality are primarily carried out through coordination with management of other resources such as timber This involves consultation on inventory needs and evaluation of management practices. Coordination of management goals and activities with other government agencies and land managers is critical to the overall management of the water resource.

Electronics Sites

The following sites are available for electronic transmission use.

Existing

Mt. Hebo (including the Main, South, and East Points)
Cougar Mountain
Hyack Ridge
Cummins Peak
Table Mountain
Cape Perpetua
Cannibal Mountain
Butler Peak
Marys Peak (including the main point, the FAA area, and the West Ridge)
Franklin Ridge
Herman Peak
Goodwin Peak
Henderson Peak

New

Buzzard Roost
Ball Mountain
Yachats Mountain
Blodgett Peak
Saddle Mountain
Klickitat Mountain
Cape Mountain
Fairview Mountain

Management of Rights-of-Way

The rights-of-way program is mostly associated with the timber management program. It is estimated that there will be 12 rights-of-way acquisitions per year in the 1st decade.

FOREST-WIDE STANDARDS AND GUIDELINES

Standards and guidelines (S&Gs) are the base level practices used to achieve goals and objectives of the Forest Plan They generally emphasize the desired result rather than provide detailed management direction; this enables resource specialists using on-site information to tailor direction to specific needs and opportunities associated with each project and the complexities of the resources involved Project-level direction will be developed through NEPA procedures, within the bounds of the S&Gs.

The monitoring questions displayed in Chapter V reflect the expected end results of applying S&Gs In some cases, such as watershed management, thresholds of concern in monitoring questions can be used to clarify the intent of the S&Gs.

S&Gs are one link in a chain of Federal and Regional Direction that includes federal and state laws, regulations, and executive orders, the Forest Service Manual (FSM) and Handbook (FSH); General Water Quality Best Management Practices, Pacific Northwest Region; and the Regional Guide for the Pacific Northwest Region (USDA Forest Service 1984a). S&Gs supplement this direction and, for the most part, synthesize and consolidate rather than repeat higher level direction

S&Gs apply only to NFS land. The following S&Gs apply to all management areas (MAs) across the Forest, thus, they are referred to as "Forest-wide" S&Gs For ease of reference, each Forest-wide S&G is given a distinct number including the prefix FW (Forest-wide). Additional S&Gs that apply to specific MAs are found in "Management Area Prescriptions" later in this chapter

S&Gs are listed by activity or resource area (e g , project planning, recreation, cultural resources, visual quality, wildlife, and fish), and each is preceded by a short, highlighted descriptor

Project Planning and Implementation

FW-001 **Project Planning** - Plan and design projects in compliance with NEPA regulations, policy, and procedures, including proposals to modify projects after the initial decision has been made

FW-002 **Planning Analysis** - Analyze areas larger than the actual project area (third- or fourth-order subbasins) if necessary to estimate cumulative effects, to determine spatial distribution and timing of all projects proposed for implementation, and to ensure that resource management objectives for each MA are being met The size of the area will depend on the issue being analyzed Consider activities on lands owned by others as well as on National Forest System (NFS) lands in the analysis

FW-003 **Timber Constraint** - Harvest no more than 20% of the NFS land in a subbasin in any 10-year period, except for unusual cases

FW-004 **Timber Planning** - Include analysis of present and future transportation and general logging feasibility in timber sale planning and design

FW-005 **Removal Of Facilities** - Abandon or remove existing facilities (e g, trails, roads, buildings) only when the advantages of removal or abandonment outweigh the disadvantages

Recreation

FW-006 **ORV Use** - Permit the use of motor vehicles off roads, except where specified otherwise in MA direction in Forest Plan, Appendix D.

FW-007 **ORV Management Plans** - Restrict or prohibit specific types of motor vehicles off roads in areas not already restricted if needed to protect resources, provide for public safety, or minimize conflicts among users Remove restrictions if adverse effects have been eliminated, and measures have been implemented to prevent reoccurrence (36 CFR 295).

FW-008 **ORV Plan Review** - Annually review ORV management plans and invite public participation if the plan needs revision (36 CFR 295)

FW-009 **Trail Construction** - Construct and maintain trails where they will either provide access to scenic attractions and recreational opportunities or serve as recreational opportunities for a variety of users. When possible, locate trails where adverse effects from or on other management activities will be minimized When management activities will adversely affect trails, consider relocating the trail temporarily If the trail is not relocated, reduce the effects of management activities (e g , residue, stumps, rootwads, and disturbed soil) within 100 feet Generally, do not reduce harvest volume in order to avoid effects on trails

FW-010 **Features Inventory** - Develop an inventory of significant scenic attractions and recreational opportunities (e g , attractive waterfalls or other water features, scenic bedrock features, scenic vistas, small roadside old-growth groves, meadows, significant cultural resource sites, dispersed camps) Maintain a visually pleasing setting around these features (Visually pleasing settings could range from natural appearing with no vegetation removed from the nearby area to settings where significant modifications of the natural conditions have been made which enhance the appearance or use of the feature while meeting other resource objectives.)

FW-011 **Use Inventory** - Develop an inventory of areas with concentrations of dispersed public use (e.g., fishing, hunting, mushroom picking, mountain bike or horseback riding)

FW-012 **Dispersed Development** - Use the above inventories to plan additional dispersed recreational developments which will help meet projected public demand Provide appropriate facilities (e g., access, parking spots, and sanitation facilities) for the scenic attractions, recreational opportunities, or concentrations of dispersed use selected for management.

FW-013 **Interpretation** - Provide interpretation of attractions and features of public interest, including Forest Service resource management activities.

FW-014 **Developed Site Operation** - Operate and maintain existing developed sites in a cost effective manner so that:

- Public health and safety are assured Follow directions in FSM 2332, 2333, and 7420, and FSH 7409.11, the Sanitary Engineering and Public Health Handbook,

- Facilities are responsive to the needs and desires of the recreating public, while enhancing users' interaction with the natural resource;

- To the degree it is practical, the area within each recreation site is free of barriers This includes, if possible, a cross-section of all experiences and opportunities available within the site; and

- Sites remain at the ROS class and development scale to which they have been assigned unless an analysis of user demand shows that a change is appropriate

FW-015 **Developed Site Construction** - Construct new developed recreation sites when either use is expected to exceed seasonal practical capacity within three years or an outstanding recreational opportunity can be made available through site development. Ensure that new sites constructed to meet expected increases in use are of a kind, on a development scale, and in a location which is most appropriate for the type of use that is expected to exceed capacity

FW-016 **Potential Developed Sites** - Identify and manage potential developed recreation sites so they will have a safe, visually attractive vegetative cover which will provide screening, protection from the elements, and visual diversity at the time they need to be developed

FW-017 **Wild and Scenic Rivers** - To the extent possible on NFS land, maintain the eligibility and potential classification of all rivers not fully studied for eligibility and those determined to be eligible for inclusion in the National Wild and Scenic (W&S) Rivers System until the river has been either designated by Congress or determined to be unsuitable for designation Encourage cooperation of other public and private landholders to maintain eligibility on their lands as well (W&S Rivers Act of 1968)

The following seven rivers are eligible for inclusion in the W&S Rivers System:

River	*Potential Classification*
Nestucca River	Recreational
Drift Creek (Siletz)	Scenic, Recreational
Alsea River	Recreational
Siuslaw River	Recreational
North Fork Smith River	Scenic, Recreational
Wassen Creek	Wild, Recreational
Umpqua River	Recreational

FW-018 **Wild River Management** - Along river segments which are eligible for "wild" classification, do not build roads or harvest timber within the potential boundaries Comply with all standards for "wild" rivers specified in FSH 1909 12, Chapter 8 (1987)

FW-019 **Scenic River Management** - Along river segments which are eligible for "scenic" classification, allow well-screened roads (which may be conspicuous for short stretches), including an occasional bridge. Allow timber harvest and other resource management activities, provided there are no substantial adverse effects on the river and its immediate environment A resource assessment of the eligible river may be needed to determine adverse effects. Comply with all standards for "scenic" rivers specified in FSH 1909 12, Chapter 8 (1987).

FW-020 **Recreational River Management** - Along river segments eligible for "recreational" classification, allow road construction, timber harvest, and other resource management activities, provided they are done in a way that minimizes surface disturbance, sedimentation and pollution, and impairment of views from the river. Comply with all standards for "recreational" rivers specified in FSH 1909 12, Chapter 8 (1987)

FW-021 **Prohibition of Dams** - Within the authority of the Forest Service, prohibit new dams, diversions, or hydroelectric power facilities on rivers which are eligible for inclusion in the National W&S Rivers System

FW-022 **Suitability Studies** - Conduct suitability studies for all eligible rivers within five years of Plan implementation, or before any Plan revision that might occur sooner

FW-023 **Cooperation** - Cooperate with the State of Oregon to manage NFS land to be consistent with objectives of their Scenic Waterways Program.

FW-024 **Hunting and Fishing** - Provide consideration during environmental analysis for a diversity of hunting and fishing opportunities

Cultural Resources

FW-025 **Management** - Manage all cultural resources in compliance with the mandates of federal laws, acts, executive orders, and federal regulations

FW-026 **Survey Techniques** - Conduct a cultural resource survey before allowing ground disturbing activities. Conduct surveys in accordance with the design mutually accepted by the Oregon State Historic Preservation Office and the Siuslaw National Forest (Toepel 1985). All cultural resources discovered will be protected until evaluated to determine eligibility for the National Register of Historic Places (NRHP) Eligible sites will be preserved or treated in accordance with a mitigation plan approved by the above office and the Advisory Council for Historic Preservation

FW-027 **National Heritage Preservation Act** - Survey all lands on the Forest for cultural resources to comply with the National Heritage Preservation Act as amended, Sec 110(2) Compliance surveys will continue to be the first priority, but plans will be developed and money requested to complete the entire survey in a timely manner

FW-028 **Resouce Evaluation** - Assign inventoried cultural resources to thematic groups (e g, homestead sites, logging sites) to facilitate their evaluation Classify sites into categories developed by the Oregon State Historic Preservation Office so they fit into the state inventory system

FW-029 **National Register of Historic Places** - Nominate cultural resources that meet appropriate criteria for the NRHP Schedule nominations on an incidental basis until completion of the Forest-wide inventory

FW-030 **Resource Protection** - Protect resources considered eligible for the NRHP by making reasonable efforts to avoid adverse impacts to the resources or by developing a procedure to conserve the values through proper scientific methods and studies. Make additional efforts to protect eligible cultural resources from human depredation and natural destruction Protection plans may include physical protection such as fences and barriers, scientific study and collection, patrol and site monitoring, proper use or removal of signs to maintain site anonymity, and gaining public understanding and support through education [36CFR 219.24 (4)]

FW-031 **Interpretation** - Provide interpretation of cultural resources for educational and entertainment purposes to the extent consistent with protection, public interest, and management requirements

FW-032 **Burial Sites** - Protect known human burial sites from disturbance If an unknown burial site is uncovered, afford it complete protection and respect until the proper people and authorities have been informed. If the burial is American Indian, notify the appropriate tribe immediately

Visual Quality (Scenery)

FW-033 **VQOs** - Where no visual quality objective (VQO) is specified in management area direction, maximum modification is the minimum standard Where it is practical and consistent with other resource objectives, blend the management activity with the surrounding landscape more than would be done for maximum modification

Threatened, Endangered, and Sensitive Animals and Plants

FW-034 **Cooperation** - Identify and manage threatened and endangered (T&E) and sensitive species in cooperation with the USDI Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW; fish and wildlife), and Oregon Department of Agriculture (plants).

FW-035 **Conservation** - Meet legal and biological requirements for conservation of T&E and sensitive plants and animals Evaluate proposed projects that involve significant ground disturbance or have the potential to alter habitat of T&E or sensitive species to determine if any of these species are present (FSM 2670, T&E and R6 Sensitive Plants and Animals)

FW-036 **Consultation** - Where T&E species are present, make the required determination (a biological assessment for an EIS and a biological evaluation for an environmental assessment) according to the requirements of the Endangered Species Act (Public Law 93-205) Consult with the USFWS and state agencies on each program activity or project that the Forest Service determines may affect T&E species, before any decision is made on the proposed project

FW-037 **Mitigation** - Specify protection or mitigation requirements before carrying out a project [36 CFR 219 27(a)(8)] Conduct management activities and manage habitat for existing Federally classified T&E species so as to achieve objectives of existing recovery plans and not impair recovery of any T&E species

FW-038 **Biological Evaluation** - When T&E and sensitive species and/or their habitat is present, perform a biological (field) evaluation For sensitive species, consult with knowledgeable and interested authorities. Manage habitat for sensitive plants and animals to ensure that viable populations are maintained throughout their existing range Management practices and use of species management guides shall assure that species do not become threatened or endangered because of Forest Service actions

FW-039 **T & E List** - Maintain and update lists of T&E and sensitive plants and animals on the Forest periodically as new information is collected. Submit pertinent Forest information to the Regional Office for updating the Regional Forester's Sensitive Species lists and to the Oregon Natural Heritage Program for inclusion in their statewide Data Base

FW-040 **Disclosure** - Do not disclose information on the specific location of T&E or sensitive species to the public.

Bald Eagle

FW-041 **Recovery Plan** - Protect and manage bald eagles (a threatened species) and their habitat in accordance with the Pacific Bald Eagle Recovery Plan (USFWS 1986) and Implementation Plan (Bald Eagle Working Team 1989). The USFWS recovery goal for the Forest is 23 nesting pairs To meet this goal, protect seven existing and 16 potential nest sites. Protect a minimum of 125 acres of habitat at each site and complete a site specific management plan for each existing and potential nest site (Anthony and Issacs 1989) See MA 4 for S&Gs relating to management of these nest sites.

FW-042 **Cooperation with BLM** - Cooperate with BLM in management of a nest site adjacent to NFS land until plans for the site are updated or revised (Table Mountain Interim Bald Eagle Nest Site Plan, 1987)

FW-043 **Informal Consultation** - Initiate informal consultation with the USFWS to discuss the question of "effect" when a project involving site disturbance is within one mile of a bald eagle nest (FSM 2670, Bald Eagle Management and Consultation; Worthington 1980).

FW-044 **Nest Protection** - Protect all bald eagle nest sites, including existing and newly discovered active and inactive sites.

FW-045 **Other Protection** - Protect regularly used feeding and roost sites. Manage human activities to ensure compatibility with bald eagle feeding areas Use only those Forest practices that maintain suitability of the area for eagle roosting The radius of the area protected will be at least 330 feet and possibly up to 1/4 mile

FW-046 **Monitoring** - Monitor occupied bald eagle habitat annually to determine effectiveness of planned action and recovery efforts

Oregon Silverspot Butterfly

FW-047 **Recovery Plan** - Protect and manage habitat of the threatened Oregon silverspot butterfly in accordance with the USFWS Recovery Plan (Stine 1982) and Forest Implementation Plan (Clady and Parsons 1984; Hammond 1989). Refer to MA 1 for specific S&Gs.

FW-048 **Additional Populations** - Manage habitat of any introduced, newly acquired, or newly discovered population of Oregon silverspot butterflies according to S&Gs for MA 1, and consider it for inclusion in MA 1 through a Forest Plan amendment.

Peregrine Falcon

FW-049 **Recovery Plan** - Although peregrine falcons (an endangered species) are not known to nest on the Forest, there is habitat for nesting and feeding Protect sufficient existing nesting and feeding habitat to meet the objectives of the Pacific Coast Recovery Plan for the American Peregrine Falcon (USFWS 1982b) The recovery objective for the Forest is one pair. Protect any nest found, and protect and enhance associated habitat (such as feeding areas) if necessary

FW-050 **Management Plans** - Within 3 years after implementation of the Forest Plan, complete an inventory which catalogues habitat suitable for peregrine falcon Within one year after finishing the inventory, complete habitat or nest site management plans for peregrine falcons Coordinate the development of proposed habitat management plans with the USFWS Cooperate and coordinate with federal, state, and private organizations involved in recovery efforts

FW-051 **Disclosure** - Do not disclose information about falcon nest sites to the public

Northern Spotted Owl

FW-052 **Habitat Management** - Manage habitat of the spotted owl (a sensitive species proposed for listing as threatened) in accordance with the 1989 direction in Amendment 1 to the Regional Guide (USDA Forest Service 1984a) Refer to MA 3 for specific S&Gs relating to management of Spotted Owl Habitat Areas (SOHAs)

FW-053 **Interagency Agreement** - Assist the Regional Office to meet the terms of the 1988 Interagency Agreement on Spotted Owls Four agencies (USFS, USFWS, BLM and National Park Service) have agreed to cooperate in an effort to maintain population viability.

FW-054 **Known Sites** - Protect known nest sites and heavily used roost sites (often near nest sites) outside of MA 3 (SOHAs) during the nesting season Defer timber harvest within an average distance of about 1,000 feet from the nest tree (about 72 acres) until such time that owls have not been there for three straight years. The area should conform as much as possible to a "logical harvest unit".

FW-055 **Timber Sale Surveys** - Survey areas proposed for harvest which contain habitat suitable for spotted owls according to standard inventory protocols.

FW-056 **Seasonal Restrictions** - Do not permit activities which may disrupt breeding, rearing or fledging within 1200 feet of an active spotted owl nest site between February 1 to August 15

FW-057 **Additional Nest Sites** - When a new nest site is located, evaluate whether it can be incorporated into the Forest network

Snowy Plover

Status - This species is currently listed as sensitive by the Forest Service, as threatened by ODFW, and as a Federal Candidate Category 2 species by USFWS The plover nests, feeds, and winters in sandy areas virtually devoid of vegetation, driftwood, and other structure near salt or brackish waters of the Pacific Ocean and bays. The following S&Gs were developed in accordance with recommendations from USFWS management guidelines and ODFW's draft management plan for snowy plover

FW-058 **Area Closures** - Post informational signs at trailheads and other entry points to snowy plover nesting areas requesting that pedestrians, pedestrians with dogs, and equestrians avoid walking or riding in nesting areas from March 15 to September 15. Include the estuaries of Sutton Creek, Siltcoos River, Tahkenitch Creek, and Tenmile Creek in the areas posted. Develop and post signs in cooperation with ODFW and the Oregon Department of Transportation.

FW-059 **Public Education** - Initiate public education programs to explain the need for closures and how to avoid impacts when using nesting areas

FW-060 **Access Facilities** - Manage existing public access facilities to minimize potential impacts to nesting areas. Take plover nesting areas into consideration when planning facilities, and either avoid or mitigate impacts Access facilities include parking lots and trails which have the potential to direct public use into nesting areas.

FW-061 **Existing Habitat** - Cause no further loss or degradation of existing habitat

FW-062 **Habitat Enhancement** - As environmental conditions permit and as research determines suitable methods, create nesting habitat through methods such as the removal or control of beach grass or enhancement efforts such as the deposition of dredge spoils in appropriate areas

FW-063 **Monitoring** - Collect information needed to manage plover populations, including: location, number, and success of nesting plovers, responses of nesting plovers to management practices (especially changes); why existing suitable nesting habitat is not fully utilized; and responses to enhancement efforts

FW-064 **Cooperation** - Cooperate with ODFW and USFWS in doing surveys and research

Other Species

FW-065 **Brown Pelican** - Although the California brown pelican (a threatened species) does not nest in Oregon, it is a common visitor along coastal shores and off-shore islands. Manage habitat affecting the species in accordance with the Recovery Plan (USFWS 1983a). Coordinate proposals for habitat enhancement projects with the USFWS.

FW-066 **Aleutian Canada Goose** - The Aleutian Canada goose (an endangered species) does not nest on the Forest, but is a winter migrant along the coast in estuaries and wetlands Protect and manage the species' habitats in accordance with the Recovery Plan (USFWS 1982a). Coordinate proposals for habitat enhancement projects with the USFWS

FW-067 **Big-eared Bat** - Evaluate use of habitat by Pacific western big-eared bat (an R6 sensitive and federal candidate species) In cooperation with ODFW, attempt to verify the presence of this species on the Forest Manage any occupied essential habitat to maintain population stability

FW-068 **Other Sensitive Animals** - The Regional Forester's list of sensitive species includes animals such as the long-billed curlew, common loon, white-footed vole, and western pond turtle Continue to evaluate reported sightings of these species. In cooperation with ODFW, attempt to verify the presence and distribution of the species Provide occupied essential habitat through a species management plan if a species is found on the Forest

FW-069 **Sensitive Plant Surveys** - Survey all proposed projects that might disturb the ground for sensitive plants. Conduct surveys with qualified personnel at appropriate times of the year to detect presence of sensitive plants, and protect any occupied essential habitat Forward the survey results to the Forest coordinator on an annual basis Consult with the Oregon Department of Agriculture regarding new locations of sensitive plants and technical information (Note. The Regional Forester's list of sensitive species includes 23 plants for the Forest. Nine have been documented on the Forest. Of these, five are Federal candidate species (*Abronia umbellata breviflora*, *Cardamine pattersonii*, *Erythronium elegans*, *Filipendula occidentalis*, and *Poa laxiflora*)

Wildlife

FW-070 **Viable Populations** - Manage activities and projects so they do not reduce suitability of habitat needed to maintain viability of species Determine acceptable levels of effects on the habitat and assure that these levels are not exceeded. (Measures may include support of research, intensive evaluation of habitat conditions, and temporary or intermittent restrictions on public use)

FW-071 **Special Habitats** - Protect, maintain, and enhance wildlife habitats which are limited on the Forest These habitats include meadows, marshes, wetlands, estuaries, lakes, ponds, cliffs, talus outcrops, caves, and colonial nest/roost sites Protection and maintenance of these areas includes consideration of sufficient adjacent area to maintain the integrity and functional character of the habitat Address management of these sites as part of environmental analysis of specific management activities

FW-072 **Deciduous-Mix Habitat** - For diversity purposes, maintain at least 5% of the Forest in hardwood and mixed hardwood/conifer stands These stands should be distributed across the Forest in upland and riparian areas

Dead and Defective Tree Habitat

FW-073 **Subbasin Objectives** - On NFS land in each subbasin (about 2,000 to 5,000 acres), provide enough snags to support at least 40% of the potential population level of primary cavity-nesting species This is to ensure adequate distribution of snags throughout the Forest

FW-074 **Distribution Area Objectives** - Provide snag densities needed for at least a 20% potential population level within land areas that are generally no larger than normal harvest units (maximum of 60 acres) This is to ensure adequate distribution of snags within a given subbasin

FW-075 **Green Replacement Trees** - Maintain snag densities within distribution areas throughout a full rotation by providing green replacement trees that can be made into, or will become snags of adequate size when existing snags fall

FW-076 **Patch Size** - Provide one or more patches of snags within a distribution area Patches should be designed so that snags needed to meet the requirements of a pair of the excavator species with the smallest territory size are available within that territory size. Patches should be no closer than 750 feet wherever existing distribution of snags and live trees allows

FW-077 **Mature Conifer Areas** - Within each mature conifer habitat area managed for pileated woodpecker and marten, provide enough hard snags or green trees for snag mitigation purposes to support at least 60% of the potential population of primary cavity excavator species.

FW-078 **Analysis Procedures** - Calculate the number of snags needed to meet subbasin and distribution area objectives, using Forest species specific information and the general procedure outlined by Norris (1989). Develop Forest guidelines for analysis and implementation of wildlife tree habitats

FW-079 **Mitigation in Units** - Wildlife trees left in harvest units for mitigation purposes should be hard snags (Classes I, II, and III) and/or green trees to provide for current needs of hard snag dependent species and to serve as a source of future snags. Hard snags and topped green trees left to meet current needs should be at least 20 inches dbh and at least 20 feet tall. Green trees left as future wildlife trees must meet this size requirement by the time they are needed as replacement trees.

FW-080 **Soft Snags in Units** - Leave all soft snags (Classes IV and V) in harvest units except where they would create unacceptable conditions for safety, logging systems, or fire protection

FW-081 **Down Logs** - Leave at least two down conifers per acre on all harvest units Each log should be greater than 12 inches in diameter, contain a minimum of 40 cubic feet and be in early decay conditions (Class I or II). In core areas managed to provide mature conifer habitat for pileated woodpecker and marten, provide at least six down logs per acre, each greater than an average of 20 inches in diameter and 20 feet long.

Fish

FW-082 **Fish Passage** - Design and maintain instream structures to maintain streamflow velocities and channel gradients which permit anadromous and resident fish migration Provide adequate conditions for fish migration in currently occupied as well as in potential habitat.

FW-083 **Seasonal Restrictions** - When possible, carry out activities which disturb stream channels during seasons when there are no salmonid eggs or fry in the stream

FW-084 **Instream Debris** - In all streams, leave natural and logging-induced debris which has the potential to maintain or enhance stream structure When practical, remove excess debris which obstructs fish passage or has the potential to degrade the stream channel

FW-085 **Withdrawal of Water** - Limit the withdrawal of water for Forest Service activities so that instream flows provide adequate habitats for spawning and rearing of fish

FW-086 **Habitat Enhancement** - Develop fish habitat enhancement projects to open unavailable habitat and rehabilitate deteriorated habitat conditions that are limiting the size of fish populations Base projects on standardized inventories of instream and riparian conditions, and evaluate their effectiveness Coordate priority selection with ODFW.

Riparian Areas

Description of Riparian Area

The following S&Gs apply to the riparian areas along all perennial streams (Class I, II and III), and will be used primarily within the lands that are suitable for timber production on the Forest The width of the riparian area will vary according to site-specific conditions, and, for the Forest as a whole, is assumed to average 100 feet, measured horizontally, on each side of the stream

FW-087 **Buffer Prescription** - Develop a site-specific prescription to design the riparian leave area needed to produce the desired condition for each reach of stream adjacent to an area planned for management activities Normally this riparian leave area will vary in width to fit on-the-ground conditions. The prescription will consider factors such as the number and location of trees and their probability of falling into the stream, the amount and condition of existing large woody debris and other components of fish habitat in the channel, valley floor configuration, threats to the integrity of the riparian area from adjacent activities, stream and watershed conditions elsewhere in the basin, and riparian enhancement and management opportunities

FW-088 **Buffer Width** - Where conifers exist along Class I and II streams, leave a zone of such trees, averaging at least 10 per 100 feet of stream reach (about half on each side), that are likely to contribute large woody debris to the channel (On the average, these conifers are assumed to be within 100 feet of the streams, measured horizontally)

FW-089 **Buffer Width** - Where conifers exist along Class III streams, leave a zone of such trees, averaging at least eight per 100 feet of stream reach (about half on each side), that are likely to contribute large woody debris to the channel (On the average, these conifers that are most valuable for fish habitat are assumed to be within 60 feet of the streams, measured horizontally)

FW-090 **Skyline Corridors** - If possible, skyline corridors needed to harvest adjacent lands should be 40 feet or less in width where they pass through riparian areas, and average at least 200 feet apart (Total clearing for corridors should not remove more than 20% of the canopy present prior to harvest in a given 1000-foot reach of stream)

FW-091 **Buffer Integrity** - Assure that riparian objectives are met by including sufficient upland transition zones or by using practices such as stage felling, lining, and jacking to provide long-term integrity of riparian buffers

FW-092 **Riparian Tree Cutting** - Except for necessary felling of cable corridors, harvest trees within streamside buffers only when necessary to protect or enhance riparian dependent resources, such as fish habitat, watershed conditions, and water quality.

FW-093 **Fish Habitat Management** - Manage the vegetation in the riparian area to assure a continuing supply of conifer trees as a source of large woody debris for stream structure to improve fish habitat Management activities will vary according to the existing condition of streamside vegetation Options will include preservation of existing vegetation, removal of hardwoods and planting conifers in their place (together with the associated activities to conduct these operations), selective felling of trees into the stream channel when existing large woody material levels are deficient; and placement of large woody material originally located outside of the area into the stream channel

Range

FW-094 **Grazing Management** - Livestock grazing may be used as a tool to manage vegetation

FW-095 **Noxious Weeds** - Control noxious weeds when necessary to meet state and county objectives, or to improve conditions or outputs of other resources (e.g. make more forage available for big game, reduce competition with trees). Noxious weed control will be coordinated with Oregon Department of Agriculture.

FW-096 **Riparian Protection** - Develop grazing systems to be compatible with riparian management goals.

FW-097 **Riparian Forage** - Limit grazing of preferred forage species in riparian areas to 35-50%.

FW-098 **Watering Facilities** - Where feasible, develop watering facilities away from stream courses to reduce the potential for bank disturbance and adverse effects on water quality.

FW-99 **Water Quality** - Livestock management practices will conform with State Recreational Water Quality Standards.

FW-100 **Soil Damage** - Prevent livestock grazing in areas with wet or saturated soils to prevent excess puddling or soil compaction and displacement of surface vegetation

Timber

FW-101 **Logging on Unsuitable Lands** - Vegetation management is a principal tool used to attain resource goals throughout the Forest Unless stated otherwise in the MA S&Gs, trees may be cut or removed from land unsuitable for timber production for the following reasons, provided that the management direction for the area can still be achieved:

- Salvage trees or stands killed or substantially damaged by fire, windthrow, or other catastrophe;
- Control the spread of insect or disease outbreaks;
- Conduct research,
- Provide for the safety of Forest users (this includes hazard tree removal in camp and picnic grounds, in administrative sites, and along roads open to the public),
- Maintain or enhance fish and wildlife habitats;
- Improve the visual resource by opening scenic vistas or by improving visual variety;
- Construct new facilities such as roads, trails, administrative facilities, recreation facilities, and so forth

FW-102 **Unit Size and Location** - Ensure that dispersion and maximum size of created openings (clearcuts) conform to R-6 Regional Guide (USDA Forest Service 1984a) Standard and Guidelines 2-1, 2-2, and 2-3, except as outlined in 2-1

FW-103 **Utilization Standards** - Ensure that utilization standards conform with R-6 Regional Guide (USDA Forest Service 1984a) Standard and Guide 4-2.

FW-104 **Special Use Permits** - Ensure that timber sales are compatible with existing special use permits where significant permanent improvements have been made

FW-105 **Oil and Gas Development** - Give oil and gas development priority over timber sales if irreconcilable conflict occurs.

FW-106 **Other S&Gs** - All other timber S&Gs are contained in MA 15

Soil and Water

FW-107 **Soil Damage** - Do not allow the total acreage of all detrimental soil conditions (i e., erosion, compaction, puddling, displacement, and severely burned soil) to exceed 15% of the total Forest land within the project area, including no more than 5-6% in landings and roads Consider restoration if detrimental soil conditions approach 15% of the activity area

FW-108 **Stability Assessment** - Assess the stability of all slopes and roads prior to implementation of ground-disturbing activities

FW-109 **Site Productivity** - Retain sufficient ground vegetation and organic matter to maintain long-term surface soil stability and site productivity Practices include preventing erosion (landslides, dry ravel, sheet and rill), hazard reduction, and site preparation on sensitive sites and result in maintenance of organic matter in the surface soil

FW-110 **Organic Material** - Leave in place all un-utilized, standing or down woody material (larger than 20 inches in diameter at the small end, and any length) that does not either substantially interfere with reforestation or is an unacceptable fuel hazard These materials are left to maintain long-term soil productivity following regeneration harvest, catastrophic salvage, and site preparation The minimum amount to leave is two logs per acre having a volume of at least 40 cubic feet and 12 inches in diameter (Decay Class I or II), except in core areas managed for marten or pileated woodpecker where the minimum is six logs per acre (standing or down) greater than 20 inches in diameter and 20 feet long (as described in FW-081)

FW-111 **Leave Areas for Safety** - Leave vegetation intact on slopes where root strength or other characteristics of that vegetation may be needed to prevent landslides which might hit an inhabited building

FW-112 **Vegetation Leave Areas** - Leave all vegetation intact on slopes where root strength or other characteristics of that vegetation may be needed to prevent an increase in landslide occurrence, unless no significant direct or cumulative adverse effects on downslope resources or site productivity are anticipated as a result of the increased landslides

FW-113 **Leave Area Protection** - Design logging and road construction in areas adjacent to vegetation leave areas to minimize the adverse effects of logging activities, broadcast burning, and wind on the leave areas

FW-114 **Best Management Practices** - Comply with State requirements in accordance with the Clean Water Act for protection of waters of the State of Oregon (Oregon Administrative Rules, Chapter 340-41) through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with Oregon's Forest Practices Rules (OAR Chapter 629-24) and Clean Water Act regulations and federal guidance issued thereto. The key beneficial uses which BMPs are designed to protect are fish habitat and water for domestic use

FW-115 **BMP Process** - In cooperation with the State of Oregon, use the following process

- Select and design BMPs based on site-specific conditions, technical, economic and institutional feasibility, and the water quality standards for those waters potentially impacted;
- Implement and enforce BMPs;
- Monitor to ensure that practices are correctly applied as designed;
- Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards,
- Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected, and
- Adjust BMP design standards and application when it is found that beneficial uses are not being protected and water quality standards are not being achieved to the desired level. Evaluate the appropriateness of water quality criteria for reasonably assuring protection of beneficial uses. Consider recommending adjustment of water quality standards.

FW-116 **Water Quality Plan** - Use the existing approved process to implement the State Water Quality Management Plan on lands administered by the USFS as described in Memoranda of Understanding (MOU) between the Oregon Department of Environmental Quality and U S Department of Agriculture, Forest Service (2/12/79 and 12/7/82), and "Attachments A and B" referred to in this MOU (Implementation Plan for Water Quality Planning on NFS lands in the Pacific Northwest 12/78 and Best Management Practices for Range and Grazing Activities on Federal Lands, respectively).

For a more complete explanation of the above, refer to FEIS, Appendix J "Best Management Practices".

Individual, general BMPs are described in General Water Quality Best Management Practices, Pacific Northwest Region, 11/88 This provides guidance but is not a direction document. Also included in this document is a description of the process and limitations and use of these BMPs. Each BMP listed includes the Title, Objectives, Explanation, Implementation and Responsibility, and Monitoring Evaluations of ability to implement and estimated effectiveness are made at the project level

Not all of the general BMPs listed will normally apply to a given project, and there may be specific BMPs which are not represented by a general BMP in this document

The sensitivity of the project determines whether site-specific BMP prescriptions are included in the EA/EIS, sale/project plan, or analysis files.

FW-117 **Water Quality** - BMPs are designed largely to protect fish and water for domestic use The key water quality standards for the State are·

a. **Temperature Increases** - Use the following table to determine the maximum acceptable increase in temperature

When stream temperature is:	Maximum increase allowed:
64 F or more	none
62 - 63 5 F	0 5 F
less than 62 F	2 0 F

b. **Turbidity Increases** - Do not allow more than a 10% increase in turbidity above natural or existing stream turbidity measured upstream from an activity causing turbidity.

FW-118 **Stream Shading** - Leave enough vegetation intact along perennial streams to limit solar heating of streams and maintain water temperatures within State water quality standards.

FW-119 **Hazardous Spill** - Take measures which will assure that downstream water users and residents are notified immediately in the event of a spill of hazardous material

FW-120 **Protection from Chemicals** - Use measures which are effective in preventing chemicals (including fertilizer) from entering water and other areas not intended for treatment Measures may include no-spray buffers and road closures for transport of chemicals

FW-121 **Sanitation Facilities** - Provide sanitation facilities wherever human wastes would cause a hazard to human health

FW-122 **Spill Plan** - Prevent disposal of petroleum products and hazardous materials on Forest lands Follow the Forest's Hazardous Materials Spill Plan for control and cleanup of accidental spills of hazardous materials

FW-123 **Channel Stability** - Design any structure which is in or near a stream to maintain stability of banks and to minimize surface erosion which may enter the stream

FW-124 **Domestic Use** - When an activity proposed within a domestic-use watershed could measurably affect water quality or quantity, consider the needs of the water user in a site-specific environmental analysis under the NEPA process

FW-125 **Instream Flows** - Protect instream flow on Forest lands through site-specific analysis of proposed water uses, diversions, and transmission applications in accordance with NEPA and renewal of permits. Protect instream flow needs by. filing protests with the State where applications are made that adversely affect National Forest resources; asserting claims for this water under federal or state laws where applicable, inserting protective measures into special use permits; and reaching formal agreements over use Purchase of water rights and impoundments are other means for reducing impacts

FW-126 **Floodplain Protection** - Plan, construct, and maintain all existing and proposed facilities and structures within floodplains so they comply with floodplain management directions found in the Forest Service Manual

FW-127 **Stream Diversion** - When streamflow is temporarily diverted to accommodate construction or other activities, restore it to the natural course as soon as practical.

FW-128 **FERC Coordination** - Do not locate significant capital investment projects within FERC power withdrawls unless it would be practical to relocate them if the hydroelectric site is developed.

Municipal Watersheds

FW-129 **Environmental Analysis** - When an activity is proposed within a municipal watershed (see Glossary), conduct a site-specific environmental analysis under the NEPA process which considers the needs of the water users.

FW-130 **Cooperative Agreements** - In the Toledo and Corvallis municipal watersheds, assure that activities comply with the 1915 and 1922 Cooperative Agreements between the Secretary of Agriculture and the cities of Toledo and Corvallis, respectively.

FW-131 **Harvest Limitation** - Limit clearcut harvest acres to less than 15% of any municipal watershed within any 10-year period

FW-132 **Special Practices** - Use herbicides only when other methods would not be effective If herbicides are necessary, use only ground-based methods Comply with mitigation measures in the Regional EIS, Managing Competing and Unwanted Vegetation (1988b).

Minerals and Geology

FW-133 **Surface Disturbance** - Manage mineral activities, including exploration, to minimize surface disturbance

FW-134 **Withdrawal From Entry** - Consider withdrawing lands with permanent facilities, T&E species habitat, or designation as a Special Interest Area from mineral entry Lands being recommended for withdrawal shall be examined to assess the effects on all resources, including minerals

FW-135 **No Surface Occupancy** - Apply a "no surface occupancy" stipulation to leases only when (a) surface occupancy would cause significant resource disturbance which cannot be mitigated by any other means, (b) resource impacts would be irreversible or irretrievable, or (c) the activity is incompatible with surface management objectives

FW-136 **Common Variety Minerals** - Provide common variety mineral material for roads, trails and other activities on Forest lands Make common variety material available for off-Forest uses when it has been determined, through environmental analysis, that reserves exceed those necessary to meet projected Forest needs

FW-137 **Common Variety Management** - Manage common variety mineral materials by lease, sale, or permit in accordance with the following criteria:

- Utilizes existing sources before developing new ones;
- Authorize activities on lands covered by other mineral leases or permits only when removal will not unduly interfere with the prior authorization; and

- Do not authorize exploration and development activities in areas where there would be conflict with other beneficial uses, such as riparian areas, special wildlife areas, and developed recreational or administrative sites

FW-138 **Common Variety Removal** - Administer removal of common mineral materials on a sale or permit basis in areas where development does not conflict with other resource objectives Process mineral material requests in accordance with procedures in 36 CFR 228, Subpart C. Proposed mineral material sources shall have a development plan.

FW-139 **Development Plans** - Include reasonable, operationally feasible provisions to protect riparian values and meet state water quality standards in plans for exploration and development of any type of mineral resource (leasable, locatable, and common variety).

Research

FW-140 **RNA Network** - In cooperation with PNW Research Station, identify biotic communities on the Forest which might represent unique ecosystems that qualify for the Research Natural Area network

FW-141 **Cultural Resource Studies** - Provide selected cultural resource properties for scientific study of past human behavior, lifeways, economics, and adaptation

Lands

FW-142 **Right-of-Way Applications** - When applications for rights-of-way for utilities are received, give first priority to utilization of residual capacity in existing corridors (A map showing electronics sites and major utility corridors is on file at the Forest Supervisor's Office)

FW-143 **Additional Corridors** - Designate any additional corridors for major utilities through an interagency environmental analysis, following procedures set forth in the Regional Guide Amend the Forest Plan to include the newly designated corridor.

FW-144 **BPA Coordination** - Coordinate all new utility corridor requests with the Bonneville Power Administration Limit right-of-way clearing for utility corridors to the extent necessary for safe and efficient use

FW-145 **Protection of Raptors** - Design new power lines to avoid electrocution of raptors

FW-146 **Subsurface Lines** - Bury new or reconstructed linear utility facilities unless environmental analysis indicates it would be unacceptable

FW-147 **Road Grants** - Issue road rights-of-way grants to public road agencies for long term-use *only as permanent easements*

FW-148 **Temporary Access** - Acquire temporary access for Forest Service activities when one-time entry is expected to access relatively small and/or isolated parcels

FW-149 **Limited Access** - Do not acquire limited access for permanent rights-of-way unless either the public has alternative access to the parcel, or costs to acquire access outweigh public benefits

FW-150 **Special Easements** - Acquire conservation or scenic easements rather than full ownership when objectives can be met and cost is substantially less than the cost of full ownership

FW-151 **Electronics Management** - Manage sites designated for electronic use to maximize the number of compatible users while minimizing construction of individual buildings and facilities. Utilize existing site capacity before developing new sites when coverage is comparable. In addition,

- Develop site plans for existing sites with facilities in place; and
- Develop site plans for new sites prior to installation of facilities.

FW-152 **Letters of Authorization** - Use letters of authorization for occupancy and use of Forest lands when the use meets all the following criteria: temporary (less than one month), noncommercial, unadvertised, does not utilize public improvements, and does not draw public spectators. Under other circumstances, issue special use permits.

FW-153 **Land Acquisition** - Acquire and dispose of lands as prioritized in Appendix C.

FW-154 **Rights-of-Way** - Reserve rights-of-way needed for management on land sales and exchanges.

FW-155 **Land Exchange Restrictions** - Do not permit new activities on land where a land exchange statement of intent has been signed, unless consent of the proponent is obtained

FW-156 **Trespass** - Identify and resolve occupancy trespass cases

FW-157 **Small Tracts** - Identify and complete Small Tracts Act cases in a timely manner.

FW-158 **Monuments and Property Lines** - Locate and post survey monuments and property lines with the goal of completing the Forest by the end of the first decade.

FW-159 **Land Lines** - Locate and post all land lines needed for resource production before activity.

FW-160 **Maintenance** - Maintain corner monuments on a 10-year cycle Survey property line conditions on a 10-year cycle and maintain lines, as needed, prior to management activities

FW-161 **Permits** - Issue only those new permits which are compatible with management area objectives

Transportation

FW-162 **Road Design** - Design and maintain roads to the minimum standard required for the safety of users, for current and future intended uses, and to meet all resource objectives for an area. Design roads to avoid wetlands and riparian zones wherever possible. Design necessary crossings to minimize adverse impacts to water and fish habitat and in no way inhibit fish passage

FW-163 **Road Stability** - Construct and maintain roads and rock pits to minimize risk of landslides and erosion on the road surface.

FW-164 **Road Maintenance** - Maintain roads for low or high clearance use as indicated in the Road Management Objectives (RMOs). Following timber activities, open roads to high clearance vehicles for Forest visitor and administrative use, unless otherwise indicated in the RMOs Maintain roads to developed sites to permit access by a variety of recreational and passenger vehicles (i.e , trucks with trailers, cars, motor homes)

FW-165 **Signs** - Install and maintain directional signs which facilitate travel through the Forest by recreational users. Correlate signing with Forest maps

FW-166 **Sidecast Material** - Remove existing unstable road sidecast material that could cause landslides and subsequent adverse effects on downstream resources

FW-167 **Appropriate Use** - Provide access for low-clearance, highway vehicles to developed recreation sites and a variety of points of interest within the Forest Many roads will discourage low-clearance vehicles, and encourage high-clearance vehicles Mark roads to indicate the appropriate use

FW-168 **Road Management** - Combine transportation planning and road maintenance Construct roads only when consistent with objectives for the management area Ensure that each road has management objectives that provide a means to identify which maintenance standards and activities apply to the road Update the Road Management Plan annually based on planning and monitoring.

FW-169 **Wildlife Restrictions** - When needed to limit wildlife harassment by reducing traffic volume, consider restricting roads open to motorized vehicles, except for those used for administration, permits, and contracts

FW-170 **Closures** - When practical and consistent with other resource objectives, keep Forest roads open for public recreational use (Closures are shown in Appendix D)

FW-171 **Revegetation** - Revegetate all non-system roads constructed during the planning period within 10 years of completion of the contract, lease, or permit through which they were constructed

Protection

FW-172 **Suppression** - Suppress all wildfires

FW-173 **Aggressive Suppression** - Aggressively suppress wildfires that threaten life, property, public safety, improvements, or investments

FW-174 **Escaped Fire Situation Analysis (EFSA)** - Complete an EFSA for fires that escape initial action or burn into the second burning period

FW-175 **Economic Efficiency** - Prepare, implement, and maintain a fire management program that is cost effective Determine this level of protection through the National Fire Management Analysis System Use a Fire Management Action Plan to implement the fire management program.

FW-176 **Prescribed Fire** - Consider use of prescribed fire to meet management objectives in areas where ecological studies show that fire has played a significant role in ecosystem development Use planned ignitions for all prescribed fires.

FW-177 **Project Assessment** - Address environmental effects of projects where prescribed fire is an alternative for the treatment of activity fuels (logging residue) or natural fuels.

FW-178 **Burning Plans** - Prepare burning plans in advance of ignition and get approval by the appropriate line officer for each prescribed fire Burning plans will define an escaped fire Declare a prescribed fire that escapes as a wildfire and prepare an EFSA

FW-179 **Pest Management** - Use an Integrated Pest Management (IPM) approach, which recognizes pest management as an integral part of timber and other resource management, to prevent and reduce unacceptable pest-related damage Under IPM, consider and analyze a full range of pest management alternatives, including cultural, biological, chemical, and mechanical methods, on a site-specific, project-level basis Select specific treatment methods through an environmental analysis process which will consider environmental effects, treatment efficacy, and cost of each alternative on a case-by-case basis Set up monitoring and enforcement plans to implement specific measures during this site- and project-specific analysis.

Air Quality

FW-180 **Air Quality Guidelines** - Meet air quality guidelines during all land management activities

FW-181 **SIP** - Meet or exceed Oregon State Implementation Plan standards on all prescribed burns

FW-182 **Future Emissions** - Assure that total smoke emissions on the Forest will meet, or are below, the emission standards set for the year 2000

FW-183 **Rural Communities** - Give special attention to protecting high-use recreational areas and rural residential populations from exposure to smoke Use all practical means of smoke management, including reduction, avoidance, and scheduling

FW-184 **Emissions Plan** - Prepare an annual plan that lists the proposed burns for the year, the units that will have other treatments (including no treatment) in order to reduce total smoke emissions, and the number of acres included in timber sale planning which have prescribed burning as a method of fuels treatment List the "best available technology" that will be used to reduce the emissions for all of units that are planned for prescribed burning

Facilities

FW-185 **Management** - Plan, develop, maintain, and operate buildings, utility systems and related facilities for safe use, support of the Forest resource programs, and cost effectiveness

FW-186 **Construction** - Assure that the construction of new buildings or additions to existing buildings and utility systems comply with the approved Forest Facilities Master Plan

FW-187 **Administrative Facilities** - Provide and manage administrative facilities sufficient to accomplish land and resource management and protection objectives. Maintain the Forest Facilities Master Plan for all administrative sites. Consider long-term development and maintenance costs in planning for facilities

FW-188 **Inspection** - Make a complete condition inspection, as suggested by prudent engineering practices and the Forest's Facility Management Plan, at least once every five years Complete maintenance within two years of discovery of the need. Deferred maintenance items will be documented along with an analysis of anticipated damage to the structure Give highest priority to historic structures like Heceta House and Hebo Lake Picnic Shelter

MANAGEMENT AREA PRESCRIPTIONS

This section describes direction specific to the 15 management areas (MAs) on the Siuslaw National Forest Locations of the MAs are shown on the accompanying Forest Plan map. A MA is a portion of the Forest (not necessarily contiguous) where specific management direction will be applied. A MA may be either a single parcel of land or a collection of parcels spread throughout the Forest For example, there are four areas on the Forest Plan map where management direction for MA 1 applies

Management direction for each MA starts with a prescription [numbers in parentheses after the narrative correspond to FORPLAN prescriptions described in USDA Forest Service (1981e; 1981f)] Also included in the direction are an introductory statement, goals, the desired condition for the land, and standards and guidelines (S&Gs) governing management activities within the MA For ease of reference, each S&G is given a distinct number, which includes a prefix corresponding to the number of the MA All S&Gs for some resources, like fish and watersheds, apply Forest-wide and do not appear in MA S&Gs

MAs are multi-resource oriented, but each differs in its **primary** resource emphasis Some MAs provide conditions necessary for a single resource or facet of a resource; however, each MA always produces a mix of resource outputs and services In some cases, management practices and decisions (such as timing of timber activities) may be modified near MA boundaries to meet objectives of adjacent MAs Table IV-19 gives a brief summary of the MAs Acreages shown are those assigned to each MA, but are not always the total to be managed for a specific resource

Some facets of a resource are managed in a number of MAs (Table IV-20) For example, spotted owl habitat is provided in MAs 5, 6, 7, 11, and 12, in addition to MA 3, because management of such habitat is compatible with their primary resource emphases (e g., Wilderness, Special Interest Areas). Only MAs 14 and 15 contain lands suitable for timber production, and produce all timber harvested on a regular basis on the Forest Table IV-20 also indicates issues (see Chapter III) that are addressed in several MAs.

Management Area Boundaries

Two key qualities of a MA are that its boundaries must be easily identifiable on the ground and easily illustrated on a map MA boundaries are shown on the Forest Plan map This will help to identify general locations where activities will be implemented under the Plan. A more detailed, larger scale map - the "Forest Plan Control Map" - will be developed within 2 years of approval of the Forest Plan that will show specific locations of major activities

Management Area Modification

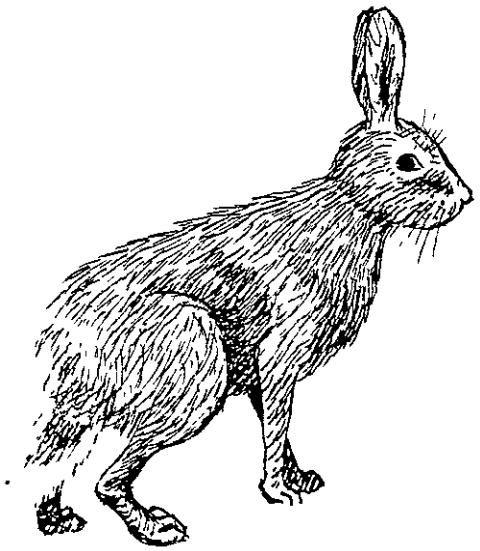
If unusual or special situations inconsistent with direction for a given MA are discovered, the MA boundary or direction may be modified Such a modification would be the exception rather than the rule An example would be discovery of a bald eagle nesting site in MA 15, in which timber is regularly harvested. In this case, the nest site would be redesignated as MA 4 Boundaries would be modified through the NEPA process to determine what, if any, documentation is needed Minor modifications to correct mapping errors may be made without modifications to the Forest Plan

Table IV-19 Description and Size of Each Management Area

Management Area	Description	Acres
1	**SILVERSPOT BUTTERFLY HABITAT** - This MA protects and enhances Oregon silverspot butterfly habitat	1,926
2	**EXISTING OLD GROWTH** - This MA preserves existing old-growth conifer stands not preserved in other MAs	1,000
3	**NORTHERN SPOTTED OWL HABITAT** - This MA maintains suitable habitat for the northern spotted owl and other species dependent on old-growth habitat	46,512
4	**BALD EAGLE HABITAT** - This MA protects and enhances bald eagle habitat	2,502
5	**SPECIAL INTEREST AREAS** - This MA protects areas with unusual scenic and other special characteristics, while fostering public use and enjoyment of these areas	5,384
6	**CASCADE HEAD SCENIC-RESEARCH AREA** - This MA maintains this area for the purposes outlined by Congress (visitor use and scientific research)	4,787
7	**CASCADE HEAD EXPERIMENTAL FOREST** - This MA maintains this area designated by the Secretary of Agriculture for study of the ecology and management of Sitka spruce/western hemlock ecosystems	7,210
8	**SAND LAKE** - This MA provides a mix of recreational opportunities (including off-road vehicle use, hiking, sightseeing, camping, and picnicking) commensurate with protection of other resources	991
9	**SUTTON AREA** - This MA provides a mix of recreational opportunities (including off-road vehicle use, hiking, sightseeing, camping, horseback riding, and picnicking) commensurate with protection of wildlife and sensitive plant habitats	2,707
10	**OREGON DUNES NATIONAL RECREATION AREA** - This MA maintains the area designated by Congress in conformance with the management plan approved by the Chief of the Forest Service in 1979	26,513
11	**UNDEVELOPED AREAS** - This MA retains undeveloped areas in their natural state and provides SPNM recreational opportunities as well as other amenities associated with nondevelopment	7,298
12	**WILDERNESS** - This MA maintains Wildernesses in accordance with the Wilderness Act of 1964 and the Oregon Wilderness Act of 1984	22,186
13	**RESEARCH NATURAL AREAS** - This MA protects physical and biological units in which natural conditions are preserved for scientific research	1,408
14	**SCENIC VIEWSHEDS** - This MA provides attractive forest settings that are seen from selected visually-sensitive travel routes and recreation sites	33,666
15	**TIMBER/WILDLIFE/FISH/DISPERSED RECREATION** - This MA uses manipulation of vegetation to produce timber and maintain and/or enhance wildlife habitats Fish and wildlife habitats and soil and water resources are protected, and dispersed recreation encouraged	467,271
Total	**ALL MANAGEMENT AREAS**	**631,361**

Table IV-20. Resources (Chapter-III Issues) Linked with Management Areas

RESOURCE (ISSUE)	MANAGEMENT AREA														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Timber (1)														X	X
Old Growth (2)		X			X						X	X			
Watersheds (3)														X	X
Fish (4)														X	X
Wildlife (5)														X	X
T&E Wildlife (5)	X		X	X	X	X	X		X	X	X	X			
Special Interest Areas (7)	X				X										
Recreation Areas (8)								X	X						
Visual Resources (9)	X		X	X	X		X	X			X	X		X	X
Undeveloped Areas (11)	X										X				
Research Natural Areas (12)					X	X						X	X		
Congressional Areas (17)						X				X					



Management Area 1 (Oregon Silverspot Butterfly Habitat)

Prescription

Maintain quality of silverspot butterfly habitat, and enhance habitats to contribute to removal of T&E species classification from state and federal lists (C13, S11)

Introduction

Two viable populations of the threatened Oregon silverspot butterfly exist on the Forest; one in salt-spray meadows between the mouths of Rock Creek and Big Creek in Lane County, and one in grassy balds on top of Mt. Hebo in Tillamook County. (Only one other viable population is known - on Nature Conservancy property at Cascade Head) More tenuous Lane County-populations are one in small meadows on the headland at Bray Pt. and another (introduced) on top of Fairview Mt. about 4 miles inland. The majority of the butterfly habitat at the Rock Creek/Big Creek area, and all habitat at the other sites is on NFS land. Of the habitat at Rock Creek/Big Creek, about 45% is meadow along the ocean and Big Creek upstream, and 55% is forest fringe adjacent to the meadows. At Mt. Hebo, about 20% is meadow and 80% is forest fringe surrounding the meadows The mixes at Fairview Mt and Bray Pt. are probably about 50-50, although the areas have yet to be intensively studied.

Mt Hebo also possesses special recreational opportunities in the form of outstanding scenic and botanic features For those reasons, it is also being designated as a Special Interest Area (SIA), which is compatible with habitat management goals.

The management prescription for this area helps resolve the portion of Issue 5 (see Chapter III) which is concerned with how to manage habitat of T&E and sensitive species Most of the portion of this MA at Rock Creek includes federally designated Critical Habitat for the butterfly (45 Federal Register 129) as allowed under the Endangered Species Act of 1973 Any activities in the MA must be compatible with the Recovery Plan for the species (Stine 1982) and the Forest's plan to implement it (Clady and Parsons 1984, as updated in Hammond 1989) (This implementation plan is the source of S&Gs noted with an asterisk) The prescription also helps resolve a portion of Issue 7 which concerns management of potential SIAs

All land in this MA is categorized as "unsuitable for timber production"

Goals

The primary goal of this MA is to assist recovery of this threatened species and its removal from the federal list of T&E species Recovery will be accomplished through activities which increase the amount of suitable silverspot butterfly habitat, and thus increase numbers of populations and individual butterflies At present, the Forest has a goal of providing 400 acres of prime meadow (breeding) habitat within the mostly forested, 1926-acre MA to aid recovery of the species

Additional goals are to protect outstanding scenic and biological features on Mt Hebo and protect visual resources. (See descriptions of MAs 5 and 14 for more complete information on these additional goals.)

Desired Condition

Most butterfly habitat occurs in meadows Meadow vegetation consists primarily of wildflowers and native grasses (including red fescue), which provide cover for butterfly larvae. An abundant growth of common blue violets provides food for the larvae California asters, the preferred source of nectar for

adult butterflies, are dispersed throughout this vegetation. On Mt. Hebo, there may be electronics facilities (radio and TV towers) in locations which do not conflict with butterfly habitat

The remainder of the MA consists of land in a forested fringe adjacent to or surrounding meadows Portions of this fringe provide food and protection to the butterfly in wind and adverse weather The fringe habitat consists of relatively small, grassy openings interspersed with large trees (at least 50 feet tall). Some scattered, open-grown trees with limbs to the ground are present in the openings, as well as nectarous plants such as goldenrod, yarrow, or asters. Vegetation in the fringe may be manipulated in a manner which enhances habitat for the silverspot butterfly Other areas within the fringe where such manipulation is not essential remain in a natural condition.

The visual quality objective (VQO) is retention for the Rock Creek and Bray Pt portions of this MA, partial retention for the Mt. Hebo portion, and maximum modification for Fairview Mt and the inland meadow at Big Creek. [See the Glossary or USDA Forest Service (1974) for a description of the visual conditions desired where the VQO is retention or partial retention.]

The entire Mt. Hebo portion of this MA is also reserved for potential classification as the Mt. Hebo Scenic-Biological SIA The unique features of this area, in addition to the silverspot butterfly, include sweeping views of the Pacific Ocean, Coast Range, and Cascade Mountains, rocky outcrops and cliffs, sphagnum bogs, and other unique plant communities on one of the highest mountains in the Oregon Coast Range

Within this potential SIA, timber harvest units may be present due to the need to improve habitat of the Oregon silverspot butterfly, maintain scenic views, or construct approved facilities Units generally are small and have a natural appearance The public has reasonable access to view both on-site and off-site scenery Recreational facilities allow for hiking, picnicking, camping and snow use Electronics facilities are concentrated in one site at the summit, except those for Tillamook County Sheriff's Department, which are on South Point. Interpretive information helps visitors understand management of the butterfly.

Standards and Guidelines for MA 1

01-01 **Recovery Implementation Plan** - Follow the "Management Standards" and "Management Emphasis and Methods for Rehabilitating the Habitat" sections in the Forest's Implementation Plan for the Recovery Plan of the Oregon Silverspot Butterfly (Clady and Parsons 1984) Summaries of the most important points from these sections are shown below with an asterisk (*)

Recreation

01-02 **Facilities** - Provide recreational facilities (such as trails, parking, viewpoints) which are needed to make special recreational and scenic features available to the public.

01-03 **Construction** - Assure that any facilities constructed do not damage silverspot butterfly habitat or other special features of the area

01-04 **ROS Class** - Manage recreational opportunities to be in the roaded-natural Recreation Opportunity Spectrum class (See the glossary for definitions of the ROS and ROS classes)

01-05 **Recreational Activities*** - Assure that hiking, camping, and other recreational uses do not cause lasting damage to the habitat

01-06 **ORV Use*** - Prohibit off-road use of motor vehicles and mountain bikes

01-07 **Management Plan** - Within 3 years, prepare a management plan for the Mt Hebo Scenic-Biological SIA.

Visual Quality

01-08 **VQO Management** - When a portion of MA 1 is seen from a sensitive viewing location (road, recreation area) in a viewshed assigned special scenic protection, manage the portion which is seen to meet or exceed the same VQO assigned to the corresponding portion of the viewshed (For example, the Rock Creek portion is seen in foreground from Highway 101; so the VQO in that portion would be retention) See Table IV-11 for a list of viewsheds assigned special scenic protection, and their respective VQOs. [See the Glossary or USDA Forest Service (1974) for a description of VQOs]

01-09 **VQO Management** - In the Mt Hebo portion, generally meet or exceed the VQO of partial retention as seen from the Mt. Hebo Road and trails Use creative design of location, materials, forms, colors, and textures to keep recreational and electronics facilities as inconspicuous as possible and thus meet the VQO of partial retention where practicable (In all cases, facilities should be no more dominant than the VQO of modification).

Wildlife

01-10 **Habitat Rehabilitation*** - When implementing meadow improvements, control methods and intensity of treatment (i e , burning and mowing) in order to protect the food supply (blue violet) of larvae and not harm various life stages of the butterfly population. Specific objectives depend on which specific part of the MA is to be treated and quality of habitat present.

01-11 **Prohibited Activities*** - Prohibit unauthorized introduction of plant and animal species or collection of silverspot butterflies, use of insecticides and artificial lighting, and destruction of sparse aster stands and ant hills

Timber

01-12 **Forest Fringe** * - In the Mt Hebo area, create small, protected openings for butterfly habitat by removing trees from the timbered fringe according to requirements outlined in Clady and Parsons (1984)

Lands

01-13 **Electronics Locations** - Permit electronics facilities only where they will not adversely affect recovery of the silverspot butterfly, and concentrate them in a single area to minimize adverse effects on scenery

01-14 **Electronics Planning** - Plan for new electronics facilities in a way which will not interfere with existing facilities

01-15 **Abandoned Facilities** - Rehabilitate abandoned building sites and support facilities on Mt Hebo to provide additional habitat for the silverspot butterfly

01-16 **Land Acquisition** - Retain NFS lands and acquire butterfly habitat in the Rock Creek and Bray Pt areas.

Transportation

01-17 **Road Access** - Maintain existing access roads for low clearance vehicles Abandon, revegetate, or obliterate those roads not needed for resource management Maintain roads needed only for future management at Level I.

Protection

01-18 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size.

01-19 **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to meadows and surrounding forest fringe

01-20 **Prescribed Fire** * - Use prescribed fire as appropriate to maintain butterfly habitat

01-21 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible

01-22 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Management Area 2 (Existing Old-Growth Groves and Ecosystems)

The Forest Plan will maintain 23,300 acres of existing old-growth stands in MAs 3, 4, 5, 6, 7, 11, 12, 14, and 15. In addition, 1,000 acres of smaller groves of large, old trees - some of which meet the Regional Guide definition of old-growth ecosystems and some of which do not - will be provided in MA 2 for amenities like viewing and aesthetics.

Prescription

Maintain a land area where natural conditions and processes are allowed to dominate (C12, S10).

Introduction

Due to past fires and logging, only a small amount of old growth exists on the Forest. Many of the larger stands are preserved in other MAs such as Spotted Owl Habitat, Wilderness, and Special Interest Areas. MA 2 consists of groves of existing old trees which are not included in other MAs which protect old growth. The groves are distributed unevenly throughout the Forest

This MA is different than MA 3 (Spotted Owl Habitat). Even though it may provide some habitat for old-growth associated species, the individual groves are too small, or are not in the proper distribution to provide essential habitat. This MA is intended to provide satisfaction for people who enjoy viewing and visiting old groves, or who just like to know that old trees and associated ecosystems are being maintained as a part of the Forest Finally, only existing old trees and old growth are included in this MA, while MA 3 includes stands which are not yet old growth Thus, if existing old groves are either moved to another MA (such as bald eagle habitat) or lost due to fire, wind, or other catastrophic damage to the trees, the affected land would be eliminated from this MA and could be replaced with other available old groves.

Management prescriptions for this area help resolve Issue 2 (see Chapter III), which is concerned with how much existing old growth will be maintained on the Forest. Issue 2 is also partly resolved by preserving existing old growth in other MAs.

All land in this MA is categorized as "unsuitable for timber production "

Goals

The primary goals for management of this area are to:

1. Protect older trees for esthetic, recreational, and scientific purposes;

2. Provide habitat for some wildlife species that utilize groves of older trees; and

3 Protect part of the existing old-growth ecosystem on the Forest

Desired Condition

Characteristically, older groves include some large, mature trees, 30 to 90 inches in diameter, and 100 to 250 feet tall These trees have straight trunks with rough, highly grooved bark and large limbs in the upper part of the tree. Most of the trees have broken tops and large amounts of decay. Other conditions that may be present are:

- Multiple layers of vegetation including one or more understory layers of suppressed and young trees, and a shrub and herb layer,
- Several snags per acre over 20 inches in diameter and 25 feet tall, and many trees on the ground over 20 inches in diameter, the dead trees being in various stages of decay, and
- An uneven distribution of trees including patches of younger age classes of up to 5 acres

Stream channels in these areas are stable and have good structure with large pieces of woody debris providing many natural steps and pools There is light recreational use, primarily for viewing older trees, in some of the groves Through-roads may be present

Standards and Guidelines for MA 2

General

02-01 **Selection Criteria** - Select groves for this MA which

- Are accessible to the public by road or less than a 1/2-mile hike on a trail;
- Are in an aesthetic setting, and
- Have a manageable boundary

Recreation

02-02 **ROS Class** - Provide roaded-natural ROS class opportunities.

02-03 **Trail** - Provide minimum-impact hiker trails in those areas where accessibility for the public is planned ("More difficult"--FSM 7709 12, Trails Handbook).

Visual Quality

02-04 **VQO Management** - When a portion of MA 2 is seen from a sensitive viewing location (road, recreation area, etc) in a viewshed assigned special scenic protection, manage the portion which is seen to meet or exceed the same VQ0 assigned to the corresponding portion of the viewshed. See Table IV-11 for a list of viewsheds which are assigned special scenic protection, and their respective VQOs (See the Glossary or "Agriculture Handbook Number 462, The Visual Management System" for a description of VQOs)

Timber

02-05 **Timber Harvest** - Avoid cutting or removing trees (green or dead) unless it is necessary for one or more of the following purposes and if other management direction for the area can still be achieved:

- Protection of trees imminently threatened by outbreaks of insects or disease,
- Research (related to management direction for this MA),
- Safety of people or facilities,
- Wildlife or fish habitat enhancement or maintenance, or
- Development or maintenance of facilities (primarily roads and trails)

Protection

02-06 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size.

02-07 **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to old trees

02-08 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible

02-09 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Lands

02-10 **Land Acquisition** - Retain NFS lands unless lands with similar or better conditions can be acquired

Management Area 3 (Spotted Owl Habitat Areas)

Prescription

Maintain a land area where natural conditions and processes are allowed to dominate (C12, S10)

Introduction

Spotted Owl Habitat Areas (SOHAs) are designated on lands tentatively suited for timber production in order to provide habitat for an adequate number of breeding pairs and prevent isolation of spotted owls on reserved land and lands not suited for timber production Designated SOHAs in this MA ensure that a sufficient number of breeding pairs will be protected on all land-use classes and that habitat will be distributed in a manner that ensures the continued long-term existence of owls in the planning area

The Forest network for spotted owls conforms to S&Gs established in the 1988 Amendment 1 to the Regional Guide (USDA Forest Service 1984a) First, the current distribution of suitable habitat on lands unsuitable for timber production was determined Then SOHAs were designated on lands tentatively suitable for timber production as needed to meet distribution standards

A total of 46,512 acres of tentatively suitable forest land is included in MA 3 Outside of this MA, 17,888 more acres of suitable spotted owl habitat are protected in reserved areas such as Wildernesses and Cascade Head Scenic-Research Area. Another 8,717 acres of SOHA are included in MAs other than the above (see Table IV-19) SOHAs are dedicated rather than managed on a long rotation No sites are identified as potential replacements

Management prescriptions for this MA help resolve the portion of Issue 5 (See Chapter III) which is concerned with amounts of habitat maintained for T&E and sensitive species This issue is also partly resolved by providing habitat for spotted owls in other MAs See FEIS, Chapter II "Management of Resource Programs" for a description of the total Forest program for managing spotted owls

All land in this MA is categorized as "unsuitable for timber production "

Goals

The goal of MA 3 is to provide sufficient mature and old-growth habitat to maintain viable populations of spotted owls in a well-distributed pattern throughout the Forest

Secondary goals for this MA include: providing habitat for other species of wildlife that prefer old-growth or mature conifer stands; providing habitat for bald eagles; protecting some existing old-growth stands on the Forest, achieving an old-growth condition in stands which are not yet old growth; and allowing natural development of stream habitat for fish and other aquatic organisms

Desired Condition

The desired condition is well dispersed mature and old-growth habitat areas with optimum characteristics for survival and reproduction of spotted owls

Suitable habitat includes uneven-aged stands with a multi-layered canopy with closure of more than 60% Dominant overstory tree species are Douglas-fir, western hemlock and western redcedar Dominant trees exceed 21 inches DBH and known nest trees 35 inches DBH Feeding habitat may include stands averaging 18 inches DBH or greater if understory structure and dead and down material are present

in moderate to high quantities. Understory tree layers include primarily western hemlock, western redcedar, other conifers and hardwoods There is an abundance of dead standing and fallen decayed trees as well as large, tall trees suitable for nesting (with broken tops, cavities, mistletoe, and platforms of branches).

Although individual mature and old-growth stands may last for many decades, forest conditions are not static; individual areas will not be suitable habitat forever Future plans may examine opportunities to consolidate habitats into more contiguous areas, enhance habitat, manage areas in an uneven-aged condition, or substitute areas and gradually rotate designated areas.

Standards and Guidelines for MA 3

General

03-01 **Seasonal Restrictions** - Do not permit activities which may disrupt owl breeding, rearing, or fledging within 1200 feet of an active spotted owl nest site between February 1 to August 15.

03-02 **Prohibited Activities** - Do not permit activities reducing suitability of owl habitat.

Recreation

03-03 **ROS Class** - Allow roaded-natural ROS class opportunities.

03-04 **Trail** - Permit trail construction and reconstruction if site-specific biological review and environmental analysis has determined that owl breeding, rearing, or fledging will not be disrupted. In general, do not construct new trails within 600 feet of a nest or heavily used roost site

03-05 **Developed Site** - Permit expansion of existing developed sites or construction of new ones on a case-by-case basis if environmental analysis shows that goals of the MA can be met

Visual Quality

03-06 **VQO Management** - When a portion of MA 3 is seen from a sensitive viewing location (road, recreation area) in a viewshed assigned special scenic protection, manage the portion which is seen to meet or exceed the same VQO assigned to the corresponding portion of the viewshed See Table IV-11 for a list of viewsheds which are assigned special scenic protection, and their respective VQOs. (See the Glossary or "Agriculture Handbook Number 462, The Visual Management System" for a description of VQOs.)

Wildlife

03-07 **Habitat Requirements** - Include 2,000 acres of suitable habitat in each SOHA The acreage should contain at least one 300-acre stand of habitat surrounding the nest site Other habitat within 1 5 miles of a central point, and including the entire nest stand, should be as contiguous as possible with a minimum block size of 60 acres Habitat areas may vary from the acreage objective for suitable habitat if approved by the Regional Forester and if criteria for exceptions outlined in the 1988 Amendment 1 to the Regional Guide (USDA Forest Service 1984a) are met

03-08 **Habitat Distribution** - Ensure that habitat areas within clusters of three or more SOHAs are 1 5 miles or less apart, measured edge to edge Clusters of three or more SOHAs, or habitats in land unsuitable for timber production that can support at least three pairs, shall be 12 miles or less apart, measured edge to edge Other habitat areas (clusters, singles, or habitat areas within land unsuitable for timber that could support at least one pair) shall be six miles or less apart, measured edge to edge

03-09 **Linkage** - Ensure that each designated habitat area is linked to at least three other areas within the spacing standards These three areas can be SOHAs or suitable spotted owl habitat on lands unsuitable for timber production A cluster is not considered three distinct areas for the purpose of this positioning

03-10 **Replacement Habitat** - When more than 5 acres of habitat are lost due to fire, blowdown, road construction, or other reasons, adjust the boundary of the SOHA to replace a commensurate amount of suitable habitat through an environmental analysis.

03-11 **SOHA Management Plans** - Within 5 years of Plan implementation, prepare a management plan for each SOHA that describes stand characteristics and outlines activities

03-12 **Bald Eagle** - Where MA 3 overlaps an existing or potential bald eagle site, evaluate management activities to ensure that objectives for maintaining bald eagle sites are met (see MA 4 for S&Gs)

Timber

03-13 **Timber Harvest** - Do not program or normally allow timber harvest and firewood cutting Do not salvage dead or down material Permit exceptions on a case-by-case basis for one or more of the following purposes, providing that environmental analysis shows that the activity would not conflict with meeting goals of the MA·

- Wildlife and fish habitat enhancement or maintenance (including stand manipulation to enhance spotted owl habitat),
- Protection of stands imminently threatened by catastrophic outbreaks of insects or disease and where significant alteration of the ecosystem is anticipated;
- Research related to the management direction for this MA;
- Safety of people or facilities;
- Development or maintenance of facilities (primarily roads or trails); or

- Occasional use of trees as logging cable anchors to harvest timber from adjacent lands, provided the trees are not felled

Protection

03-14 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size.

03-15 **Suppression Methods** - Use suppression methods and equipment that minimize disturbance to the land surface and vegetation

03-16 **Tree Felling** - Fell snags and large old live trees only if they either are safety hazards or will hamper control efforts, resulting in further resource damage.

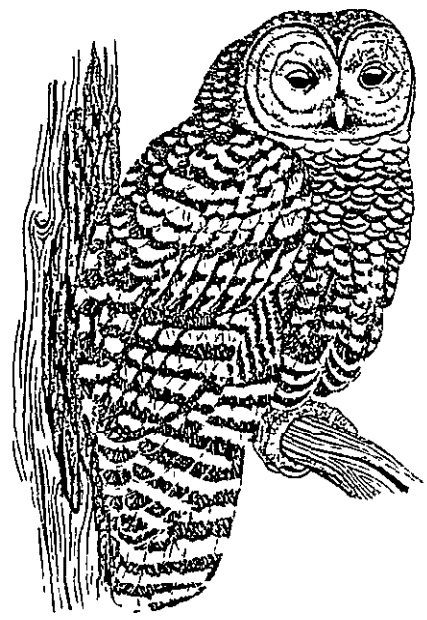
03-17 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Lands

03-18 **Land Acquisition** - Retain lands in NFS ownership unless lands can be acquired that maintain or improve habitat within the spotted owl network Acquire private lands if they are suitable habitat and benefit the network through distribution or contiguity

Transportation

03-19 **Road Construction** - Permit construction of roads or parking areas on a case-by-case basis if environmental analysis shows that goals of the MA will be met In general, do not construct roads within 1200 feet of a nest or heavily used roost site



Management Area 4 (Bald Eagle Habitat)

Prescription

Provide nest sites for bald eagles; enhance habitats to contribute to removal of T&E species from state and federal lists C20, S20)

Introduction

The bald eagle is listed by the U S Fish and Wildlife Service (USFWS) as a threatened species in Oregon. Habitat must be provided to assist in recovery of the species and to ensure that the population will not become endangered The MA consists of 23 nest sites (all seven known on the Forest and another 16 potential sites). Until completion of an individual nest site plan, at least 125 acres of habitat will be protected at each site

Management prescriptions for this area help resolve the portion of Issue 5 (See Chapter III) which is concerned with amounts of habitat maintained for T&E and sensitive species.

All land in this MA is categorized as "unsuitable for timber production "

Refer to Forest-wide S&Gs for T&E species for additional guidance regarding management of bald eagle habitat in areas outside of MA 4

Goals

The primary goals for MA 4 are to provide effective nesting habitat for bald eagles and to assist recovery of the species

Desired Condition

Habitat consists of mature and old-growth forest with numerous large conifer trees (50-90 inches in diameter) Large snags with sizeable limbs for perching are common Activities are not disturbing the eagles, especially during nesting and fledging periods Roads and trails may be present, but may be closed during critical seasons.

Standards and Guidelines for MA 4

General

04-01 **Prohibited Activities** - Do not allow activities which are incompatible with either bald eagle nesting and roosting or seasonal concentrations of eagles

04-02 **Consultation** - Ensure that all proposed activities conform with consultation requirements with the USFWS

Recreation

04-03 **Recreational Use** - Allow dispersed recreational use which does not adversely affect bald eagle recovery

04-04 **ROS Class** - Manage recreational opportunities to be in the roaded-natural ROS class

04-05 **Trail Construction** - Permit construction of new trails and other developments where site-specific biological review and environmental analysis have determined that there will be no adverse effects on bald eagle recovery objectives

Visual Quality

04-06 **VQO Management** - When a portion of MA 4 is seen from the sensitive viewing location (road, recreation site) in a viewshed assigned special scenic protection, manage the portion which is seen to meet or exceed the VQO assigned to the corresponding portion of the viewshed. See Table IV-11 for a list of viewsheds which are assigned special scenic protection, and their VQOs. See the Glossary or USDA Forest Service (1974) for a description of VQOs.

Wildlife

04-07 **Boundary Adjustments** - In cooperation with USFWS and ODFW, adjust the boundaries of a nest site if patches of habitat larger than 5 acres are lost. Ensure that replacement stands best meet long-term needs of the bald eagle.

04-08 **Habitat Management Plan** - Within 2 years after approval of this Forest Plan, prepare a management plan for each nest site (existing and potential) Develop the plans to meet informal consultation requirements with USFWS

04-09 **Habitat Protection** - Until completion of site-specific management plans, protect at least 125 acres of habitat at each site (where this much NFS land is present; Anthony and Issac 1989) Ensure that the site is a contiguous block of the best available habitat.

04-10 **Habitat Enhancement** - Coordinate habitat enhancement opportunities with the USFWS Do not permit activities within 125-acre active nest areas between January 1 and August 31.

04-11 **New Sites** - If bald eagles establish a nest outside a potential bald eagle nest site, substitute an appropriate area around the newly established nest in place of a potential site.

Timber

04-12 **Timber Harvest** - Do not program or normally allow timber harvest and firewood cutting Do not salvage dead or down material Permit exceptions on a case-by-case basis for one or more of the following purposes, provided that environmental analysis shows that the activity would not conflict with meeting goals of the MA and consultation requirements with USFWS have been met:

- Wildlife and fish habitat enhancement or maintenance (including manipulation of stands to enhance bald eagle habitat);
- Protection of stands imminently threatened by catastrophic outbreaks of insects or disease;
- Research (related to the management direction for this MA);
- Safety of people or facilities;
- Development and maintenance of roads and trails, and

- Occasional use of trees as logging cable anchors to harvest timber from adjacent lands, provided the trees are not felled

Protection

04-13 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size

04-14 **Suppression Methods** - Use suppression methods and equipment that minimize disturbance to the land surface and vegetation

04-15 **Tree Felling** - Fell snags and large old live trees only if they either are safety hazards or will hamper control efforts, resulting in further resource damage

04-16 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Lands

04-17 **Land Acquisition** - For occupied sites, retain lands in NFS ownership and acquire private lands as they become available

04-18 **Land Acquisition** - For potential sites, retain lands in NFS ownership unless lands with similar or better habitat conditions can be acquired Acquire private lands if they become available

Transportation

04-19 **Road Closures** - Roads may be closed to public access either year-round or during critical seasons Administrative use of roads may be permitted if necessary

04-20 **Road Construction** - Construct roads on a case-by-case basis if environmental analysis shows that goals of the MA will be met

Management Area 5 (Special Interest Areas)

Prescription

Manage to protect scenery and vegetation while making the areas available to recreationalists to use and enjoy (C8, C9, S5, S7, S8)

Introduction

Special Interest Areas (SIAs) are areas which are classified under special authority of the Code of Federal Regulations (Title 36, Part 294) by the Regional Forester Because of unusual scenic, historic, prehistoric, scientific, natural, or other features of special interest, they should be managed for recreation, substantially in a natural condition.

Four areas are currently being considered for classification as SIAs. This MA includes three of them - the existing Cape Perpetua Scenic Area (on the Oregon Coast about 10 miles south of Waldport), the existing Marys Peak Scenic-Botanical Area (about 15 miles west of Corvallis; see USDA Forest Service 1989c), and Kentucky Falls (a potential area about 15 miles east of Florence). The potential Mt. Hebo Scenic-Biological Area is included in MA 1.

Management prescriptions for this MA help to resolve a portion of Issue 7 (see Chapter III) which concerns management of potential SIAs This issue is also partly resolved in MA 1.

If any proposed SIA is rejected for classification, the area will be restudied to determine what MA it should be assigned to. A new assignment will be an amendment to the Forest Plan

All land in this MA is categorized as "unsuitable for timber production."

Goals

The primary goal of MA 5 is to protect unusual and outstanding characteristics of SIAs, substantially in their natural condition, and, where appropriate and compatible, to foster public use and enjoyment of these characteristics.

Additional goals are:

1 Provide habitat for the northern spotted owl and other species that prefer old-growth and mature habitat;

2 Protect visual resources;

3. Reserve an area for potential designation as a Research Natural Area (RNA),

4 Maintain existing old-growth stands;

5. Protect the Corvallis Watershed; and

6. Utilize the high quality electronics capabilities of Marys Peak

See descriptions of MAs 3, 4, 13, and 14 for more complete information on these goals

Desired Condition

Overall

Special natural features in each area are unimpaired by human activities and facilities provided for human use and enjoyment. Generally, there is no evidence of other management activities and support facilities Exceptions may include low-impact facilities built for other resource programs, such as fish or wildlife habitat improvements

The desired condition for each area follows:

Cape Perpetua

There are two distinct parts of this area - the steep, rocky coastal front and the densely-forested inland area

Coastal Front

Tidepools, beaches, wind-swept vegetation, rocky cliffs and other scenic and cultural features are in a natural condition The Cape Perpetua Visitor Center provides high quality information, education, and interpretation to people visiting the Forest and the Oregon Coast Highly developed recreational facilities, such as trails, fences, walls, stairs, parking areas, camp and picnic sites, toilet facilities, the visitor center, and other interpretive facilities (such as signs), encourage use and enjoyment of the features of interest, while not impairing or intruding too heavily upon them They also meet the VQO of retention as seen from Highway 101 Facilities are in a safe and attractive condition There is heavy use by local, state, national, and international visitors

Inland Area

This area is densely forested, dominated by large, old-growth trees, and in a predominantly unmodified forest condition Generally, there are no timber harvest units

Although the area is too small to provide semiprimitive nonmotorized recreational opportunities, its natural appearance, combined with moderate isolation from the sites and sounds of humans, provide similar opportunities. Portions of the area provide high-quality bald eagle and spotted owl habitat Wildlife and fish habitat improvements may be present but visually inconspicuous

Assuming that its establishment report is approved, the Gwynn Creek portion of the potential Cummins/Gwynn Creeks RNA is designated as an RNA, located in the inland portion of Cape Perpetua In this area, natural physical and biological processes operate essentially without human intervention The largest known stand of old-growth Douglas-fir (120 acres) on the west side of the Coast Range remains uncut Plant communities with western hemlock, old-growth Douglas-fir, swordfern, and Oregon grape dominate the area Recreational use is generally very light except along the trail system

Marys Peak - Unique plant communities, meadows, a rock garden, and pure noble fir stands are present Generally, there are no timber harvest units Trails and roads provide access to scenery and recreational facilities Scenery includes close-up views of meadows and noble fir stands, and panoramic views of the Willamette Valley, volcanic peaks of the Cascades, and ridges of the Coast Range

Recreational facilities encourage hiking, picnicking, camping, and snow use. Electronics facilities are concentrated at the peak (and on the land owned by the city of Corvallis at West Point) and are as visually unobtrusive as possible.

Kentucky Falls - Waterfalls and other outstanding water features along Kentucky Creek and North Fork Smith River -- with a backdrop of deep, undisturbed forest containing large, old-growth trees -- are the most heavily used portion of the area The few roads present are in the periphery. Trails provide the only access to the streams. Other recreational facilities are trailheads and rustic hiker camps.

In addition to the above, the description of the desired condition of Kentucky Falls is essentially the same as that for the inland portion of the Cape Perpetua Scenic Area (with the exception of the description of the potential RNA).

Standards and Guidelines for MA 5

Recreation

05-01 **ROS Classes** - Generally, manage for the roaded-natural ROS class Exceptions are.

- Meet criteria for naturalness of the semiprimitive nonmotorized ROS class in the Kentucky Falls area and the inland portion of Cape Perpetua Scenic Area, and
- Meet criteria for urban in the immediate area of the Cape Perpetua Visitor Center

05-02 **Management Plans** - Submit plans for classification for Kentucky Falls, and expansion (including revised direction for management and interpretation) for Cape Perpetua to the Regional Forester for approval within 3 years of approval of the Forest Plan.

05-03 **Signs** - Provide signs and other interpretive services at a level compatible with protecting special features of the areas.

05-04 **Trails** - In the heavily used portions of Cape Perpetua and Marys Peak, provide trails which are fairly wide and gentle, and which may be surfaced ("Easier" - FSH 7709 12 - Trails Handbook). In the inland portions of Cape Perpetua, the less heavily used portions of Marys Peak, and all of Kentucky Falls, provide trails which are fairly narrow and unsurfaced and which may be fairly steep ("More Difficult")

05-05 **Oregon Coast Trail** - Cooperate with the State of Oregon in constructing the Oregon Coast Trail within the boundary of the Cape Perpetua Area

05-06 **ORV Use** - Prohibit off-road use of motor vehicles.

05-07 **Horses and Mountain Bikes** - Restrict use of horses and mountain bikes to locations where trails or special natural features of the areas will not be damaged

05-08 **Damage from Recreation** - Assure that recreational facilities and their use do not cause unacceptable damage to unusual plant communities or adversely affect scenery.

Visual Quality

05-09 **VQO Management** - Generally, manage the area to meet the Visual Quality Objective (VQO) of retention Use creative design of location, materials, forms, colors, and textures to keep facilities as inconspicuous as possible and thus meet the VQO of retention where practicable (In all cases, facilities should be no more dominant than the VQO of modification) Partial retention-foreground and partial retention-middleground are the VQOs along the Marys Peak Road.

Research

05-10 **Establishment Report** - Complete the establishment report for the Cummins Cr /Gwynn Cr potential RNA and submit it for approval within 3 years of Forest Plan approval.

Timber

05-11 **Timber S&Gs** - Follow Forest-wide S&Gs for timber except in portions of the area which are old-growth stands, spotted owl or bald eagle habitat, or a potential or designated Research Natural Area In these portions, follow timber S&Gs which apply in MAs established to manage those resources (MAs 2, 3, 4, and 13). Generally, harvest timber only to enhance values of the SIA

Lands

05-12 **Electronics Facilities** - Concentrate electronics facilities on Marys Peak to minimize adverse effects on scenery and other resources of the SIA Plan and design new electronics facilities on Marys Peak so they will not create unacceptable interference with existing facilities

05-13 **Electronics Facilities** - Retain only government-agency electronics facilities on Marys Peak.

05-14 **Land Acquisition** - Retain NFS lands and acquire adjacent private lands that would facilitate management of the area if they become available

Minerals

05-15 **Withdrawal** - Process mineral withdrawal recommendations

Protection

05-16 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size

05-17 **Suppression Methods** - Use methods and equipment that will minimize disturbance to the special features of the area

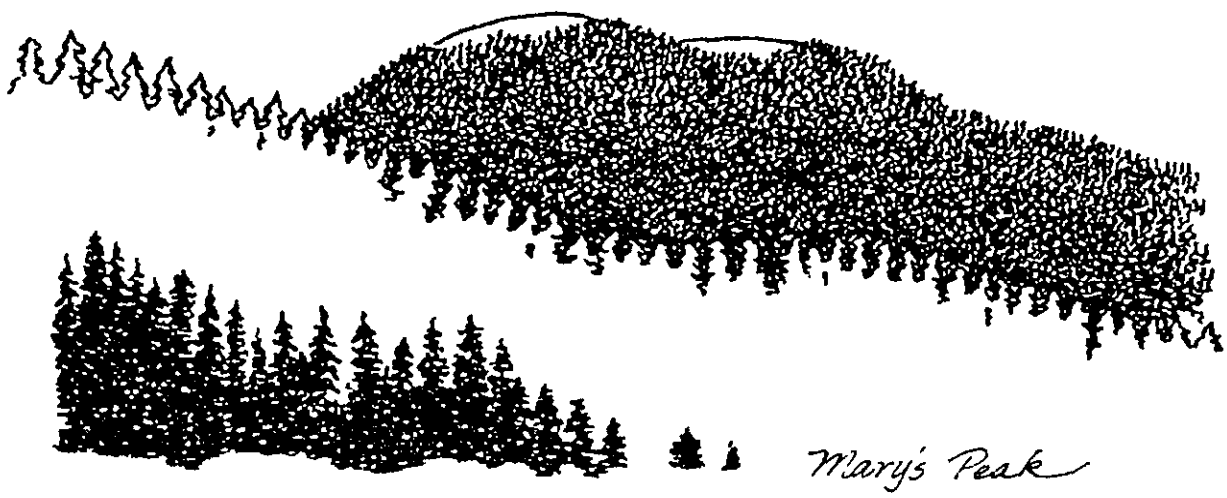
05-18 **Prescribed Fire** - Use prescribed fire as appropriate to maintain the uniqueness of the area

05-19 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible

05-20 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives.

Wildlife

05-21 **Spotted Owls** - Where MA 5 overlaps a SOHA, evaluate management activities to ensure that objectives for maintaining spotted owl habitat are met (see MA 3 for S&Gs)



Management Area 6 (Cascade Head Scenic-Research Area)

Introduction

On December 22, 1974, Congress designated Cascade Head as the first Scenic-Research Area in the United States (Public Law 93-535) The law specifies management direction for different parts of the area. Subsequently, the Forest Service developed the Cascade Head Scenic-Research Area (CHSRA) EIS and Management Plan (USDA Forest Service 1976) Management direction contained in that plan is carried forward into the Forest Plan The following description of the MA does not provide specific interpretations of the Act, the EIS, or the Management Plan, instead, it highlights the primary goals, desired condition, and S&Gs in those documents

This MA is located on the Pacific coastline, a few miles north of Lincoln City Currently, of the total 9,670 acres of land within the boundaries of CHSRA, about 6,400 acres are NFS lands and the rest are private Congress has authorized acquisition of additional land Included within CHSRA are approximately one-third of the Cascade Head Experimental Forest and the entire Neskowin Crest Research Natural Area (RNA) CHSRA and Olympic National Park make up one of a system of Biosphere Reserves (designated by the United Nations for research and other purposes).

Scattered through the lower elevations of the MA are about 3,300 acres of private land. These lands are not managed by the Forest and owners must ensure that their management is compatible with the intent of the Act or risk losing protection from eminent domain

Management prescriptions for this area help resolve Issue 17 (See Chapter III) which is concerned with management of Congressionally established areas other than Wilderness (This issue is also partly resolved in MA 10).

All land in this MA is categorized as "unsuitable for timber production"

Goals

The primary goals of MA 6, as stated in Public Law 93-535, are " to provide present and future generations with the use and enjoyment of certain ocean headlands, rivers, streams, estuaries, and forested areas, to insure the protection and encourage the study of significant areas for research and scientific purposes; and to promote a more sensitive relationship between humans and their adjacent environment "

A goal in the Neskowin Crest RNA and the control portions of this MA is to sustain natural ecological processes See the description of MA 13 for more complete information on this goal

An additional goal compatible with, but not specifically identified in, the Act is to maintain important wildlife habitats These especially include habitats which either are in short supply and used by T&E species (i e., bald eagle and peregrine falcon) or are suitable for the northern spotted owl and other species that prefer old-growth and mature habitat (See descriptions of MAs 3 and 4 for more complete information on this goal)

Under the law, CHSRA is divided into six sub-areas Each sub-area has specific primary management objectives that supplement general goals See the management plan for those objectives

Desired Condition

Scenery as viewed from major travel routes has a natural appearance, except for private land in the lower-slope, dispersed residential sub-area and the estuary and associated wetlands. There, land uses and associated structures (houses, barns, fences, roads, docks) that existed prior to June 1, 1974, remain. New structures that are compatible with the intent of the law are also present There are timber harvest units resulting from research projects on some forested slopes.

For the most part, alterations to the landscape are in harmony with the natural environment, and visual variety created by grassland and tree covered areas dominates. Pastureland created in the estuary is gradually reverting to natural as dikes are breached. Recreational use and facilities are dispersed

Neskowin Crest RNA, a topographically rugged land with steep slopes, numerous highly dissected drainages (two entirely within the RNA), and part of a headland that plunges into the Pacific Ocean, is undisturbed Sitka spruce and western hemlock (some of which are old-growth) are the dominant trees, and forest openings are choked with brush and hardwood trees Specialized ecosystems include ocean cliffs, streamside zones, estuaries, and grassy headlands.

Standards and Guidelines for MA 6

S&Gs below include some summaries of the most important S&Gs from the CHSRA management plan, but are not all inclusive See the management plan for complete information.

Recreation

06-01 **Recreational Facilities** - Do not develop new campgrounds or picnicgrounds.

06-02 **Recreational Use** - Encourage low-density, day-use recreational activities, such as hiking, nature study, and wildlife observation.

06-03 **Interpretation** - Use visitor information publications, interpretative signs, and personal contact with the public to highlight both public benefits to be derived from the area and the rights of private landowners.

06-04 **Oregon Coast Trail** - Cooperate with the State of Oregon to locate and construct a portion of the Oregon Coast Trail

06-05 **ROS Class** - Manage to provide roaded-natural ROS class opportunities

06-06 **ORV Use** - Prohibit off-road use of motor vehicles

Visual Quality

06-07 **VQO Management** - Meet the following VQOs

- Preservation for Neskowin Crest RNA and other research control areas;
- Retention in foreground for all activities which could be seen from Highway 101, Three Rocks Road, the road to Harts Cove Trail, the Harts Cove Trail, the Nature Conservancy Trail, and the Salmon River, and
- Partial Retention in all remaining areas

06-08 **Vegetation Management** - Manage vegetation to maintain the characteristic landscape of intermixed fields and forest.

Wildlife

06-09 **Spotted Owls** - Where MA 6 overlaps spotted owl habitat, evaluate management activities to ensure that objectives for maintaining SOHAs are met (see MA 3 for S&Gs)

06-10 **Bald Eagles** - Where MA 6 overlaps an existing or potential bald eagle site, evaluate management activities to ensure that objectives for maintaining bald eagle sites are met (see MA 4 for S&Gs).

Research

06-11 **Availability** - Make all NFS lands available for appropriate research activities

06-12 **Control Areas** - Manage 50% of the area as control areas which focus on monitoring natural physical and biological conditions Neskowin Crest RNA is included in this area

06-13 **Experimental Reserves** - Make 25% of the area available as experimental reserves which retain natural vegetation and soils for future research projects which may require significant or complete manipulation of the natural community Manipulate experimental reserves if a specific research project requires it, and then only following review by the scientific review team

06-14 **Manipulative Areas** - Manage 25% of the area as manipulative areas in which natural vegetation and soils may be altered to increase the variety of ecosystems available for research and wildlife, to create diversity, and to increase the opportunities for research Allow significant alterations of vegetation in the manipulative areas when necessary for research, except where it would adversely affect designated spotted owl habitat

06-15 **Stand Conversion** - To minimize impacts on the visual resource, do not convert more than 5% of both the experimental reserve and manipulative areas from one forest community to another during any 10-year period

06-16 **Habitat Manipulation** - Limit wildlife habitat manipulation for purposes other than habitat enhancement to that necessary for approved research projects

06-17 **Habitat Enhancement** - Limit watershed and fisheries projects to those necessary for approved research projects

Watershed

06-18 **Dike Breaching** - Breach or remove dikes within the estuary as areas which would be naturally inundated are acquired and funds become available

Timber

06-19 **Timber Harvest** - Harvest timber in the Upper Timbered Slope and Headlands sub-areas only when either it is conducted in connection with research activities or the preservation of the timber resource is imminently threatened by fire, pest infestation, or similar natural occurrence

Protection

06-20 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size.

06-21 **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to special features of the area

06-22 **Prescribed Fire** - Use prescribed fire as appropriate to maintain the uniqueness of the area or as part of experimental projects

06-23 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible

06-24 **Rehabilitation** - Contain the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Lands

06-25 **Land Acquisition** - Retain NFS lands and acquire private lands either as they become available or if the purpose or manner of use of the lands changes in a way inconsistent with the CHSRA enabling legislation

Cascade Head

Management Area 7 (Cascade Head Experimental Forest)

Maintain a land area for applied and basic research on the ecology and management of Sitka spruce-western hemlock ecosystems (C21, S25).

Introduction

The 11,890-acre Cascade Head Experimental Forest (CHEF) was established in 1934 by order of the Chief of the Forest Service in an effort to learn more about how to manage the coastal spruce-hemlock forest-type which dominates the Oregon coastal zone CHEF is located a few miles north of Lincoln City, and is the only coastal experimental forest in the United States It is part of the same Biosphere Reserve that includes Cascade Head Scenic-Research Area (CHSRA).

CHEF is divided between two MAs The western third is included in MA 6 (CHSRA). That portion of CHEF is now managed in accordance with the management plan for CHSRA, which ensures that the goals and purpose for which CHEF was formed remain intact The remaining 7,210 acres of CHEF make up MA 7.

The overall management of CHEF is the responsibility of the Pacific Northwest Research Station (PNW; Research Work Unit 4356) while on-the-ground activities are administered by the Forest Research activities are coordinated with PNW as described in the CHSRA Management Plan

Management prescriptions for this area help resolve the portion of Issue 12 (see Chapter III) which is concerned with reserving areas for manipulative research Part of CHEF is also managed in MA 6

All land in this MA is categorized as "unsuitable for timber production "

Goals

The primary goals of MA 7 are to

1 Allow research related to management of the coastal spruce-hemlock forest, and

2 Demonstrate promising techniques and principles of forest resource management to students, federal and state land managers, extension foresters, industrial foresters, and foreign visitors The purpose of research programs on CHEF is to provide a sound basis for coordination of multiple-use management of forest land.

An additional goal is to provide habitat for the spotted owl and other species that prefer old-growth and mature habitat See the description of MA 3 for more detailed information on this goal

Desired Condition

Experimental harvest units of various sizes, shapes, and ages form a checkered pattern throughout the area. Thus, a variety of age classes representative of coastal zone timber management are evident In some portions of this MA natural ecological processes are functioning without significant interference

Standards and Guidlelines for MA 7

Recreation

07-01 **Prohibited Uses** - Limit public uses that may modify the value of the area for continued research.

07-02 **ORV Use** - Prohibit off-road use of motor vehicles.

07-03 **ROS Class** - Provide roaded-natural ROS class opportunities.

Visual Quality

07-04 **VQO Management** - When a portion of MA 7 is seen from the sensitive viewing location (road, recreation site) in a viewshed assigned special scenic protection, manage the portion which is seen to meet or exceed the VQO assigned to the corresponding portion of the viewshed. See Table IV-13 for a list of viewsheds which are assigned special scenic protection, and their VQOs See the Glossary or "Agriculture Handbook Number 462, The Visual Management System" for a description of VQOs

Timber

07-05 **Timber Harvest** - Ensure that decisions on whether to cut or remove trees from this MA are made by the PNW Research Station - Research Work Unit 4356.

Protection

07-06 **Fire Suppression** - Suppress any wildfires and limit them to the smallest possible size.

07-07 **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to special features of the area

07-08 **Prescribed Fire** - Use prescribed fire as appropriate, either to maintain the uniqueness of the area or as part of experimental projects.

07-09 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible.

07-10 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Lands

07-11 **Land Acquisition** - Retain NFS lands unless lands which would better meet research needs could be acquired. Acquire private lands if they become available and would meet a research need.

Wildlife

07-12 **Spotted Owls** - Where MA 7 overlaps spotted owl habitat, evaluate management activities to ensure that objectives for maintaining SOHAs are met (see MA 3 for S&Gs).

Management Area 8 (Sand Lake)

Prescription

Manage to be consistent with the Management Plan developed by the Forest Service, Tillamook County, Oregon Parks and Recreation Division, and Oregon Department of State Lands (C9, S6)

Introduction

The Sand Lake area is a complex mix of ownerships and recreational opportunities It is composed of open and vegetated sand dunes, Sand Lake estuary, ocean beaches, and forest Varied recreational opportunities, sensitive wildlife habitats, and concerns for rights of private owners of property adjacent to the MA resulted in development of the Sand Lake Management Plan (USDA Forest Service 1980b) The plan was a cooperative effort by the Forest Service, Tillamook County, and the State of Oregon, and is incorporated by reference in the Forest Plan. The following goals, future conditions, and S&Gs for the area (except 241 acres of potential RNA, see MA 13) are largely a summary of what is in that plan

Within the area covered by the Sand Lake Plan, there are approximately 314 acres of Tillamook County land, 41 acres of State Parks and Recreation land, 500 acres of water, and NFS land (only NFS land is included in this MA) It is located on the Coast about 5 miles north of Pacific City, with the Sand Lake Estuary on the south and Cape Lookout on the north.

Some 241 acres in the northeast corner of the area are a potential RNA and included in MA 13. The remaining 991 acres of NFS land are assigned to MA 8

Management prescriptions for this MA help to resolve Issue 8 (See Chapter III), which is concerned with recreation complexes with no special designation at this time This issue is also partly resolved in MA 9 (Sutton Area)

All land in this MA is categorized as "unsuitable for timber production "

Goals

The primary goals of MA 8 are to:

1 Provide recreational opportunities associated with use of off-road vehicles (ORVs),

2. Assist the State of Oregon in protecting high ecological values of its beach and estuarine environments; and

3. Reduce the degree to which recreational users adversely affect adjacent property owners

Desired Condition

The stark contrast between coniferous forest, patches of grass-shrub vegetation, and open sand dunes dominates the landscape Recreational use of the estuary, much of the beach, and forests is restricted to hiking. Use of off-road vehicles is the predominant form of recreation in most of the sand dune areas Sand roads and wheel tracks cross areas where vegetation is grass or shrubs On holiday weekends during the summer, use of recreational camping and ORVs is at or near capacity of the area (use capacity levels are determined by factors such as user safety, noise levels, and effects on wildlife habitat and adjacent private landowners)

Timbered portions of this MA receive little or no use by ORVs. Portions of the beach and estuary protected for wildlife values, and slopes with dense shorepine thickets, remain in a near-natural condition.

Standards and Guidelines for MA 8

Recreation

08-01 **Public Use** - Limit public use to 1700 street legal vehicles at one time.

08-02 **Road Closure** - Close Derrick Road and Road 8205113 to entry from the Three Capes Road on three-day summer holiday weekends.

08-03 **Limiting Access** - Cooperate with the State of Oregon to enforce the limited access from NFS lands to the beach and the closure of state lands in the estuary.

08-04 **Oregon Coast Trail** - Cooperate with the State of Oregon to locate and construct a portion of the Oregon Coast Trail

08-05 **ROS Class** - Provide roaded-natural ROS class opportunities

Visual Quality

08-06 **VQO Management** - Other than facilities needed to provide desired recreational use, meet the Visual Quality Objective (VQO) of partial retention. By creative design of location, materials, forms, colors, and textures, keep necessary recreational facilities as inconspicuous as possible, in no case allowing them to be more dominant than the VQO of modification

Lands

08-07 **Land Acquisition** - Retain NFS lands and acquire private lands if they become available.

Protection

08-08 **Fire Suppression** - Use suppression tactics that will minimize disturbance to the special features of the area.

08-09 **Prescribed Fire** - Use prescribed fire as appropriate to maintain the uniqueness of the area

08-10 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Management Area 9 (Sutton Recreation Area)

Introduction

The Sutton Recreation Area (formerly referred to as the Sutton Composite) is a mix of ownerships, with other lands being managed by the BLM, State Parks, State Department of Transportation, Lane County, and private parties. National Forest land has been managed primarily for recreation, offering various types of opportunities such as camping, picnicking, off-road vehicle use on the sand, hiking, and horseback riding Management of beach use is the responsibility of the State of Oregon The beach is closed to motorized traffic

The area is composed of about 2,700 acres of diverse physical features including sand dunes, deflation plains, lakes, streams, and lodgepole pine forest. The majority of the area lies in a 4-mile stretch of land between Highway 101 on the east and the Pacific Ocean on the west, about 5 miles north of Florence. The deflation plain near Lily Lake provides habitat for a sensitive club moss (*Lycopodium inundatum*) This habitat is being reduced by the presence of several introduced and/or invading plants including willow, gorse, and European beach grass

Primary management concerns are protecting and enhancing wildlife and sensitive plant habitats, and determining the most beneficial mix of off-road vehicle and non-vehicle recreational opportunities on the exposed sand-dunes portion These concerns led to development of interim management direction for the area in 1986 Issues that focus on long-term management concerns include expansion of and improvements to developed and dispersed recreational developments, use of existing facilities, development of transportation facilities such as trails and parking lots, and general administration of the area

Management prescriptions for this area help resolve Issue 8 (see Chapter III) which is concerned with recreational complexes having no special designation at this time This issue is also partly resolved in MA 8 (Sand Lake)

All land in this MA is categorized as "unsuitable for timber production"

Goals

The primary goals for MA 9 are:

1. Provide a diversity of outdoor recreational opportunities - developed and dispersed, motorized and nonmotorized;

2 Protect and enhance the limited amount of habitat for wildlife and sensitive plants;

3. Sustain natural vegetation types and ecological processes in the Lily Lake portion of the area, to the extent that other goals for this MA are not impaired, and

4. Provide opportunities to experience and interpret the natural processes and environments along the coast.

Desired Condition

A full spectrum of recreational opportunities are present. These range from highly developed, modern facilities at some developed sites, to minimum facilities at dispersed sites, to relatively large areas in which there are no facilities Recreational activities include horseback riding, hiking, ORV use, bicycling,

beach combing, wildlife viewing, picnicking, and camping, as well as other uses appropriate to goals of the area.

In the two areas in which ORV use is permitted, east of Highway 101 and south of the Sutton Beach Road, ORV use is moderate, especially on weekends and holidays. Users tend to congregate in generally unvegetated, open sand areas which show effects of ORV traffic only briefly. There is no ORV use in the deflation plain where *Lycopodium* is found, and there is no vehicular access to the beaches.

Generally, horses are used throughout the area, except in the estuaries and deflation plains where use is confined to designated trails away from snowy plover nesting habitat and *Lycopodium* colonies. Designated horse trails may be present in other areas where they are needed to confine horse use and thus avoid conflicts with other uses Horse tracks and sign are noticeable.

Natural resources of the area, particularly habitats of T&E and sensitive plants and animals, are in good condition even though there is heavy recreational use.

Lily Lake - An overlook and information area, located adjacent to Highway 101, provides information on features, opportunities, and facilities within the Sutton Recreation Area. Foot access to Lily Lake may be available for interpretation of its natural processes Vegetation surrounding Lily Lake, most of which has been introduced, is managed for visual and ecological purposes and suffers little adverse effect from recreational use There is good, healthy *Lycopodium* habitat in the deflation plain west of Lily Lake.

Baker Beach - A surfaced, two-lane road runs from Highway 101 to a parking lot west of the easternmost sand dune. This area is the dispersion point for a variety of non-motorized recreational activities, including hiking, beach combing, and horseback riding Sanitation facilities are located here. Primitive campsites for horse users may be located on the spur road east of the parking lot. Management actions, such as signs and designated trails, discourage hikers, pet owners, and horse users from using snowy plover breeding areas during the nesting season.

Sutton Creek - Developed-site camping, fishing, wildlife observation, sand play, swimming and other non-ORV recreational activities are the primary uses in this area. Bicycle trails link this area to Highway 101 and Florence. An administrative site that would assist in managing the area for a large number of visitors may be located near Hwy 101.

Joshua Lane - Day-use facilities needed to reduce congestion and unsanitary conditions are located in close proximity to the end of the road These include parking and sanitation facilities. Facilities are located and designed so there is minimal conflict between ORVs and adjacent private landowners. There is dispersed camping in the general area

Standards and Guidelines for MA 9

Recreation

09-01 **ROS Class** - Provide the following ROS class opportunities.

- Rural in and immediately adjacent to developed recreation sites
- Roaded-natural in the rest of the area

09-02 **Trails** - Provide hiking, bicycle and horse trails as appropriate to meet demand while protecting resources. Link these facilities to local communities and Highway 101.

09-03 **ORV Use** - Allow ORV use only in open sand areas.

- East of Highway 101 Provide a safe access off Hwy. 101 for ORVs
- South of Sutton Beach Road.

09-04 **ORV Use** - Exclude ORV use from T&E and sensitive plant and animal habitat in the deflation plain and from snowy plover nesting habitat in the estuaries

09-05 **Coordination with BLM** - Coordinate management of open sand areas east of Highway 101 and south of Sutton Beach Road with the BLM.

09-06 **State Coordination** - Work with the State of Oregon to maintain consistency with state agency direction and management of beaches.

09-07 **Horse Use** - Allow horse use throughout the area, except on hiker trails, and in estuaries and deflation plains where horse use will be restricted to designated trails.

09-08 **Implementation Plan** - Within 2 years of Forest Plan approval, prepare an implementation guide which translates direction in the Forest Plan to site-specific management requirements, including specific types, sizes, locations, and priorities for planned improvements and facilities; coordinate with other land owners as appropriate.

09-09 **Day-use Sites** - Provide day-use recreational sites for such activities as fishing, sand play, picnicking, boating and swimming.

09-10 **Wildlife Interpretation** - Explore opportunities to interpret and view wildlife and fish Provide observation areas where appropriate

09-11 **Angler Access** - Provide angler access at appropriate levels

Visual Quality

09-12 **VQO Management** - Other than facilities needed to provide desired recreational use, manage to meet the Visual Quality Objective (VQO) of partial retention By creative design of location, materials, forms, colors, and textures, keep necessary recreational facilities as inconspicuous as possible, but in no case allowing them to be more dominant than the VQO of modification

Wildlife

09-13 **Habitat Enhancement** - Enhance habitat for migratory waterfowl and other species by management of wetlands

09-14 **Habitat Enhancement** - Enhance elk habitat, as appropriate.

09-15 **Snowy Plover Management** - Take measures to prevent disruption of snowy plovers in habitat being utilized during nesting season (e g , seasonal area closure) Identify and schedule opportunities to enhance plover habitat (e g , dredge spoils)

09-16 **Lycopodium Protection** - Provide protection for *Lycopodium* habitat in the deflation plain by diverting recreationists away from the species'habitat, without drawing attention to the *Lycopodium* (e g , directional signing, obstacle placement)

09-17 **Vegetation Management** - Utilize more direct measures needed either to create more *Lycopodium* habitat, or to prevent unacceptable spread of introduced and/or invading vegetation (such as gorse) and thus prevent displacement of native vegetation and elimination of *Lycopodium* habitat

Lands

09-18 **Land Aquisition** - Retain NFS lands west of Highway 101 and acquire private lands if they become available. Acquire all tracts (contingent on availability and funding), including county property at Baker Beach, the trailer lots adjacent to Sutton Campground, and the Bergstrom property adjacent to Sutton Beach Road. Work with other government agencies to provide consistent management.

09-19 **Outfitter Guide Permits** - Allow outfitter guide permits to continue for horse and ORV uses.

09-20 **Other Requests** - Consider permits based on their need, compatibility with area goals and uses, and Forest Service policy

Timber

09-21 **Timber Harvest** - See Forest-wide S&Gs for criteria governing when timber can be cut or removed from lands categorized as "unsuitable for timber production"

09-22 **Vegetation Control** - Permit sale of timber and miscellaneous forest products needed to help maintain diversity of vegetation, providing it is compatible with other management objectives

Fish

09-23 **Habitat Enhancement** - Where applicable, maintain and enhance habitat for cold and warm water fisheries

Protection

09-24 **Fire Suppression** - Suppress any wildfires and, when close to developed facilities, limit them to the smallest possible size.

09-25 **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to special features of the area

09-26 **Prescribed Fire** - Use prescribed fire as appropriate to maintain the uniqueness of the area

09-27 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives

Management Area 10 (Oregon Dunes National Recreation Area)

Introduction

On March 23, 1972, Congress established the Oregon Dunes National Recreation Area (NRA, Public Law 92-260) To implement the Act, the Forest developed the Oregon Dunes NRA EIS and Management Plan (USDA Forest Service 1979) The management direction contained in that plan is carried forward into the Forest Plan The following description of the MA does not provide specific interpretations of the Act, or the EIS and Management Plan, instead, it highlights the primary goals, desired condition, and S&Gs contained in those documents. This direction may change as a result of the revision of the ODNRA plan which is scheduled to be begun shortly after completion of the Forest Plan If the management direction does change, the Forest Plan will be amended

Direction for MA 10 is the same as that outlined in the plan Two potential Research Natural Areas - Threemile Creek and Tenmile Creek - have been identified in this MA, but a decision on formal designation has been deferred to the upcoming NRA planning process Their research values will be protected until that time. Additionally, an area of approximately 3 square miles south of the NRA, but which is not within the NRA boundary, is included in this MA and managed in a manner consistent with the NRA Plan

This MA is located along the central Oregon Coast between the communities of Florence on the north and North Bend on the south. Two distinct areas are identified in the Act: the coastal dunes sector and the inland sector. Within the Oregon Dunes NRA boundaries, there are approximately 26,513 acres of NFS lands, 3,800 acres of state and county lands, and 6,600 acres of private lands

Private lands are in the inland sector and consist of four classes of property Under the Act, each has specific rights and requirements concerning management and use of the lands, waters, and other properties in the NRA Land uses must protect values which contribute to the purposes of the NRA; these land uses are described in detail in the management plan Any activities on private lands that are not compatible with purposes of the NRA may result in loss of protection from eminent domain

Beaches and estuaries, which are owned by the State of Oregon, are among the state and county lands within the NRA boundary

The amount of land allocated to off-road use of vehicles is the same as outlined in the management plan

Management prescriptions for this area help to resolve Issue 17 (see Chapter III) which is concerned with how the Forest will manage congressionally established areas other than Wilderness This issue is also partly resolved in MA 6 (Cascade Head Scenic-Research Area)

All land in this MA is categorized as "unsuitable for timber production "

Goals

The primary goals of MA 10 are to·

1. Provide for public outdoor recreational use and enjoyment of ocean shorelines, dunes, forested areas, lakes, and recreational facilities; and

2 Conserve scenic, scientific, historic, and other values (such as fish and wildlife) which contribute to enjoyment of these lands and waters

Desired Condition

Areas open to ORVs receive heavy recreational use, especially on weekends and holidays. Use tends to congregate near designated camping areas and consist primarily of ORV use on sand areas Unvegetated sand areas show the effects of ORV traffic only briefly during use, as tracks are soon covered with windblown sand In general, the areas open to ORV use are:

- South Jetty Road to Siltcoos Road,
- The NRA boundary at Winchester Bay to the Coos County Line, and
- Tenmile Creek to the southern National Forest boundary.

Except near major roads and recreational facilities, areas closed to ORV use generally are relatively undisturbed, and providing opportunities for collection of baseline data Recreational use concentrates in and near developed recreation sites, but a broad spectrum of visitor activities, such as hiking, horseback riding and occasional backpacking are dispersed throughout the area. In general, the areas closed to ORV use are:

- South Jetty Road to the Siuslaw River,
- Siltcoos Road to the Umpqua River, and
- Coos County line to Tenmile Creek

Generally, development will be on the periphery No new beach access roads have been constructed, so access to developed facilities in the dunes (such as ORV parking lots and campgrounds) and the beaches is on existing roads

Four roadless areas considered during the Roadless Area Review and Evaluation process are within the six areas mentioned above, and remain in an undeveloped and unroaded condition (see FEIS, Appendix C for a detailed description). Woahink and the southern portion of Tenmile, which are open to ORVs, provide semiprimitive motorized recreational opportunities and are in the condition described above. Umpqua Spit and Threemile Lake, which are closed to ORVs, remain essentially undisturbed Undeveloped condition of two potential RNAs is maintained in Umpqua Spit and the northern portion of Tenmile until RNA status is considered in subsequent planning for the NRA

Standards and Guidelines for MA 10

General

10-01 New Management Plan - Begin review of the Oregon Dunes NRA Plan within 1 year of Forest Plan approval Revise as necessary within 3 years

Recreation and Facilities

10-02 ROS Classes - Provide the following ROS class recreational opportunities:

1. Semiprimitive nonmotorized in the two undeveloped areas (Umpqua Spit and Threemile Lake) which are closed to ORV use (see MA 11 for S&Gs generally appropriate to these areas);

2. Semiprimitive motorized in the two undeveloped areas (Woahink and Tenmile south of Tenmile Creek) which are open to ORV use;

3. Rural in and immediately adjacent to highly developed recreation sites; and

4. Roaded-natural in the remainder of the area

10-03 **ORV Use** - Provide for ORV use as per the Oregon Dunes NRA Management Plan

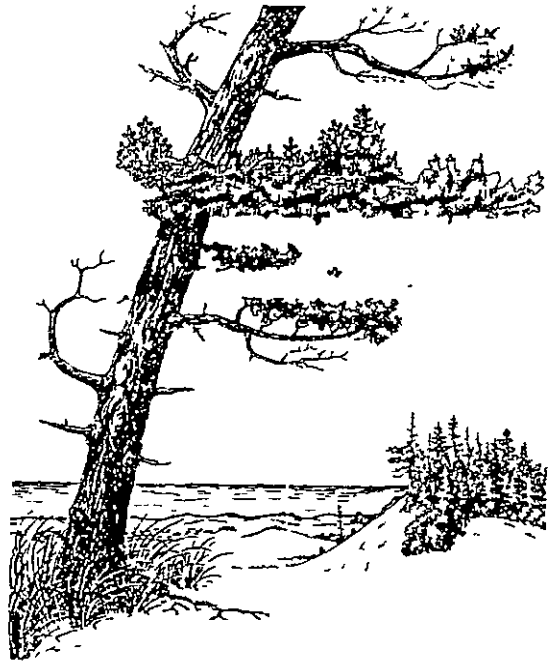
10-04 **Developed Sites** - Locate any additional developed sites in existing improved corridors or the periphery of the area

Visual Quality

10-05 **VQO Management** - Outside access corridors and developed areas, manage to meet the Visual Quality Objective (VQO) of retention. By creative design of location, materials, forms, colors, and textures, keep necessary recreational and approved private facilities as inconspicuous as possible, but in no case allowing them to be more dominant than the VQO of modification

Lands

10-06 **Land Acquisition** - Retain NFS lands and acquire private lands if they: (1) become available and fit with Forest budgets and needs; or (2) are used in a manner inconsistent with requirements of the Act.



Management Area 11 (Undeveloped Areas)

Prescription

Provide the opportunity for unroaded recreation experience and provide old-growth habitat (C7, S4)

Introduction

This MA includes two of the remaining seven areas which were considered during the RARE II process (Wassen Creek and Drift Creek Adjacent) but were not designated Wilderness in the Oregon Wilderness Act of 1984 (See FEIS, Appendix C for a discussion of all the roadless areas which were considered in RARE II)

Management direction for this area helps resolve Issue 6 (See Chapter III) which is concerned with the amount of semiprimitive nonmotorized (SPNM) recreational opportunities the Forest should provide, and Issue 11, which is concerned with areas of the Forest in an undeveloped condition These issues are also partly resolved in other MAs. (See FEIS, Chapter II "Recreation Management" for a description of the total Forest program for managing undeveloped areas and providing SPNM recreational opportunities)

All land in this MA is categorized as "unsuitable for timber production."

Goals

The primary goals for MA 11 are to:

1 *Maintain or recreate an essentially undeveloped condition;*

2 Facilitate SPNM recreational use at full capacity, utilizing rudimentary recreational facilities where needed; and

3 Allow relatively natural development of stream habitat for fish and other aquatic organisms

At the same time, activities and structures which are unobtrusive or short-lived can be used to manage recreation and improve fish and wildlife habitat

Additional goals are to protect old-growth stands and provide habitat for the northern spotted owl

Desired Condition

In the interior, there is moderate to high isolation from sights of human facilities and sounds of activities Recreational use is relatively light and other users rarely seen. Facilities are confined to trails, primitive camps (including some rudimentary facilities such as toilets, fire rings and cleared areas for tents), and relatively inconspicuous wildlife or fish habitat improvement structures (such as nest platforms and log sills). Stream channels are stable and contain good structure, with large pieces of woody debris providing many natural steps and pools.

Undisturbed forest stands and associated characteristics are predominant in this MA. There are few human-caused modifications and no evidence of timber harvesting, except either adjacent to boundary roads or for salvage activities after a catastrophic event

Use of motorized equipment is rare, and then, only by Forest Service personnel and their agents.

Standards and Guidelines for MA 11

General

11-01 **Management Plan** - For each area, prepare a plan within 3 years of approval of the Forest Plan according to direction in FSM 2322 and the following S&Gs.

Recreation

11-02 **ROS Class** - Provide SPNM ROS class recreational opportunities

11-03 **Facilities** - Construct and maintain facilities and carry out management activities in ways which· a) minimize obtrusive sights and sounds and keep them outside the heavy recreational use season as much as possible, and b) emphasize natural appearances and processes Do this by·

- Providing rustic and rudimentary recreation facilities - Development Scale 2 (FSM 2331 47),
- Developing hiking trails which are fairly narrow, unsurfaced, and which may be fairly steep - "More Difficult" (FSM 7709 12 - Trails Handbook),
- Where possible, constructing facilities (i e , bridges, toilets, signs) from natural materials or materials which have a natural appearance, and
- Restricting signs to those necessary to provide adequate directions for users

11-04 **Trails** - Locate trails to provide access to scenic features and create loops where possible

11-05 **ORV Use** - Prohibit off-road use of motorized vehicles.

Visual Quality

11-06 **VQO Management** - Meet the VQO of retention

Timber

11-07 **Timber Harvest** - Avoid cutting or removing trees (green or dead) unless it is necessary for one or more of the following purposes, providing that other management direction for the area can be achieved.

- Salvage of large stands of timber killed or substantially damaged by fire, windthrow, or other catastrophe;
- Protection of stands imminently threatened by outbreaks of insects or disease;
- Research (related to the management direction for this MA);
- Safety of people or facilities outside the MA,
- Wildlife and fish habitat enhancement or maintenance;

- Development of new recreational facilities (primarily trails); and
- Occasional use of trees as logging cable anchors to harvest timber from adjacent lands, provided the trees are not felled.

Protection

11-08 **Fire Suppression** - Use suppression tactics that will minimize disturbance to special features of the area.

11-09 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible.

11-10 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives.

11-11 **Pest Management** - Control insect or disease outbreaks only if they threaten the ecosystem in a large portion of the MA, or if they threaten loss of substantial value outside the area. Favor methods which least disturb natural conditions.

Lands

11-12 **Land Acquisition** - Retain NFS lands and acquire private lands within and adjacent to the area that would facilitate management if they become available

Transportation

11-13 **Bridge Construction** - Construct bridges only where needed either for user safety or to prevent deterioration of stream banks at stream crossings.

11-14 **Maintenance** - Allow existing roads and harvested areas to revert to a natural-appearing condition as quickly as possible

11-15 **Stability** - Assure that abandoned roads do not cause landslides resulting in damage to resources downstream

11-16 **Motorized Use** - Prohibit public use of mechanical transportation vehicles and motorized equipment Limit administrative use of motor vehicles and motorized equipment to occasional times when required for construction or maintenance of trails or wildlife and fish habitat improvements

Wildlife

11-17 **Spotted Owls** - Permit trail construction and reconstruction within spotted owl habitat if site-specific biological review and environmental analysis has determined that owl breeding, rearing, or fledging will not be disrupted In general, do not construct new trails within 600 feet of a nest or heavily used roost site

Management Area 12 (Wilderness)

Prescription

Maintain a land area where natural conditions and processes are allowed to dominate (C12, S10).

Introduction

In 1984, Congress designated three Wildernesses on the Forest· Drift Creek (5,798 acres), Cummins Creek (9,173 acres), and Rock Creek (7,486 acres) Drift Creek is in Lincoln County about 7 miles east of Waldport. Cummins Creek and Rock Creek are both in Lane County, about 12 and 18 miles south of Waldport, respectively. These Wildernesses are managed according to the Wilderness Act of 1964, the Oregon Wilderness Act of 1984, and regulations pursuant to those acts. Evidence of past management practices (roads and timber harvest units) will remain through the decade Timber harvest units will eventually blend with the mature surrounding forest as trees grow back Road-beds will continue to exist, and one will be managed as a trail corridor

Management direction for this area resolves issue 10 (See Chapter III), which is concerned with what balance should be struck between intensity of recreational use allowed and levels of other wilderness characteristics maintained, particularly solitude

Following are descriptions and management direction for each Wilderness.

Rock Creek - This Wilderness will be managed in its current condition The terrain is generally steep and prone to landslides Recreational use in Rock Creek is light because there are no trails and dense brush makes cross-country travel difficult Future analyses will determine if this Wilderness could provide higher levels of recreational use

Cummins Creek - There are two major streams in this Wilderness - Cummins and Bob creeks The western protion of the Cummins Creek basin is the only old-growth Sitka spruce forest in the Oregon Wilderness system The Wilderness is heavily forested and surrounded by roads There is a small amount of recreational use, consisting mostly of hunting and fishing. The single trail in the area extends the length of Cummins Ridge and is currently being reconstructed to make it more harmonious with the natural surroundings

The Cummins Creek Wilderness will continue to be managed as a semiprimitive wilderness setting with opportunities for recreational use Because of dense brush and steep topography, the following actions are necessary to provide these opportunities:

- A new trail will be built The Cummins Basin Trail will start near the upper end of the Cummins Ridge Trail, drop into and cross Cummins Creek towards the upper end of the drainage, and tie into the upper end of the Gwynn Creek Trail in the Cape Perpetua Scenic Area

- A very short tie trail will extend from the bottom of the Gwynn Creek Trail to the lower trailhead of the Cummins Ridge trail, and, in conjunction with the above trail, provide a long loop

- The Bob Creek Trail will start at the Tenmile Creek Campground and climb to the Wilderness boundary near the upper end of Bob Creek It will drop into and cross Bob Creek and tie into the Cummins Ridge Trail at or near the junction with the Cummins Basin Trail

These trails will be constructed and maintained to most difficult standards. Addition of these trails is consistent with maintaining Cummins Creek as a semiprimitive Wilderness. Horse use will be prohibited except in areas where it has been determined that it will not create unacceptable change

Campsites will be provided, if necessary, to ensure a moderate degree of solitude. Camps will be separated from each other and set back from the trail. Construction will be limited to clearing and leveling of a small area for each campsite and a path to provide access from the main trail

Drift Creek - Blacktail deer and Roosevelt elk are common in the Drift Creek Wilderness. Several pairs of spotted owls live in the old-growth Douglas-fir forest. Recreational use is light with hunting, fishing and hiking being most popular The terrain is broken with long slopes and unstable soils. There are two trails, totalling 8 1/2 miles The Horse Creek Trail traverses the Wilderness from south to north, crossing Drift Creek. Harris Ranch Trail originates on the north side of the Wilderness and crosses Drift Creek approximately 2 miles downstream from the Horse Creek Trail crossing. There are two campsites located along Drift Creek.

This is a semiprimitive wilderness setting; yet like in the other Wildernesses, there are opportunities to travel away from trails to experience social, physical/biological and managerial settings characteristic of primitive wilderness areas Drift Creek will be managed to maintain these opportunities for solitude, isolation and challenge Two trails are planned that will allow recreational use while maintaining the area in a condition where free play of natural forces and natural succession of ecosystems are allowed to take place.

1 The Trout Creek Loop is a 6-mile trail which will provide access into the northwest portion of the Wilderness

2. A short, 1-mile trail will connect the Horse Creek Trail with a new trail to be built in the Boulder Creek drainage. This tie trail would provide access from Drift Creek into the undeveloped area in Boulder Creek.

As in the Cummins Creek Wilderness, trails will be constructed and maintained to "most difficult" standards, and integrated with the natural topography so that they appear primitive Construction techniques will minimize disturbance of soil, vegetation, and wilderness character Each trail will be constructed to serve the mode and volume of traffic acceptable in a semiprimitive wilderness

All land in this MA is categorized as "unsuitable for timber production."

Goals

The primary goals of MA 12 are to:

1 Preserve wilderness character and maintain natural conditions in each Wilderness;

2 Assure that changes which take place in the natural conditions result from natural rather than human processes; and

3. Provide some amount of primitive or semiprimitive nonmotorized (SPNM) recreational opportunities.

Additional goals are to:

1. Provide habitat for the northern spotted owl; and

2 Preserve outstanding research opportunities in a portion of the Cummins Creek Wilderness, pending classification as a Research Natural Area (RNA), and manage it as an RNA within the management direction for the Wilderness once it has been so classified (See the description of MA 13 for more complete information on this goal)

Desired Condition

Each Wilderness is affected primarily by natural processes and forces, with the imprint of human works substantially unnoticeable. There are no timber harvest units, roads, or other permanent developments which would diminish the primeval character and influence. Units harvested in the past and existing roads are no longer noticeable Motorized equipment is absent

Old-growth stands are predominant, especially existing old-growth Douglas-fir in Sitka spruce-western hemlock plant communities in the portion of the Cummins Creek Wilderness identified for RNA classification Where natural processes such as fire or windthrow have eliminated old-growth stands, forests are regenerating naturally As elsewhere in this MA, major stream systems are pristine, characterized by many "steps", pools, and side channels created by large logs in the channel. Cummins Creek, in particular, is producing large runs of coho salmon, steelhead, and searun cutthroat trout Numerous dead trees, standing and down, are in various stages of decay Old-growth and mature stands provide habitat for spotted owls.

Foot trails and camping spots are the only permanent modifications The extent of this development varies in each Wilderness, depending on the level of primitiveness As a result, the amount of SPNM recreational opportunities varies, as do opportunities for solitude and isolation from sights and sounds of humans

Primitiveness, in terms of the above factors, is higher in this MA than in any other Contact with other people is slight Where the desired level of primitiveness is higher, recreational use is lower Most use is either on or very close to trails or in a small number of camping spots Other than along trails, there is minimal evidence of human use Therefore, most of the Wilderness is essentially unmodified, with large areas between trails in which the probability of experiencing solitude is very high In Rock Creek, there is very low use, no permanent camping spots, and an essentially unmodified natural environment.

Where the desired level of primitiveness is lower, recreational use is higher However, use (per mile) of trails is about the same as where development is low There is more trail development, more camping spots, and more evidence of human use Although essentially unmodified, the area between the trails (where the probability of experiencing solitude is high) is smaller

Where the desired level of primitiveness is more moderate, recreational use is intermediate between those described above This is also the case for other factors, including number of camping spots, probability of experiencing solitude, modification of the natural environment, and evidence of human use.

Table IV-21 displays the different levels of primitiveness desired for each Wilderness It also shows the total trail miles through the 5th decade and recreational capacity associated with each level

Table IV-21. Wilderness Primitiveness, Trail Miles, Recreation Capacity

	LEVEL OF		
Wilderness	**Primitiveness**	**Miles of Trails (Decade 5)**	**Recreation Capacity (MRVDs)(1)**
Cummins Creek	Moderate	12	6 6
Drift Creek	Low	23	13 7
Rock Creek	High	0	0 5

(1) MRVDs = Thousands of recreation visitor days

Assuming that the establishment report is approved, the Cummins Creek portion of the potential Cummins/Gwynn Creek RNA is designated as an RNA. The entire drainage of Cummins Creek, an anadromous fish stream which empties directly into the ocean, is fully protected Forests with various combinations of Sitka spruce, western hemlock, and Douglas-fir develop essentially without human intervention. Generally, there are no trails and camping spots within this portion of the Wilderness, and recreational use is very light

Standards and Guidelines for MA 12

General

12-01 **Wilderness Plan** - Manage each area according to a Wilderness Management Plan prepared within two years of approval of this Forest Plan according to direction in FSM 2320 and 2322 and the following S&Gs

Recreation

12-02 **Motorized Use** - Prohibit use of mechanical transportation vehicles or motorized equipment by the public

12-03 **ROS Classes** - Provide primitive or SPNM ROS class recreational opportunities, with the following constraints·

- When the desired level of primitiveness is high, meet the wilderness management objectives for "primitive (trailed)" described in FSM 2320 2, R-6 Supplement 56, and
- When the desired level of primitiveness is moderate or low, meet the wilderness management objectives for "semiprimitive" described in FSM 2320 2, R-6 Supplement 56

Visual Quality

12-04 **VQO Management** - Meet the visual quality objective of preservation

Timber

12-05 **Timber Harvest** - Do not cut trees unless it is essential for development or maintenance of trails, suppression of wildfire, or prevention of the spread of insect or disease epidemics.

Protection

12-06 **Suppression Methods** - Use suppression methods and equipment that minimize disturbance to the wilderness landscape, land surface, or visitor solitude

12-07 **Fire Support** - Locate fire camps, helispots, and other temporary facilities or improvements outside of the wilderness boundary whenever feasible

12-08 **Rehabilitation** - Rehabilitate the fire area only if necessary to prevent an unnatural loss of the wilderness resource or to protect life, property, and other resource values outside of wilderness

12-09 **Pest Management** - Do not control insect or disease outbreaks unless it is necessary to prevent either unacceptable damage to resources on adjacent lands or an unnatural loss to the wilderness resource due to exotic pests, and then only after an evaluation of the epidemic and the proposed suppression measures are approved by the Chief.

Lands

12-10 **Land Acquisition** - Retain NFS lands and acquire adjacent lands that would enhance the wilderness values of the Wildernesses

12-11 **Boundary** - Provide a marked and visible boundary, with monuments every 1/2 mile, which accurately identifies the Congressionally designated Wildernesses

Transportation

12-12 **Trail Construction** - Construct hiking trails which are relatively narrow and unsurfaced, and which may be fairly steep - ("More Difficult", FSM 7709 12 - Trails Handbook) Use hand tools and native materials to the extent possible

12-13 **Abandoned Roads** - Put abandoned roads in a condition that prevents landslides which would cause unacceptable damage to resources downstream.

12-14 **Motorized Use** - Approve the use of motorized equipment or mechanical transport only if justified as described in FSM 2326 1

Wildlife

12-15 **Spotted Owls** - Permit trail construction and reconstruction within spotted owl habitat if site specific biological review and environmental analysis has determined that owl breeding, rearing, or fledging will not be disrupted In general, do not construct new trails within 600 feet of a nest or heavily used roost site

Management Area 13 (Research Natural Areas)

Prescription

Maintain a land area where natural conditions and processes are allowed to dominate (C12, S10)

Introduction

Research Natural Areas (RNAs) are physical or biological units in which current natural conditions are maintained insofar as possible (at best, an entire small drainage basin embracing a number of terrestrial and aquatic situations). These units are part of a national system of examples of major ecosystems (FSM 4063). This MA contains the existing Flynn Creek RNA, which will be managed in a manner consistent with the Establishment Report (McKee 1977), and the potential Reneke Creek and Sand Lake RNAs

Management prescriptions for this area help resolve the portion of Issue 12 (see Chapter III) which is concerned with areas of the Forest reserved as RNAs for research on natural systems. This issue is also partly resolved by management of the existing Neskowin Crest RNA (in MA 6) and the potential Cummins/Gwynn Creeks RNA (in MAs 5 and 12)

If any recommended potential RNA is rejected for formal RNA designation after the site-specific establishment report is completed, the area will be restudied to determine which MA it should be assigned to. A new assignment will be an amendment to the Forest Plan

All land in this MA is categorized as "unsuitable for timber production "

Goals

The primary goal is to preserve naturally occurring physical and biological units where natural conditions are maintained insofar as possible for the purposes of. 1) comparison with those lands influenced by man; 2) provision of educational and research areas for ecological and environmental studies; and 3) preservation of gene pools of typical, rare, and T&E plants and animals. An additional goal is to provide habitat for the bald eagle.

Desired Condition

The desired condition consists of naturally occurring physical and biological processes that are operating without undue human intervention The environment is preserved in its natural condition as a source of gene pools and for education and research on plant and animal communities

In general, natural physical and biological processes prevail without human intervention. Animal life representative of the vegetative conditions is present The only signs of logging are felling of trees which may be hazardous to facilities or people using adjacent roads Some recreational activities compatible with natural systems, such as hiking and birdwatching, may be present The desired condition for each area follows.

Flynn Creek - This 688-acre RNA consists of the entire 560-acre, heavily forested drainage of Flynn Creek, plus 130 acres of buffer outside the drainage which is needed to prevent blowdown The area is in an essentially natural state, with highly productive terrestrial and aquatic systems. Anadromous salmonids, particularly coho salmon and searun cutthroat trout, live in Flynn Creek The vegetation is dominated by a mature Douglas-fir (100-150 years old) and sword fern community that is interspersed with red alder stands of various sizes.

Reneke Creek - This 480-acre area consists of the drainage of upper Reneke Creek and two matched perennial tributaries flowing from red-alder-dominated, southwest-facing slopes. The area is in an essentially natural state, with productive terrestrial and aquatic systems Limited numbers of anadromous salmonids, particularly chum salmon, live in the lower 1/2 mile of stream within the area The vegetation on the ridge top and upper slopes is mostly Sitka spruce, western hemlock, and Douglas-fir, while red alder is common further down the slopes and in riparian areas.

Sand Lake - This 241-acre area is the most inland portion of a large unstabilized parabola dune system and adjacent mature forest It is in an essentially natural state The forest along the northwest ridge of the dune is in the process of being inundated by the rapidly advancing dune front, which rises up to 130 feet Dune vegetation is in a natural condition, covers less than 30% of the sand, and consists mostly of native seashore bluegrass-red fescue grasses and other native herbaceous plants A Douglas-fir/ rhododendron community comprizes the dune forest, with most trees exceeding 80 feet in height

Standards and Guidelines for MA 13

All research proposals will be approved by the PNW Station Director and any applicable permits obtained from the appropriate NFS line officer. Research should be limited to non-consumptive, non-destructive, and essentially observational activities Some collecting of soil, plants, or animal specimens (state coordination needed) may be permitted on a case-by-case basis

Follow the direction for "Protection and Management" of existing RNAs in FSM 4063.3 and the Establishment Report for Flynn Creek RNA (McKee 1977). Specific S&Gs are as follows:

Recreation

13-01 **Recreational Activities** - Discourage overnight camping; recreational use within 200 feet of lakes, ponds and streams, pack and saddle stock use; and hunting and fishing Allow low-density, non-motorized recreation uses to the extent that they do not compromise the intent or research integrity of the RNA. Recreation opportunities will be at the roaded-natural ROS level.

13-02 **ORV Use** - Prohibit all recreational ORV use

13-03 **Closures** - Institute closures or permits if recreational uses threaten research or educational values

13-04 **Educational Use** - Direct educational use of an RNA toward the graduate level, but it may be approved for any educational level

13-05 **Interpretation** - Prohibit on-site interpretive or demonstrative facilities

13-06 **Publicity** - Avoid publicity that would attract the general public to the area.

13-07 **Existing Trails** - Allow existing trails to remain as long as RNA objectives are not compromised

13-08 **Trail Construction** - Construct new trails only if they are needed for research purposes

Wildlife

13-09 **Exotic Species** - Prohibit introduction of exotic plant and animal species

13-10 **Reintroductions** - Permit reintroduction of former native species as long as objectives of the RNA are met

13-11 **Animal Control** - Consider control of excessive animal populations where they threaten RNA objectives.

13-12 **Habitat Enhancement** - Approve habitat improvement projects if they meet objectives of the RNA.

13-13 **Bald Eagle** - Consider protection of any potential bald eagle site in planning for the area.

Fish

13-14 **Stocking** - Prohibit fish stocking, except as provided under 13-10 above.

Range

13-15 **Grazing** - Do not permit grazing of domestic livestock within the RNA unless it is essential to maintain a specific vegetation type.

13-16 **Establishment Report** - Complete establishment reports for the potential Reneke Creek and Sand Lake RNAs and submit them for approval within 3 years

Timber

13-17 **Timber Harvest** - Prohibit cutting and removal of all vegetation, including firewood, except as part of approved scientific investigations.

Watershed

13-18 **Soil Disturbance** - Develop and implement rehabilitation plans in the event of soil disturbing activities such as fire suppression

Minerals

13-19 **Withdrawal** - Process mineral withdrawal recommendations after establishment.

Lands

13-20 **Special Uses** - Approve minimal, temporary, or semi-permanent research facilities and installations under permit

13-21 **Rights of Way** - Honor rights-of-way easements, including utility corridors, existing before RNA establishment. Discourage upgrading that would compromise objectives of the RNA

13-22 **FERC Permits** - Do not recommend Federal Energy Regulatory Commission licenses or permits that compromise objectives of the RNA.

13-23 **Land Acquisition** - Retain all NFS lands and acquire private inholdings (Ownership Group II).

Transportation

13-24 **Hazard Trees** - Fell hazard trees along boundary trails or roads for safety. Keep felled trees in place, unless lying across the trail or road

Facilities

13-25 **Buildings** - Allow buildings or other facilities only if they are temporary and serve research purposes.

Protection

13-26 **Suppression Methods** - Use suppression methods and equipment that will minimize disturbance to special features of the area

13-27 **Fire Support** - Locate fire camps, helispots and other temporary facilities or improvements outside the area if possible.

13-28 **Rehabilitation** - Rehabilitate the fire area after suppression actions to return it to a natural condition consistent with MA objectives.

13-29 **Fire Retardants** - Avoid chemical fire retardants if possible

13-30 **Fuel Management** - Allow fuels to accumulate at natural rates unless they threaten the objectives of the RNA

13-31 **Pest Management** - Take action against insects or diseases only if the outbreak drastically alters natural ecological processes within the RNA

Management Area 14 (Scenic Viewsheds)

Prescription

Maintain or enhance the quality of the scenery of visually sensitive areas (C1-6, S1-3)

Introduction

This MA consists of many separate viewsheds scattered throughout the Forest. A viewshed includes a visually-sensitive viewing location, such as a highway, a popular fishing river, or a recreation site, and the land which can be seen from it. Only part of the land seen from the viewing location might be included within this MA because the rest might be part of another MA. For example, part of the land seen from Highway 101 is within this MA and some is within the Cape Perpetua SIA portion of MA 5.

Lands within this MA receive different levels of scenic protection, depending upon the visual quality objectives (VQOs) which are assigned to the viewshed. The viewsheds which will be managed, and the VQOs assigned to each viewshed, are shown in Table IV-13 in "Resource Summaries" earlier in this chapter.

Much of the land within these viewsheds is not managed by the Forest Service Since S&Gs apply only to NFS land, overall appearance of scenery in the viewshed is usually not determined just by activities on NFS land.

Management prescriptions for this area help resolve Issue 9 (See Chapter III), which is concerned with visual resources. This issue is also partly resolved in MAs 1, 3, 4, 5, 7, 8, 11, 12, and 15.

Of the land in this MA, 12,109 acres are categorized as "suitable for timber production," and 21,557 acres are categorized as "unsuitable for timber production "

Goals

The primary goal of this MA is to provide some attractive scenery for viewsheds This area also has the goals of MA 15; these include production of high value wood products, maintenance of fish and wildlife habitats, protection of watershed resources, and providing dispersed recreational opportunities

Desired Condition

Retention (Foreground) - In foregrounds with a VQO of retention the results of a wide range of activities are present. Such activities may be timber harvest units, roads, power lines, buildings, developed recreation sites, and fish and wildlife habitat improvements However, evidence of these activities is not apparent from the viewing location to the average visitor Most of the land is in some stage of timber management, with a roughly equal distribution of age classes Small blocks of land may be unharvested and providing a screen for the visual effects of management activities. About a quarter of the area is hardwoods scattered in groups throughout the timbered portions

In a number of places, vegetation which blocked scenic features from a viewing location is gone. Features include rock outcrops, river rapids, particularly large trees or groups of trees, and the ocean.

Partial Retention (Foreground and Middleground) - In foregrounds and middlegrounds for which the VQO is partial retention, there are the same types of activities as in areas for which the VQO is retention From the viewing location, however, management activities are more apparent to the average visitor. Even so, the effects of these activities are visually subordinate to the natural landscape,

except in the first year or so There is probably less species diversity and fewer scenic features than in areas with a retention objective About a quarter of the area is hardwood trees scattered in groups throughout the timbered portions No more than 10% of the suitable timber land is in plantations less than 10 years old, and there is a roughly equal distribution of age classes.

Modification (Middleground) - In middlegrounds for which the VQO is modification, evidence of management activities are not only apparent, but visually dominate the natural landscape However, the visual characteristics of activities seen from the viewing location are similar in size and shape to those of natural features, such as meadows or wildfires. Other evidence of management, such as logging slash, stumps, or root wads, does not dominate views.

Preservation (Foreground and Middleground) - In viewsheds for which the VQO in both foreground and middleground is preservation, the whole area appears natural from any place within the area There are few management activities except for low-impact recreational facilities like trails

Standards and Guidelines for MA 14

Recreation

14-01 ROS Classes - Manage the portions of the area with VQOs of preservation, retention, and partial retention to meet the roaded-natural ROS class, and portions with a VQO of modification to meet the rural ROS class.

Visual Quality

14-02 Retention or Partial Retention VQO - In areas in which the VQO is retention or partial retention·

- Maintain at least 15% of the viewshed in hardwood trees scattered in groups throughout the forested portion of the viewshed;
- Do not harvest trees in areas where, due to severe physical and technological problems such as excessive steepness, critical soils, and windthrow, it will be impossible to meet the designated VQOs,
- Where possible, enhance the variety of scenery through creation of vistas and removal of vegetation which screens scenic features near the road;
- Prepare a visual analysis, considering initial and cumulative effects, for all projects which may be seen,
- Rehabilitate disturbances associated with past management activities which do not meet the assigned VQO if an analysis shows that rehabilitation will improve visual quality more than would result naturally within the same timeframe, and the cost is commensurate with the value of the improvement, and

- Prepare a viewshed plan when:
  - NFS land is the predominant part of the seen area;
  - Other major land managers (such as BLM) would cooperate with implementation of the plan;
  - Other major landowners will continue to manage their land in a way which results in attractive scenery (such as farming where the results are pastoral); or
  - Any other situation occurs where such a plan would make a significant difference in meeting the VQO over time

14-03 **Clearcut Size** - Although exact size of clearcuts will depend on landform configuration and how the site is seen from viewing points, use established criteria (USDA Forest Service 1980a) as guides in designing units.

14-04 **Retention VQO** - In areas in which the VQO is retention:

- Permit a regeneration harvest in the foreground only after the average DBH of the dominant and codominant trees in the proposed unit has reached 36"; and
- Within each viewshed, create and maintain a condition where amounts of land in 10-year age classes are approximately equal

14-05 **Partial Retention VQO** - In areas in which the VQO is partial retention·

- Permit a regeneration harvest in the foreground only after the average DBH of the dominant and codominant trees in the proposed unit has reached 30", and
- Within each viewshed, create and maintain a condition where amounts of land in 10-year age classes are approximately 10%

Wildlife

14-06 **Mature Conifer** - Provide habitat to help meet wildlife requirements for mature conifer in conjunction with adjacent MA 15 lands Manage this habitat according to S&Gs in MA 15, modified as necessary to meet the VQOs

Timber

14-07 **All S&Gs** - Apply the S&Gs in MA 15, modified if necessary to meet the VQOs

Lands

14-08 **Land Acquisition** - Exchange NFS lands and acquire lands of others so that overall VQOs would be improved

Range

14-09 Grazing - Manage livestock grazing to meet the S&Gs in MA 15, modified as necessary to meet the VQOs.

Transportation

14-10 Road Plan - Develop road maintenance alternatives for each VQO prescription.

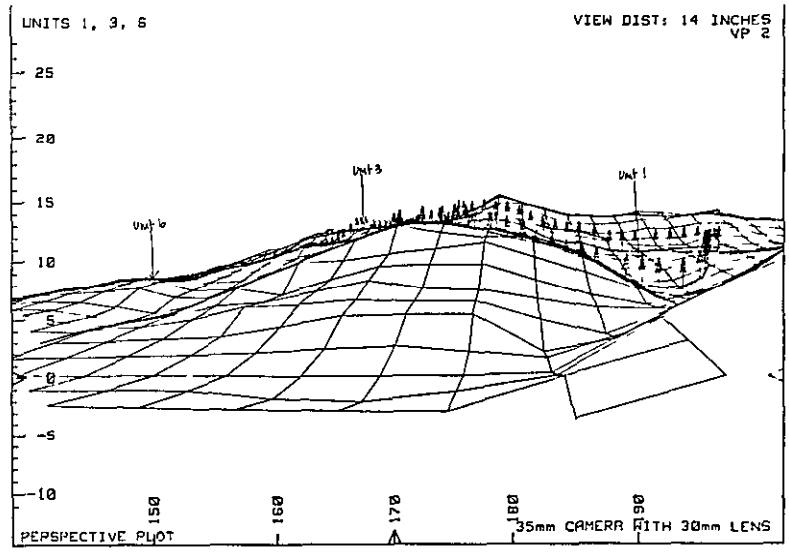
Protection

The following S&Gs apply to fires in areas where the VQO is retention (foreground) and partial retention (foreground and middleground). For other sections of this MA, Forest-wide S&Gs will apply.

14-11 Suppression Methods - Use suppression methods and equipment that will minimize disturbance to visual qualities of the area.

14-12 Suppression Strategies - Use suppression strategies and tactics that minimize disturbance to vegetative screens along visual corridors

14-13 Rehabilitation - Rehabilitate the fire area after suppression actions to return it to a natural appearing condition consistent with MA objectives



Management Area 15 (Timber/Wildlife/Fish/Dispersed Recreation)

Prescription

Manage the Forest's timber to meet national and regional demand for wood products; maintain the quality of riparian habitat; maintain habitat necessary for elk and indicator species associated with various types of habitat; maintain soil stability to minimize accelerated erosion; and supply a variety of settings to accommodate a major portion of the total dispersed recreational opportunities available on the Forest (C14, C16-19, S12-15, S17-19, S21-24)

Introduction

MA 15 is the largest MA It makes up a continuous, forested matrix which largely surrounds the other MAs The land contains much steep, unstable terrain and is heavily dissected by perennial and intermittent streams. Management for multiple resources - including timber, fisheries, and wildlife habitat - on these lands requires an integrated resource management approach Most of the land can be managed for timber (assigned "suitable for timber production") and also provide other resources by meeting S&Gs for protection of water quality and wildlife habitats. To meet all objectives for fish and wildlife resources, however, some acres must be left unharvested (assigned "unsuitable for timber production') Locations of unsuitable acres will be intermingled within the MA and identified during Plan implementation and project design.

MA 15 could not readily be broken down into smaller MAs for each important resource. The 76,600 acres of riparian area (a possible fish habitat MA) extends along 3,200 miles of perennial streams throughout the Forest, and could not be mapped accurately on a scale appropriate for these documents Also, because of vegetative and topographic homogeneity and mild climate on the Forest, game animals do not typically inhabit distinctive areas for different seasons or activities that would be appropriate for special management (i e., elk MA) Dispersed recreational opportunities and vegetation leave areas to protect soil and water are also too small and intermingled to be consolidated into a distinct MA.

Habitat is provided for species of wildlife associated with a variety of successional stages. In addition, elk habitat is managed most intensively in this MA Vegetation is often left intact on unstable slopes (vegetation leave areas) or adjacent to streams (buffers) to protect watershed and fish resources

A variety of recreational attractions and opportunities are provided for the public, including trails, scenic features, dispersed camping spots, pullouts and parking spots near attractions, and interpretive signs. Signs along roads facilitate travel to the attractions

Management prescriptions for the area help to resolve several issues (see Chapter III) management of timber (Issue 1), wildlife habitat (Issue 5), watersheds (Issue 3), and fish habitat (Issue 4); concerns about economic efficiency (Issue 15) and local communities (Issue 14); and diversity of recreational opportunities offered on the Forest (Issue 6) These issues are also resolved, in part, in other MAs For more information on how these issues are dealt with in this and other MAs, see "Resource Summaries" earlier in this chapter

In this MA, 340,344 acres are categorized as "suitable for timber production" and 126,927 acres are categorized as "unsuitable for timber production "

Goals

The overall goal of MA 15 is to provide a mix of resources and outputs in an integrated and comprehensively planned manner. Timber, habitat for wildlife dependent on successional stages other

than old growth, productive habitat for anadromous and resident fish, and public use of recreational features and opportunities are key resource focuses in this MA Specific projects planned in any of these resource areas will be designed and coordinated to enhance and complement opportunities available in the others

Desired Condition

The landscape is heavily altered from the natural condition of an unbroken canopy to a patchwork of age classes and species of trees, usually in 10- to 60-acre stands Vegetational habitats for forest-dwelling wildlife include dead and defective trees, plantations of conifer seedlings, brush, and conifer stands over 80 years old with diverse understories, including mixed hardwood along streams and in other moist sites.

Channels of streams supporting salmonid fishes contain frequent and well-distributed complexes of large logs (at least 20 per 1000 feet of channel; which are at least 50 feet long and 2 feet in diameter in Class I and II streams, and 30 and 1-1/2 feet, respectively, in Class III). These complexes interact over time and through a wide range of flows to create a high diversity of aquatic habitat types Summer stream temperature regimes are well-moderated with limited day to night variation. Generally cool water temperatures are within tolerances of aquatic organisms naturally found in the system.

An extensive road system provides access for a variety of purposes including: timber access; transport of logs and other forest products, hunting, fishing, camping, and other recreational pursuits, wildlife and fish management activities, and other administrative uses Additional facilities such as trails, panoramic overlooks, minimally-improved camping spots, and directional and educational signing are present throughout the MA and identified for public use

This MA is divided between lands suitable for timber production, where trees are available for sale on a nondeclining flow basis, and lands unsuitable for timber production, where vegetation generally is left intact.

Lands Suitable for Timber Production

Timber Management Purposes - Although the MA as a whole will be managed for and be producing a mix of resource outputs, the portions which are suitable for timber production emphasize one of the following general purposes·

1. **Mature Forest for Wildlife Habitats** - Portions of the area are managed on 100-year or longer rotations These subareas provide habitat for wildlife species dependent on mature conifer habitat.

2. **Timber and Elk** - The emphasis for the remainder of the area is producing timber and habitat for elk. Part of this subarea is managed on 60- to 80-year rotations and part is managed on 100-year rotations

Site-specific prescriptions for regeneration harvest and all other silvicultural treatments implemented under this Plan will be designed to achieve:

- The future stand conditions needed for different wildlife habitats, as well as attainment of future timber harvest as outlined in "Resource Summaries" earlier in this chapter.

- Harvest levels that meet 1st-decade schedules for volume and species outlined earlier in this chapter.

Subareas

These subareas are projections of types of management that will be identified and located on the ground by integrated resource planning for projects. The subareas generally cannot be mapped, and numbers of acres in MA 15 that will receive each type of management are not known.

Mature Conifer Wildlife Habitat includes stands at all stages of development, from seedlings to mature timber stands 100 or more years old. The older stands have a moderately high level of dead conifers (standing and down) This habitat is in patches distributed fairly evenly throughout the MA and is supporting wildlife species dependent on mature conifer.

Stands Managed for Timber and Elk Habitat are predominantly conifer trees. These stands are in all stages of development, from seedlings to mature timber 60 to 80 years old, and normally contain few hard snags Wildlife species dependent on early successional stages of conifer (less than 60-80 years old) are present.

Landtype Associations Designated for Elk Management provide high quality, well distributed winter habitat consisting of created or natural meadows; clearcuts that have been burned and seeded for forage; and thermal, optimal, and hiding cover Throughout the planning period, favorable mixes of forage and cover are available within subbasins of 2,000 to 5,000 acres

Some roads are closed to motorized vehicles, with the closure period depending on other management objectives As a result, there are diverse access opportunities for hunters and harassment of elk is low in restricted areas.

Riparian Areas along streams supporting resident trout only (Class III), about 60% of riparian areas closest to the stream support diverse, uneven-aged forests in late seral stages which provide good fish and wildlife habitat. Typically, mixed conifers dominate these areas, with 70% or more of the trees being scattered multi-aged conifers. The remaining 40% of streamside riparian areas are intensively managed, even-aged conifer forest. In the total riparian area along Class III streams, plant species diversity is moderate. Some of the forest canopy consists of several layers of trees and overall effective canopy cover is at least 50% of any preharvest level. In many places, brush and other hiding cover are dense enough to provide travel corridors for wildlife Recreational pursuits that do not depend on motorized access (i.e, hunting, fishing, photography, wildlife viewing, mushrooming) are possible The microclimate is modified but many of the characteristics of a natural streamside area are still maintained In the undisturbed portion of these areas, the age and species composition, abundance of down logs in stream channels and on the forest floor, and abundance of standing dead and defective trees are similar to those found in the resident trout portions of undisturbed basins in the Coast Range An example of ideal conditions on the Siuslaw N F is the upper reaches of Cummins Creek

Lands Unsuitable for Timber Production

On two types of land, trees are not harvested. These are:

Riparian Areas, where the vegetation provides both shade to keep water temperatures within state water quality standards and provide a source of large woody debris to ensure adequate stream structure, and generally helps to maintain water quality (these lands are generally referred to as stream "buffers"). The following is the desired condition of these areas.

Riparian areas along streams supporting anadromous salmonids (Classes I and II) support diverse, uneven-aged forests in late seral stages which provide optimum fish and wildlife habitat on a long-term system basis throughout the Forest Typically, hardwoods dominate the area immediately adjacent to the stream channel while conifers dominate the outer portions of the riparian area At least 30% of the trees are comprised of scattered multi-aged conifers. Many large conifer trees can fall, or be felled and winched, into the channels Some of these conifers will have been planted for this purpose. Plant species diversity is high. The forest canopy consists of several layers of trees and is essentially closed except where small, open plantations of young conifers are established to provide woody debris for fish habitat Brush and other hiding cover are dense enough to provide travel corridors for wildlife Recreational pursuits that do not depend on motorized access (i e, hunting, fishing, photography, wildlife viewing, mushrooming) are possible The microclimate is different than adjacent upland forest because of increased humidity, higher rate of transpiration, and increased air movement Fallen logs are common Age and species composition of stands, abundance of down logs in stream channels and on the forest floor, and abundance of standing dead and defective trees are similar to those found in anadromous fish bearing portions of undisturbed basins in the Coast Range An example of ideal conditions on the Siuslaw N F is Cummins Creek

High Risk Slopes, where there is a high likelihood that cutting trees will accelerate the landslide rate (these areas are generally referred to as vegetation "leave areas") The following is the desired condition of these areas

Lands on which there is no timber harvest generally lack major human disturbance Vegetation is intact and serves to protect soil, water, and fishery resources Streams contain fallen logs, which produce pools for rearing of fish Most of these lands are capable of providing high-quality dispersed recreational experiences, but generally do not have roads or trails or other developed facilities In general, these lands have a higher proportion of deciduous trees than the part of the Forest managed for timber If the vegetation is not radically disturbed by windstorms, fires, insects, or disease, it gradually becomes old-growth forest, interspersed with brushfields Stands usually contain moderate to high numbers of hard snags These lands generally exist in small parcels, 1-10 acres in size, intermingled with the suitable land.

Standards and Guidelines for MA 15

Recreation

15-01 **ROS Class** - Provide rural ROS class opportunities. See the Forest-wide S&Gs for direction on providing trails, managing settings around significant scenic and recreational features and opportunities, and providing facilities to enhance their use

Visual Quality

15-02 VQO Management - On lands seen from the following roads, design management activities so they at least meet the VQO of modification (see the glossary for a simplified definition of modification):

N. Fork Smith R. Road	Canal Creek Road
Sweet Creek Road	Fall Creek Road
Yachats River Road	N Fork Siuslaw R Road
Smith River Road	Deadwood Creek Road
Five Rivers Road	Lobster Creek Road
Indian Creek Road	Elk Creek Road
Harlan Road	Linslaw Road
Canary-Ada Road	

Wildlife

Elk Habitat - The following S&Gs apply in Landtype Associations A, B, C, D, E, M, N, P, R, and T.

15-03 Subbasin Planning - Evaluate habitat conditions on NFS lands within subbasins of 2,000 to 5,000 acres.

15-04 Permanent Meadows - Provide well-distributed, permanent meadow habitat using the following criteria.

- Maintain all existing permanent meadows,
- Forest-wide, create 1000 acres of permanent meadow over the next 5 decades The meadows should be where they can best be maintained, where harassment will be low (elk hunting season excepted), and in locations, sizes, and shapes which are most useful for winter forage; and
- Ensure that at least half of the perimeter of any permanent meadow (natural or created) is in thermal cover at all times

15-05 Cover and Forage Availability - Within each subbasin, provide a consistent flow of enough forage and cover over time to sustain desired elk habitat capability

15-06 Forage Quality - Provide quality forage following timber harvest, using the following criteria:

- Whenever compatible with other objectives, burn clearcut units to enhance the quality and quantity of forage; and
- Seed (with forage species) and fertilize timber harvest units when needed to meet one or more of the following elk management objectives:
  - Maintain existing elk habitat capability which meets habitat goals,
  - Increase the reproductive potential of herds in areas which do not yet meet population goals,
  - Reduce browse damage when elk numbers are high in limited forage areas, or

- Provide increased forage in units targeted for elk transplants within 5 years of harvest

15-07 **Cover Quality** - Provide cover close to forage areas, using the following criteria

- Maintain hiding or thermal cover adjacent to at least 25% of the perimeter of all clearcuts until the clearcut exceeds 60% tree crown closure (this condition occurs naturally in approximately 10 years);

- To the extent possible, shape harvest units (and/or provide internal cover patches) so the distance to hiding or thermal cover does not exceed 800 feet from any point in the unit; and

- To the extent possible, ensure that about 20% of each subbasin is well distributed stands of optimal or mature cover, with emphasis on optimal cover

15-08 **Cooperation** - Cooperate with the Oregon Department of Fish and Wildlife to meet desired habitat and population goals by using techniques such as forage enhancement and elk transplanting

15-09 **Road Closures** - Close roads or otherwise manage vehicular access when desirable to either limit activities which inhibit elk use of high quality foraging, calving, and resting areas, or provide a variety of hunting opportunities

Mature Conifer Habitat Areas

15-10 **Pileated Woodpecker** - Provide one habitat area every 12,000-13,000 acres Within each area, maintain the following:

- Reproductive Core - At least 500 acres in mature conifer stands (80 years or older) Where possible, at least 300 acres or more should be contiguous If not possible, provide reproductive habitat in stands no less than 50 acres and no more than 1/4 mile apart

- Feeding habitat - Place immature and mature conifer stands within the habitat area on a rotation schedule that ensures replacement stands for the reproductive habitat

15-11 **Marten** - Provide one habitat area every 4,000-5,000 acres Within each habitat area, maintain the following·

- Reproductive Core - At least 250 acres of mature conifer stands (80 years or older) Where possible, at least 160 acres or more should be contiguous If not possible, provide habitat in stands no less than 50 acres and no more than 1/4 mile apart. Crown closure should be 50% or greater

- Feeding habitat - Place immature and mature conifer stands within the habitat area on a rotation schedule that ensures replacement stands for the reproductive habitat

15-12 **Dead and Defective Trees** - Provide enough hard snags to support at least 60% of the potential population of cavity-nesting species. Ensure that snags are at least 20 inches dbh and at least 20 feet tall. If necessary, create snags from green trees (see Forest-wide standards and guidelines for dead and defective trees).

15-13 **Down Logs** - Provide at least 6 dead and down logs per acre, each greater than an average 20" in diameter and 20 feet long.

15-14 **Stand Age** - Ensure that stands which are part of the reproductive habitat for mature-conifer wildlife are at least 100 years old before scheduling them for replacement.

15-15 **Replacement Stands** - Ensure that stands scheduled to replace reproductive core stands meet requirements for snags, down logs, and distribution.

15-16 **Commercial Thinning** - In order to attain a desired snag diameter of 20 inches dbh by age 80, include one commercial thinning in stand management, if necessary

15-17 **Salvage Operations** - In general, prohibit salvage in either reproductive core areas or replacement stands.

15-18 **Firewood Cutting** - Prohibit firewood cutting within reproductive core areas

Timber

Timber Sale Planning and Design

15-19 **Reforestation** - Be sure that technology exists to reforest units within 5 years of final harvest before managing an area for continued production of commercial wood products

15-20 **Silvicultural Prescription** - For each project which involves regeneration harvest or commercial thinning, prepare and implement a site-specific silvicultural prescription which considers each major plant association in the project area Prescriptions must·

- Be consistent with management area direction
- Describe probable stand management requirements to establish a stocked stand of free-to-grow trees if proposing a regeneration harvest, describe probable stand management requirements through the rotation, and be consistent with the Vegetation Management FEIS
- Be based on an analysis that considers all silvicultural systems that are biologically and operationally feasible to re-establish stands.
- Insure the attainment of 95% culmination of mean annual increment in cubic feet before stands are regenerated Exceptions may be made where special resource considerations require earlier harvest, such as removal of stagnated stands that were regenerated with off-site planting stock The age of 95% culmination should be based on site-specific data.
- *Include an analysis of economic consequences of the treatments considered*
- Specify stocking levels and species composition.

15-21 **Harvest Units** - Design the size, shape, and location of timber harvest units to facilitate stand reestablishment, avoid risk of damage to adjacent stands (from fire, wind, animals, and insects), and meet requirements for wildlife, visual management, and water quality

15-22 **Watershed Protection** - Conduct harvest activities in a manner that protects vegetation intended to be left intact for soil or water management/protection purposes.

15-23 **Seasonal Restrictions** - Restrict operating seasons for logging and post sale activities when necessary to protect roads, soil, water, and critical wildlife habitat.

Protection

15-24 **Prescribed Fire** - Treat harvest residue when necessary to meet resource objectives In order to continue to reduce smoke emissions, use prescribed fire only when there is no practical alternative treatment Comply with R6 FEIS for Managing Competing and Unwanted Vegetation

15-25 **Residue Reduction** - Treat harvest residue to reduce the fire hazard when the consequences of wildfire are greater than the consequences of reducing the hazard

15-26 **Firewood** - When practical and consistent with other resource objectives, make harvest residue available for firewood or other products

15-27 **Views Along Trails** - Assure that harvest residue on either side of recreational trails does not adversely affect visual resources

15-28 **Timber Stand Improvement** - To reduce risk of wildfire, treat fuels from precommercial thinning adjacent to heavily used roads and high priority prescribed burn areas

Stand Establishment

15-29 **Stocking Levels** - Establish stands of well-distributed, free-to-grow trees at prescribed stocking levels

15-30 **Species Composition** - In all areas managed for timber production, manage species composition to meet emphasis requirements for the future stand and best utilize the site Also, consider establishing hardwood stands or a conifer/hardwood mix of species where·

- The site is not capable of growing conifers,
- Hardwoods would have a higher net monetary value than conifers,
- Hardwoods will control or stop the spread or development of disease or pests, or
- A hardwood component will increase the growth of conifers

15-31 **Root Rot** - When resource objectives require reforesting areas infested with root rot (*Phellinus weirii*), do not use Douglas-fir or other susceptible species Where the infection involves more than 10% of the logical harvest unit, reforest the infected area within that unit with red alder or other acceptable hardwoods

15-32 **Site Preparation** - Prepare harvest units for reforestation when needed for seedling survival, to provide planting spots, or to control animal damage

15-33 **Stand Density** - Determine stand density by targeting either an economically viable average stand diameter at first commercial thin or a diameter needed to meet objectives for resources such as mature conifer habitat and visuals. When stands will not be commercially thinned, provide densities that will maximize the present net value of the stand over the rotation.

15-34 **Planting** - Plant within one growing season of site preparation, residue treatment, or timber harvest if there is no special treatment

15-35 **Seed Certification** - Use the best genetically improved seed stock available.

15-36 **Stocking Levels** - Within four years after harvest, achieve at least the prescribed stocking levels on all suitable acres on any unit.

15-37 **Animal Damage** - Control animal damage to the extent necessary to meet prescribed stocking levels when the predicted damage will reduce stocking below prescribed levels, or when repeated browsing will prevent crop trees from maintaining a dominant or co-dominant position

15-38 **Vegetation Control** - Employ mitigation measures listed in the R6 FEIS for Managing Competing and Unwanted Vegetation. Control pest vegetation to the extent necessary to meet prescribed stocking levels when·

- Stocking is predicted to drop below prescribed levels,
- The number of releasable crop trees is not sufficient to meet stocking objectives and additional stock will be planted the following planting season, and
- It is necessary to maintain growth rates to attain future desired conditions.

15-39 **Control Methods** - Base release prescriptions on data collected within one year of evaluation. Base silvicultural evaluations on an analysis of control methods that are biologically and operationally feasible, such as herbicides, biological, and manual cutting.

15-40 **Control Methods** - Control pest vegetation using methods that are cost effective and prevent significant damage to 95% of crop tree terminals

15-41 **Rotation Age** - Ensure that the rotation age is not less than the age which produces a mean annual increment equal to or greater than 95% of culmination of mean annual increment, except to meet specific management objectives Harvest at younger stand ages where it would enhance net public benefits as provided by NFMA regulations 36 CFR 219 16 2(iii) Harvest at older stand ages to meet specific management objectives

Timber Stand Improvement

15-42 **Stocking Levels** - Precommercially thin stands to maintain stocking levels that will achieve future desired stand conditions

15-43 **Red Alder** - When precommercial thinning, retain a red alder component either to help replace nitrogen or where conifer stocking is less than prescribed

15-44 **Goals** - Precommercially thin stands when the treatment is cost effective and needed to achieve prescribed stocking and species objectives on at least 90% of the acres in the stand

15-45 **Fuel Treatment** - If cost effective, treat fuels from precommercial thinning adjacent to heavily used roads and in high priority prescribed burn areas to reduce risk of wildfire

15-46 **Commercial Thinning** - Commercially thin stands where the thinning is cost effective or necessary to meet future desired stand conditions.

15-47 **Fertilization** - Apply fertilizer to stands where the predicted response will increase economic efficiency over the rotation

15-48 **Pruning** - Prune stands where the increase in future timber quality makes it a cost effective treatment

Lands

15-49 **Land Acquisition** - Exchange NFS lands and acquire lands of others to better meet management objectives

Transportation

15-50 **Road Access** - Ensure that local road access for timber management is adequate for logging, post sale activities, and protection Generally, maintain commercial roads for low clearance vehicles, although some may be maintained for high clearance vehicles only Following use for timber haul, local roads with planned future use will generally be open to high clearance access for Forest visitor and administrative use. Road Management Objectives will govern this process

Range

15-51 **Other Resources** - Use livestock grazing to benefit wildlife and silvicultural objectives

CHAPTER V
Monitoring

CHAPTER V

IMPLEMENTATION AND MONITORING

Implementation of the Forest Plan requires moving from an existing management program with a budget and targets for accomplishment to a new management program with a budget, goals, and objectives that will provide a different way of addressing the issues and concerns people have voiced about management of the Forest This Forest Plan establishes the direction for the Siuslaw National Forest for the next 10 to 15 years. It will be used in conjunction with Forest Service Manuals and Handbooks and the Pacific Northwest Regional Guide

This chapter of the Plan includes three sections Implementation Direction, Monitoring and Evaluation, and Amendments and Revisions Collectively, these sections explain how management direction will be implemented, how implementation activities will be monitored and evaluated, and how the Plan will be kept current as conditions change and new information becomes available

IMPLEMENTATION DIRECTION

The Forest Supervisor has the overall responsibility for implementing the Forest Plan Implementation will occur through the identification, selection, scheduling, and execution of management practices designed to meet the management direction of the Plan. Implementation will also involve responding to proposals by others for use and/or occupancy of Forest lands Additionally, it will be necessary for other plans or instruments, budget proposals, and environmental analysis required for implementation of specific management practices to be consistent with this Plan

Project Scheduling

Appendices A and B list proposed resource schedules, including a proposed timber sale schedule Multi-year project schedules for all major practices will be prepared and maintained by the Forest within 1 year of Plan approval. These schedules will be in response to the management direction in this Plan as well as site-specific near-term needs and opportunities The execution of these projects will be in response to the annual budget The projects listed in the appendices provide a pool of possible activities from which implementation schedules will be developed in conjunction with funding approvals

Listings of possible projects to meet the multi-year management activity schedule are maintained by the unit managers These listings will routinely change as projects are implemented, or are removed from the listings for other reasons, and as new projects take their place

Projects necessary to accomplish the goals and objectives are scheduled through a process which takes Forest-wide outputs and activities and locates them to more site-specific subdivisions of Ranger Districts These subdivisions are sub-basins, which are third or fourth order watersheds For timber related outputs and activities, the FORPLAN solution by analysis area and Management Area is interpreted for each subbasin. Within each sub-basin the approximate amount of treatments is identified for the 1st decade. Although efforts were made during FORPLAN modeling of the Plan to ensure feasibility of the model solution, there may be some instances where the solution is not feasible and will be adjusted, since outputs were based on average conditions in landtype associations Depending on the magnitude of the adjustment, the amendment process for the Forest Plan may be triggered

Consistency With Other Instruments

This Forest Plan serves as the land management plan for the Siuslaw National Forest and upon implementation, will supersede all present land management and resource plans for the Siuslaw National Forest with the the following exceptions:

- Oregon Dunes National Recreation Area Management Plan (January 1977, as amended May 1979)
- Cascade Head Scenic-Research Area Management Plan (including the Neskowin-Crest RNA) (November 1976)

Existing Management Direction for these areas has been incorporated into this Forest Plan.

Land and resource management plans superseded are as follows:

- Hebo Land and Resource Management Unit Plan (November 1978)
- Alsea Land and Resource Management Unit Plan (November 1979)
- Marys Peak Land and Resource Management Unit Plan (March 1977)
- 10-Year Timber Resource Management Plan (February 12, 1979 as amended August 25, 1980 and October 19, 1984)
- Mapleton Ranger District Multiple-Use Plan (1968)

Subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of lands of the Siuslaw National Forest, will be made consistent with the Forest Plan Adjustments of existing instruments will be accomplished within 3 years of Plan approval.

Budget Proposals

Management activities scheduled in this Plan are associated with a multi-year program budget proposal that identifies funds necessary to implement the Plan. This is then used to request and allocate funds Outputs and activities in individual years may be significantly different than the averages shown in Chapter IV, depending on available funds.

The Forest Supervisor may change proposed implementation schedules to reflect differences between proposed annual budgets and actual funds received. Such schedule changes shall be considered an amendment to the Forest Plan but shall not be considered a significant amendment, or require preparation of another EIS, unless the changes significantly alter the long-term relationship between levels of multiple-use goods and services projected under the planned proposals as compared to those projected under the actual appropriations.

Upon approval of the final budget for the Forest, the annual program of work is adjusted to the final budget and then carried out. Accomplishment of the annual program of work results in the incremental implementation of the Plan management direction.

Environmental Analysis

Final decisions on site-specific projects will be made during Forest Plan implementation after appropriate analysis and documentation meeting NEPA requirements. The form of documentation will be consistent with the Council on Environmental Quality Regulation (40 CFR 1500-1508) NEPA documents in the form of Categorical Exclusions, Environmental Assessments, or Environmental Impact Statements will be filed and available for public review at various offices on the Forest.

MONITORING AND EVALUATION

Monitoring and evaluation will provide the public, the Regional Forester, and Forest officials with information on the progress and results of implementing the Forest Plan Actual effects and activities will be compared to projected effects and Forest Plan Direction Where effects and activities are congruent with expectations, the determination will be documented and implementation will continue Where effects and activities are not congruent with expectations, further evaluation will occur and appropriate action will be taken to correct inadequacies or to modify the Forest Plan where necessary.

The overall objectives of the Monitoring Plan are to determine if programs and projects are meeting Forest Plan Direction, and to keep the Plan viable

Specific objectives of the monitoring and evaluation program are to determine whether:

1. Planned goals and objectives are achieved
2. Programs and activities address existing and emerging public issues and management concerns
3. Standards and guidelines are being followed
4. Standards and guidelines maintain environmental quality
5. Resource and cost information used in projecting output and impacts are correct
6. The Forest Plan needs to be amended or revised
7. Intensity of monitoring is commensurate with the risks, costs and values involved in meeting plan objectives

Monitoring

Monitoring will test resolution of the same ICOs that the Forest Plan was designed to resolve. For each ICO there are one or more monitoring questions which will be answered at specific time intervals Table V-1 lists these monitoring questions by resource The questions will provide a periodic comparison of the end results of implementation and those projected in the Plan

Costs, outputs, and environmental effects will be compared to measure the effectiveness of implemention of BMPs (including those listed in the General Water Quality Best Management Practices, Pacific Northwest Region, and Standards and Guidelines in Chapter IV), and to determine if the relationships on which the Plan is based are still valid. Differences will be evaluated and appropriate action taken, which could range from correcting performance deficiencies when standards and guidelines are not

being implemented, to amending or revising the Forest Plan when acceptable effects can not be achieved within the present framework of the Plan.

While the monitoring questions are designed to be clear about what outcome is being tested, they are purposely phrased to allow flexibility in sampling procedures. This will allow monitoring personnel to tailor the design of the monitoring activities to special management concerns at the time of sampling, and to current developments in sampling and analysis procedures.

Three types of monitoring will be used:

1 Implementation Monitoring: Did we do what we said we would do in the Plan for a given issue?

2. Effectiveness Monitoring: Did the practice or activity provide what we wanted?

3 Validation Monitoring: Are the basic assumptions about cause/effect relationships accurate?

The Monitoring Plan contains the following elements which are included in Table V-1:

General Monitoring Question

Major questions that need attention to determine if the Forest Plan is working as expected. The "Discussion" part of this element elaborates on the major pertinent components of the general issue the question is addressing

Evaluation Question

A question that deals with a facet of, and helps answer the general monitoring question. These include Forest Plan assumptions and indicator items that, when answered in total, help answer the general monitoring questions

Action/Effect to be Measured

Specific statement of what will be examined

Methods

The process by which the examination will be done

Units of Measure - Self explanatory

Expected Reliability

The level of validity and exactness of the data Reliability is the expected probability that information acquired through sampling will reflect actual conditions Reliability is rated as high, moderate, or low

Information Collection Frequency

Specifies the minimum collection intervals expressed as given time periods

Monitoring Reporting Period

The minimal time interval for reporting

Management Responsibility

Person who has responsibility for compilation of information at the Forest level Actual data collection will generally be conducted by the Ranger Districts

Variability Indicating Further Action

Threshold that triggers a reevaluation of the Forest Plan

Estimated Cost

The approximate annual cost of accomplishing the monitoring tasks.

Table V-1. Monitoring Questions - Cultural Resources.

QUESTION: Are cultural and historical sites being used and protected as planned?

Discussion - Federal laws and regulations require protection of significant cultural and historical resources. Monitoring provides a check on how well the Forest is maintaining cultural resource sites and meeting the intent of the regulations.

Cultural resource inventories will be conducted for proposed ground-disturbing activities. Sites will be evaluated for their potential to be nominated to the National Register of Historic Places Eligible sites will be nominated to the Register and management plans prepared to ensure their protection, including regularly scheduled monitoring of site condition Ineligible sites will be evaluated for their potential research or interpretive values. Sites with research potential will be made available to qualified scientists Interpretive plans will be prepared for sites selected for public use.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is a complete structural inspection of historic structures and necessary repairs being made?	Comprehensive report of condition of all significant structures	Field visit to all significant and unevaluated sites and inventory of condition	Compare condition to NHRP guidelines	High	Every 5 years	Years/5	Recreation Staff	Inspections not completed	$2,000
Is appropriate stabilization or rehabilitation of damaged or eroded sites eligible for inclusion in the National Register of Historic Places (NHRP) being done?	Report of damaged significant sites with recommendations for repair and rehabilitation	Field review damage repair	Compare to NRHP guidelines	High	Annually	3, 6, and 9 years	Recreation Staff	Damage which threatens loss of values not repaired	$2,000
Are cultural resource surveys being performed according to the Forest/SHPO agreement?	Report based on annual monitoring of significant sites in project areas and also of unevaluated sites	Field surveys	Completed survey	High	Annually	3, 6, and 9 years	Recreation Staff	Report not completed	$3,000

Table V-2A. Monitoring Questions - Economics (Funds)

QUESTION: Are funds available to conduct planned monitoring activities?

Discussion - The Forest Plan Standards and Guidelines provide an specific resource management direction for the Forest to meet Plan objectives Ensuring implementation of the Plan requires increased monitoring activities Inability to conduct adequate monitoring would violate NFMA.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are funds available to conduct monitoring activities?	Monitoring costs	Budget reports	Dollars	High	Annually	Annually and as needed	Planning Staff	Insufficient funds	$500

Table V-2B. Monitoring Questions - Economic and Social

QUESTION: Are economic and social assumptions, values, and projections valid?

Discussion - Economic values were based on historical data The value of many of the Forest's outputs are determined by trends in public preferences. Changes in timber availability, markets and technology could have significant effects on several economic variables There is also an opportunity to begin collecting baseline data for future planning efforts.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Do the 3-year average annual payments to each county meet projections?	Payments to counties	Forest records	Dollars	High	Annually	Annually	Planning Staff	Deviations from projections exceed 10% over 3-year average	$100
Do the average annual receipts and product prices conform to predictions?	Annual receipts	Revenue reports	Dollars	High	Annual	Annually	Planning Staff	Deviations from expected values exceed 10% over 3 years	$500
Do the average measures of local employment and income rates meet projections?	Local employment and income rates	State Employment/ Income Statistics	Percent unemployment and income rates	High	5 years	Annually	Planning Staff	Deviations from projections exceed 20% over 5 years	$500
Do total costs by resource activity and major project costs conform with predictions?	Total costs	Budget reports	Dollars	High	Annual	Annually	Planning Staff	Deviations from expected values exceed 10% over 3 years	$500

Table V-2B Cont. Monitoring Questions - Economic and Social

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Has there been a significant change in public attitudes, beliefs or values	Various	Interviews with key publics and opinion leaders in communities, media reports, editorials, etc	Various	Low	Continuous	Annually	Planning Staff	Trend toward Forest - community conflict or new social problems identified	$500
Has the Forest's contribution to area forest products industries changed?	Log flows	PNW Publications, Timber Disposition Forms	MMCF/ year, % distribution by industry	High	Annual	Annually	Timber Staff	Deviation from current situation exceeds 50%	$100

Table V-3. Monitoring Questions - Fish

QUESTION: Is quality of anadromous fish habitat changing as predicted?

Discussion - Physical stream habitat can be secondarily expressed as the capability of habitat to support fish populations, regardless of whether the habitat is fully used or not Large organic material is the primary factor determining quality of anadromous salmonid habitat on the Forest Quality of fish habitat is predicted to decline slightly, largely because of reductions in recruitment of large organic material as a result of past and future timber harvest in riparian and adjacent zones. Healthy streamside zones are critical and riparian management is strongly reflected in quality of fish habitat. Standards and guidelines are needed to assure that management actions lead to the desired condition of fish habitat.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets for fish being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Planning Staff	Accomplishments are more than 10% below Plan targets over 3 years	$200
Are trends in fish habitat capability resulting in about 90% of present levels by the end of the 1st decade?	Amount of pools and riffles Number of fish per area of pool and riffles at selected sites	Reeves/Hankin Methodology for Aquatic Habitat Assessment used on 10 or more streams	Years 4, 6, 8 decline from present or not Year 10 % change	Moderate Low	Years - present, 4, 6, 8, 10	Years - 4, 6, 8, 10	Fisheries staff	Forest-wide habitat capability of less than 80% of present levels by the end of the 1st decade.	$20,000/ year

Table V-3 Cont. Monitoring Questions - Fish

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are trends of amounts of naturally occurring organic material in anadromous fish habitat resulting in 80-90% of present levels by the end of the 1st decade?	Amount of organic material occurring as stream habitat components	Reeves/Hankin Methodology for Aquatic Habitat Assessment used on 10 or more streams	Years 4, 6, 8 decline from present or not Year 10 % change	Moderate Low	Years - present 4, 6, 8, 10	Years - 4, 6, 8, 10	Fisheries staff	Forestwide habitat capability less than 80% of present levels by the end of the 1st decade	$15,000/ year
Are related standards and guidelines implemented?	Compliance with management direction	Office and field review of project plans and EA reports potentially or directly affecting the fishery resource	N/A	High	Continual and ongoing	every 2 years	Fisheries staff	A "no" to the question, "Were S&Gs implemented?"	$3,000/ year

Table V-4A. Monitoring Questions - Recreation and Scenery (Recreation Diversity)

QUESTION: Is the diversity of recreation opportunities provided for in the plan being supplied and consumed?

Discussion - A broad spectrum of outdoor recreation opportunities are supplied in order to meet projected consumption. It is necessary to confirm that the projected consumption is actually occurring in order to be sure that the right types and amounts of opportunities are being supplied.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Forest Staff	Accomplishments are more than 10% below Plan targets over 3 years	$200
Is the management of the following areas consistent with the assigned ROS or WROS class and the other direction in the Forest Plan? Wilderness Oregon Dunes NRA Cascade Head SRA Special Interest Areas Undeveloped Areas Sutton Sand Lake Developed Recreation Sites	Deviation from ROS or WROS class standards	Field review of management areas and developed sites	ROS or WROS setting indicators	High	Annually - one-third of sites and areas	3, 6, and 9 years	Recreation Staff	Any deviation from planned or anticipated setting indicators	$3,000
Is the amount and type of recreation use taking place in the various areas of the Forest as predicted in the Forest Plan?	Amount of recreation use by activity by area	RIM use reports	RVDs	Low	Annually	Annually	Recreation Staff	Deviation greater than 50%	$1,500

Table V-4A Cont. Monitoring Questions - Recreation and Scenery (Recreation Diversity)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the facilities and improvements scheduled in the Forest Plan being provided as needed?	Construction and reconstruction of improvements	Look for overuse or compare practical capacity of facilities with demand using market studies	Predicted RVDs in excess of practical capacity	Moderate	Annually	3, 6, and 9 years	Recreation Staff	Persistent signs of overuse or market studies which show demand about to exceed capacity	$3,000

Table V-4B. Monitoring Questions - Recreation and Scenery (Off-road Vehicles)

QUESTION: Is off-road use of vehicles taking place as intended in the Forest Plan?

Discussion - Monitoring off-road use of vehicles is required in 36 CFR Part 295 in order to determine if such use is causing or will cause considerable adverse effects on soil, water, fish, wildlife, forest visitors, and cultural and historic resources.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is off-road use of vehicles confined to the areas designated for such use in the Forest Plan?	Violation of vehical closures and restrictions	Record field observation of areas closed or restricted	Number and severity of violations	Moderate	As violations are observed plus sample closed areas four times per year	Annually	Recreation Staff	More than 150 recorded violations in one year, Forest-wide	$3,000
Are the effects of off-road use of vehicles within acceptable limits?	Effects of off-road use of vehicles	Record field observations of effects where off-road use of vehicles is allowed	Amount of environmental disturbance	Moderate	As effects are observed plus sample open areas four times per year	Annually	Recreation Staff	Disturbance by off-road vehicles exceeds acceptable limits.	$3,000

Table V-4C. Monitoring Questions - Recreation and Scenery (Visual Resource)

QUESTION: Is the quality of the visual resource being provided as directed in the Forest Plan?

Discussion - To provide visually attractive landscapes for Forest visitors, and also carry on resource management activities, visual quality objectives (VQOs) are established in the Forest Plan Monitoring whether activities meet the VQOs individually and cumulatively determines how well the visual resource is being protected

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Do the visual results of activities meet the VQOs assigned in the Forest Plan?	Visual effects of landscape changing projects	Field review of finished projects	VQO criteria	High	Annually sample projects on each District	3, 6, and 9 years	Recreation Staff	Greater than 10% of projects not meeting VQOs	$1,500
Do the cumulative effects of resource activities stay within predicted Overall Viewshed Conditions?	Extent of visual effects in a total viewshed	Field inventory of overall viewshed condition	Summary Viewshed Rating cate-gories	Moderate	Every 5 years	5 and 10 years	Recreation Staff	Any viewshed not meeting the predicted viewshed con-dition	$1,000

Table V-5. Monitoring Questions - Research Natural Areas

QUESTION: Are potential RNAs being studied for formal designation and being managed as predicted?

Discussion - RNAs are physical or biological units in which current natural conditions are maintained as much as possible. Each RNA contains at least one ecosystem identified as a necessary part of a national system of preserved ecosystems. Potential RNAs must be studied in more detail to determine if environmental conditions truly qualify for the system. At the same time, management activities must protect the special natural qualities of the area.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are establishment reports for each Research Natural Area complete, and adequate to achieve the goals of Management Area 13?	Establishment reports	Interdisciplinary Review	Number and quality of reports	High	Annually	Every 2 years	Timber Staff	Any reports not completed within 2 years of Approval of Plan	$500
Are standards and guidelines related to Research Natural Areas implemented?	Compliance with management direction	Interdisciplinary Field Review	N/A	High	Annually	3 and 8 years	Timber Staff	A "no" to the question, "Were S&Gs implemented?"	$500

Table V-6A. Monitoring Questions - Soil and Water (Soil Productivity)

QUESTION: Is long term soil productivity being maintained as predicted?

Discussion - Soil organic matter is critical for maintenance of long term soil productivity. It is the primary medium for organic nutrient cycling; it is the host site for soil microbes and mycorrhiza, it moderates soil temperatures, and it influences soil water conditions Management practices that affect the amount of soil organic matter ultimately affect the basic productivity of the site Monitoring of soil organic matter will provide information about the direct and cumulative effects of management activities on soil productivity

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Planning Staff	Accomplishments are more than 10% below Plan targets over 3 years	$1500
Is duff and litter maintained on at least 85% of sensitive or intermediate sites (as defined in the 1985 *Siuslaw Users Guide for Prescribed Burning*) on harvest units that are burned?	1) Amount of duff and litter consumed 2) Changes in soil color	Random transects on 15% of randomly selected burn units	1) Percent duff and litter consumed 2) 20% changes in soil color	Moderate	Within 4 calendar days of burns - all years	3, 6, 9 years	Watershed staff	More than 15% of sites do not have organic matter maintained	$3,000/ year $5,000 to establish
Is unutilized, large woody debris being left on harvest units for long term soil productivity?	Amount of large logs (Class I & II) left on harvest units (standing dead and down)	Random transects on 20% of randomly selected burn units	Number of logs	Moderate	Ongoing	Every 3 years	Watershed staff	Less than two logs/acre greater than 12 inches in diameter & >40 cubic feet	$900/year

Table V-6A Cont. Monitoring Questions - Soil and Water (Soil Productivity)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is soil structure maintained on at least 85% of harvest units?	Increases in bulk density or platy structure within soil surface horizon	Random transect on all units harvested within past year on which compaction is identified as a concern in the environmental assessment	Percent of harvest unit affected	Low	Ongoing	Every 3 years	Watershed staff	Any change in soil structure on 15% or more of any harvest unit	$3,200/ year
Does current research indicate that soil productivity is being maintained?	Research reports	Evaluation of research (especially Long-term Productivity Research Project-PNW) applicable to Coast Range conditions	N/A	Moderate	Ongoing	3 years	Watershed staff	Research evidence that mgt activities are likely to measurably reduce soil productivity	$2,000/year
Are standards and guidelines relating to soil productivity implemented?	See list of standards and guidelines	Sample four timber sales per district year	N/A	High	Ongoing	Annually	Watershed staff	A "no" to the question "were the S&Gs implemented?"	$2,500/year

Table V-6B. Monitoring Questions - Soil and Water (Water Quality)

QUESTION: Is the water quality of perennial streams being maintained as predicted?

Discussion - Activities such as road building, timber harvest, and site preparation adjacent to intermittant and perennial streams can affect downstream water quality Primary causes of these potential affects are landslides, channel scouring or filling, and sedimentation from surface erosion. Perennial streams are used as domestic and municipal water supplies and habitat for a variety of fish and other aquatic species The condition of sensitive stream adjacent riparian ecosystems is reflected by the water quality of perennial streams Assessment of the water quality of perennial streams will help us understand the cumulative effects of our activities

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are indicators of surface erosion absent on at least 85% of that portion of harvest units which contribute sediment to first and second order streams	Dry ravel	Random transect on 20% of harvest units burned	% of area affected	Moderate	Within 1 week of burn	Every 3 years	Watershed staff	More than 15% of the contributing area with signs of surface erosion	$2,600/ year
Are state water quality standards being met where road prisms are contributing sediment to streams	Turbidity	On-the-ground inspections of roads to identify road adjacent areas influencing streams plus grab samples above and below at perennial stream junctions	NTUS Turbidity	Moderate	Ongoing during storms	Every 3 years	Watershed staff	More than 15% of samples do not meet state water quality standards.	$1,600/ year

Table V-6B Cont. Monitoring Questions - Soil and Water (Water Quality)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are there measurable changes in channel erosion and/or deposition in the critical/sensitive reaches of third order and larger stream channels, not intended by fish habitat improvement activities?	Channel erosion and deposition, bank erosion quantity, distribution and stability of woody debris	1) Identify areas 2) Establish permanent, site-specific data collection transects, stream surveys	Change in channel erosion and/or deposition	Moderate	Every 3 years or after a 10 year or larger storm event	Every 3 years or after a 10 year or larger storm event	Watershed staff	More than 15% or greater change in erosion or deposition	$10,000/year $20,000 to establish
Are the management related landslide rates and volumes within 20% of the rates predicted in the Siuslaw National Forest sediment model	Cause of axial failures and torrents (In unit or road/ sidecast related) Miles of stream habitat lost or damaged	FERM reports, field recon, air photo recon, measure volume and compare to the Sediment Model	Size (M^3) -slide -torrent track; number, and miles of (stream affected stratify origin by SRI land type)	Moderate	On going	5, 10 years and after a greater than and equal to 10-year storm event (annually)	Watershed staff	More than a 20% deviation from derived rates.	$7,000/ year $2,000 to establish
Are stability vegetation leave areas (SVLAs) implemented and surviving as prescribed?	Leave area size, appropriate placement, harvest survival (felling yarding burning), storm survival (blowdown slides), and adjacent in/unit slides	Tracks VLA from reconnaisance through harvest and past harvest for 10 years	Size, Rate	Moderate	On going, Prior to beginning of water year	5, 10 years and after a greater than or equal to 10-year storm event	Watershed staff	More than a 20% deviation from predicted landslide rates	$900/year $2,500 to establish

Table V-6B Cont. Monitoring Questions - Soil and Water (Water Quality)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Does current research indicate that Stability Vegetation Leave Areas (SVALs) prevent landslides?	Research reports	Evaluation of research (such as COPE SVAL Coast Range Study)	N/A	Moderate	Ongoing	3 years	Watershed staff	Research evidence that SVALs do not prevent landslides	$2,000/year
Are the following water quality parameters within limits established by state water quality standards turbidity, temperature, hazardous chemicals?	Turbidity, temperature, pesticides and other hazardous chemicals	Sample two streams per district/year Use streams providing domestic water where feasible Use herbicide and fertilization monitoring results Grab samples for turbidity Ryan Thermagraphs for temperature State Agriculture lab for chemicals	NTUS turbidity, °F temperature, ppm/ppb (pesticides) and other chemicals	Low	2, 4, 6, 8, years and after 10-year storm event	2, 4, 6, 8 or after 10-year or larger flood event	Watershed staff	15% of samples exceed state standard for a given parameter	$10,000/ year $20,000 to establish
Are standards and guidelines related to watershed management implemented?	See list of standards and guidelines	Sample four timber sales per district per year	N/A	High	Ongoing	Annually	Watershed staff	A "no" to the question "Were S&Gs implemented?"	$2,500/ year

Table V-7A. Monitoring Questions - Timber (Timber Sale)

QUESTION: Is the timber sale program quantity comparable to the planned level?

Discussion - The amount and species of timber harvested is a major issue with most people interested in the management of the Forest. The ASQ in this Plan was developed to provide the wood needed to supply local industry and maintain local economies and lifestyles, while avoiding adverse impacts to fish and wildlife habitat and other important Forest resources The following monitoring questions will provide the information needed to assess attainment of proposed timber sell levels and a basis to assess effects on other resources.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the number of acres of programmed timber sold on each District similar to the predicted amount?	Number of acres sold	Measure with STARS, TSA, TRACS, AND GIS	Acres	High	Annual	Annual	Timber Staff	Deviation of 15% from predicted amount	$1000
Is the volume of programmed timber sold on each District similar to the predicted amount?	Volume sold	Measure with STARS, TSA, and TRACS	MMCF/ MMBF	High	Annual	Annual	Timber Staff	Deviation of 15% from predicted amount	$1000
Is the volume (by species) of programmed timber sold on the Forest similar to the predicted amount?	Volume sold	Measure with STARS, TSA, and TRACS	MMCF/ MMBF	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount	$500
Is the species mix of programmed timber sold on each District similar to the predicted amount?	Volume sold	Measure with STARS, TSA, and TRACS	MMCF/ MMBF	High	Annual	Annual	Timber Staff	Deviation of 20% from predicted amount	$200

Table V-7A Cont. Monitoring Questions - Timber (Timber Sale)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is the volume of non-programmed timber sold similar to the expected volume?	Volume sold	Measure with STARS and TSA	MMCF/ MMBF	High	Annual	Annual	Timber Staff	Deviation of 50% from predicted amount	$300
Are the related standards and guidelines for non-programmed timber harvest being implemented?	See list of Standards and Guidelines	Sample one sale per District per year	N/A	High	Bi-annual	Bi-annual	Timber Staff	A "no" to the question "were S&Gs implemented?"	$400

Table V-7B. Monitoring Questions - Timber (Suitable Land Base)

QUESTION: Has the suitable land base changed?

Discussion - The ability of the Forest to provide the ASQ in this Plan is contingent on the land base classed as suitable for timber production. Only lands determined to be suitable for timber production should be harvested to meet the planned outputs. Area analysis during project planning may reveal that more or fewer acres are needed to meet resource protection levels or objectives for other resources. Major trends in changes of land suitability may indicate the need to recalculate the ASQ. Also, NFMA regulations require that the lands identified as not suited for timber production be evaluated every ten years to determine if the land has become suited.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are lands which were identified as not suitable for timber production still unsuitable? (And, are lands which were identified as suitable for timber production still suitable?)	Changes in the classification of tentatively suitable land base	Identify changes in tentatively suitable land base by reevaluating suitability	Acres	High	5 years	5 years	Timber Staff	5% deviation of base	$2000
	Acres of stream buffers, vegetation leave areas, etc identified during area analysis to meet standards and guidelines	Changes to the suitable timber land base as tracked in GIS	Acres	High	Ongoing	3 years	Timber Staff	5% deviation of timber base	$3000

Table V-7C. Monitoring Questions - Timber (Silvicultural Practices)

QUESTION: Are silvicultural practices as outlined by the Standards and Guidelines being implemented as planned?

Discussion - Maintaining non-declining flow and sustained yield of timber requires maintenance of stand growth at the levels predicted in the Plan This will require attainment of the prescribed intensive silvicultural treatments

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are lands adequately restocked 3 years after they are planted?	Stands adequately restocked within three years	REFSURVEY, TRACS, AND GIS	Acres	High	Annual	3 years	Timber Staff	5% of average annual acres regenerated over the past 5 years	$1,200
Are managed stands being maintained at the prescribed stocking levels and free from competing vegetation?	Precommercial thinning and release completed according to sivicultural prescriptions	TRACS and GIS	Acres	High	Annual	Annual	Timber Staff	10% from prescribed levels	$600
Are managed stands being fertilized as prescribed?	Fertilization completed on soils with demonstrated response according to sivicultural prescriptions	TRACS and GIS	Acres	High	Annual	Annual	Timber Staff	10% from prescribed levels	$200
Are clearcuts within established maximum size limits and are the size limits meeting objectives?	Clearcuts are within size limits	Timber sale units tracked in GIS	Acres	High	Annual	3 years	Timber Staff	10% of harvest units exceed 60 acres	$200

Table V-7C Cont. Monitoring Questions - Timber (Silvicultural Practices)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are destructive insect and disease organisms remaining below potentially damaging levels following management activities?	Extent of out-breaks and infestations	Regional aerial surveys and Ranger District reporting	Acres	Moderate	Ongoing	5 years	Timber Staff	5% of total Forest acres	$1,000
Are Phellinus areas being adequately identified and properly restocked?	Phellinus areas restocked with resistant species	Field surveys	Acres	High	Annual	3 years	Timber Staff	Less than 70% identified	$500

Table V-8 . Monitoring Questions - Transportation

QUESTION: Is the transportation system meeting the planned levels?

Discussion - Roads are designed and maintained to the minimum standards required for the safety of users, for intended uses and to meet all resource objectives for an area. The monitoring items will provide information about how well the proposed road program meets the Forest Plan objectives.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets being accomplished?	Project output	ROADS (existing reports)	Miles	High	Annually	Annually and as needed	Planning Staff	Accomplishments deviate more than 10% from Plan targets over 3 years	$5200
Are system roads meeting Plan objectives?	Roads open to passenger car Roads suitable for high clearance vehicles Roads closed to vehicles	Roads accomplishment report (existing reports)	Miles	High	Annual	Annually	Engineering Staff	Road system (miles) deviates from Plan more than 10% over 3 years	$500

Table V-9A. Monitoring Questions - Wildlife (Aleutian Canada Goose and Brown Pelican)

QUESTION: Are recovery plan objectives being met for Aleutian Canada geese and brown pelicans on the Siuslaw National Forest?

Discussion - Aleutian Canada geese are listed as Threatened by the USFWS and require special protection This species migrates south from Alaska, with some flocks wintering on the Oregon coast, feeding in coastal estuaries and agricultural pastureland They roost on the off shore islands. Suitable habitat exists on the SNF in the Salmon River estuary. Other estuaries along the coast may provide potential habitat but aren't under Forest Service management. With waterfowl enhancement programs in the Oregon Dunes NRA, Aleutian Canada geese should be watched for, and protected if found. Brown pelicans are listed as Threatened by the USFWS and require special protection This species moves north, along the coast, from California during its post breeding dispersal. It occupies sites on the off shore islands and occasionally on the main coast during the late summer and fall. Suitable habitat exists on the Forest along estuaries and beaches.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Have suitable habitat sites been identified on the Forest and management plans been written for them?	Habitat availability	Survey, ODFW survey, if available	Acres	Moderate	5 years	5 years	Wildlife Staff	More than 10% loss of habitat from year 1 over a 5 year running average	$400/ year
Have these sites been surveyed for use by these species and provided protection when use was established?	Goose use, Pelican use	Field Survey, FWS Flight survey data when available	Birds	High for goose, moderate for pelican	Annual	Annual	Wildlife Staff	Any occupied sites not protected.	$1000/ year
Are planned projects and program targets for management of these species being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years	$50

Table V-9B. Monitoring Questions - Wildlife (Bald Eagle)

QUESTION: Are bald eagle recovery plan objectives being maintained on the Siuslaw National Forest?

Discussion - The bald eagle is listed as Threatened by the USFWS for the state of Oregon and requires special management under the Pacific States Bald Eagle Recovery Plan. The bald eagle population on the SNF is dispersed and nonmigratory, and is augmented with scattered migratory birds during the winter. Due to the dispersed food source (primarily fish) in the Coast Range, no communal winter roost sites have been found. Known nest sites and potential sites require protection

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are all known and identified potential bald eagle nest sites protected in accordance with the Recovery Plan?	Acres of land set aside in each management site	Field Survey	Acres	High	Annual	Annual	Wildlife Staff	Any site not protected	$2500/ year
Has an interagency management plan for each known and potential nest site been written?	Management Plan	Review	Management Plan	High	Within 2 years on plan implementation	2 years after plan implementation	Wildlife Staff	More than 10% unfinished	$5000/ plan ($60000/ yr)
Has a management plan for each newly discovered nest site been written?	Management Plan	Review	Management Plan	High	Within 1 year of discovery	1 year after discovery	Wildlife Staff	Not completed	$5000/ plan ($200/ year)
Are Standards and Guidelines applied to all activities that might affect nest sites?	S & G Compliance	Project Review	N/A	High	As needed	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	None Part of IDT review
Are bald eagle numbers being maintained or increasing on the SNF?	Population levels	Planned and random surveys	Eagles	Moderate	Annual	Annual	Wildlife Staff	20% decline in population	None USFWS survey

Table V-9B Cont. Monitoring Questions - Wildlife (Bald Eagle)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are existing nest sites producing young as anticipated?	Reproduction	Interagency nest site monitoring program	Eagles fledged	Moderate	Annual	Annual	Wildlife Staff	2 successive years without young	None. USFWS survey
Are planned projects and program targets for management of eagles being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments 10% or more below Plan targets over 3 years	$50

Table V-9C. Monitoring Questions - Wildlife (Peregrine Falcon)

QUESTION: Are the requirements for the peregrine falcon recovery plan being met for peregrine falcons on the Siuslaw National Forest?

Discussion - Peregrine falcons are listed as Endangered in the Pacific Northwest by the USFWS. Efforts are presently under way to reintroduce them to the state The SNF is to maintain at least one active nest site under the recovery plan Efforts are concentrated around Cascade Head but have failed to date For this reason suitable habitat should be identified, managed and monitored for peregrine falcon activity across the Forest. Several birds have been sighted on the SNF in recent years but no nest sites have been located and no indications of breeding have been observed

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Has suitable nesting habitat been identified on the SNF?	Habitat availability	Field surveys, Existing survey data from ODFW and USFWS	Sites	High	Once, within 3 years of Forest Plan implementation	3 years after Plan implementation	Wildlife Staff	Noncompliance with the requirement to complete inventory	$2500
Has this habitat been monitored for falcon activity and provided protection when use was established?	Falcon use	Existing survey data from ODFW and USFWS	Birds	High	Random	Annual	Wildlife Staff	1 year without survey effort	$500/ year
Has an interagency management plan for each known nest site been written?	Management Plan	Review	Management Plan	High	Within 2 years on plan implementation	2 years after plan implementation	Wildlife Staff	Noncompliance with requirement to complete management plan	$5000/ plan
Are planned projects and program targets for management of falcons being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years	$50

Table V-9D. Monitoring Questions - Wildlife (Oregon Silverspot Butterfly)

QUESTION: Are management recovery plan objectives for the Oregon silverspot butterfly being met on the Siuslaw National Forest?

Discussion - The Oregon silverspot butterfly is listed as Threatened by the USFWS and requires special management under the Recovery Plan for the subspecies. Populations presently exist at three sites, with two others being established. Most of the habitat consists of meadows containing native grasses, nectar plants, and violets, with the remainder being adjacent forest fringe. Meadows must be maintained in early successional stages to support butterflies.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is all known habitat protected in accordance with the Recovery Plan?	Acres of land included in Management Area 1	Field Survey	Acres	High	Biannual	Biannual	Wildlife Staff	Any known habitat not protected	$500/ year
Are protected and managed meadows producing adequate numbers of violets?	Violet populations	Transect Surveys	Plants	Moderate	Annual	Annual	Wildlife Staff	Below original survey levels (1980)	$3000/ year
Has a management plan for each habitat site been written?	Management Plan	Review	Management Plan	High	Within 2 years after plan implementation	Within 2 years after plan implementation	Wildlife Staff	More than 20% unfinished	$2000/ year
Are Standards and Guidelines applied to all activities that might affect the habitat?	S&G Compliance	Project Review	N/A	High	As needed	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$1000/ year
Are butterfly populations being maintained or increasing on the SNF?	Population levels	Planned and Random Surveys	Adults	Low	Annual	Annual	Wildlife Staff	Any apparent loss of population for 2 consecutive years	$500/yr

Table V-9D Cont. Monitoring Questions - Wildlife (Oregon Silverspot Butterfly)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets for management of butterflies being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years	$50

Table V-9E. Monitoring Questions - Wildlife (Snowy Plover)

QUESTION: Are populations of snowy plover being sustained on the Siuslaw National Forest?

Discussion - The snowy plover is currently listed by the Forest Service as Sensitive, the Oregon Department of Fish and Wildlife as Threatened, and the US Fish and Wildlife Service as a Federal candidate category 2 species. The Fish and Wildlife Service is currently reviewing the coastal population of the species for listing as Threatened or Endangered. Snowy plovers nest on the sand beaches in front of the foredune and above the high water mark The area the birds utilize is popular for a variety of human activities and results in management conflicts The population of snowy plovers is small and concentrated, making it susceptible to catastrophic loss. The plover nests, forages, and winters in sandy areas virtually devoid of vegetation, driftwood, and other structure near salt or brackish waters of the ocean and bays On the Siuslaw these areas are located above high tide on sandy spits associated with small estuaries as streams enter the ocean The primary management concern is with nesting habitat.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is the amount of suitable nesting habitat, as determined by state-of-the-art research, increasing or decreasing on the SNF?	Habitat Quality	Literature search, Field surveys	Acres	High	Biannual	4 years	Wildlife Staff	More than 20% of the suitable nest areas are lost	$600/ year
Are the related Standards and Guidelines being implemented on all projects that might impact snowy plover populations?	S & G Compliance	IDT field review	N/A	High	By project	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"y	None
Are populations of the snowy plovers increasing or decreasing?	Population changes	ODFW Shorebird Survey, if available	Birds	High	Winter survey, nesting survey	Annual	Wildlife Staff	25% decline in the population over 3 years, compared to the previous 3 years.	$600/ year

Table V-9E Cont. Monitoring Questions - Wildlife (Snowy Plover)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are planned projects and program targets for management of plovers being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years	$50

Table V-9F. Monitoring Questions - Wildlife (Spotted Owls)

QUESTION: Is the population level of spotted owls being maintained on the Siuslaw National Forest?

Discussion - Spotted owls are listed as sensitive on the Regional Forester's Sensitive Species List, Threatened in the state of Oregon and is being considered by the USFWS for listing as threatened The species has very specialized habitat needs and management requirements and is therefore considered a management indicator for old growth habitat. These habitat types are used extensively by a large number of wildlife species and support a number of unique plant types. Monitoring of actual populations is possible because the owls readily respond to calling and mousing techniques.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are SOHAs being maintained in the correct number, size, distribution and quality of habitat to meet the Standards and Guidelines?	SOHA quality	Field Survey of 5 SOHAs/year without duplication	Number of SOHAs	High	5 year	5 year	Wildlife Staff	Measurable deviation from SOHA Standards and Guidelines	$1000/ year
Are all management activities that might affect SOHAs being monitored to ensure compliance with the Standards and Guidelines?	S & G compliance	IDT Survey	N/A	High	By activity	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	None
Are the number of pairs of spotted owls occupying SOHAs on the SNF remaining constant or increasing, and is the overall occupancy rate of SOHAs increasing or constant?	Owl pairs, SOHA occupancy	Field monitoring using standard protocol	# of owl pairs, % of SOHAs occupied	High	Annual	Annual	Wildlife Staff	Any decline in the running 5 year average of occupancy rate and # of pairs from the previous 5 year average	$50000/ year

Table V-9F Cont. Monitoring Questions - Wildlife (Spotted Owls)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Is the number of young being fledged annually in the SOHA network remaining constant or increasing?	Reproductive success	Field monitoring using standard protocol	# of fledged birds	High	Annual	Annual	Wildlife Staff	Any decline in # of fledged birds	Part of Q 3's costs
Have all SOHAs that have fledged young since 1987, produced young in the last 3-year period?	SOHA suitability for reproduction	Field monitoring using standard protocol	# of SOHAS with fledged birds	High	Annual	Annual	Wildlife Staff	Any SOHA that ceases to produce fledged birds in the last 3 years	Part of Q 3's costs

Table V-9G. Monitoring Questions - Wildlife (TE&S Plants)

QUESTION: Are viable populations of all Threatened, Endangered and Sensitive plants being maintained on the Siuslaw National Forest?

Discussion - There are presently no known Threatened or Endangered plants located on the SNF. Several species listed as Sensitive on the Regional Forester's list occur on the Forest and require special protection. All management activities that affect habitat that could contain TE&S plants must be surveyed for their presence

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are all protected populations of TE&S plants surviving under present management policies?	Population survival	Field surveys of protected stands	Plant pop #	High	Annual	Annual	Wildlife Staff	10% drop in numbers of protected populations	$2000/ year
Are all Standards and Guidelines that apply to TE&S plant populations being implemented as required?	S & G compliance	Records Review	N/A	High	By project	Annual	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$50
Has an interagency management plan for each protected population site been written?	Management Plan	Review	Management Plan	High	Within 2 years of plan implementation	2 years after plan implementation	Wildlife Staff	Plans not completed	$2000/ plan ($60000/yr)
Are planned projects and program targets for management of TE&S plants being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments are more than 10% below Plan targets over 3 years.	$50

Table V-9H. Monitoring Questions - Wildlife (Roosevelt Elk)

QUESTION: Is adequate habitat being maintained to sustain a well distributed population of Roosevelt elk on the Siuslaw National Forest?

Discussion - Roosevelt elk are an important big game species on the Siuslaw National Forest Active management through selective timber harvest rotations, seeding and fertilizing of clearcuts and creation of permanent meadows is used to enhance the populations by providing mosaic of foraging areas close to thermal cover and hiding cover

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are habitat capability levels, established for the management areas, being met?	Compliance with Standards and Guidelines	HCI Model, 20% sample of sub-basins	Habitat capability	Moderate	Annual	Annual	Wildlife Staff	Habitat capability is more than 20% below sub-basin objective	$2000/ year
Are the related Standards and Guidelines being implemented?	Standards and Guidelines Compliance	IDT check on all management activities	N/A	High	As management activities come up	5 years	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	$6000/ yr plus $500 every 5th year
Are elk populations constant or increasing?	Population trends	ODFW Field Survey Data when available	Animals	Moderate	Annual	5 year	Wildlife Staff	20% decline in the running average over 5 years	No cost
Are at least 75% of the forage seeded units less than 10 years old being used by elk?	Habitat use	Random transects on 20% of seeded units	Units used	High	Annual	5 Year	Wildlife Staff	less than 75% 0f units are being used	$200/ year

Table V-9H Cont. Monitoring Questions - Wildlife (Roosevelt Elk)

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are management areas maintaining their ability to provide hunter opportunity?	Hunter opportunity	Survey of a random 20% of the subbasins	% of Potential Hunter Opportunity	High	Annual	Annual	Wildlife Staff	Hunter Opportunity more than 20% below the 1st year of Forest Plan	$1000/ year
Are planned projects and program targets for management of elk being accomplished	Project output	MARs (existing reports)	Units in MARs	High	Annual	Annually	Wildlife Staff	Accomplishments are 10% or more below Plan targets over 3 years.	$50

Table V-9I. Monitoring Questions - Wildlife (Marten)

QUESTION: Is adequate habitat being maintained to sustain a viable population of marten on the Siuslaw National Forest?

Discussion - Marten are a management indicator species for mature and older aged stands of timber Historic records from trapping and sightings show the species historically occupied the entire Coast Range forest Limited recent data implies a decreasing population Because they are a secretive species, monitoring ofpopulations would have a very low chance of success. For this reason habitat management and monitoring is considered more feasible.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the correct number of Marten Habitat Sites established on the Forest in accordance with the Standards and Guidelines?	Habitat quality	Field Surveys of 10% of the sites/ year, without duplication of sites	Acres of suitable habitat/ site, site spacing	High	Annual	5 year	Wildlife Staff	More than 10% of the sites have less than 95% of the suitable habitat required	$2000/ year
Are all management activities that might affect Marten Habitat Areas designed to meet the Standards and Guidelines?	S & G Compliance	IDT Survey	N/A	High	By Project	5 year	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	None

Table V-9J. Monitoring Questions - Wildlife (Pileated Woodpecker)

QUESTION: Is adequate habitat being maintained to sustain a viable population of pileated woodpeckers on the Siuslaw?

Discussion - Pileated woodpeckers are year round residents of the mature and over mature forest lands on the SNF They have been chosen as a management indicator species because of their need for large snags and defective trees, and dead and down material.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the correct number of Pileated Woodpecker Habitat Sites established on the Forest in accordance with the Standards and Guidelines?	Habitat quality	Field Surveys of 20% of the sites/ year, without duplication of sites	Acres of suitable habitat/ site, site spacing	High	Annual	5 year	Wildlife Staff	More than 10% of the sites have less than 95% of the suitable habitat required	$2000/ year
Are all management activities that might affect Pileated Woodpecker Habitat Areas designed to meet the Standards and Guidelines?	S & G compliance	IDT Survey	N/A	High	By project	5 year	Wildlife Staff	A "no" to the question "Were S&Gs implemented?"	None, part of IDT process

Table V-9K. Monitoring Questions - Wildlife (Primary Cavity Excavators)

QUESTION: Is adequate habitat being maintained to sustain viable populations of primary cavity excavators on the Siuslaw National Forest?

Discussion - Primary Cavity Excavators are those species of birds that actively excavate nest and roost cavities in dead and defective trees On the Siuslaw National Forest this includes downy and hairy woodpeckers, red-breasted sapsuckers, northern flickers and the red breasted nuthatch. Since the pileated woodpecker is managed separately, it is not considered in this guild of species. Primary cavity nesters are used as indicator species for dead and defective tree habitat throughout the forest types This guild of species provides nesting habitat for a wide variety of secondary cavity nesting animals and may be critical to their survival The trees utilized by these birds are often referred to as wildlife trees in Forest Service literature

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are snags and replacement trees being left in the correct numbers, size and distribution to meet the 40% minimum habitat capability level in each subbasin over time, and meet the 20% minimum habitat capability level in each distribution area over time, as required by the Standards and Guidelines?	Habitat capability	Random survey of 20% of all subbasins having management activities, within 3 years of active project closure, and every 10th year thereafter	# of subbasins	Moderate	Annual	Annual	Wildlife Staff	Any subbasins surveyed are below stocking levels required	$5000/ year
Are species of the primary excavator guild utilizing the snags that are being left?	Leave tree use by cavity nesters	Random survey of the snags on 20% of the units cut in the last 3 years	Snags with cavities	High	Annual	Annual	Wildlife Staff	Less than 10% of the snags have cavities	$1000/ year

Table V-9L. Monitoring Questions - Wildlife (Ruffed Grouse)

QUESTION: Is adequate habitat being maintained to sustain a viable population of ruffed grouse on the Siuslaw National Forest?

Discussion - The ruffed grouse is a year round inhabitant of the Siuslaw National Forest. Because of their preference for hardwood and deciduous mix stands, they have been selected as a management indicator species for these forest types. Their regular use of roads for feeding makes them an easy species to monitor for population changes.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability	Estimated Annual Cost
Are the Standards and Guidelines for the amount of Deciduous Mix habitat on the Forest being met?	Habitat Management	Forest Inventory	N/A	High	10 year	10 year	Wildlife Staff	Below 5% of predicted on any District	$2000/ year
Are populations of ruffed grouse on the SNF steady or increasing?	Index of population	100 miles of road surveys/district with set routes and set times each year	# of birds	Moderate	Annual	5 year	Wildlife Staff	20% drop in population index averaged over 5 years	$2000/ year

Evaluation

When a Monitoring Evaluation Question is answered, "yes", then associated activities will proceed. When a Monitoring Question is answered, "no", then further investigation will occur in order to determine whether there is a need to 1) take corrective action in implementing Forest Plan direction; 2) amend the Forest Plan; 3) revise the output schedule; or, 4) initiate revision of the Forest Plan This evaluation will proceed according to the flow diagram displayed in Figure V-1· Decision Flow Diagram for the Evaluation of the Forest Plan - Siuslaw National Forest

A designated monitoring coordinator will prepare an annual evaluation report from the Decision Flow Diagram As applicable, the following will be included in each evaluation report which:

1 Summarizes the responses to each monitoring question which is to be answered in the current year

2 Identifies situations where further evaluation is needed, and describes the action which will be taken

3 Describes the status of evaluations which are underway, including the identity of the person who is responsible for conducting the evaluation, and its projected time frame.

4. Summarizes the findings of evaluations which were completed during the year, and describes the actions which were taken in response to these findings

5 Lists additional research needed to support the management of the Forest

AMENDMENTS AND REVISIONS

The Forest Plan will be kept valid and current through the use of amendments and revisions The guidance for making these changes is in 36 CFR 219 10(f) and (g) As new issues and concerns arise the Forest Plan will be amended or revised if needed

Plan Amendments

The Forest Supervisor may amend the Forest Plan Based on an analysis of the objectives, standards, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a Forest Plan If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following satisfactory completion of NEPA procedures.

An annual summary of Forest Plan amendments will be prepared and incorporated into the Plan as additions and will be made available to interested parties This is to ensure that the Plan will remain current, as intended by the monitoring, evaluation, amendment, and revision provisions of the Code of Federal Regulations.

The Forest Plan incorporates legal mandates, professional judgement and the public's stated concerns into a future vision of the Forest It charts a path for getting there by developing management goals and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest. National Forest planning is a dynamic process, and the products -- Forest plans -- are similarly dynamic. Forest Plans can and should be modified if conditions warrant As management goals are applied on the ground or as new information is learned about resources, the Plan's goals and objectives, or activities the goals generate, may no longer be appropriate In such instances, activities may be tailored to fit the resource, or planning objectives as stated in the Plan may be amended. Plans do not apply direction in site-specific management activities. It would be unrealistic and wrong to try to identify, analyze and schedule the myriad projects or activities that occur on a National Forest. Instead, this type of site-specific planning occurs at the project level planning stage, such as basin analysis.

Plan Revisions

The Forest Plan shall ordinarily be revised on a 10- to 15-year cycle. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly or when changes in RPA policies, goals, or objectives would have a significant effect on the Forest's programs. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan at any time Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of a Forest Plan.

The Forest Supervisor shall review the conditions on the land covered by the Plan at least every 5 years to determine whether the conditions or demands of the public have changed significantly The Forest Plan will be considered for revision at that time and will be revised as necessary, but no later than 15 years from the date of approval of this Plan.

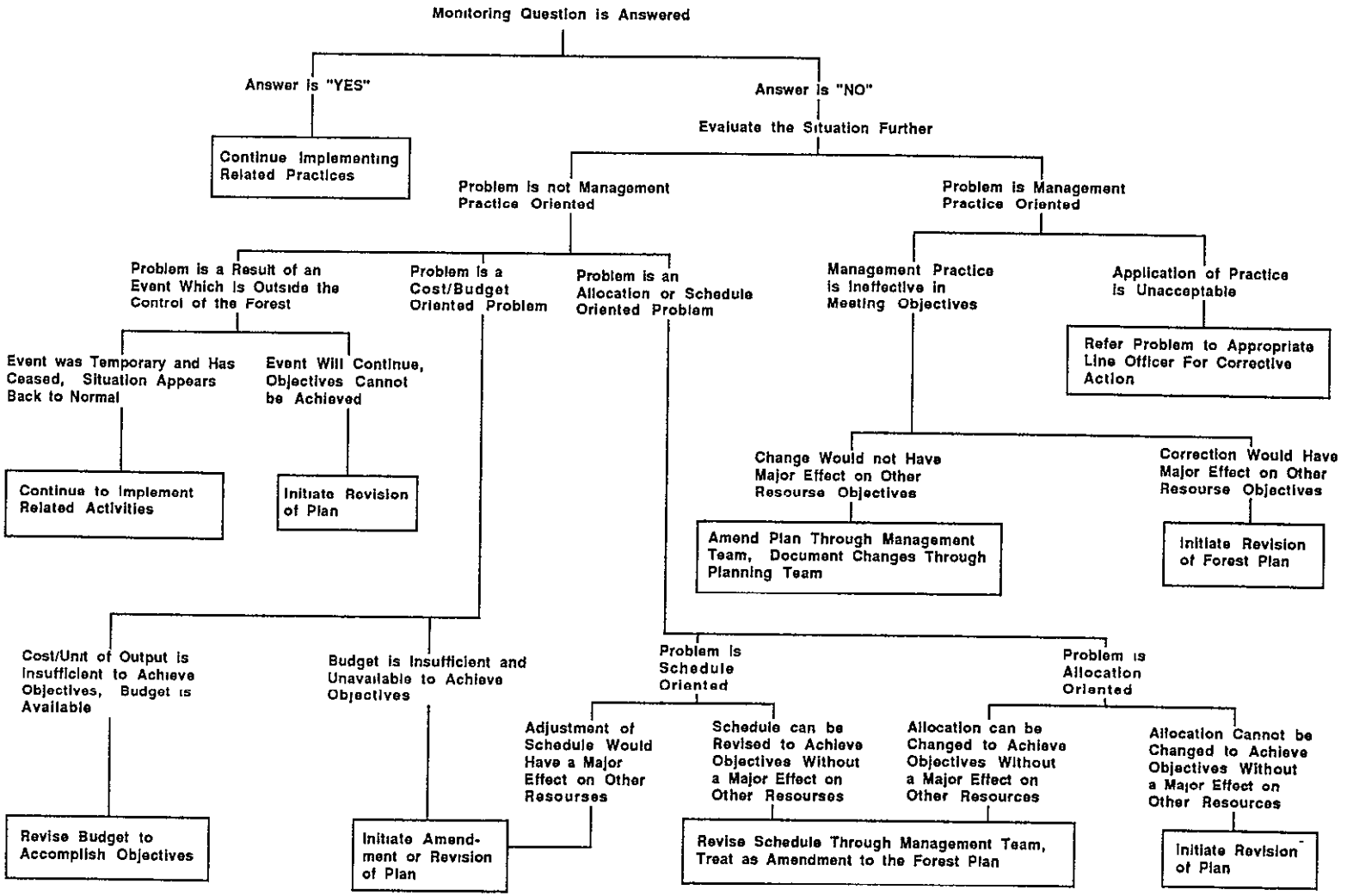


FIGURE V-1. DECISION FLOW DIAGRAM FOR THE EVALUATION OF THE FOREST PLAN

References

REFERENCES

Adams, D M and R W. Haynes
1985 *Changing perspectives on the outlook for timber in the United States.* Journal of Forestry

Alaback, P B
1982 *Forest community structural changes during secondary succession in Southeast Alaska.* In: J.E. Means, ed Forest succession and stand development, research in the Northwest Forest Research Laboratory, Oregon State Univ., Corvallis, 171 pp

Angermeier, P.L. and J R Karr
1984 *Relationships between woody debris and fish habitat in a small warmwater stream* Trans Amer Fish. Soc 113 716-726

Anthony, R G and F B. Issacs
1989. *Characteristics of bald eagle nest sites in Oregon.* J. Wildl Mgt 53(1)· 148-159.

Badura, G J , H A Legard and L C Meyer.
1974 *Siuslaw National Forest soil resource inventory.* USDA Forest Service, 139 pp

Bald Eagle Working Team for Oregon and Washington
1989 *Working implementation plan for bald eagle recovery in Oregon and Washington* Oregon-Washington Interagency Wildlife Committee

Barnett, D
1980 *Landslide inventory of the Waldport Ranger District, Siuslaw National Forest 1952-1979* USDA Forest Service, 28 pp

Barnett, D
1982. *Management of steep, dissected terrain in the Igneous Headlands on the Waldport Ranger District.* USDA Forest Service, Siuslaw National Forest

Barnett, D
1984 *Effects of fire on Coast Range sites* USDA Forest Service, Siuslaw National Forest, 110 pp

Beckham, S D., K A Toepel and R. Minor
1982 *Cultural resource overview of the Siuslaw National Forest, Western Oregon.* Heritage Research Associates Reports No 7(1), 351 pp.

Bennett, K.A
1982 *Effects of slash burning on surface soil erosion rates in the Oregon Coast Range* USDA Forest Service, Siuslaw National Forest, 77 pp.

Bennett, L A.
1984 *Marten ecology and habitat management in the Central Rocky Mountains - A Study Plan.* Colorado State University, Fort Collins, CO 51pp.

Berg, A.B , ed
1970 *Management of young growth Douglas-fir and western hemlock.* Paper 666 Oregon State University, Corvallis, 145 pp

REFERENCES

Berry, J.D. and J.R Maxwell.
1981. *Lands systems inventory for the Pacific Northwest Region and the Siuslaw National Forest.* USDA Forest Service, 22 pp.

Bisson, P.A and J A. Sedell
In press *Salmonid populations in logged and unlogged stream sections of western Washington.* In : W R Meehan, T. Hanley and T.R Merrill, eds. Proceedings of a symposium on fish and wildlife relationships in old-growth forests; April 12-13, 1982 Juneau, Alaska Am. Inst Fish Res Biologists.

Blaydon, E.
1988. *Chip markets the big picture.* Electronic memorandum.

Bottorff, J.A.
1985 *Letter of April 2, 1985 to Forest Supervisor, Siuslaw National Forest, concerning threatened and endangered species.* U.S Fish and Wildlife Service.

Brown, R.E., tech ed
1985. *Management of wildlife and fish habitats in forests of western Oregon and Washington.* USDA Forest Service, Publ. No R6-F&WL-192-1985, 332 pp.

Bruce, C., D. Edwards, K. Mellen, A. McMillan, T. Owens and H. Sturgis
1985. *Wildlife relationships to plant communities and stand conditions.* pp 33-55 In: E R Brown, Tech. Ed. Management of wildlife and fish habitats in forests of Western Oregon and Washington. USDA Forest Service Publ No. R6-F&WL-192-1985

Bryant, M D.
1983. *The role and management of woody debris in West Coast salmonid nursery streams.* N. Amer. J. Fish. Mgt 3: 322-330

Bull, E.L
1975. *Habitat utilization of the pileated woodpecker, Blue Mountains, Oregon* M.S. Thesis, Oregon State Univ., Corvallis, 58 pp

Bull, E L.
1987 *Ecology of the pileated woodpecker in northeastern Oregon* J Wildl Mgt 51: 472-481

Bull, E L and E C Meslow.
1977 *Habitat requirements of the pileated woodpecker in northeastern Oregon.* J. Forestry 1975 (6): 334-337.

Burke, T E
1982 *Marten.* Unpublished manuscript, Colville National Forest.

Burnett, B W.
1981. *Movements and habitat use of American marten in Glacier National Park, Montana.* M S Thesis, Univ. of Montana, Missoula

Burroughs, E R , Jr. and B R Thomas
1977. *Declining root strength in Douglas-fir after felling as a factor in slope stability.* USDA Forest Research Paper INT-190, 27 pp.

Bush, G.S.
1982. *Sediment model - Siuslaw N.F.* USDA Forest Service, 18 pp

Bush, G S
1985. *Proposal for cumulative effects analysis - forest planning - Siuslaw N.F.* USDA Forest Service, 9 pp.

Campbell, C.D.
1983 *Future market conditions in forest products and their effect on Washington's industry.* Washington Dept. of Natural Resources

Campbell, T.M.
1979 *Short-term effects of timber harvest on pine marten ecology.* M S Thesis, Colorado State Univ , Ft Collins, 71 pp.

Chambers, C J.
1974 *Empirical yield tables for predominately alder stands in western Washington.* Wash. Dept of Natural Resources Rept., No. 31, Olympia.

Childs, T.W.
1970. *Laminated root rot of Douglas-fir in Western Oregon and Washington.* USDA Forest Service, Research Paper PNW-102, 27 pp

Childs, T W. and E E Nelson
1971 *Laminated root rot of Douglas-fir.* USDA Forest Service, Forest Pest Leaflet 48, 7 pp.

Chrostowski, H.
1981 *Fish habitat improvement cost factor.* USDA Forest Service, Siuslaw National Forest, 3 pp

Clady, M and M Parsons
1984. *Oregon silverspot butterfly Forest implementation plan.* USDA Forest Service, Siuslaw National Forest, 18 pp

Cleary, B D , R D Greaves and R K Hermann, eds.
1978 *Regenerating Oregon's forests.* Oregon State Univ Extension Service, Corvallis, 287 pp

Corliss, J F
1973. *Soil Survey of Alsea area, Oregon.* U S Government Printing Office, Washington, D C., 109 pp.

Crim, S , K N Johnson, and N Graybeal
1983. *Commercial thinning study.* USDA Forest Service, Portland, Oregon, 40 pp.

Curtis, R O., G W Clendenen, and D J. DeMars.
1981 *A new stand simulator for coast Douglas-fir. DFSIM user's guide.* USDA Forest Service, Gen Tech. Rept. PNW-128, 79 pp

Dale, V.H., M.H. Hemstrom and J F Franklin.
1983 *The effect of disturbance frequency on forest succession in the Pacific Northwest.* Proc. Soc. Amer. Foresters Annual Meeting, Portland, Oregon.

REFERENCES

Daniel, T.W., J.A. Helms and F.S. Baker.
1979 *Principles of Silviculture*, Second Edition. McGraw-Hill, Inc., New York, N.Y., 500 pp

Daubenmire, R
1968. *Plant communities: a textbook of plant synecology.* Harper and Row Publishers, Inc , New York, N Y, 300 pp.

DeBell, D S. and T.C Turpin.
1983. *Red alder.* pp. 26-28 In· R.M. Burns, Tech. Compiler Silvicultural systems for the major forest types of the United States. USDA Forest Service Agriculture Handbook 445.

Everest F H. and W.R. Meehan
1981. *Forest management and anadromous fish habitat* Trans. 46th N Amer. Wildl. and Nat Resources Conf.: 521-530.

Everest, F.H and P.B. Summers.
1982. *The sport fishing resource of the National Forests--Its extent, recreational use, and value.* USDA Forest Service, 50 pp.

Everest, F H , N B. Armantrout, S M. Keller, W D. Parante, J R Sedell, T.E. Nickelson, J.M. Johnson, and G N. Haugen.
1985. *Salmonids.* pp. 199-230 In: E.R. Brown, Tech. Ed. Management of wildlife and fish habitats in forests of Western Oregon and Washington. USDA Forest Service Publ. No. R6-F&WL-192-1985.

Fonda, R W.
1974 *Forest succession in relation to river terrace development in Olympic National Park.* Ecology, 54· 57-69.

Fowells, H A , ed.
1965 *Silvics of forest trees of the United States* Agric. Handb. 271 Washington, DF: USDA, 762 pp

Franklin, J.F., K Cromack, Jr , W Denison, A McKee, C. Maser, J Sedell, F. Swanson, and G. Juday.
1981 *Ecological characteristics of old-growth Douglas-fir forests.* USDA Forest Service, Gen. Tech. Rept PNW-118, 48 pp

Franklin, J.F. et al
1986 *Interim definitions for old-growth Douglas-fir and mixed-conifer forests in the Pacific Northwest and California.* USDA Forest Service, Research Note PNW-447

Fujimori, T.
1971. *Primary productivity of a young Tsuga heterphylla stand and some speculations about biomass of forest communities on the Oregon Coast.* USDA Forest Service Paper PNW-123, 11 pp.

Furness, M.M and P.W. Orr
1970 *Douglas-fir beetle.* USDA Forest Service, Forest Pest Leaflet 5, 4 pp

Gaumer, T.F., S L Benson, L.W. Brewer, L Osis, D.G Skeesick, R.M. Starr, and J F Watson.
1985 *Estuaries.* pp 81-114 In: E.R. Brown, Tech. Ed. Management of wildlife and fish habitats in forests of Western Oregon and Washington USDA Forest Service Publ. No. R6-F&WL-192-1985

Gessel, S P , R M Kenady, and W A Atkinson
1979 *Proceedings, forest fertilization conference.* Univ Washington, Inst of Forestry Resources Contribution No. 40, 275 pp.

Gibbons, D.R. and E O Salo
1973 *An annotated bibliography of the effects of logging on fish of the western United States and Canada.* USDA Forest Service, Gen Tech Rept. PNW-10, 145 pp.

Gillmor, L.G.
1969 *Use of fire in silvicultural system (sic),* Siuslaw N F USDA Forest Service, 3 pp

Gresswell, S , D Heller and D.N. Swanston
1979 *Mass movement response to forest management in the Central Oregon Coast Range.* USDA Forest Service, Resource Bull PNW-84, 26 pp.

Guenther, K and T. Kucera.
1978. *Wildlife of the Pacific Northwest.* USDA Forest Service, Pacific Northwest Region

Hadfield, James S. and David W Johnson
1977. *Laminated root rot - a guide for reducing and preventing losses in Oregon and Washington.* USDA-USFS, Pacific NW Region

Hall, F C , L.W. Brewer, J F. Franklin and R L Werner.
1985 *Plant communities and stand conditions* pp. 17-31 In E R Brown, Tech Ed Management of wildlife and fish habitats in forests of Western Oregon and Washington USDA Forest Service Publ No. R6-F&WL-192-1985

Hall, J D and R.L. Lantz
1969. *Effects of logging on the habitat of coho salmon and cutthroat trout in coastal streams.* pp. 355-375 In: T G Northcote, Ed Synposium on salmon and trout in streams Univ British Columbia, Vancouver

Hammond, P C.
1989 *1990-1996 management plans for the Oregon silverspot butterfly.* Siuslaw National Forest, 43 pp.

Harr, Dennis R
1983 *Potential for augmenting water yield through forest practices in western Washington and western Oregon* In: Oregon Water Resources Bulletin. Volume 19, No. 3

Harris, A S and D L Johnson
1983 *Western hemlock-Sitka spruce* pp 5-8 In: R M Burns, Tech Compiler Silvicultural systems for the major forest types of the United States USDA Forest Service Agriculture Handbook 445.

Harvey, A.E., M.F Jurgensen, and M J Larson.
1978 *Role of residue in and impacts of its management on forest soil biology* FAO Spec. Paper Proc. 8th World For Congr Oct 1978, FQL 29-8

Haugen, G.
1981. *Region 6 fishery goals and objectives.* USDA Forest Service, 15 pp

Hawley, V.D. and F E. Newby.
1957. *Marten home ranges and population fluctuations in Montana.* J Mammal. 38: 174-184

Heede, B H
1975. *Mountain watersheds and dynamic equilibrium.* pp. 407-419 In· Watershed management. Amer Soc. Civil Engineers.

Heifetz, J , M.L. Murphy, and K.V. Koski.
1986. *Effects of logging on winter habitat of juvenile salmonids in Alaskan streams.* Trans. Amer. Fish. Soc. 6· 52-58.

Heller, D.A., J R. Maxwell and M. Parsons.
1983. *Modeling the effects of forest management on salmonid habitat* USDA Forest Service, Siuslaw National Forest, 63 pp.

Hemstrom, M A.
1985. *Siuslaw intensive ecological plot data.* Unpulbished report, Siuslaw National Forest

Hemstrom, M.A. and S E Logan.
1986. *Plant association and management guide, Siuslaw National Forest.* USDA Forest Service, 121 pp.

Henderson, J.A.
1978. *Plant succession on the Alnus rubra/Rubus specabilis habitat type in western Oregon.* Northwest Science, 52: 156-167.

Howard, J.O.
1984. *Oregon's forest products industry.* USDA Forest Service, 1982 Resour Bull. PNW-118, 79 pp.

Irwin, L.L.
1987. *Review of minimum management requirements for indicator species: pine marten and pileated woodpecker.* National Council of the Paper Industry for Air and Stream Improvement Tech. Bull No 522, New York, 24 pp.

Isaac, Leo A.
1956. *Place of partial cutting in old-growth stands of the Douglas-fir Region* Res. Pap No 16 Portland, OR: USDA, USFS, Pacific Northwest Forest and Range Experiment Station 48 p. 1956.

Jackman, S M. and J.M Scott
1975. *Literature review of twenty-three selected forest birds of the Pacific Northwest.* USDA Forest Service, Pacific Northwest Region, 382 pp

Jacobs, R.W. and C Bruce.
1983 *A preliminary management plan for the western snowy plover ("Charadrius alexandrinus nivosus") in Oregon.* Oregon Department of Fish and Wildlife, Northwest Region, Corvallis

Johnsgard, G.A.
1963 *Temperature and water balance for Oregon weather stations.* Agr. Exp. Sta Spec. Rept, Oregon State Univ., Corvallis.

Johnson, K.
1983. *Westside coordination meeting notes.* USDA Forest Service Memo, September 21

Johnson, K N and K E. Sleavin.
1984. *DP-DFSIM -- Overview and User's Guide* Colorado State University and USDA Forest Service, Fort Collins, Colorado, 105 pp

Johnson, K N, T.W. Stuart, and S A Crim
1986. *FORPLAN Version 2· An Overview.* USDA Forest Service, Land Management Planning Systems Section, 97 pp

Jonkel, C.J.
1959. *Ecological and physiological study of the pine marten.* M S Thesis, Univ of Montana, Missoula

Juday, G P
1977. *The location, composition, and structure of old growth forests of the Oregon Coast Range.* PhD Thesis, Oregon State Univ, Corvallis, 206 pp

Kantrowitz, A
Undated. *Groundwater resources in the Oregon Dunes National Recreation Area.* USDA Forest Service, Siuslaw National Forest, 19 pp.

Karr, J R
1981 *Assessment of biotic integrity using fish communities* Fisheries, Amer Fish. Soc 6(6): 21-27.

Ketcheson, G, and H A Froehlich
1977 *Hydrologic factors and environmental impacts of mass soil movements in the Oregon Coast Range.* Project Completion Report Agreement No. 14-34-001-7078. Water Resources Research Institute, Oregon State Univ, Corvallis, Oregon

King, D
1984 *Anadromous fish outputs* USDA Forest Service Unpublished memorandum

Kraemer, J F, and R K Herman.
1979. *Broadcast burning: 25-year effects on forest soils in the western flanks of the Cascade Mountains.* Forestry Science 25:427-439

Kunkel, C and P Janik
1976 *An economic evaluation of salmonid fisheries attributable to Siuslaw National Forest* USDA Forest Service, 21 pp

Lettman, G J (Tech. Ed)
1988 *Assessment of Oregon's forests A collection of papers published by the Oregon Department of Forestry.* Forest Resourses Planning Section, Salem.

Lilja, R.
1982. *ROS inventories.* USDA Forest Service, Siuslaw National Forest

Lynott, R E. and O P. Cramer.
1966. *Detailed analysis of the 1962 Columbus Day windstorm in Oregon and Washington.* Monthly Weather Review 94: 105-117

Mannan, R.W.
1982. *Territory size and habitat preferences of pileated woodpeckers in Western Oregon.* Oregon State Univ Ag. Exp. Stat. Paper, Corvallis.

Marshall, D.B.
1984 *Oregon non-game wildlife management plan.* Oregon Dept. Fish and Wildl.(Review draft).

Maser, C., B R. Mate, J.F. Franklin and C.T Dyrness.
1981 *Natural history of Oregon Coast mammals.* USDA Forest Service Gen Tech. Rept PNW-133, 496 pp.

Maser, C. and J M. Trappe, eds.
1984. *The seen and unseen world of the fallen tree* USDA Forest Service, Gen Tech. Rept PNW-164, 56 pp.

Maxwell, J.R. and R.A. Marston.
1980. *Geomorphic indices of streamflow and sediment yield.* Symposium on watershed management, American Society of Civil Engineers· 1-12.

Maxwell, J.R
1983. *Improved geomorphic indices of sediment yield for Western Oregon.* USDA Forest Service, Siuslaw National Forest, 15 pp.

McKee, A.
1977 *Establishment report Flynn Creek Research Natural Area Siuslaw National Forest.* USDA Forest Service, 10 pp

Means, J E
1980 *Dry coniferous forests in the Western Oregon Cascades.* Ph.D. Thesis, Oregon State Univ , Corvallis, 268 pp.

Mellen, T.K
1987. *Home range and habitat use of pileated woodpeckers in western Oregon* M S Thesis, Oregon State Univ., Corvallis

Mills, A D , G D Silovsky, C Pinto and P J Janik
1980 *Wildlife resources on the Siuslaw National Forest.* USDA Forest Service, Pacific Northwest Region, 89 pp.

Mellon, T.K.
1987 *Home range and habitat use by pileated woodpecker.* M S Thesis. Oregon State University, Corvallis, OR 96 pp.

Minor, R. and K.A. Toepel
1982 *Archeological investigations at Tahkenich Landing,* Oregon Dunes National Recreation Area, Siuslaw National Forest Heritage Research Associates Report No. 16, 32 pp

Minor, R., K A Toepel, R L Greenspan, and D.C Barner.
1985. *Archeological investigations in the Cape Perpetua Scenic Area, Central Oregon Coast.* Heritage Research Associates Report No. 40, 112 pp.

Moring, J.R and R.L Lantz.
1975 *The Alsea watershed study: Effects of logging on the aquatic resources of three headwater streams of the Alsea River, Oregon.* Part I - Biological studies. Oregon Dept. of Fish and Wildlife, Fishery Research Report No 9, 66 pp

Morris, W.G.
1934 *Forest fires in western Oregon and western Washington* Oregon Hist Quart. 35· 313-339

Munger, Thornton T
1950 *A look at selective cutting in Douglas-fir.* J. Forestry 48(2): pp 97-99. 1950.

Murphy, M L , V K. Koski, J. Heifetz, S W Johnson, D Kirchhofer, and J F. Thedinga.
In press. *Role of large organic debris as winter habitat for juvenile salmonids in Alaska streams.* In· Proceedings of Western Division, Amer Fish Soc , July 16-20, 1984, Victoria, B C

Nelson, S.K.
1989. *Habitat use and densities of cavity-nesting birds in the Oregon Coast Ranges.* M.S Thesis, Oregon State University, Corvallis, OR. 157pp.

Nomura, I
1981 *Long range timber demand/supply prospects in Japan and some problems* National Forestry and Forest Products Research Institute

Norris, L.
1989. *Wildlife tree habitat and bird use in the central Oregon Coast Range - A literature review.* Siuslaw National Forest working paper. 22 pp

Oakley, A.L , J A Collins, L B Everson, D A Heller, J C. Howerton, and R.E. Vincent.
1985. *Riparian zones and freshwater wetlands.* pp 57-80 In: E R. Brown, Tech Ed Management of wildlife and fish habitats in forests of Western Oregon and Washington USDA Forest Service Publ. No R6-F&WL-192-1985.

O'Loughlin, C.L.
1973 *A study of tree root strength deterioration following clearfelling.* Canadian Journal of Forestry Res 4, 107-113

Oregon Dept. of Fish and Wildlife (ODFW)
1982 a *Oregon Wildlife*, June

Oregon Dept of Fish and Wildlife (ODFW)
1982 b. *Comprehensive plan for production and management of Oregon's anadromous salmon and trout* Part II Coho salmon plan Anadromous Fish Section

Oregon Dept. of Fish and Wildlife (ODFW).
1983 *Oregon Wildlife*, June

Oregon Dept of Fish and Wildlife (ODFW).
1984. *Oregon Wildlife*, May

Oregon Dept. of Fish and Wildlife (ODFW).
1988. *Protecting Oregon's investment - A program to restore and enhance Oregon's recreational and commercial fisheries. Appendix A.*

Oregon Dept. of Fish and Wildlife (ODFW).
Yearly surveys. *Survey of snowy plovers in coastal Oregon.*

Oregon Dept. of Forestry (ODF)
1980 *Forestry in Oregon: 1980 Oregon timber supply assessment, projections of future available harvests.* 165 pp.

Oregon Dept. of Forestry (ODF).
1983. *Oregon timber harvest report 1983.* General File 7-0-4-000, 1 page

Oregon Dept. of Forestry (ODF)
1985 *Future Trends.*

Oregon Dept of Forestry (ODF).
1989. *FEIS, Chapter 3, Timber Supply From Ownerships*

Oregon Dept of Human Resources.
1985 *Business and employment outlook.* Employment Division, 87 pp

Oregon Dept. of Transportation.
1978 *Oregon comprehensive outdoor recreation plan 1978.* Fourth Edition.

Oregon Economic Development Dept.
1984 *Oregon county economic indicators, 1984.* State of Oregon.

Oregon Natural Heritage Data Base
1985 *Letter of March 28 from D. Vander Schaaf to A. Grapel,* 2 pp.

Overhulser, D.L., R I Gara and B.J Hrutfiord
1974. *Site and host factors related to the attack of Sitka spruce weevil on "Picea sitchensis."* Ann. Rept. Center for Ecosystem Studies, Univ. of Washington, Seattle, Wash, 52 pp.

Peinecke, R G.
1986 *Forestry: The Pacific Northwest's green future.* Forest Industry Region Six Planning Policy Committee 9 pp

Perry, D A., J. Tappeiner, and B. McGinley.
1985 *A review of literature pertaining to vegetation management on the Siuslaw National Forest· Phase I--Early successional patterns, competition between trees and associated vegetation, and efficacy of vegetation control techniques.* Oregon State Univ., Corvallis, 145 pp

Phillips, C A and R Roberts
1985. *Documentation of wildlife MMRs.* USDA Forest Service Memo, June 4.

Poppino, J H. and D R Gedney.
1984. *The hardwood resource in Western Oregon* USDA Forest Service, Resource Bull. PNW-116, 37 pp.

Radican, C.
1981. *Deciduous mix yield tables.* In: Timber yield tables Managed - Empirical. USDA Forest Service, Siuslaw National Forest, 193 pp

Rainville, R.P., S.C. Rainville, and E L Lider.
Undated *Management of riparian vegetation for fish habitat* Unpublished manuscript, Idaho Panhandle National Forests, 18 pp

Richardson, H.W.
1972. *Input-output and regional economics.* John Wiley and Sons, New York, N Y.

Ripley, J.D.
1983. *Description of the plant communities and succession of the Oregon coastal grasslands.* Ph.D. dissertation, Oregon State Univ., Corvallis, 234 pp

Row, C., H F. Kaiser, and J Sessions.
1981 *Discount rate for long-term Forest Service investments* Journal of Forestry, June

Ruth, R. H. and A S Harris
1979. *Management of western hemlock-Sitka spruce forests for timber production.* USDA Forest Service, Gen Tech. Rept. PNW-88. 127-154.

Salwasser, H. and W C Unkel.
1981 *The management indicator species concept in National Forest land and resource management planning (draft)* USDA Forest Service, 20 pp

Sandberg, D V , J M. Pierovich, D.G Fox, and E.W Ross
1979 *Effects of fire on air.* USDA Forest Service Gen. Tech Rept WO-9, 40 pp.

Schaffer, W.A. and K Chu.
1969. *Nonsurvey techniques for constructing regional interindustry models.* Papers of the Regional Science Assn., 23:83-101

Schallau, C.H.
1985 and 1986 *Preliminary working papers and data on the South, and the Pacific Northwest.* USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, Corvallis, Oregon.

Sedell, J R., and K J Luchessa
1982. *Using the historical record as an aid to salmonid habitat enhancement.* pp 210-223 In : N B Armantrout, ed Acquisition and utilization of aquatic habitat inventory information Amer Fish. Soc. Western Div.

Sedell, J.R , F J Swanson and S V Gregory
1984. *Evaluating fish response to woody debris.* pp. 222-245 In: T J Hassler, ed. Proceedings: Pacific Northwest Stream Habitat Management Workshop Amer Fish Soc Western Div

Sedell, J.R., F J. Triska, J D. Hall, N H. Anderson, and J H. Lyford.
1974 *Sources and fates of organic inputs in coniferous forest streams.* pp. 57-69 In· R.H. Waring and R.L. Edmonds, eds Integrated research in the coniferous forest biome. Coniferous Forest Bull. 5, Univ. of Wash., Seattle, WA.

Sirmon, J M
1983a. *Regional guidelines for incorporating minimum management requirements in forest planning.* USDA Forest Service, Pacific Northwest Region

Sirmon, J.M
1983b *Regional planning direction, as amended.* USDA Forest Service, Pacific Northwest Region

Sleavin, K E. and K.N Johnson.
1983. *Searching the response surface of stand simulators under different objectives and constraints: DFSIM as a case study.* USDA Forest Service, Fort Collins, Colorado, 17 pp.

Sirmon, J M.
1984. *Wildlife MMR approvals.* USDA Forest Service, Pacific Northwest Region.

Smith, D.M.
1962. *The Practice of Silviculture*, Seventh Edition John Wiley and Sons, New York, N.Y. 578 pp.

Spies, T A., J.F Franklin, and T B Thomas.
1988. *Coarse woody debirs in Douglas-fir forests of Western Oregon and Washington.* Ecology 69(6):1689-1702.

Sport Fishing Institute.
1988. *The economic impact of sport fishing in the State of Oregon.* 30 pp

Stalmaster, M.V , R.L. Knight, B L. Holder, and R.J. Anderson.
1985 *Bald eagles.* pp. 269-290 In: E R Brown, Tech. Ed Management of wildlife and fish habitats in forests of Western Oregon and Washington. USDA Forest Service Publ. No. R6-F&WL-192-1985.

Stewart, J and D. Myhrum
1980 *Electronic site evaluation study.* USDA forest Service, Siuslaw National Forest.

Stewart, R.E.
1978. *Site preparation* (Chapter 7) In: B D Cleary, R D. Greaves and R K Herman, eds. Regenerating Oregon's forests. Oregon State Univ Extension Service, Corvallis, Oregon.

Stine, P.
1982. *Oregon silverspot butterfly recovery plan.* U S Fish and Wildlife Service, 33 pp

Swanson, F J., and G.W. Lienkaemper
1978. *Physical consequences of large organic debris in Pacific Northwest streams.* USDA Forest Service, Gen. Tech Rept. PNW-69, 12 pp

Swanson, F.J., and C.J. Roach
1985. *Mapleton leave area study.* Informal progress report. Summary of preliminary results. Proposed plans for FY86. USDA Forest Service, 15 pp

Swanson, F J. and C J Roach
1986. *Results of the Mapleton leave area study.* Paper for the 1986 NCASI Meeting, May 7, 1986. USDA Forest Service, 5 pp.

Swanson, F and C Roach
1987 *Administrative report Mapleton leave area study.* USDA Forest Service, Pacific Northwest Res Sta , 141 pp

Swanson, F J., D. Dipert and C. Roach
1985 *The study of the use of leave areas to control in-unit landslides* Nat. Council of the Paper Industry for Air and Stream Improvement

Swanson, F.J , G.W Lienkaemper and J.R. Sedell.
1976. *History, physical effects, and management implications of large organic debris in western Oregon streams.* USDA Forest Service, Gen. Tech. Rept PNW-56, 15 pp

Swanson, F J., S.V. Gregory, J R Sedell, and A G. Campbell
1982. *Land-water interactions: The riparian zone.* pp 267-291 In: R L Edmonds, ed. Analysis of coniferous forest ecosystems in the western United States US/IBP Synthesis Series 14

Swanson, F.J. and M.M Swanson
1977 *Inventory of mass erosion in the Mapleton Ranger District, Siuslaw National Forest.* Final Report, School of Forestry, Oregon State Univ , Corvallis, Oregon, 63 pp

Swanston, D N and C T Dyrness.
1973 *Stability of steep land.* Journal of Forestry 71(5), 6 pp

Tepley, J.
1976 *Volume and growth* USDA Forest Service, Portland, Oregon

Thomas, J W (ed)
1979. *Wildlife habitats in managed forests of the Blue Mountains of Oregon and Washington.* USDA Forest Service Agr Handbook No. 553, 512 pp

Toepel, K.A.
1985 *Cultural resource inventory plan for the Siuslaw National Forest.* Volume 1: Survey design. Heritage Research Associates Report No 43, 50 pp.

Toepel, K A and S D. Beckham.
1985. *Cultural resource inventory plan for the Siuslaw National Forest* Volume 2: Verification survey and historical records survey of burn units Heritage Research Associates Report No 43[2], 153 pp

Triska, F J , J R Sedell and S V Gregory.
1982 *Coniferous forest streams* pp 292-332 In· R L. Edmonds, ed Analysis of coniferous forest ecosystems in the western United States US/IBP Synthesis Series 14

Turpin, T C , C. Radican and W. Knapp
1980. *The effects of vegetation control on the success of conifer regeneration for the Siuslaw National Forest.* Siuslaw National Forest.

US Environmental Protection Agency.
1987. *Nonpoint Source Controls and Water Quality Standards*. Water Quality Standards Handbook, Chapter 2, General Program Guidance, pp 2-25, August 19, 1987.

US Environmental Protection Agency.
1985. *Final Report on the Federal/State/Local Nonpoint Source Task Force and Recommended National Nonpoint Source Policy* Office of Water, Washington, D C p. 17.

USDA Forest Service.
1974 *National Forest landscape management* Chap 1 The Visual Management System. Agri Handbook No. 462, 47 pp.

USDA Forest Service
1976 *Final environmental statement for the management plan Cascade Head Scenic Research Area.* Pacific Northwest Region, 221 pp.

USDA Forest Service.
1978. *1978 Landslide Survey.* Siuslaw National Forest, 18 pp.

USDA Forest Service.
1979a. *Final environmental statement for ten-year timber resource plan.* Pacific Northwest Region, Siuslaw National Forest, 267 pp.

USDA Forest Service.
1979b. *Alsea planning unit FEIS.* Siuslaw National Forest, 381 pp.

USDA Forest Service.
1979c. *Final environmental statement Oregon Dunes National Recreation Area management plan.* Pacific Northwest Region, 105 pp.

USDA Forest Service.
1979d. *Final environmental impact statement Roadless Area Review and Evaluation.* FS-325.

USDA Forest Service
August, 1979e *Shelterwood cutting in Region 6.* Pacific Northwest Region Task Force Report 55 p

USDA Forest Service
1980a *A recommended renewable resources program - 1980 update* FS-346, 539 pp

USDA Forest Service.
1980b. *Environmental assessment Sand Lake Management Plan.* Siuslaw National Forest, 39 pp

USDA Forest Service
1980c. *Establishment report enlarged Neskowin Crest Research Natural Area.* Siuslaw National Forest, 8 pp.

USDA Forest Service
1980d *The 1980 report to Congress on the nation's renewable resources.* FS-347, 155 pp.

USDA Forest Service
1980e. *Siuslaw National Forest interagency coordination plan.* Siuslaw National Forest, 11 pp.

USDA Forest Service.
1980f. *1980 landslide survey.* Siuslaw National Forest, 5 pp.

USDA Forest Service
1981a-82. *Wildlife habitats and species management relationships program Oregon Coast Range*; Vol I - Introduction, 29 pp; Vol II - Amphibians and Reptiles, 57 pp; Vol III - Birds, 581 pp; Vol IV - Mammals, 157 pp, and Vol V - Matrix, 19 pp Siuslaw National Forest, Corvallis, OR.

USDA Forest Service.
1981b *Timber yield tables managed - empirical.* Siuslaw National Forest, 193 pp

USDA Forest Service.
1981c. *Wild and scenic rivers - Forest plan* IDT Decision Document No 15, Siuslaw National Forest, 3 pp.

USDA Forest Service
1981d *1981 Landslide Survey.* Siuslaw National Forest, 14 pp

USDA Forest Service
1981e. *Current direction prescriptions.* Working paper, Siuslaw N.F IDT, 44 pp.

USDA Forest Service
1981f *Supply run prescriptions* Working paper, Siuslaw N F IDT, 56 pp

USDA Forest Service.
1982a. *Land suitability as a function of irreversible damage to soils, productivity, or watershed conditions or threat to human life.* IDT Decision Document No 22, Siuslaw National Forest, 2 pp.

USDA Forest Service.
1982b. *Establishment of a minimum level of management, which complies with applicable laws and regulations, to protect soil, water, and fisheries resources.* IDT Decision Document No. 23, Siuslaw National Forest, 4 pp

USDA Forest Service.
1982c. *Establishment of a minimum level of management that insures minimum viable populations of fish species.* IDT Decision Document No 26, Siuslaw National Forest, 2 pp

USDA Forest Service
1982d *Siuslaw National Forest socio-economic overview.* Draft manuscript

USDA Forest Service
1983a *Wildlife*

USDA Forest Service
1983b *Silvicultural systems for the major forest types of the United States.* Agriculture Handbook 445. 191 p 1983

USDA Forest Service
1983c. *IMPLAN user's guide.* Systems Application Unit, Land Management Planning, Fort Collins, Colorado

USDA Forest Service.
1983d *1983 Landslide Survey.* Siuslaw National Forest, 5pp.

USDA Forest Service.
1984a. *Regional guide for the Pacific Northwest Region.*

USDA Forest Service.
1984b. *Programmatic memorandum of agreement for management of Depression-era administrative structures on National Forest lands in Oregon and Washington.* Pacific Northwest Region

USDA Forest Service
1984d. *RNAs in the Siuslaw Forest Plan.* Letter of November 26 from S. Greene of Pacific Northwest Range and Experiment Station to T. Vander Heide, 2 pp.

USDA Forest Service
1984e. *Special habitats* IDT Decision Document No. 36, Siuslaw National Forest, 3 pp.

USDA Forest Service.
1984f. *Draft environmental impact statement: 1985-2030 Resources Planning Act program.*

USDA Forest Service.
1984g. *America's renewable resources: A supplement to the 1979 assessment of the forest and range land situation in the United States.* RPA Staff, Washington D.C.

USDA Forest Service.
1985b *Analysis of the Management Situation, Siuslaw National Forest* (Revised)

USDA Forest Service.
1985c. *IMPLAN version 1.1: analysis guide.* Land Management Planning Systems Section, Fort Collins, CO.

USDA Forest Service.
1985d. *Wild and scenic river planning, eligibility determination.* Memorandum of July 30

USDA Forest Service
1986a *U.S. Forest Service - Region 6 sensitive plant list (revised) February, 1986.* 31 pp.

USDA Forest Service.
1986b *Minimum sites needed for recovery of bald eagles.* Siuslaw National Forest, 6 pp.

USDA Forest Service.
1986c. *Estimate of elk populations on the Siuslaw National Forest using bull harvest (draft).* Siuslaw National Forest, 4 pp.

USDA Forest Service
1986d *A report on minimum management requirements for forest planning on the National Forests of the Pacific Northwest Region.*

USDA Forest Service.
1986e. *1986 Landslide Inventory.* Siuslaw National Forest, 7pp

USDA Forest Service.
1986f. *1986 ROS book.* Recreation Management

USDA Forest Service.
1988. *General Water Quality Best Management Practices* Pacific Northwest Region, November.

USDA Forest Service
1988a. *Final supplement to the environmental impact statement for an amendment to the Pacific Northwest Regional Guide.* Pacific Northwest Region, Volumes 1 and 2

USDA Forest Service
1988b *Managing competing and unwanted vegetation final environmental impact statement.* Pacific Northwest Region

USDA Forest Service
1989a *Wildlife tree management policy.* Siuslaw National Forest, 30 pp

USDA Forest Service.
1989b. *Timber supply in the Pacific Northwest aggregate implications of Forest plans* Pacific Northwest Region.

USDA Forest Service.
1989c *Management direction for Marys Peak Scenic-Botanical Special Interest Area* July 19

USDA Forest Service and Oregon Dept. of Fish and Wildlife
1979 *FY - 1981-1985 A statewide comprehensive plan for fish and wildlife on the National Forests in the State of Oregon* 84 pp

USDA Forest Service and Oregon Dept of Fish and Wildlife
1985 *Memorandum of understanding* 4 pp

USDI National Park Service.
1982. *The nationwide rivers inventory (NRI)* Washington, D C

US Fish and Wildlife Service.
1982a *Aleutian Canada goose recovery plan.* 42 pp

US Fish and Wildlife Service
1982b. *Pacific Coast recovery plan for American peregrine falcon.* 87 pp.

US Fish and Wildlife Service
1983a *The California brown pelican recovery plan* 179 pp

US Fish and Wildlife Service
1983b *Habitat suitability index models: pileated woodpecker* FWS/OBS-82/10 39, 16pp.

US Fish and Wildlife Service.
1985 *Management guidelines for the western snowy plover.* 17 pp

US Fish and Wildlife Service
1986. *Recovery plan for the Pacific bald eagle.* Portland, Oregon, 160 pp

US Fish and Wildlife Service.
1988. *1985 national survey of fishing, hunting, and wildlife associated recreation.* 167 pp.

US Government Printing Office.
1985 *Economic report of the President.* Washington, D C

Waring, R.H. and J.F Franklin.
1979. *Evergreen coniferous forests of the Pacific Northwest.* Science, 204: 1380-1386

Warren, D.D.
1988. *Production, prices, employment, and trade in Northwest forest industries, first quarter 1988.* USDA Forest Service, Resource Bull. PNW-RB-159.

Wiedemann, A.M.
1984. *The ecology of Pacific Northwest coastal sand dunes: A community profile.* U S Fish and Wildlife Service, FWS/OBS-84/04.

Williamson, R L. and A.D. Twombly
1983. *Pacific Douglas-fir* pp. 9-12 In: R M. Burns, Tech Compiler. Silvicultural systems for the major forest types of the United States USDA Forest Service Agriculture Handbook 445.

Wilson, R A.
1980 *Snowy plover nesting ecology on the Oregon Coast.* M A Thesis, Oregon State Univ., 41 pp.

Wilson, R. and C. Bruce.
1981. *A preliminary management plan for the western snowy plover ("Charadrius alexandrinus nivosus") in Oregon.* Oregon Dept of Fish and Wildlife, 20 pp.

Wisdom, M.J. et al.
1986. *A model to evaluate elk habitat in western Oregon.* USDA Forest Service, Portland, 35 pp.

Witmer, G.W, M Wisdom, E P Harshman, R.J Anderson, C. Carey, M P. Kuttel, I.D. Luman, J A Rochelle, R.W. Scharpf, and D. Smithey
1985. *Deer and elk.* pp. 231-258 In: E R Brown, Tech Ed. Management of wildlife and fish habitats in forests of Western Oregon and Washington. USDA Forest Service Rept. No R6-F&WL-192-1985.

Worthington, R.E.
1980. *Bald eagle management and consultation.* USDA Forest Service Memo, May, 2 pp.

Wright, J W
1976. *Introduction To Forest Genetics.* Academic Press, New York, N.Y. 463 pp.

Ziemer, R. R.
1981 *Some effects of silvicultural options on the stability of slopes.* National Council Paper Industriy for Air and Stream Improvement: Technical Bull. 344. 12 pp.

Acronyms

ACRONYMS

AMS	Analysis of the Management Situation
ASQ	Allowable Sale Quantity
AUMs	Animal Unit Months
BF	Board Feet
BLM	Bureau of Land Management
BMP	Best Management Practice
BPA	Bonneville Power Administration
BTU	British Thermal Unit
CC	Clearcut
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CF	Cubic Feet
CFR	Code of Federal Regulations
CHEF	Cascade Head Experimental Forest
CHSRA	Cascade Head Scenic-Research Area
CMAI	Culmination of Mean Annual Increment
COPE	Coastal Oregon Productivity Enhancement
CSHCI	Coho Smolt Habitat Capability Index
CZMA	Coastal Zone Management Act
DBH	Diameter Breast Height
DEIS	Draft Environmental Impact Statement
(DEP)	Departure
DFSIM	Douglas-fir Growth and Yield Simulator
DM	Deciduous Mix
EIS	Environmental Impact Statement

EA	Environmental Assessment
FEIS	Final Environmental Impact Statement
FIOA	Freedom of Information Act
FERC	Federal Energy Regulatory Commission
FORPLAN	Forest Planning Model (Primary analytical tool used)
FPFO	Forestry Program for Oregon
FSH	Forest Service Handbook
FSM	Forest Service Manual
HCI	Habitat Capability Index
ICO	Issues, Concerns, and Opportunity
IDT	Interdisciplinary Team
LCDC	Land Conservation and Development Commission
LTSYC	Long-term sustained yield capacity
LTA	Landtype Association
M	Thousand
MA	Management Area
MAR	Management Attainment Report
MIS	Management Indicator Species
MM	Million
MMM	Billion
MMRs	Minimum Management Requirements
MOM	Mature and Over-Mature
MR	Management Requirement
MRVD	Thousand Recreation Visitor Days
MUPRB	Multiple Use Plan Resource
NC	No Change
NDF	Non-declining Flow

NEPA	National Environmental Policy Act of 1969
NFL	National Forest land
NFMA	National Forest Management Act of 1976
NPB	Net Public Benefits
NRA	National Recreation Area
NRI	Nationwide Rivers Inventory
NRHP	National Register of Historic Places
NTUs	Naphthalene Turbidity Units
OAR	Oregon Administrative Rule
OCMP	Oregon Coastal Management Program
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODNRA	Oregon Dunes National Recreation Area
ONHP	Oregon Natural Heritage Program
ORC	Oregon Rivers Council
ORS	Oregon Revised Statute
ORV	Off-road Vehicle
(PA)	Preferred Alternative
PL	Public Law
PAOT	Persons at One Time
PNV	Present Net Value
PNW	Pacific Northwest
R	Rural (ROS category)
RARE II	Roadless Area Review and Evaluation II
RAM	Resources Allocation Model
RD	Ranger District
RMO	Road Management Objective

RN	Roaded Natural (ROS category)
RNA	Research Natural Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
RPA	Forest and Rangeland Renewable Resources Planning Act of 1976
RVD	Recreation Visitor Day
S&G	Standard and Guideline
SCORP	State Comprehensive Outdoor Recreation Plan
SEIS	Supplement to the EIS for an Amendment to the Pacific Northwest Regional Guide, Spotted Owl Guidelines
SHPO	State Historic Preservation Office
SIA	Special Interest Area
SMU	Streamside Management Unit
SOHA	Spotted Owl Habitat Area
SPM	Semiprimitive Motorized (ROS Category)
SPNM	Semiprimitive Nonmotorized (ROS Category)
SRI	Soil Resource Inventory
STO	Siuslaw Timber Operations
SVLAs	Stability Vegetation Leave Area
T&E	Threatened and Endangered
TE&S	Threatened, Endangered and Sensitive
TRP	Timber Resource Plan (1979)
TSP	Total Suspended Particulates
TSPQ	Timber Sale Program Quantity
USDA	United States Department of Agriculture
USDI	United States Department of Interior
VIS	Visitor Information Services

VMS	Visual Management System
VQO	Visual Quality Objective
WFUD	Wildlife-fish User Days
W&S	Wild and Scenic

Glossary

GLOSSARY

A

Accelerated Erosion - Any increase in the natural rate of an erosion process such as landsliding, stream channel scour, or dry ravel Accelerated erosion can be caused by management activities that, 1) alter the natural erosion resisting forces (root strength, interparticle binding), 2) alter the flow of ground or surface water, or 3) change the natural arrangement of soil or rock materials

Acquired Lands - Lands added to the National Forest system by purchase, transfer, or donation under authority of the Weeks Law or related acts Also, lands obtained by the Forest Service by exchange for other acquired lands

Acre-foot - A measure of water or sediment volume, equal to an amount of material which would cover one acre to a depth of one foot (i e , 43,560 cubic feet or 325,851 gallons)

Activity - A measure, course of action, or treatment undertaken that directly or indirectly produces, enhances, or maintains forest and rangeland outputs, or achieves administrative or environmental quality objectives (FSM 1309, Management Information Handbook) An activity can generate multiple outputs

Activity Fuels - Fuels generated or altered by a management activity

Administrative Unit - An area under the administration of one line officer, such as a District Ranger, Forest Supervisor, or Regional Forester

Airshed - A geographical area that, because of topography, meteorology, and climate, shares the same air.

Allocation - See *Resource Allocation*

Allowable Sale Quantity (ASQ) - The quantity of timber that may be sold from the area of suitable land covered by the forest plan for a time period specified by the plan This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity " (36 CFR 219 3)

All Terrain Vehicle (ATV) - A vehicle characterized by its ability to negotiate most kinds of terrain by virtue of traction devices such as wide tracts, large, low-pressure rubber tires, and/or four-wheel drive

Alternative - One of several policies, plans, or projects proposed for decision making

Amenity - An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value is typically used in land management planning to describe those resource properties for which monetary values are not or cannot be established (such as clean air, or scenic quality)

Anadromous Fish - Those species of fish that mature in the sea and migrate into streams to spawn. Salmon, steelhead, and searun cutthroat trout are examples

Analysis Area - A delineated area of land subject to analysis of (1) responses to proposed management practices, rangeland outputs and environmental quality objectives, and (2) economic and social impacts.

Analysis of the Management Situation (AMS) - A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.

Animal Unit Months (AUMs) - Amount of feed or forage required by one mature (1000 pound) cow or the equivalent for one month (based upon average forage consumption of 26 lbs dry matter per day).

Appropriated Funds - Monies authorized by an act of Congress which permit Federal agencies to incur obligations and to make payments out of the U S Treasury for specified purposes

Aquatic Ecosystems - Stream channels, lakes, marshes or ponds, and the plants and animals they support.

Arterial Roads - Primary travel routes that provide service to a large land area, and which usually connect with public highways, or other Forest Service arterial roads

Assigned Values - Monetary values given to nonmarket resources, based on estimates for market transactions For example, the benefits of dispersed recreation are given as values for their production.

B

Background - The visible terrain beyond the foreground and middleground where individual trees are not visible, but are blended into the total fabric of the stand (See "Foreground" and "Middleground ")

Benchmark - Reference points that define the bounds within which feasible management alternatives can be developed. Benchmarks may be defined by resource output or economic measures

Benefit (Value) - Inclusive terms used to quantify the results of a proposed activity, project or program expressed in monetary of nonmonetary terms

Best Management Practices - A practice or combination of practices that is determined by a State (or designated area-wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (Federal Register, Volume 40, No. 230 dated 11/28/75)

Big Game - Those species of large animals normally managed for sport hunting In the Coast Range these include deer, elk, and bear.

Biological Growth Potential - The average net growth attainable in a fully stocked natural forest stand (36 CFR 219.3)

Biomass - The total quantity (at a given time) of living organisms of one or more species per unit of space (species biomass), or of all the species in a biotic community (community biomass)

Board Foot - A unit of measurement represented by a board one foot square and one inch thick

Board Foot/Cubic Foot Conversion Ratio - A specific factor by species that is applied to the FORPLAN cubic foot outputs to give board foot estimates The number of board feet per cubic foot of volume varies with tree species, diameter, height, and form factors. Both board foot and cubic foot volumes can be determined for timber stands

Broadcast Burn - Allowing a prescribed fire to burn over a designated area within well-defined boundaries for reduction of fuel hazard or as a silvicultural treatment, or both

Brush - A growth of shrubs or small trees usually of a type undesirable to livestock or timber management.

Built Environment - Areas altered by human activity (e g roads, harvest units, buildings) in contrast to the natural environment.

Buyback and Defaulted Timber Sales - In 1984, the Federal Timber Contract Payment Modification Act was enacted by Congress. It allowed private companies to return timber sales not economical to harvest after payment of a fee to the government The sales returned under the conditions of this Act are known as "buyback" sales A timber sale is considered "defaulted" if it is not in compliance with the terms of the contract by the contract termination date. Defaulted sales are also returned to the government

C

Cable Logging - Methods used to skid or pull logs to a central landing or collection area by a cable connected to a remote power source

Canopy - The more-or-less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Capability - The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at given levels of management intensity Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insects and disease (36 CFR 219 3)

Capability Area - *Geographic delineations used to describe characteristics of the land and resources* in integrated forest planning Capability areas may be synonymous with ecological land units, ecosystems or land response units

Capital Investment - An input that increases the stock of natural or manmade resources (assets) needed to maintain or increase the flow of outputs in the future Benefits resulting from capital investments are normally recouped in excess of 1 year.

Coho Smolt - Young coho salmon which are ready to migrate to the sea

Carrying Capacity - 1 (recreation): The number of people that can occupy an area for a given social and experience goal; 2 (wildlife). The maximum number of animals an area can support through the least favorable environmental conditions that occur during a given period of the year, 3 (range). The

maximum stocking rate possible without damaging the vegetation or related resources. Carrying capacity may vary from year to year on the same area due to fluctuating forage production.

Cavity - The hollow excavated in trees by birds or other animals. They are used for roosting and reproduction by many birds and mammals.

Channel or Stream Scour - Erosion of the channel bottom caused by high flows of water, loss of channel stability, or debris torrents.

Chargeable Timber Volume - The timber removed from regulated forest land that contributes to meeting the annual sustained-yield capacity.

Clearcutting - The harvesting at one time of all trees on an area for the purpose of creating a new, even-aged stand. The area harvested may be a patch, strip, or stand large enough to be mapped or recorded as a separate class in planning for sustained yield

Climax - The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition

Climax Species - Those species that dominate a climax stand in either numbers per unit area or biomass.

Coastal Douglas-Fir Zone - The area west of the crest of the Cascade Mountain Range in the States of Oregon and Washington.

Code of Federal Regulations (CFR) - A codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government.

Coho Smolt - Young coho salmon which are ready to migrate to the sea.

Collector roads - Roads that serve small land areas and are usually connected to National Forest arterial roads or public highways. They collect traffic from local roads and terminal facilities. Collector roads are maintained for continuous use.

Commercial Forest Land - Land that is producing, or is capable of producing, crops of industrial wood and (1) has not been withdrawn by Congress, the Secretary of Agriculture, or the Chief of the Forest Service; (2) land where existing technology and knowledge is available to ensure timber production without irreversible damage to soil productivity or watershed conditions; and (3) land where existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be obtained within 5 years after final harvesting

Commercial Thinning - Any type of tree thinning that produces merchantable material at least equal in value to the direct costs of harvesting.

Commodity - A transportable resource product with commercial value; all resource products that are articles of commerce.

Common Variety Mineral Materials - Mineral materials such as rock and gravel commonly available in most locales that may be sold by the Federal government as determined by Federal statutes and regulations.

Community Cohesion - The degree of unity and cooperation within a community in working toward shared goals and solutions to problems.

Community Stability - A community's capacity to handle change without major hardships or disruptions to component groups or institutions. Measurement of community stability requires identification of the type and rate of proposed change and an assessment of the community's capacity to accommodate that level of change

Compaction - The packing together of soil particles by forces exerted at the soil surface, resulting in increased soil density.

Concern - A point, matter, or question raised by management that must be addressed in the planning process.

Congressionally Classified and Designated Areas - Areas that require congressional enactment for their establishment, such as National Wildernesses, National Wild and Scenic Rivers, and National Recreation Areas

Consumptive Use - Those uses of a resource that reduce its supply

Conversion Period - The duration of a change from one silvicultural system to another or from one tree species to another

Core Area - An area (as related to the spotted owl) encompassing at least 300 contiguous acres of old growth suitable for nesting and reproduction The area consists of a pair's territory, in part, the nest site, and principal roost areas

Corridor - A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries

Cost - Capital Investment - The cost of manmade structures, facilities, or improvements in natural resources used as inputs in production processes to produce outputs over one or more planning periods

Costs - Minimum funds needed to achieve the standards and guidelines in the management prescriptions

Costs, direct - Costs that directly contributes to the production of the primary outputs of an activity, project, or program

Costs, economic - Total fixed and variable costs for inputs, including costs incurred by other public parties and, if appropriate, opportunity cost and cost savings

Costs, investment - The cost of creating or enhancing assets, including cost of administrative or common-use transport facilities and resource management investments

Costs, operational - The cost of planning and managing existing resources and assets.

Costs, opportunity - The value of a resource's foregone net benefits in its most economically efficient alternative use

Costs, variable - Costs that vary with the level of controlled outputs in the time horizon covered by the planning period or decisions being considered

Cost Effective - Achieving specified outputs or objectives under given conditions for the least cost.

Cost Efficiency - The usefulness of specified inputs (costs) to produce specified outputs (benefits) In measuring cost efficiency, some outputs including environmental, economic, or social impacts are not

assigned monetary values but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate. (36 CFR 219 3)

Council on Environmental Quality (CEQ) - An advisory council to the President established by the National Environmental Policy Act of 1969 It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters (Abstracted from the National Environmental Policy Act of 1969, as Amended)

Created Opening - Openings in the Forest created by the silvicultural practices of clearcutting, seed tree cutting, group selection cutting, or the final shelterwood regeneration cut.

Cubic Foot (CF) - The amount of timber equivalent to a piece of wood having dimensions of one foot by one foot by one foot.

Culmination of Mean Annual Increment - The point in the life of a tree in which the average annual growth in volume (as measured by the periodic annual increment) is equal to, or less than the average growth in volume over the life of the tree (as measured by the mean annual increment). This measurement represents the point at which the annual growth rate begins to slow as compared to the average rate of growth during all previous years.

Cultural Resources - The remains of sites, structures, or objects used by humans in the near (historical) or distant (archaeological) past

Cumulative Impact (Effect) - The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508 7)

D

Debris Slide - A shallow landslide of soil, rock, and organic material that occurs on steep slopes under the influence of intense rainfall

Debris Torrent - A large debris slide that is charged with water and confined to a steep stream channel Debris torrents may travel several thousand feet

Decision Criteria - Essentially the rules or standards used to evaluate alternatives They are measurements of indicators that are designed to assist a decision maker in identifying a preferred choice from an array of possible alternatives.

Decision Maker - One of four line officer positions within the Forest Service These include District Rangers, Forest Supervisors, Regional Foresters, and the Chief of the Forest Service (or an alternate or deputy having designated authority) Each position has well defined limits of authority with the District Ranger having the least and the Chief having the most.

Decision Variable - A component of an alternative in which activities and their costs, outputs, and benefits are identified and used for analysis and decision making All activities and costs necessary to

accomplish the outputs and benefits are included. FSH 1309.11 contains decision variable definitions and codes.

Demand - The amount of an output that users are willing to take at a specified price, time period, and condition of sale.

Demand Analysis - *A study of the factors affecting the schedule of demand for an output, including* the price-quantity relationship if applicable

Departure - A schedule which deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule at any time in the future.

Designated Area (Air Quality) - Those areas delineated in the Oregon and Washington Smoke Management Plans as principal population centers of air-quality concern

Desirable Residual Vegetation - The remaining vegetation after application of harvest cutting methods that meets management area objectives The vegetation may be trees, shrubs, grass, or a combination

Developed Recreation - Recreation that requires facilities that, in turn, result in concentrated use of an area. An example of a developed recreation site is a campground; facilities might include roads, parking lots, picnic tables, toilets, drinking water, and buildings

Diameter at Breast Height (DBH) - The diameter of a tree measured 4 feet 6 inches above the ground.

Discount Rate - An interest rate that represents the cost or time value of money in determining the present value of future costs and benefits.

Discounting - An adjustment, using a discount rate, for the value of money over time so that costs and benefits occurring in the future are reduced to a common point in time, usually the present, for comparison.

Dispersion Evaluation Area (Air Quality) - An area of land defined by topographic features, such as stream drainages, that are typically 2,000 to 5,000 acres in size, but do not exceed 10,000 acres

Dispersed Recreation - A general term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-county skiing, and recreation in primitive environments

Diversity - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan (36 CFR 219 3)

Douglas-Fir Type - An association of tree species in which Douglas-fir is recognized as one of the principal seral species

Draft Environmental Impact Statement (DEIS) - The draft statement of environmental effects which is required for major federal actions under Section 102 of the National Environmental Policy Act, and released to the public and other agencies for comment and review

Dry Ravel - The slow to very rapid gravity driven movement of dry soil Dry ravel usually occurs when the organic materials in the surface few inches of the soil are severely altered by fire Dry ravel is most likely where soils are medium to coarse textured and slopes are over 60% gradient

Duff - Organic matter in various stages of decomposition on the floor of the forest

E

Ecosystem - A complete, interacting system of organisms considered together with their environment; for example a marsh, a segment of stream, or a lake

Effects - Environmental consequences as a result of a proposed action Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in this statement are synonymous Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial (40 CFR 1508 8)

Endangered Species - Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

Ending Inventory Constrain - The standing volume left in the inventory at the end of the planning horizon The constraint insures that there is enough standing inventory at the end of the planning horizon to perpetuate long-term sustained yield capacity harvest levels on a nondeclining flow basis.

Enhance - The altering of any natural feature or organism to improve its ability to produce benefits Examples are: changes in the genetic makeup of commercial species of trees to increase growth; blasting of rock waterfalls that prevent migration of fish to upstream areas; and fertilization of soils.

Environmental Analysis - An analysis of alternative actions and their predictable short- and long-term environmental effects, incorporating the physical, biological, economic, social, and environmental design arts and their interactions.

Estuary - A semi-closed body of water which has a free connection with the open sea. The sea water in an estuary is measurably diluted with fresh water from streams, rivers, or ground water.

Environmental Assessment - A concise public document, sometimes used to comply with the regulations implementing the National Environmental Policy Act (40 CFR 1508.9)

Environmental Impact Statement (EIS) - A statement of the environmental effects of a proposed action and alternatives to it. It is required for major federal actions under Section 102 of the National Environmental Policy Act (NEPA), and released to the public and other agencies for comment and review It is a formal document that must follow the requirements of NEPA, the Council on Environmental Quality (CEQ) guidelines, and directives of the agency responsible for the project proposal.

Even-aged Management - The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes throughout the

forest area). The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands (36 CFR 219 3)

Existing Condition - Representation of a resource condition, level of resource output, or environmental effect that exists within a defined area for a specified period of time as defined in the text.

Existing Utility Corridor - A strip of land containing one or more existing linear utility rights-of-way, which is or will be designated in Forest planning in order to facilitate future authorization of additional utility rights-of-way

Extensive Forest Management - A low investment level of management on regulated timberlands that requires initial harvest, regeneration, and final harvest. Some precommercial thinning may be done to prevent stagnation and disease buildup.

F

Final Environmental Impact Statement (FEIS) - The final version of the statement of environmental effects required for major federal actions under section 102 of the National Environmental Policy Act. It is a revision of the draft environmental impact statement to include public and agency responses to the draft.

Floodplain - The lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, those areas subject to a 1-percent or greater chance of flooding in any given year (100-year recurrence)

Forage - All browse and nonwoody plants available to livestock or wildlife for grazing or harvested for feed

Foreground - A term used in visual management to describe the stand of trees immediately adjacent to a high-value scenic area, recreation facility, or forest highway (See "Background," "Middleground.")

Forest Land - Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest use. (36 CFR 219 3) Also see non-forest land.

Forest Program - A forest program is the summary or aggregation of project or activity information that makes up an integrated (multifunctional) course of action for a given level of funding on a National forest that is consistent with the Forest plan

Forest Residues (Logging Slash) - The unused portions of sawtimber and poletimber trees cut or killed by logging.

Forest Type - A classification of forest land based upon the tree species presently forming a plurality of basal area stocking in live trees

FORPLAN - A linear programming system used for developing and analyzing forest planning activities.

Free-to-grow - A term used by silviculturists to indicate that trees are free of growth restraints, the most common of which is competing over-topping vegetation.

Fuel Management - The practice of planning and executing the treatment or control of living or dead vegetative materials in accordance with fire management direction.

Fuel Treatment - The rearrangement or disposal of natural fuels or fuels generated by management activity, such as slash left from logging to reduce fire hazard

G

Goal - A concise statement that describes a desired condition to be achieved sometime in the future It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed. (36 CFR 219.3)

Goods and Services - The various outputs, including on-site uses, produced from forest and rangeland resources. (36 CFR 219.3)

Guild - A group of plants or animals that demonstrate a similar ecological inter-relationship; a group of species that have a similar mode of life. (e g. aly bird species that use cavities in snags for nesting)

H

Habitat - The place where a plant or animal naturally or normally lives and grows.

Habitat Capability - The estimated ability of an area, given existing or predicted habitat conditions, to support a wildlife, fish or plant population. It is measured in terms of potential population numbers.

Habitat Capability Index - An indirect measure of the quality and quantity of habitat for a specific species, or group of species The index is usually a range that is based on the predicted number of animals that could theoretically occupy the habitat available given a certain set of management prescriptions

Habitat Capability Model - A model which depicts the relationship of a species to a variety of habitat factors which provide for quantitative predictions of a species response (animal numbers) to habitat change.

Habitat Diversity - Distribution and abundance of plant and wildlife habitats within a given area. Also, the mix of the component parts found within a particular habitat, e g , in a salmonid habitat, the pools, riffles, cover, etc.

Habitat Improvement - Practices that increase the value or utilization of a particular habitat over what it is naturally Examples include fish ladders over impassible waterfalls, and development of permanent meadows on timber or brush lands

Habitat Restoration - Practices that restore a particular habitat to its natural or near natural condition following degradation of that habitat. Examples include rock or log structures in streams where landslides have destroyed fish habitat, and creation of snags in basins where the natural snags have been lost through harvest, fire, or wind

Hardwood - Broad-leaved and deciduous trees.

Harvest Cutting Method - A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation results in forests of distinctive form and character Harvest cutting methods are classified as even-aged and uneven-aged.

Headwalls - Upper sideslope concave slopes that are often the most active erosion surfaces in a stream system.

Herbaceous - An adjective describing seed-producing plants that do not develop persistent woody tissue, but die down to ground level at the end of the growing season

Hiding Cover - Cover used by animals to hide from predators, and/or provide a sense of security For elk, any vegetation capable of hiding 90% of a standing adult elk at 200 feet or less.

High Risk Landtype - A Soil Resource Inventory mapping unit that has more than an 80% probability of experiencing (on the average) one or more landslides larger than 290 cubic yards within 40 acres that are clearcut and burned.

High Risk Slope - Any forested slope that would be considered likely (more than approximately a 50% chance) to experience a landslide as a consequence of the destabilizing effects of clearcut harvest activities.

Hydrologic - Pertaining to the quantity, quality, and timing of water yield

I

Impact - See effect

Implan - A computer-based system used by the Forest Service for constructing nonsurvey input-output models to measure economic input

Indicator Species - Species identified in a planning process that are used to monitor the effects of planned management activities on habitat of wildlife and fish because its welfare is presumed to be an indicator of the welfare of other species using the same habitat A species whose condition can be used to assess the impacts of management actions on a particular area

Individual Domestic Watershed - Any watershed which provides water for human consumption not meeting the criteria listed in the definition of a Municipal Watershed

Integrated Pest Management - A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative

strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pesthost system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides A basic principle in the choice of strategy is that it be ecologically compatible or acceptable (36 CFR 219.3)

Intensive Forest Management - A high investment level of timber management that envisions initial harvest, regeneration with genetically improved stock, control of competing vegetation, fill-in planting, precommercial thinning as needed for stocking control, one or more commercial thinnings, and final harvest.

Interdisciplinary Approach - Integrating the concepts from two or more areas of knowledge and skills to focus on the same task, problem, or subject

Interdisciplinary Team (ID Team) - A group, each with specific training in one or more disciplines, assembled to solve a problem or perform a task The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve complex resource problems

Intermingled Ownerships - Lands within the National Forest boundaries or surrounded by National Forest lands that are owned by private interests or other government agencies.

Intermittent Stream - A stream that runs water in most months, but does not run water during the dry season during most years.

Irretrievable - Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sport site If the use is changed, timber production can be resumed The production lost is irretrievable.

Irreversible - Applies primarily to the extractive use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as in-place soil development, that are renewable only over long time periods. Irreversible also includes loss of future options

Issue - A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.

L

Land and Water Conservation Fund (L&WCF) - Funds collected from sales of surplus Government real property, motorboat fuels taxes, recreation use fees, etc. which are available to purchase and develop certain qualifying lands for recreational purposes.

Landform - An area of land defined by its particular shape that has resulted from a specific combination of bedrock, soils, erosion processes, vegetation, and climate

Lands Not Appropriate for Timber Production - Includes lands that: 1) are proposed for resource uses that preclude timber production, such as Wilderness; 2) have other management objectives that limit timber production to the point where management requirements set forth in CFR 219.27 cannot be met; or, 3) are not cost efficient over the planning horizon in meeting forest objectives including timber production. (36 CFR 219.14 (c))

Lands Not Suited (Unsuitable) for Timber Production - Includes lands that· 1) are not forest land as defined in CFR 219.3, 2) are likely, given current technology, to suffer irreversible resource damage to soils productivity, or watershed conditions, 3) cannot be adequately restocked as provided in 36 CFR 219 27(c)(3); or, 4) have been withdrawn from timber production by an Act of Congress, the Secretary of Agriculture, or the Chief of the Forest Service. In addition, Forest lands other than those that have been identified as not suited for timber production shall be reviewed and assessed prior to formulation of alternatives to determine the costs and benefits of a range of management intensities for timber production (36 CFR 219 14(a)(b))

Lands Suitable for Timber Production - Includes all lands not classified as either Not Suited or Not Appropriate for Timber Production

Landtype - A delineation of the Forest mapped in the *Siuslaw National Forest Soil Resource Inventory* that has a defined arrangement of specific landforms that reacts to management activities in generally predictable ways Landtypes range from 60 to 600 acres in size

Landtype Association - A group of landtypes that make up a large portion of the Forest. The landtypes in the associations are sufficiently homogeneous to be considered as a whole for modeling the future outputs and effects of planned management activities Landtype Associations do not usually follow watershed boundaries and are defined on the basis of general similarities in geology, climate, landform and vegetation Landtype Associations on the Forest range in size from 14,000 to 93,000 acres

Leasable Minerals - Valuable mineral deposits such as oil that may be extracted under lease from the Federal government as determined by Federal statutes and regulations.

Lifestyle - The characteristic way people live, indicated by consumption patterns, work, leisure, and other activities

Locatable minerals - Valuable mineral deposits, such as gold bearing ore, upon which mining claims may be filed as determined by Federal statutes and regulations

Logging Residues - See *Slash*.

Long-term Sustained Yield Capacity - The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple use objectives.

Low Risk Landtype - A Soil Resource Inventory mapping unit that has less than an 80% probability of experiencing (on the average) one or more landslides larger than 290 cubic yards within 40 acres that are clearcut and burned

Low Risk Slope - Any forested slope that would be considered unlikely (less than approximately a 50% chance) to experience a landslide as a consequence of the destabilizing effects of clearcut harvest activities.

M

Management Area - An area with similar management objectives and a common management prescription

Management Concern - An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process (36 CFR 219.3)

Management Direction - A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them (36 CFR 219.3)

Management Indicator Species - Species identified in a planning process that are used to monitor the effects of planned management activities on habitat of wildlife and fish because its welfare is presumed to be an indicator of the welfare of other species using the same habitat A species whose condition can be used to assess the impacts of management actions on a particular area

Management Intensity - The management practices or combination of management practices and associated costs designed to obtain different levels of goods and services. (36 CFR 219.3)

Management Practice - A specific activity, measure, course of action, or treatment.

Management Prescription - The management practices and intensity selected and scheduled for application on a specific area to attain multiple use and other goals and objectives. In FORPLAN, the combination of a management emphasis and associated management intensities with a variety of timing choices for implementation.

Management Requirement (MR) - Minimum standards for accomplishing National Forest System goals and objectives. MRs are intended to protect resources including riparian areas, wildlife and fish habitats, soil productivity and water quality and vegetation communities. Management requirements apply to all activities including vegetation manipulation, silvicultural practices, and construction projects.

Mature Cover - Cover for deer and elk that provides hiding and thermal cover characteristics as well as supplemental forage. This cover condition generally occurs when timber stands reach approximately 70 years of age, the dominant trees average 21 inches d b h or greater, and the average crown closure is 70 percent or greater

Middleground - The visible terrain beyond the foreground where individual trees are still visible, but do not stand out distinctly from the stand (See "Foreground" and "Background ")

Management Requirements - Requirements for land management activities necessary to meet all applicable laws and regulations

Maximum Modification - See *Visual Quality Objective*

Middle Ground - A term used in visual management to describe the portions of a view extending from the foreground zone out to 3 to 5 miles from the observer

Mitigation - Practices intended to reduce the adverse effects of certain management activities. Mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or elimination the impact over time by preservation and maintenance operations during the life of the action; and, (e) compensating for the impact by replacing or providing substitute resources or environments (40 CFR Part 1508 20)

Modification - See *Visual Quality Objective.*

Multiple Use - The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions, that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output. (36 CFR part 219 3)

Municipal Watershed - A watershed which provides water for human consumption, where Forest Service management could have a significant effect on the quality of water at the intake point, and that provides water utilized by a community or any other water system that regularly serves: 1) at least 25 people on at least 60 days in a year, or 2) at least 15 service connections In addition to cities, this includes campgrounds, residential developments, and restaurants

N

Net Cash Flow - The difference between the annual receipts of an alternative and costs required to implement that alternative

National Environmental Policy Act (NEPA) of 1969 - An Act to declare a National policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the Nation, and to establish a Council on Environmental Quality. (The Principal Laws Relating to Forest Service Activities, Agriculture Handbook No 453, USDA, Forest Service, 359 pp)

National Forest Land and Resource Management Plan - A Plan which " shall provide for multiple use and sustained yield of goods and services from the National Forest System in a way that maximizes long-term net public benefits in an environmentally sound manner "

National Forest Management Act (NFMA) - A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of Regional Guides and Forest Plans, and the preparation of regulations to guide them

Net Receipts - Receipts minus costs

Net Public Benefits - An expression used to signify 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 Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple-use and sustained-yield (36 CFR 219 3)

Nitrogen-Fixing (Nitrogen Fixation) - Conversion of atmospheric nitrogen by plants such as red alder into combined forms (primarily ammonia) that, following additional chemical processes, provide nitrogen to plants as a necessary and often growth limiting nutrient.

No Change Alternative (Alternative NC) - A supplemental Alternative added at the direction of the Chief to the ten alternatives described in the DEIS. The No Change Alternative provides information about the 1979 Siuslaw Timber Resource Plan (TRP) in the form of an alternative to the Proposed Forest Plan. Major changes in information about Forest resources since the development of the TRP make direct comparison between the No Change Alternative and Alternatives developed in the DEIS difficult or impossible.

Non-cash Benefit - Benefits that resource users are willing to pay for or what current market prices indicate they should pay above any fees paid to the Forest Service

Nonchargeable Timber Volume - All volume not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity.

Nonconsumptive Use - That use of a resource that does not reduce its supply; for example, nonconsumptive uses of water include hydroelectric power generation, boating, swimming, and fishing.

Nondeclining Flow - A policy governing the volume of timber removed from a National Forest, which states that the volume planned for removal in each succeeding decade will equal or exceed that volume planned for removal in the previous decade. Regulated by the Base Sale Schedule

Nongame - Species of animals not managed for sport hunting

Nonforest - Lands less than 10 percent occupied by forest cover of any size and not formerly having had such tree cover, or currently being developed for non-forest use. Lands developed for non-forest use include areas for crops, improved pasture, residential, or administrative areas, improved roads of any width, and adjoining road clearing and powerline clearing of any width. (36 CFR 219 3)

Nonmarket - Products derived from National Forest resources that do not have a well-established market value, for example, recreation, wilderness, wildlife.

O

Objective - A concise, time-specific statement of measurable planned results that respond to preestablished goals An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals (36 CFR 219.3)

Off-Road Vehicle (ORV) - Two, three, or four wheeled motorized vehicles designed for use off of constructed roads

Old-growth Habitat - Habitat for certain wildlife that is characterized by overmature coniferous forest stands with large snags and decaying logs

Old-growth Stand - Vegetation community dominated by an overstory of old-growth conifer trees. Understory vegetation is sparse, and dominated by shade tolerant species such as huckleberry, Oregon grape, and swordfern.

Old-growth Trees - Trees that have the age and growth characteristics of trees in an old-growth stand, but are too few in number or too scattered to be considered part of an old-growth stand

Operational Costs - Those costs required to operate programs, administer the activities involved, and maintain capital improvement.

Opportunity - A proposal that is considered in developing alternatives, projects or programs where an option exists to invest profitably to improve or maintain a condition

Opportunity Costs - The economic and resource values that are foregone in order to meet an objective

Optimal Cover - The most preferred cover condition by deer and elk It has the following characteristics: 1) four layers vegetation layers including an overstory canopy, a sub-canopy, a shrub layer, and a herbaceous layer, 2) an overstory canopy which can intercept and hold a substantial amount of snow yet has dispersed, small (less than 1/8 acre) openings. This cover type provides hiding and thermal cover characteristics as well as supplemental forage during adverse weather This condition generally occurs when timber stands reach approximately 120 years of age, the dominant trees are greater than 21 inches d b h., and the crown closure exceeds 70 percent

Output - A good, service, or on-site use that is produced from forest and rangeland resources See FSH 1309.11 for forest and rangeland outputs codes and units measure Examples: N06-Softwood Sawtimber Production MBF; X80-Increased Water Yield - Acre Feet; W01-Primitive Recreation Use RVDs.

P

Partial Cut - A variety of silvicultural practices where a portion of the stand is removed and a portion is left.

Partial Retention - See *Visual Quality Objective*

Perennial Stream - Stream that runs water in every month during most years

Persons at One Time (POAT) - A recreation capacity measurement term indicating the number of people who can use a facility or area at one time

Pests - Any animal or plant that, during some portion of its life cycle, inhibits the establishment or growth of some other species of plant or animal favored by man

Planning Horizon - The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions (36 CFR Part 219.3)

Planning Period - One decade The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits (36 CFR Part 219 3)

Potential Yield - (This term is in reference to the 1979 Timber Resource Plan only.) Optimum sustained yield of timber harvest volume attainable with intensive forestry on available commercial forest land (forest lands able to produce 20 cubic feet of timber per acer per year or more) while considering the interrelationship with other forest resources and uses Intensive forestry includes planting only with

genetically superior stock, precommercial thinning, commercial thinning and release from competition with noncommercial species Programmable net salvage volume and volume from marginally economical lands are also included

Present Net Value (PNV) - A value that represents the dollar difference between the discounted value of all outputs to which monetary values are assigned and the discounted costs of managing the Forest for the next 150 years.

Professional Judgment - Theoretical statement of conditions, or interrelationships involving natural features or phenomenon based on experience rather than rigorous research, by a person trained in the science and current state of the art of the particular field for which the statement applies. (e.g. habitat requirements of species not studied in detail, as stated by a wildlife biologist)

Program - Sets of activities or projects with specific objectives, defined in terms of specific results and responsibilities for accomplishments.

Programmed harvest - The amount of timber on the Forest that is scheduled for harvesting The programmed harvest is based on current demand, funding, and multiple-use considerations.

Program Element - An individual Forest Service area of responsibility, which in combination with other elements, comprises the statutory or Executive directed mission of the Forest Service Specific Forest Service program elements are defined in the Management Information Handbook (FSH 1309.11)

Project - An organized effort to achieve an objective identified by location, activities, outputs, effects, and time period and responsibilities for execution

Public Involvement - A Forest Service process designed to broaden the information base upon which agency decisions are made by (1) informing the public about Forest Service activities, plans, and decisions, and (2) encouraging public understanding about and participation in the planning processes which lead to final decision making.

Public Issue - A subject or question of widespread public interest relating to Management of the National Forest System (36 CFR 219 3)

Public Participation Activities - Meetings, conferences, seminars, workshops, tours, written comments, survey questionnaires, and similar activities designed or held to obtain comments from the general public and specific publics.

R

Range - Land producing native forage for animal consumption, and lands that are revegetated naturally or artifically to provide forage that is managed like native vegetation.

Raptors - Predatory birds, such as falcons, hawks, eagles, or owls

Real Dollar Value - A monetary value which compensates for the effects of inflation. (36 CFR 219.3)

Receipts - Those priced benefits for which money will actually be paid to the Forest Service: recreation fees, timber harvest, mineral leases and special use fees

Record of Decision - A document separate from but associated with an Environmental Impact Statement which states the decision, identifies all alternatives, specifying which were environmentally preferable, and states whether all practicable means to avoid environmental harm from the selected alternative have been adopted, and if not, why not

Recreation Capacity - The number of people that can take advantage of the supply of a recreation opportunity during an established use period without substantially diminishing the quality of the recreation experience or the biophysical resources

Recreation Information Management (RIM) - A computer-oriented system that organizes and manages information concerning recreation use, occupancy, and management of National Forest lands.

Recreation Opportunity Spectrum (ROS) - Land delineations that identify a variety of recreation experience opportunities categorized into six classes on a continuum from primitive to urban Each class is defined in terms of the degree to which it satisfies certain recreation experience needs, based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use The six classes are.

1. **Primitive** - Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls Motorized use within the area is not permitted

2. **Semiprimitive Nonmotorized** - Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size Interaction between users is low, but there is often evidence of other users The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis Use of such roads is restricted to minimize impacts on recreational experience opportunities.

3. **Semiprimitive Motorized** - Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size Concentration of users is low, but there is often evidence of other users The area is managed in such a way that minimum on-site controls and restrictions use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motor bikes is permitted.

4. **Roaded Natural** - Area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man Such evidence usually harmonizes with the natural environment Interaction between users may be moderate to high, with evidence of other users prevalent Resource modification and utilization practices are evident, but harmonize with the natural environment Conventional motorized use is allowed and incorporated into construction standards and design of facilities

5. **Rural** - Area is characterized by a natural environment that has been substantially modified by development of structures, vegetative manipulation, or pastoral agricultural development Resource modification and utilization practices may be used to enhance specific recreation activities and to maintain vegetative cover and soil Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high A considerable number of facilities are designed for use by a large number of people Facilities are often provided for special activities Moderate user densities are present away from developed sites Facilities for intensified motorized use and parking are available

6. **Urban** - Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements Renewable resource modification and utilization practices are often used to enhance specific recreation activities Vegetative cover is often exotic and manicured. Sights and sounds of humans are predominant on site. Large numbers of users can be expected both on site and in nearby areas Facilities for highly intensified motor use and parking are available with forms of mass transmit often available to carry people throughout the site.

Recreation Visitor Days (RVDs) - Twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

Regeneration - The actual seedling and saplings existing in a stand, or the act of establishing young trees naturally or artificially

Regulations - Administrative rules, implementing laws. Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which cover management of the Forest Service

Release - Freeing trees from competition for light, water, and nutrients by removing or reducing the vegetation growth that is overtopping or closely surrounding them

Renewable Resources - Resources that are possible to use indefinitely, when the use rate does not exceed the ability to renew the supply

Residual Stand - The trees remaining standing after some event such as selection cutting

Region - A Forest Service administrative unit. The Siuslaw National Forest is a part of the Pacific Northwest Region which includes all National Forests in Oregon and Washington See FSM 1221 3 for organizational definitions.

Regional Guide - A document written by the Regional Forester that establishes regional standards and guidelines as required by 36 CFR Part 219 9(a) for a Region Consistent with resource capabilities, the Regional Guide reflects goals and objectives of the RPA Program For planning purposes, the Regional Guide displays tentative resource objectives from the RPA Program. It also provides for general coordination of National Forest System, State and Private Forestry and Research programs. The Chief approves the Regional Guide.

Regulated Stands - Stands which contribute to the calculated base timber sale schedule or departure.

Renewable Resources Assessment - An appraisal of the Nation's renewable resources that recognizes their vital importance and the necessity for long-term planning and associated program development. The Assessment meets the requirements of Section 3 of the Resources Planning Act and includes analyses of present and anticipated uses, demands, and supplies of the renewable resources; a description of Forest Service programs and responsibilities, and a discussion of policy considerations, laws, and regulations

Research Natural Area - An area set aside by a public or private agency specifically to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. In the Forest Service, RNAs are areas designated to ensure representative samples of as many of the major naturally occurring plant communities as possible.

Resource Allocation - The action of apportioning the supply of a resource to specific uses or to particular persons or organizations.

Resource Element - A major endeavor which fulfills statutory or Executive requirements and indicates a collection of activities from the various operating programs required to accomplish the Forest Service mission There are seven resource elements:

1. **Recreation** - The resources which provide outdoor recreational opportunities for the Nation Included are development of new knowledge, and technical assistance

2. **Wilderness** - The Nation's wilderness resource This element includes lands designated for preservation and protection in their natural condition for the National Wilderness Preservation System.

3. **Wildlife and Fish** - The resources which are directed toward protection and improvements of wildlife and fish populations and habitats Coordination with State agencies is a key element Included are technical assistance and development of new knowledge

4. **Range** - The resources needed to manage, protect, and develop forest and range lands for grazing The element encompasses activities on both National Forest and private forest and range lands, and the research needed to effectively consider management alternatives.

5. **Timber** - The resources needed to grow wood and to make it available to the Nation on a continuing basis This element includes activities needed to protect, manage, harvest, and utilize wood and wood-related products

6. **Water** - The administration and enhancement of water resources in a manner consistent with other resource values This element includes watershed and river basin planning and development in cooperation with States and other agencies, and research designed to gain further knowledge

7. **Minerals** - The administration of exploration and development of minerals in a manner consistent with other resource values on National Forest lands. This element also includes research and cooperative activities to enhance reclamation of mined lands

Resource Management Plan - A plan developed prior to the Forest Plan that outlined the activities and projects for a particular resource element independently of considerations for other resources Such Plans will be superseded by the Forest Plan.

Returns to Counties - The portion of receipts derived from Forest Service resource management that is distributed to State and county governments such as the Forest Service 25 percent fund payments.

Riparian Area - A geographically delineated area directly influenced by water with distinctive resource values and characteristics that is comprised of aquatic and riparian ecosystems. This includes floodplains, wetlands, and all areas within a horizontal distance of approximately 100 feet from the normal line of high water of a stream channel or from the shoreline of a standing body of water.

Riparian Ecosystem - A transition between the aquatic ecosystem, and the adjacent upland terrestrial ecosystem Identified by soil characteristics and distinctive vegetation communities that require free or unbound water.

Roadless Area - Areas studied during the Roadless Area Review and Evaluation process (RARE II) which are roadless and at least 5,000 acres in size

Road Management Objective (RMO) - Documentation of resource needs, management concerns, design, operation, maintenance, and anticipated life of a proposed road RMOs are determined by interdisciplinary teams on the Ranger Districts

Rotation - The planned number of years between the formation of a generation of trees and their harvest at a specified stage of maturity.

S

Sale Schedule - The quantity of timber planned for sale by time period, from the area of suitable land covered by a Forest plan The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained. For planning purposes, the sale schedule and the allowable sale quantity are synonymous for all periods or decades over the planning horizon (36 CFR 219 3)

Salvage Cutting - Intermediate cutting made to remove trees that are dead or in imminent danger of being killed by injurious agents.

Sawtimber - Trees containing at least one 12-foot sawlog or two noncontiguous 8-foot logs, and meeting regional specifications for freedom from defect. Softwood trees must be at least 9 inches in diameter and hardwood trees 11 inches in diameter at breast height.

Scoping - The process by which the Forest Service determines the extent of analysis necessary for an informed decision on a proposed action.

Sea-run - see anadromous

Second Growth - Forest growth that has come up naturally after some drastic interference (for example, wholesale cutting, serious fire, or insect attack) with the previous forest growth.

Sediment - Boulders, gravels, sands, silts, and clays (often with inclusions of organic materials) that have been eroded from an upslope area, and are either moving through a stream system, or have been deposited in a stream bed, lake, marsh, wetland, or estuary.

Semiprimitive Motorized ROS Class - See "Recreation Opportunity Spectrum "

Semiprimitive Nonmotorized ROS Class - See "Recreation Opportunity Spectrum "

Sensitive Species - Those species that have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent their being placed on Federal or State lists

Sensitivity Analysis - A determination of the consequences of varying the level of one or several factors while holding other factors constant

Seral - A biotic community that is a developmental, transitory stage in an ecological succession.

Silvicultural System - A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form Systems are classified according to the method of carrying out the removal of the mature crop and provide for regeneration and according to the type of forest thereby produced. (36 CFR 219.3)

Silviculture - The art and science of controlling the establishment, composition, and growth of forests

Site Preparation - Manipulation of vegetation or soil prior to planting or seeding. The manipulation follows harvest, wildfire, or construction in order to encourage the growth of favored species Site preparation may include the application of herbicides, burning, or cutting of living vegetation that competes with the favored species; tilling the soil; or burning of organic debris (usually logging slash) that makes planting or seeding difficult.

Site Productivity - Productive capability of specific areas of land which is a result of soil characteristics such as water-holding capacity and available nutrients, and climate

Skyline Logging - A system of cable logging in which all or part of the weight of the logs is supported during yarding by a suspended cable

Slash - The residue left on the ground after timber cutting and/or storms, fire, or other damage. It includes unused logs, uprooted stumps, broken or uprooted stems, branches, twigs, leaves, bark, and chips.

Small Game - Birds and small mammals typically hunted or trapped

Snag - A standing dead tree

Socio-economic - Pertaining to, or signifying the combination or interaction of, social and economic factors.

Softwoods - Coniferous trees, usually evergreen, having needles or scale-like leaves

Soil Surveys - Systematic examinations of soils in the field and in laboratories; their description and classification; the mapping of kinds of soil; the interpretation according to their adaptability for various crops, or for other purposes; and their productivity under different management systems

Special Interest Areas - Formally designated areas managed to make recreation opportunities available for the understanding of the earth and its geological, historical, archeological, botanical, and memorial features

Stand (Tree Stand) - An aggregation of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition as to be distinguishable from the forest in adjoining areas

Standards and Guidelines - Practices needed to achieve desired conditions or levels of environmental quality.

Stocking - The degree of occupancy of land by trees as measured by basal area or number of trees and as compared to a stocking standard; that is, the basal area or number of trees required to fully use the growth potential of the land

Stream Blockage - Accumulation of soil, rock, and organic material deposited in a stream channel by landslides that prevent fish from moving upstream

Stream Buffer - Vegetation left along a stream channel to protect the channel or water from the effects of logging, road building, or other management activity (see vegetation leave area)

Stream Class - Classification of streams based on the present and foreseeable uses made of the water, and the potential effects of on-site changes on downstream uses Four classes are defined:

Class I - Perennial or intermittent streams that: provide a source of water for domestic use; are used by large numbers of fish for spawning, rearing or migration; and/or are major tributaries to other Class I streams.

Class II - Perennial or intermittent streams that: are used by moderate though significant numbers of fish for spawning, rearing or migration; and/or may be tributaries to Class I streams or other Class II streams.

Class III - All other perennial streams not meeting higher class criteria.

Class IV - All other intermittent streams not meeting higher class criteria

Streamside Management Unit (SMU) - An area of varying width adjacent to a stream where practices that might affect water quality, fish, and other aquatic resources are modified to meet water quality goals for each class of stream The width of this area will vary with the management goals for each class of stream, characteristics of the stream and surrounding terrain, and the type and extent of the planned activity

Stream Structure - The arrangement of logs, boulders, and meanders which modify the flow of water, thereby causing the formation of pools and gravel bars in streams. Generally, there is a direct relationship between complexity of structure and fish habitat Complex structure is also an indication of watershed stability.

Submerchantable Volume - The estimated timber volume that does not meet the utilization standards in the Regional Guide, but which could be utilized for products other than sawtimber It is considered "nonchargeable" against planned allowable sale quantity goals.

Substantive Comment - A comment that provides factual information, professional opinion, or informed judgement germane to the action being proposed.

Succession - The progressive development of vegetation toward its highest ecological expression, the climax community; replacement of one plant community by another

Successional Stage - A stage or recognizable conditions of a plant community that occurs during its development from bare ground to climax; for example, coniferous forests in the Coast Range progress through six recognized stages. grass-forb; shrub-seedling; pole-sapling; young; mature, old growth

Suitability - The appropriateness of applying certain resource management practices to a particular area of land, as determined be an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices. (See "Lands Not Suitable for Timber Production", and "Lands Not Appropriate for Timber Production")

Supply - The amount of an output that producers are willing to provide at the specified price, time period, and condition of sale

Suppression - The action of extinguishing or confining a fire

Sustained-Yield of Products and Services - The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment of the productivity of the land (36 CFR 219 3)

T

Tentatively Suitable Forest Land - Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the CHief, (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that is is possible to restock adequately within 5 years after final harvest, and (d) adequate information is available to project responses to timber management activities

Thermal Cover - Cover used by animals to lessen the effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with an average crown closure of 70 percent or more.

Threatened Species - Those plants or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future

Tiering - Refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin-wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared (40 CFR Part 1508 28)

Timber Harvest Schedule - The quantity of timber planned for sale and harvest, by time period, from the area of land covered by the Forest Plan The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity Future periods are shown to establish that sustained yield will be achieved and maintained

Timber Production - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For planning purposes, the term "timber production" does not include production of fuel wood (36 CFR 219 3)
a
Timber Resource Plan - A functional plan completed in 1979 which established a sale volume to be sold each year based upon an analysis of the most recent resource inventories This plan was an integrated plan which attempted to consider implications to other resources on the Forest Also known as the Timber Management (TM) Plan

Timber Sale Program Quantity - The volume of timber planned for sale during the first decade of the planning horizon It includes the allowable sale quantity (chargeable volume) and any additional material (nonchargeable volume) planned for sale. Expressed as the average for the first decade

Timber Stand Improvement - Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Total Suspended Particulates (TSP) - Any finely divided material (solid or liquid) that is airborne with an aerodynamic diameter smaller than a few hundred micrometers Predictions of TSP are made to estimate potential hazard to human health that could result from slash burning

Tradeoff - The reduction or limitation of one or more resource benefits in favor of increasing or improving some other benefits Some amount of tradeoff is necessary when resource benefits are not totally compatible (e g - timber harvest and fish habitat both may compete for the condition of the natural vegetation cover).

Turbidity - The degree of opaqueness, or cloudiness produced in water by suspended particulate matter, either organic or inorganic Measured by light filtration or transmission and expressed in Jackson Turbidity Units (JTU's)

U

Understory - The trees and other woody species growing under a more-or-less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

Undeveloped Area - Portion of the National Forest that is essentially unroaded.

Uneven-aged Management - The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection (36 CFR 219.3)

Utility and Transportation Corridors - A strip of land designated for the transportation of energy, commodities, and communications.

Utilization Standards - Standards guiding the use and removal of timber, which is measured in terms of diameter at breast height, top diameter inside the bark (top diameter inside bark), and percent "soundness" of the wood

V

Vegetation Leave Area - Area of land in which vegetation is left undisturbed in order to provide shade and organic debris to streams, or to prevent the acceleration of natural erosion processes. No regulated timber harvest is planned in these areas

Viable Population - A population which has adequate numbers and dispersion of reproductive individuals to ensure the continued existence of the species population on the planning area

Viewshed - Portion of the Forest that is seen from a major travel route, or high use location

Visual Quality Objectives (VQOs) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape

1. **Preservation** - Human activities do not change the natural appearance

2 **Retention** - Human activities are not evident to the casual Forest visitor.

3. **Partial Retention** - Human activity may be evident, but must remain subordinate to the characteristic landscape

4. **Modification** - Human Activity may dominate the characteristic landscape, but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground

5. **Maximum Modification** - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background

6. **Enhancement** - A short-term management alterative which is done with the express purpose of increasing positive visual variety where little variety now exists

Visual Resource - The composite of basic terrain, geologic features, water features, vegetative patterns, and land-use effects that typify a land unit and influence the visual appeal the unit may have for visitors

W

Watershed - Portion of the Forest in which all surface water drains to a common point Watersheds can range from a few tens of acres that drain a single small intermittent stream, to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams

Wetlands - Areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction (Executive Order 11990)

Wild and Scenic Rivers - Those rivers or sections of rivers designated as such by congressional action under the 1968 Wild and Scenic Rivers Act, as supplemented and amended, or those sections of rivers designated as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories:

1. **Wild River Areas** - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America

2. **Scenic River Areas** - Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

3. **Recreation River Areas** - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past

Wilderness - Areas designated by congressional action under the 1964 Wilderness Act. Wilderness isfined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable, have outstanding opportunities for solitude or for a primitive and confined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

Wildfire - Any forest fire that is not a prescribed fire.

Wildlife and Fish User Day (WFUD) - Twelve visitor hours which may be aggregated continuously, intermittently, or simultaneously by one or more persons

Windfall - A tree, including the roots, blown down by the wind, or the stem or other parts (such as branches, foliage, or fruit) broken off or blown down by the wind

Woody Material - Organic materials necessary for stream channel stability and maintenance of watershed condition. It includes large logs and root wads

Y

Yarding - The moving of logs from where they were cut to a central concentration area or landing

Yield Tables - Tables that estimate the level of outputs that would result from implementing a particular activity. Usually referred to in conjunction with FORPLAN (or other linear models) input or output Yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.

APPENDIX A
Timber Sale Schedule

APPENDIX A

TIMBER SALE SCHEDULE

PROPOSED TIMBER SALE SCHEDULE

This appendix displays the Timber Sale Schedule proposed to meet the allowable sale quantity for the first decade of Plan implementation (see the Resource Summaries section in Chapter IV) Upon approval of the Final Forest Plan, the Timber Sale Schedule will replace the Timber Sale Plan currently maintained by the Forest The Timber Sale Schedule will be updated each year by adding sales to reflect 3 years in the future

The harvest acres and volumes were displayed in Chapter IV Tables A-1 through A-3 display each year of the Proposed Timber Sale Schedule (fiscal years 1990 through 1992, respectively) Included in these tables are tentative sale names, locations, sale unit acres, harvest volumes, and road construction miles for each Ranger District

Sale unit acres displayed in the sale schedule are higher than the harvest acres will actually be Site specific identification of vegetation leave areas and areas needed to meet the protection criteria for riparian areas has not yet been made on most of the sale areas. Actual harvest acres are a key timber monitoring item, and will be tracked closely to verify yield predictions (see Chapter V)

Also, the volume totals by Ranger District and year will not match the Forest ASQ exactly in this schedule Sale volumes shown in this Appendix are estimates in most cases, and exact volumes will not be known until measured during project implementation Volume yields are also a key monitoring item in this Plan (see Chapter V) The ASQ for the Plan is an annual average for the 1st decade of the Plan, and may vary slightly from year to year

The sales listed in this Appendix reflect conditions and information available at the time of Forest Plan development As conditions change and new information becomes available during implementation, the sale schedule may be modified This will not necessarily result in an amendment to the Forest Plan.

Note that the proposed sale schedule for fiscal year (FY) 1990 is higher than the Plan ASQ The 1990 sale level for the Pacific Northwest Region of the Forest Service was increased by Congress through Section 318 of the 1990 Interior and Related Agencies Appropriation Act (P L 101-121) Section 318 was designed to make up for the reduced sell level in fiscal year 1989 resulting from lawsuits over the northern spotted owl

Table A-1. Proposed Timber Sale Schedule -- Fiscal Year 1990

Hebo Ranger District:

Sale Name	Location on Hebo RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles (1) C	Road Miles (1) R
Crazy 25	T4S,R8&9W,S23-26, 19, 30	Three Rivers	203	1 3	7 0	0 8	0 1
Crazy Pollard	T4S,R9W,S19,21, 27,33,34	Pollard Cr.	215	1 1	6 0		1 9
Niagara Bend	T4S,R8W,S2,10, 11,12,13,14	Niagara	279	1 9	10 0	1 4	2 1
Crazy Powder	T4S,R8W,S19,20, 21,28,29	Three Rivers, Niagara	155	1 7	9 0	0 3	
Stillwell Bend	T5S,R9W,S35, T6S,R9W,S2,3	Several	188	1 9	10 0	0 4	1 1
Square Clare	T3S,R8W,S21,24, 25,T4S,R8W,S2,3	Several	197	1 9	10 0		4 2
Gordey Bluff	T7S,R10W,S31, T8S,R10W,S6	Schooner	96	1 5	8 0	0 6	2 2
Misc Salvage		District Wide		0 6	3 0		
SUBTOTAL HEBO RANGER DISTRICT 1990			**1,333**	**11.9**	**63.0**	**3.5**	**11.6**

(1) **C** is construction miles and **R** is reconstruction miles

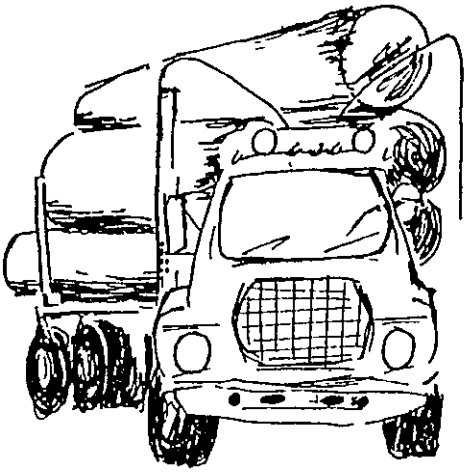


Table A-1 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1990

Mapleton Ranger District:

Sale Name	Location on Mapleton RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Berry Bushel	T17,R12,S3,10-14	Berry	199	1 1	6 1	1 2	5 6
Sulphur	T20,R10,S6,7, T20,R11,S12	Sulphur	121	1 2	6 4	1 5	7 5
Uncle Condon	T17,R11,S8,9,14,15,16	Uncle	182	2 3	12 3	1 3	7 6
Condon Carriage	T17,R11,S14,22	Uncle	92	1 1	6 1	0 2	
Franklin Ridge	T22,R10,S2,3,10,11	Franklin	164	1 5	8 1	2 7	
Sky Walker	T17,R10,S28,29,32,33, T18,R10,S4,5,8	Walker	128	1 4	7 8	2 6	0 3
Paxton Cedar	T19,R10,S26,34,35	Peach	59	0 7	3 7	0 5	1 2
South Paxton	T19,R10,S27,33,34,35	Peach	139	1 6	8 6	2 2	5 0
Indian Hook	T16,R10,S2,3,10,11	Upper Indian	186	2 4	12 8	1 7	9 5
Lower Sweet	T18,R10,S17,20,21	Lower Sweet	105	0 8	4 5	1 0	1 3
Coon Skinner	T19,R9,S33, T20,R9,S4,5,8,9	Middle Fork/ Coon/Johnson	130	1 3	7 0	1 4	5 0
Peewee Panther	T16,R9,S1,2,3	Panther	50	0 5	2 6	0 1	0 2
Mister Rogers	T16,R10,S7,8,18,21,22	Rogers	155	1 6	8 5	1 2	5 0
Elk Sign	T17,R10,S2,3,11	Elk	185	1 9	10 5	0 7	2 0
Maria	T16,R10,S4,7,8,9	Maria	150	1 5	8 0	1 2	5 0
Maria Skyline	T16,R10,S9,15	Maria	150	1 3	7 0	1 4	5 0
Upper McLeod	T17,R10,S5,9,16	McLeod	82	1 0	5 5	0 5	3 0
Fivemile Flume	T20,R11,S9-12,15	Fivemile	220	2 2	12 0	1 5	1 5
Commercial thinnings		District Wide	(100)	(0 1)	(0 7)		
Misc Salvage		District Wide		0 4	2 2		
SUBTOTAL MAPLETON RANGER DISTRICT 1990			**2,497 (100)**	**25.9 (0.1)**	**142.0 (0.7)**	**22.9**	**64.7**

(Commercial thinning acres and volumes are parenthesized)

Table A-1 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1990

Alsea District:

Sale Name	Location on Alsea RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Grant Davis	T14,R9,S14,23,25, 26	Grant Cr	154	1 8	10 5	2	3 4
Green Apple	T15,R9,S17,18,19, 20,30	Green R	101	1 1	6 3	1 0	2 4
Green Horn	T15,R9,S30	Green R	132	1 3	7 0	0 1	
Chintimini Park	T12,R7,S19	Upper Shot Pouch	124	1 6	9 4	0 7	1 0
Grass Skirt	T14,R10,S13,24	Grass Cr	132	1 4	7 3	0 9	2 0
Cascade Wallow	T14,R10,S21,22,28, 29,32,33	Cascade Cr	88	1 1	5 9	0 5	0 1
Grass Hula	T14,R10,S2,3,10	Grass Cr	146	1 3	6 8	0 7	0 2
Buck Shot	T14,R10,S33,34	Lower Buck Cr	169	2 0	10 9	0 8	
Lobster Claw	T14,R9,S27,28	Lobster Cr	118	0 9	4 6	1 1	1 4
Randall Salado	T12,R9,S8,9,10,16, 17	Lower Big Elk, Gopher Cr	91 (205)	0 3 (0 5)	2 2 (2 1)	2 8	1 0
Gopher Homestead	T12,R9,S8,9,16,17,18	Gopher Cr	82	0 5	2 7	0 5	1 0
Deadwood Taylor	T15,R8,S19,20	Deadwood Cr	112	1 2	6 7		0 3
Misc Salvage		District Wide	0 3	1 6			
SUBTOTAL ALSEA RANGER DISTRICT 1990			**1,449 (205)**	**14.8 (0.5)**	**81.8 (2.1)**	**9.3**	**12.8**

(Commercial thinning acres and volumes are parenthesized)

Table A-1 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1990

Waldport Ranger District:

Sale Name	Location on Waldport RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Beamer 712	T15,R11,S9,10	Yachats R	116	1 4	7 6	1.3	
Tenmile 611	T15,R11,S32, T16,R11,S4,5,8,9	Tenmile Cr	95	1 0	5 3	1.4	
Blodgett Rehab	T14,R11,S18, T14,R12,S13	Big Cr	46	0 1	0 5		
Canal 606	T14,R10,S8,17	Canal Cr	100	1 7	9 4	1 0	5 5
Eckman 101	T13,R11,S34	Eckman Cr	60	0 6	3 0		1 4
Upperten 002	T16,R11,S1,12, T16,R10,S6,7	South Fork, Tenmile Cr	206	2 6	14 0	0 4	2 6
Wheelock 403	T13,R11,S13,24	Lower Drift Cr	117	1 0	5 6	0 5	0 1
Tidewater 003	T13,R10,S21,22	Alsea River	59	1 1	5 9	0 6	5 8
Yaquina 004	T12,R10,S4,5,8,9	Wright Cr	149	1 7	9 0	0 8	
Yaquina 005	T12,R10,S2,4	Mill Cr	78	0 8	4 6		
Tenmile 817	T15,R11,S32,33, T15,R12,S25	Tenmile Cr	150	1 0	5 7	0 9	
Misc. Salvage		District Wide		0 4	2 0		
SUBTOTAL WALDPORT RANGER DISTRICT 1990			**1,176**	**13.4**	**72.6**	**6.9**	**15.4**
TOTAL FOREST 1990			**6,455 (305)**	**66.0 (0 6)**	**359 5 (2 8)**	**42.6**	**105.0**

(Commercial thinning acres and volumes are parenthesized)

Table A-2. Proposed Timber Sale Schedule -- Fiscal Year 1991

Hebo Ranger District:

Sale Name	Location on Hebo RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Kellow Meda	T5S,R10W,S17,20	Bower	137	1 5	8 0		1 5
Foland Ridge	T4S,R9W,S5,6,7, T3S,R9W,S32	Foland, George	177	1 1	6 0	1 8	
Kellow Cascade	T5S,R10W,S31	Hawk	64	0 8	4 0		
Salal Buck	T5S,R10W,S12,14	Clear, Fall	93	0 8	4 0		
Boulder Tony	T4S,R9W,S2,3,9, 10	Boulder, Tony	175	1 3	7 0	1 0	
Erickson Rose	T7S,R10W,S4,5	Bear, Rock	62	0 8	4 0		
Louie II	T5S,R8W,S15,16, 21,22	Baxter, Louie	244	1 1	6 0	2 0	
Green Widow	T6S,R10W,S14,23	Widow	68	0 6	3 0		
Powder Lime	T4S,R8&9W,S5,6, 7,1,12	Powder	321	1 9	10 0	8 3	
Small Hollow	T5S,R9&10W,S7,8, 18,19,30,13,24	Bear, Louie	325	1 9	10 0	0 5	2 0
Miles Roundtop	T4S,R10W,S5,6, 7,8	Horn, Beltz	251	1 5	8 0	1 3	
Niagara 25	T4S,R8W,S23, 24,25	Niagara	200	1 5	8 0	1 0	1 0
Misc Salvage		District Wide		0 3	1 6		
SUBTOTAL HEBO RANGER DISTRICT 1991			**2,117**	**15.1**	**79.6**	**15 9**	**4.5**

Table A-2 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1991

Mapleton Ranger District:

Sale Name	Location on Mapleton RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Rainrock	T17,R9,S31, T17,R19,S23,26,27	Thompson	225	2 2	12 0	3 0	1 0
Alpha Crotchline	T16,R8,S19, T16,R9,S23-27,35	Alpha	198	2 7	14 4	3 2	6 7
Clevage	T17,R11,S7,8,17-19,30, T17,R12,S12,13,24	Bailey/Dahlen	252	1 8	9 6	1 4	5 0
Cataract Rigger	T17,R11,S24, T17,R10,S5,18	Cataract	135	1 3	7 0	0 5	3 5
Failor Fairlead	T16,R9,S27,34,T17,R9,S3	Failor	125	1 1	6 0	0 5	3 0
Franklin Flyer	T21,R10,S33,34,35, T22,R10,S2,3,4	Franklin	159	1 7	9 2	0 8	3 3
Steelie Span	T19,R9,S20,21,28	Steelie	168	2 7	14 4	2 0	0 8
Bear Bight	T19,R10,S18,19, T19,R11,S13,23,21, 28,33	Bear	280	2 1	11 5	1 2	3 0
Peach Branch	T19,R10,S16,21	West Branch	95	1 0	5 5	1 0	3 0
Cedar Chute	T18,R10,S32,33, T19,R10,S4,5,6	Cedar	185	1 5	8 0	1 5	2 0
Slick	T20,R11,S23,26	Eslick	105	0 9	5 0	1 0	3 0
Commercial Thinnings		District Wide	(115)	(0 2)	(0 8)	0 0	0 1
Misc Salvage		District Wide		0 5	2 9	0 2	0 5
SUBTOTAL MAPLETON RANGER DISTRICT 1991			**1,930 (115)**	**19 5 (0.2)**	**105.5 (0.8)**	**16.3**	**34 9**

(Commercial thinning acres and volumes are parenthesized)

Table A-2 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1991

Alsea Ranger District:

Sale Name	Location on Alsea RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Bear Paw	T14,R9,S15,16,17,21	Bear Cr	195	1 2	6 5	0 8	0 7
Buck Horn	T15,R10,S9,10,15,21, 22,27,28	Upper Buck Cr	200	2 1	11 5	1 8	1 5
Lower Louie	T14,R9,S17,19,20,31, T15,R9,S5,6	Lower Five R	165	1 4	7 7	0 8	2 0
Crab Back	T15,R10,S12,13,14,23	Crab Cr	69	7	4 0	0 3	1 2
Green Bean	T14,R10,S24,35, T15,R9,S8,16,17,19	Green R	237	2 1	11 5	1 2	1 0
Deadwood Saloon	T15,R9,S24,25,36; T15,R8,S29,30,31	Deadwood Cr	175	2 0	11 0	0 3	2 0
Backwoods Preacher	T15,R9,S13,23,24, T15,R8,S18,20	Preacher Cr	100	1 2	6 3	0 5	
Horse Fly	T12,R10,S11,12	Horse Cr	125	1 1	6 2	0 8	1 1
Ryan Wapiti 2	T15,R10,S12, T15,R9,S7,18	Crab Cr	132	2 0	10 7	0 7	3 0
Misc Salvage		District Wide		0 3	1 6		
SUBTOTAL ALSEA RANGER DISTRICT 1991			**1,398**	**14.1**	**77.0**	**7.2**	**12.5**

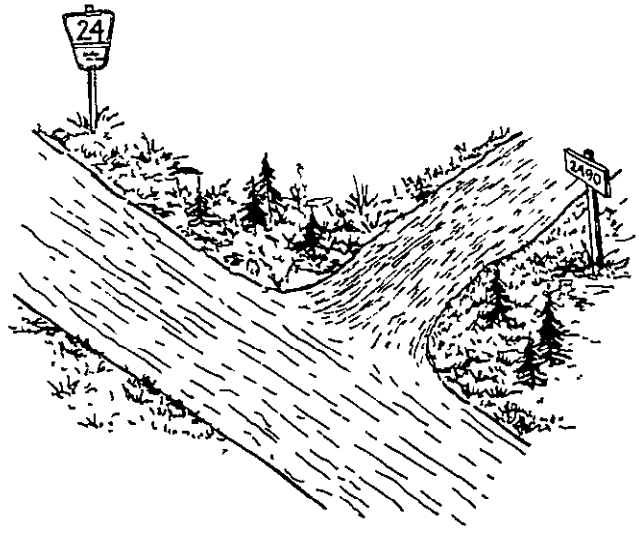


Table A-2 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1991

Waldport Ranger District:

Sale Name	Location on Waldport RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Wapiti 305	T16,R11,S31, T17,R11,S5,6	Wapiti Cr	130	1 3	7 2	0 3	4 1
Formader 103	T16,R11,S13,14, 22,23	Big Cr	193	2 1	11 4	1 5	3 7
Tidewater 202	T13,R10,S35, T14,R10,S3,4	Alsea River	120	1 9	10 6		0 6
Howell 709	T14,R11,S26,35	Yachats R	91	1 1	5 9	0 9	
Tenmile 401	T16,R12,S1,2, T15,R12,S36, T16,R11,S6	Squaw Cr , Mill Cr	250	1 7	9 1	1 2	
North Beaver 813	T12,R10,S18,19, T12,R11,S13,14,24	Peterson Cr , North Beaver Cr	190	1 8	9 6		0 5
Formader 717	T16,R11,S27	Big Cr	34	0 4	2 4		
Blodgett 102	T14,R11,S7,17, T14,R12,S1	Dicks Fork Cr	180	0 7	3 6	0 6	1 4
Yachats-Cape 802	T15,R11,S6	Yachats R	117	0 6	3 5	0 5	
Howell 301	T14,R11,S13,14, 16,21	North Fork, Yachats R	228	1 7	9 1		1 5
Misc Salvage		District Wide		0 4	2 0		
SUBTOTAL WALDPORT RANGER DISTRICT 1991			**1,533**	**13.7**	**74.4**	**5.0**	**11.8**
TOTAL FOREST 1991			**6,975 (115)**	**62.4 (0.2)**	**335.5 (1.8)**	**44.4**	**63.7**

(Commercial thinning acres and volumes are parenthesized)

Table A-3. Proposed Timber Sale Schedule -- Fiscal Year 1992

Hebo Ranger District:

Sale Name	Location on Hebo RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Boulder Rubble	T3&4S,R8&9W,S31, 36,1,2,3,4,5,6	Boulder, Alder, Limestone	325	2 5	13 0	0 5	3 0
Schooner Lookout	T7S,R10W,S21,22	Schooner	125	1 3	7 0		1 0
Farmer EFF	T4S,R10W,S2,3,9, 10,11	Farmer	120	1 0	5 0		1 0
Salal Meda	T5S,R10W,S4,10, 11,12,13,14	Clear, Fall	100	1 0	5 0	0 5	1 0
Yoncalla Yank	T4S,R8W,S28,29, 31,32,33,34	Agency	200	1 9	10 0		2 0
Stillwell Leave	T5&6S,R9W,S31, 32,33,4,5,6	Hiack	200	1 9	10 0		2 0
Minski Hog	T7S,R9W,S6,17,19	Drift, Slick	120	1 0	5 0		0 4
Andy Back	T3S,R8&10W,S24, 25	Bun, Slick Rock	87	0 8	4 0		1 0
Sandy Andy	T3S,R10W,S27-32	Andy, Jewel	200	1 9	10 0		1 0
Sour Kitten	T5S,R9W,S1,2,11, 12,13,14	Kitten, Ead	225	1 9	10 0		1 0
Misc Salvage		District Wide		0 3	1 6		
SUBTOTAL HEBO RANGER DISTRICT 1992			**1,702**	**15.5**	**80.6**	**1.0**	**13.4**

Table A-3 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1992

Mapleton Ranger District:

Sale Name	Location on Mapleton RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Deer Harvey	T21,R10,S19,20, 28,29,30,31,32,33	Harvey	325	2 5	13 7	3 5	5 5
Harvey Skyline	T21,R10,S19, T21,R11,S25,35	Harvey	145	1 1	6 0	0 5	5 0
Pastime Knowles	T18,R9,S7,8,9	Barber/Lower Knowles	155	1 4	7 5	1 5	2 0
Fiddler	T19,R10,S17,20, 30,31,32, T19,R11,S25	Upper Fiddle	260	1 9	10 5	2 0	4 0
Lawson Line	T18,R11,S27,28, 29,33,34,35	Lawson	180	1 9	10 0	1 5	3 0
Weiss Wedge	T21,R10,S2,3	Weiss	115	1 2	6 5	2 0	1 5
Bullbuck	T17,R10,S16,17, 18,19,20,27, 28,30	McLeod/Walker	280	3 1	16 8	1 8	5 5
Sinker Sam	T16,R10,S19,29,30, T16,R11,S24	Sam	155	1 8	9 5	2 0	2 0
Gibson Grapple	T16,R9,S19,30, 31,32, T16,R10,S24,25	Gibson	230	2 1	11 5	1 7	3 0
Wilhelm Slackline	T16,R11,S34,36, T17,R11,S1,2	Wilhelm	115	1 2	6 5	0 7	4 0
Misery Whip	T16,R9,S20,23, 27	Misery	80	0 8	4 5	0 4	3 0
Commercial Thinnings		District Wide	(115)	(0 2)	(0 8)	0 0	0 1
Misc Salvage		District Wide		0 5	2 5	0 2	0 5
SUBTOTAL MAPLETON RANGER DISTRICT 1992			**2,040 (115)**	**19.5 (0.2)**	**106.3 (0.8)**	**17.8**	**39.1**

(Commercial thinning acres and volumes are parenthesized)

Table A-3 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1992

Alsea Ranger District:

Sale Name	Location on Alsea RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Alsea Rock	T13,R9,S29,28, T14,R9,S2,3,10,13	Alsea R	233	1 1	6 4	0 7	2 2
Alsea Stone	T14,R9,S18; T14,R10,S12,13	Alsea R	100	1.1	5 8	1 0	
Buck Tooth	T15,R10,S1,2,3,9, T14,R10,S3,4	Lower Buck Cr	301	2 8	15 0	0 7	2 1
Cascade Meadow	T14,R10,S22,27, 28,29,34	Cascade Cr	177	1 5	8 0	0 2	
Grant Lake	T12,R8,S5	Spout Cr	135	0 7	3 6	1 0	
Gopher Broke	T12,R9,S14,15,16	Gopher Cr , Grant Cr	110	0 6	3 4	1 0	0 6
Green Crab Thin	T15,R10,S13,15,23,28,34; T15,R9,S16,18,19,20,29	Crab Cr ,Green R	(574)	(0 8)	(3 2)		
South Rocky	T16,R8,S5,7,8	Buck Rock Cr	88	0 9	4 9	0 4	2 0
Feagle Beagle	T12,R8,S19, T12,R9,S24	Feagle Cr	79	8	3 2	1 3	
Blue Grass	T14,R10,S10,11,12,14	Grass Cr	150	1 2	6 3	1 3	2 0
High Five	T15,R10,S31, T15,R9,S4,5	Upper Five R , Green R	75	0 7	6 0	0 7	0 7
TV Preacher	T15,R8,S18,T15,R9,S13	Preacher Cr	86	9	5 1	1 5	0 5
Taylor Tailout	T15,R8,S20	Deadwood Cr	75	0 8	4 5	0 8	0 6
Misc Salvage		District Wide		0 3	1 6		
SUBTOTAL ALSEA RANGER DISTRICT 1992			**1,609 (574)**	**13.4 (0.8)**	**73.8 (3.2)**	**10 6**	**10.7**

(Commercial thinning acres and volumes are parenthesized)

Table A-3 Cont. Proposed Timber Sale Schedule -- Fiscal Year 1992

Waldport Ranger District:

Sale Name	Location on Waldport RD	Subbasin	Sale Unit Acres	Volume (MMCF)	Volume (MMBF)	Road Miles C	Road Miles R
Eckman 104	T14,R11,S4,5,8,9	Eckman Cr	107	0 4	2 0	1 2	
Formader 201	T16,R11,S27,34	Big Cr	90	0 9	5 0	0 6	1 0
Lyndon, South Beaver 803	T13,R11,S2,11	Lyndon Cr , S Beaver Cr	160	1 6	8 6	0 6	1 2
Risley 404	T13,R10,S19,20,30	Alsea R	90	0 5	2 8	0 5	3 0
Upperten 816	T16,R11,S11,12, T16,R10,S6,7, T15,R10,S29,32	Tenmile Cr	320	2 8	15 5	1 2	1 0
Wapiti 502	T17,R11,S6, T17,R12,S1,2	Wapiti Cr	160	1 7	9 1	0 9	
Canal 503	T14,R10,S9,10, 15,16	Canal Cr	115	0 9	5 0		1 0
Scottarm 302	T13,R9,S19	West Fork, Scott Cr	103	1 2	6 8	1 0	2 0
Big China 809	T16,R12,S23, T16,R11,S19	Big Cr , China Cr	255	2 1	11 3	1 5	0 8
Grass 713	T15,R10,S9,17	Grass Cr	102	1 3	7 1		2 0
Misc Salvage		District Wide		0 4	2 0		
SUBTOTAL WALDPORT RANGER DISTRICT 1992			**1,502**	**13.8**	**75.2**	**7.5**	**12.0**
TOTAL FOREST 1992			**6,968 (574)**	**62 0 (0.8)**	**335.9 (3.2)**	**36.9**	**75.2**

(Commercial thinning acres and volumes are parenthesized)

Butte
Paddys
Mdw
Rakes
Mdw
BM4550

APPENDIX B
Resource Schedules

APPENDIX B

RESOURCE SCHEDULES

This appendix displays activity schedules for watershed, fish, wildlife, recreation, trails, roads, bridges and facilities projects The schedules summarize projects planned for the next ten years Costs and outputs are grouped by five year periods, unless otherwise noted in the schedules Unlike the costs used for analysis in the FEIS, the costs shown in these schedules are based on current, not 1982 dollars.

Projects planned during the next ten years will be reviewed annually and may be revised if management direction, priorities or on-the-ground conditions change Revisions to the schedule will not necessarily result in amendments to the Forest Plan.

Table B-1. Watershed Activity Schedule (1st Decade)

	FIRST 5 YEARS		SECOND 5 YEARS	
ACTIVITY/PROJECT	COST/5 years (THOUSAND $)	OUTPUTS	COST/5 years (THOUSAND $)	OUTPUTS
HEBO				
Channel Improvement	0	0 structures/year	200	20 structures/year
Riparian Planting (1) (2)	90	15 acres/year	90	15 acres/year
Landslide Survey	110	total RD/year (3)	110	total RD/year (3)
Sidecast Pullback/Obliteration (1)	150	5 acres/year	150	5 acres/year
Mitigation and Improvement (KV) (4)	500	13 projects/year	500	13 projects/year
GWEB (5)	150	2 projects/year	150	2 projects/year
Maintenance and Evaluation	150	6 projects/year	150	6 projects/year
DISTRICT TOTAL	1,165		1,365	
MAPLETON				
Channel Improvement	0	0 structures/year	125	5 structures/year
Riparian Planting (1) (2)	25	8 acres/year	25	8 acres/year
Landslide Survey	110	total RD/year (3)	110	total RD/year (3)
Sidecast Pullback/Obliteration (1)	350	11 acres/year	200	6 acres/year
Mitigation and Improvement (KV) (4)	500	13 projects/year	500	13 projects/year
GWEB (5)	150	2 projects/year	150	2 projects/year
Maintenance and Evaluation	150	6 projects/year	150	6 projects/year
DISTRICT TOTAL	1,300		1,275	
ALSEA				
Channel Improvement	0	0 structures/year	125	5 structures/year
Riparian Planting (1) (2)	90	15 acres/year	90	15 acres/year
Landslide Survey	110	total RD/year (3)	110	total RD/year (3)
Sidecast Pullback/Obliteration (1)	340	9 acres/year	200	6 acres/year
Mitigation and Improvement (KV) (4)	715	19 projects/year	630	18 projects/year
GWEB (5)	200	3 projects/year	250	4 projects/year
Maintenance and Evaluation	150	6 projects/year	150	6 projects/year
DISTRICT TOTAL	1,620		1,570	
WALDPORT				
Channel Improvement	0	0 structures/year	75	3 structures/year
Riparian Planting (1) (2)	60	10 acres/year	60	10 acres/year
Landslide Survey	110	total RD/year (3)	110	total RD/year (3)
Sidecast Pullback/Obliteration (1)	96	3 acres/year	150	4 acres/year
Mitigation and Improvement (KV) (4)	500	13 acres/year	500	13 projects/year
GWEB (5)	150	2 projects/year	150	2 projects/year
Maintenance and Evaluation	150	6 projects/year	150	6 projects/year
DISTRICT TOTAL	1,021		1,150	

Table B-1 (Continued). Watershed Activity Schedule (1st Decade)

	FIRST 5 YEARS		SECOND 5 YEARS	
ACTIVITY/PROJECT	**COST/5 years** (THOUSAND $)	**OUTPUTS**	**COST/5 years** (THOUSAND $)	**OUTPUTS**
SUBTOTALS - ALL DISTRICTS				
Channel Improvement	0	0 structures/year	450	18 structures/year
Riparian Planting (1) (2)	265	62 acres/year	1,565	68 acres/year
Landslide Survey	440	total RD/year (3)	440	total RD/year (3)
Sidecast Pullback/Obliteration (1)	936	28 projects/year	700	21 acres/year
Mitigation and Improvement (KV) (4)	2,215	58 projects/year	2,130	57 projects/year
GWEB (5)	650	9 projects/year	750	10 projects/year
Maintenance and Evaluation	600	24 projects/year	600	24 projects/year
TOTALS - ALL DISTRICTS (6)	5,106		5,360	

(1) Funding is from appropriated funds and from Knutson-Vandenberg funds collected from timber sale receipts
(2) Riparian planting shown on this schedule is half of the total riparian planting planned Riparian planting adjacent fisheries streams is shown on the Fisheries Activity Schedule
(3) RD is Ranger District
(4) KV is Knutson-Vandenberg Act funds collected from timber sale recipts
(5) GWEB is Governor's Watershed Enhancement Board jointly funded projects, costs shown are the Forest Service share
(6) Oregon Dunes NRA has no watershed activities planned, related work is shown on the Fish Activity Schedule and the Wildlife Activity Schedule

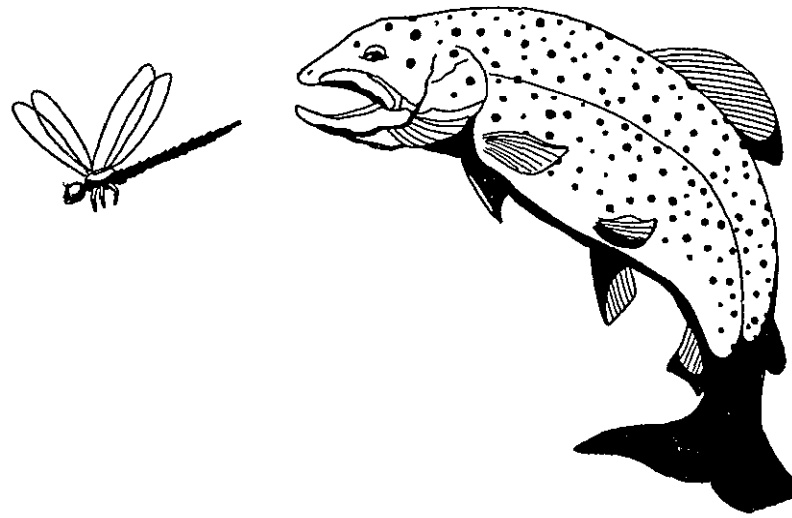


Table B-2. Fish Activity Schedule (1st Decade)

	FIRST 5 YEARS		SECOND 5 YEARS	
ACTIVITY/PROJECT	COST/5 years (THOUSAND $)	OUTPUTS	COST/5 years (THOUSAND $)	OUTPUTS
HEBO				
Habitat Improvement	131	50 structures/year	100	40 structures/year
Stream Survey	120	30 miles/year	60	15 miles/year
Maintenance and Evaluation	30	6 projects/year	30	6 projects/year
Mitigation and Improvement (KV) (1)	62	10 structures/year	60	10 structures/year
Riparian Planting (KV) (1)	90	15 acres/year	120	20 acres/year
DISTRICT TOTAL	433		370	
MAPLETON				
Habitat Improvement	480	160 structures/year	450	150 structures/year
Stream Survey	80	20 miles/year	80	20 miles/year
Maintenance and Evaluation	112	20 projects/year	57	10 projects/year
Mitigation and Improvement (KV) (1)	360	90 structures/year	320	80 structures/year
Riparian Planting (KV) (1)	25	4 acres/year	25	4 acres/year
DISTRICT TOTAL	1,057		932	
ALSEA				
Habitat Improvement	514	200 structures/year	500	200 structures/year
Stream Survey	70	20 miles/year	70	20 miles/year
Maintenance and Evaluation	95	18 projects/year	47	10 projects/year
Mitigation and Improvement (KV) (1)	207	75 structures/year	191	75 structures/year
Riparian Planting (KV) (1)	90	15 acres/year	90	15 acres/year
DISTRICT TOTAL	976		898	
OREGON DUNES NRA				
Habitat Improvement	35	10 structures/year	35	10 structures/year
Habitat Improvement	100	15 acres/year	100	15 acres/year
Stream Survey	4	1 miles/year	4	1 miles/year
Lake and Pond Survey	11	30 acres/year	11	30 acres/year
Maintenance and Evaluation	3	1 project/year	23	1 project/year
DISTRICT TOTAL	153		173	
WALDPORT				
Habitat Improvement	550	225 structures/year	363	150 structures/year
Stream Survey	182	50 miles/year	100	25 miles/year
Maintenance and Evaluation	104	20 projects/year	116	20 projects/year
Mitigation and Improvement (KV) (1)	83	30 structures/year	90	30 structures/year
Riparian Planting (KV) (1)	60	10 acres/year	60	10 acres/year
DISTRICT TOTAL	979		729	
SUBTOTALS - ALL DISTRICTS				
Habitat Improvement	1,710	685 structures/year	1,448	650 structures/year
Habitat Improvement	100	15 acres/year	100	15 acres/year
Stream Survey	456	120 miles/year	314	80 miles/year
Lake and Pond Survey	11	30 acres/year	11	30 acres/year
Maintenance and Evaluation	344	65 projects/year	273	47 projects/year
Mitigation and Improvement (KV) (1)	712	215 structures/year	661	205 structures/year
Riparian Planting (KV) (1)	265	44 acres/year	295	49 acres/year
TOTALS - ALL DISTRICTS	3,598		3,102	

(1) KV is Knutson-Vandenberg funds collected from timber sale recipts

Table B-3. Wildlife Activity Schedule (1st Decade)

	FIRST 5 YEARS		SECOND 5 YEARS	
ACTIVITY/PROJECT	**COST/5 years** (THOUSAND $)	**OUTPUTS**	**COST/5 years** (THOUSAND $)	**OUTPUTS**
HEBO				
Threatened, Endangered, and Sensitive Plant Surveys	10	2,000 acres/year	10	2,000 acres/year
Dead and Defective Tree Habitat Management	178	475 trees/year	178	475 trees/year
Meadow/Orchard Creation	50	25 acres total	50	25 acres total
Meadow/Orchard Maintenance	40	40 acres/year	50	50 acres/year
Forage Seeding	150	200 acres/year	150	200 acres/year
Noxious Weed Control				
Competitive Seeding	20	40 acres/year	20	40 acres/year
Waterfowl Habitat Management	5	1 dike total	5	1 dike total
	20	2 ponds/year	20	2 ponds/year
Wood Duck Nest Box				
Installation	1	2 boxes/year	1	2 boxes/year
Maintenance	1	All boxes	1	All boxes
Road Closures				
Installation	4	1 structure/year	4	1 structure/year
Maintenance	8	8 structures/year	8	8 structures/year
Silverspot Butterfly Management	87	35 acres/year	82	33 acres/year
Snowy Plover Habitat Management	25	5 acres/year	25	25 acres/year
Bald Eagle Habitat Management	25	5 plans total	20	4 plans total
Peregrine Falcon Management	8	1 pair introduction	8	1 pair introduction
DISTRICT TOTAL	632		632	
MAPLETON				
Threatened, Endangered, and Sensitive Plant Surveys	50	2,000 acres/year	50	2,000 acres/year
Spotted Owl Monitoring	100	25 projects/year	100	25 projects/year
	100	8 SOHAs/year	100	8 SOHAs/year
Dead and Defective Tree Habitat Management	38	100 trees/year	151	400 trees/year
Meadow Creation	50	25 acres total	50	25 acres total
Meadow/Orchard Maintenance	5	5 acres/year	5	5 acres/year
Forage Seeding	75	100 acres/year	75	100 acres/year
Noxious Weed Management	200	400 acres/year	225	450 acres/year
Waterfowl Habitat Management	10	5 potholes total	10	5 potholes total
Wood Duck Nest Box				
Installation	3	7 boxes/year	3	7 boxes/year
Maintenance	1	All boxes	1	All boxes
Road Closures				
Installation	25	7 structures/year	25	7 structures/year
Threatened, Endangered and Sensitive Species Mgt	30	15 acres/year	30	15 acres/year
	10	2 plans total	10	2 plans total
DISTRICT TOTAL	697		835	

Table B-3 (Continued). Wildlife Activity Schedule (1st Decade)

	FIRST 5 YEARS		SECOND 5 YEARS	
ACTIVITY/PROJECT	**COST/5 years** (THOUSAND $)	**OUTPUTS**	**COST/5 years** (THOUSAND $)	**OUTPUTS**
ALSEA				
Threatened, Endangered, and Sensitive Plant Surveys	5	200 acres/year	5	200 acres/year
Spotted Owl Monitoring	80	20 projects/year	80	20 projects/year
	50	4 SOHAs/year	50	4 SOHAs/year
Dead and Defective Tree Habitat Management	188	500 trees/year	188	500 trees/year
Meadow Creation	50	25 acres total	50	25 acres total
Orchard Maintenance	5	20 trees/year	5	20 trees/year
Forage Seeding	190	254 acres/year	187	250 acres/year
Noxious Weed Control				
Competitive Seeding	100	200 acres/year	100	200 acres/year
Biological Control	60	30 colonies total	60	30 colonies total
Waterfowl Habitat Survey	13	1 survey & plan		
Wood Duck Nest Box				
Installation	4	10 boxes/year	4	10 boxes/year
Maintenance	1	All boxes	1	All boxes
Install Road Closures	49	14 structures/year	46	13 structures/year
Maintain Road Closures	3	3 structures/year	3	3 structures/year
Silverspot Butterfly Management	4	2 sites total	2	1 site total
Poa laxiflora Coop Research	5	1 project	5	1 report
Marys Peak Botanical Survey	10	400 acres/year	10	400 acres/year
Elk Forage Mgt -Sheep Grazing	38	500 acres/year	38	500 acres/year
DISTRICT TOTAL	855		834	
OREGON DUNES NRA				
Beach Grass Control	35	7 acres/year	40	8 acres/year
Waterfowl Habitat Improvement	500	100 acres/year	500	100 acres/year
Waterfowl Habitat Maintenance	8	all facilities	20	all facilities
Snowy Plover Habitat Management	20	1 acre/year	20	1 acre/year
Wildlife Surveys	5	5 species/year	5	5 species/year
Information & Education Program	130	10 PAOTs/year (1)	60	5 PAOTs/year (1)
DISTRICT TOTAL	698		645	
WALDPORT				
Threatened, Endangered, and Sensitive Plant Surveys	15	600 acres/year	15	600 acres/year
Spotted Owl Monitoring	120	30 projects/year	120	30 projects/year
	13	1 SOHAs/year	13	1 SOHAs/year
Dead and Defective Tree Habitat Management	132	350 trees/year	132	350 trees/year
Meadow Creation	50	25 acres total	50	25 acres total
Forage Seeding	113	150 acres/year	113	150 acres/year
Noxious Weed Control				
Biological Control	100	10 colonies/year	100	10 colonies/year
Waterfowl Habitat Management	20	2 potholes/year	20	2 potholes/year
Wood Duck Nest Box				
Installation	2	5 boxes/year		
Maintenance	1	All boxes	2	All boxes
Silverspot Butterfly Management	25	10 acres/year	25	10 acres/year
DISTRICT TOTAL	591		590	
TOTALS - ALL DISTRICTS	3,473		3,536	

(1) PAOTs are Persons at One Time, an estimate of number people served by the program

Table B-4. Recreation Activity Schedule and Associated Road Projects (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS				SECOND 5 YEARS			
	COST (THOUSAND $)		OUTPUTS (PAOTs)		COST (THOUSAND $)		OUTPUTS (PAOTs)	
	CNRF	CNRN	Recon	New	CNRF	CNRN	Recon	New
HEBO RANGER DISTRICT								
Cascade Head VIS	60	170		50				
Hebo Lake CG Barrier-Free and Reconst	90	10						
Hebo Horse Camp	39	40						
Rocky Bend CG Reconstruction	35	10						
Neskowin CG Reconstruction	75	10						
Sand Lake Picnic Reconstruction	27	25						
Sand Lake Dispersed	55							
Sand Lake Showers	213	20						
Sand Lake Water & Sewer	20				220			
Sand Lake CG Overlay						110		
Mt Hebo CG Reconstruction					75	50		
South Lake Reconstruction					75	30		
DISTRICT TOTAL	614	285		50	370	190		
MAPLETON RANGER DISTRICT								
Lilly Lake VIS/Vista	30	30		40				
Sutton CG Reconstruction, Phase II					320	275		
Baker Beach Access					150	250		150
Joshua Staging Area	100	100		75				
Sutton Boat Launch					40	100		
Archie Knowles VIS	100	80						
Sutton Vista and VIS					200	500		150
North Fork Siuslaw CG					75	125		
Sutton Shelters					50			
Noel Ranch Boat Site					20	20		
ORV East Road						60		
Boat Ramps					30	50		35
DISTRICT TOTAL	230	210		115	885	1,380		335
ALSEA RANGER DISTRICT								
Marys Peak Rec Area Phase I	100	291		125				
Parker Creek Retaining Wall		100						
Vista Parking & Improvement						100		
Marys Peak Shelter					25			
Marys Peak Summit VIS					70			
Marys Peak Environ Ed Center					100	30		75
Conners Camp Day Use					25			30
Mike Bauer Fishing	23	66		40				
Big Elk CG & Day Use Area					80			
River Edge Group Facility					215	10		
DISTRICT TOTAL	123	457		165	515	140		105

PAOTs are Persons At One Time, an index of recreation use of developed facilities, dispersed sites, improved access and support facilities
Numbers shown represent additional capacity
CNRF is construction of recreation facilities, CNRN is construction/reconstruction of roads
CG is campground, VIS is Visitor Information Services

Table B-4 (Continued). Recreation Activity Schedule and Associated Road Projects (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST (THOUSAND $) CNRF	CNRN	OUTPUTS (PAOTs) Recon	New	SECOND 5 YEARS COST (THOUSAND $) CNRF	CNRN	OUTPUTS (PAOTs) Recon.	New
OREGON DUNES NRA								
Dunes Overlook	50							
Hauser Staging	85	417						
Spinreel CG	70							
South Jetty Staging/Parking Area					65	100		
ODNRA Sewer/Water	286	50						
Siltcoos Showers	250							
Tahkenitch Landing					240	400		
Interpretive Facilities at Headquarters					378			
Tahkenitch CG Reconstruction					60	250		
High Dunes Overlook					70	500		150
South Jetty View Parking					90	550		
Umpqua Dunes Parking Lot #3						100		
Goose Pasture Enlargement	100	200						
Horsfall V.A. Beach Parking					250	250		
North Ell Creek CG Reconstruction					150	300		
Butterfield Lake	500	350		175				
DISTRICT TOTAL	1,726	1,087	—	175	1,818	2,550	—	150
WALDPORT RANGER DISTRICT								
Tillicum Beach Rip Rap & Stairs	114							
Heceta House	23							
Cape Perpetua VC Retaining Wall	150							
Tillicum Complex					150	45		
Cape Perpetua Sewer & Water					200	30		
Heceta Restoration					120			
Cape Perpetua Roof & Deck					50			
Cape Perpetua Auto Tour					65	100		
Cape Perpetua Road and Parking		60						
Canal Creek CG Reconst.					40	45		
DISTRICT TOTAL	287	60	—	—	625	220	—	—
TOTALS - ALL DISTRICTS	2,980	2,099		505	4,213	4,480		590

PAOTs are Persons At One Time, an index of recreation use of developed facilities, dispersed sites, improved access and support facilities
Numbers shown represent additional capacity
CNRF is construction of recreation facilities, CNRN is construction/reconstruction of roads
CG is campground, VIS is Visitor Information Services

Table B-5. Trail Activity Schedule (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST (THOUSAND $) CNTR/ CNRF	CNRN	OUTPUTS (MILES) Recon	New	SECOND 5 YEARS COST (THOUSAND $) CNTR/ CNRF	CNRN	OUTPUTS (MILES) Recon	New
HEBO								
Mt Hebo North Loop	47			2 5				
Drift Creek Falls	35	20		1 8				
Hebo Horse Trail Trailhead	50	32		0 4				
Mt Hebo Plantation	17		1 0					
Green Point					53	30		4 0
Green Point Trailheads (2)						30		
Cascade Head					32	20	2 0	
Cascade Head Trailhead						40		
Drift Creek (Siletz)					141	35		11 0
DISTRICT TOTAL	149	52	1 0	4 7	226	155	2 0	15 0
MAPLETON								
North Fork Smith	94			5 5				
North Fork Smith Trailhead	50	47		0 1				
Sweet Creek	38			4 5				
Sweet Creek Bridges	200			0 1				
Sweet Creek Trailhead	50	48		0 1				
Coast Horse Trail	109	20		20 0				
Alder/Dune	31		1 0					
Kentucky Falls Loop					41			1 5
Pawn					43	15		2 5
Baker Beach Horse Trail					23		1 0	2 0
Devil's Staircase					96	30		6 0
Sutton Bike Trail					123	40		10 0
Henderson Falls					50			4 0
Wassen Trailhead						30		0 1
Wassen Creek					67	44		6 4
DISTRICT TOTAL	572	115	1 0	30 3	443	159	1 0	32 5
ALSEA								
River Edge/Blackberry	35		1 2					
East Ridge of Marys Peak Extension	24			0 5				
Historic Railroad Grade	40	15		1 5				
Corvallis-to-the-Sea Bike Route	46	25		50 0				
River Edge Overlook	28	20		2 0				
Alsea River Trail					94	40	3 0	
Alsea Horse Trail					74	30		15 0
Mike Bauer					35		2 0	
DISTRICT TOTAL	173	60	1 2	54 0	203	70	5 0	15 0

CNTR is construction/reconstruction of trails, CNRF is construction/reconstruction of recreation facilities
CNRN is construction/reconstruction of trailhead access roads and parking areas
The Trail Activity Schedule includes some trails in areas outside the Forest boundary and some trails which follow existing roads Trail miles noted in the FEIS and other tables in the Forest Plan include only trail construction and reconstruction on Forest lands

Table B-5 (Continued). Trail Activity Schedule (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST (THOUSAND $) CNTR/ CNRF	CNRN	OUTPUTS (MILES) Recon	New	SECOND 5 YEARS COST (THOUSAND $) CNTR/ CNRF	CNRN	OUTPUTS (MILES) Recon	New
OREGON DUNES NRA								
Tahkenitch Creek	50			3 0				
Tahkenitch Creek Trailhead	70	190		0 3				
Tahkenitch Creek Bridge	51			0 1				
Horsfall ORV Trail	156			1 7				
Three Mile Extension	52		3 6					
High Dunes	38			0 6				
Umpqua N Spit					37	30		2.0
Siltcoos Interpretive					33			0 5
Elbow Lake					150			0 5
Elbow Lake Trailhead						660		0 1
North Eel Nature Trail					12			0 3
DISTRICT TOTAL	417	190	3 6	5 7	232	690		3 4
WALDPORT								
Cape Perpetua (Oregon Coast Trail)	35			1 1				
Heceta Churn Overlook	20		0 3					
Cummins Basin	64			4 5				
Blodgett RR	37			1 2				
Trout Creek--Doty	80			5 8				
Corvallis-to-the-Sea Bike Route	25	20		20 0				
Boulder Creek Tie	30			1 0				
Lower Cummins Cr					63			4 3
Heceta (Oregon Coast Trail)					38			1 9
Cummins Ridge (ext to Or Coast Tr)					30			1 5
Keller Creek Loop					29			0.7
Canal Creek Loop					26			0 8
DISTRICT TOTAL	291	20	0 3	33 6	186			9 2
TOTALS - ALL DISTRICTS	1,603	437	7 1	128 3	1,290	2,074	8 0	101 2

CNTR is construction/reconstruction of trails, CNRF is construction/reconstruction of recreation facilities
CNRN is construction/reconstruction of trailhead access roads and parking areas
The Trail Activity Schedule includes some trails in areas outside the Forest boundary and some trails which follow existing roads Trail miles noted in the FEIS and other tables in the Forest Plan include only trail construction and reconstruction on Forest lands

Table B-6. Road Activity Schedule (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST ($1,000s)	FIRST 5 YEARS OUTPUTS (MILES) Recon	FIRST 5 YEARS OUTPUTS (MILES) New	SECOND 5 YEARS COST ($1,000s)	SECOND 5 YEARS OUTPUTS (MILES) Recon	SECOND 5 YEARS OUTPUTS (MILES) New
HEBO						
Rd 14 Hebo Road Chipseal	210	7 0				
Old Hwy 12 Chipseal	100	3 7				
Galloway Rd Reconstruction	200	4 0				
Powder Lime Construction	800		11 0			
Rd 1700 Chipseal	500	17 0				
Rd 1900 Chipseal	66	2 2				
Rd 1004 Chipseal	60	2 0				
Rd 19/1980 Reconstruction	135	5 5				
Rd 1700 Slide Repair	250					
Rd 1400 Retaining Wall	70					
Rd 2282 Construction	150		1 0			
Rds 14, 1477, 1400111 Reconstruction	125	5 0				
Rd s 1004 (1024-1004 jct) Recon	75	3 0				
Rd 1500, 1503-Hwy 130 Reconstruction	175	7 0				
Rd 1491, Jct 14-1410 Reconstruction	85	3 5				
Rd 2281, Hwy 22-Jct12 Reconstruction	135	5 5				
Rd 17 Slide Repair				150		
Three Rivers Tie-through and Bridge				150		
DISTRICT TOTAL	3,136	65 4	12 0	300		
MAPLETON						
Rd 4830000 4830 seg 1 Co 5330 to 980	320		3 2			
Rd 2100640 West Fork Tie to 5800637	60		0 5			
Rd 3200000 32 Reconstruction	380	3 0				
Rd 2100000 21 Reconstruction	200	2 0				
Rd 2300000 Reconstruct/Pave	225	1 6				
Rd 230000 Recons Rd 48 jct to mp 1 4	120	1 4				
Rd5800794 Recons & Bike/Pedestrian Lane	100	2 0				
Rd5800789 Reconstruct & Pave	220	2 8				
Rd 2500653 Recontruct & Repave	180	1 6				
Rd 2127000 Reconstruction	140	3 0				
Rd 4800000 Reconstruction	300	9 0				
Rd 4100000 41 seg 1				220		1 2
Rd 2500000 25 Reconstruction				375	3 3	
Rd 2400000 24 Reconstruct & Pave				300	2 6	
DISTRICT TOTAL	2,245	26 4	3 7	895	5 9	1 2

Table B-6 (Continued). Road Activity Schedule (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST ($1,000s)	FIRST 5 YEARS OUTPUTS (MILES) Recon	FIRST 5 YEARS OUTPUTS (MILES) New	SECOND 5 YEARS COST ($1,000s)	SECOND 5 YEARS OUTPUTS (MILES) Recon	SECOND 5 YEARS OUTPUTS (MILES) New
ALSEA						
Rd 3000 Slide Repair	290	0 3				
Rd 3200 Repair Slumps and Slides	100	5 6				
Rd 3200 Chipseal	132	5 6				
Rd 3500 Patch and Chipseal	252	8 6				
Rd 3305 Patch and Chipseal	151	4 3				
Rd 3230 Patching	75	6 0				
Rd 3412 Patch and Chipseal	60	2 5				
Rd 3100 Patching	70	7 5				
Rd 3250 Patch and Chipseal	170	2 5				
Rd 3505 Patch and Chipseal	178	5 7				
Rd 3230 Chipseal				150	6 0	
Rd 3700 Patch and Chipseal				280	8 7	
Rd 3100 Chipseal				176	7 5	
Rd 3510 Patch				50	1 6	
Rd s 3000/3010 Chipseal, 2-lane stripe				375	9 4	
Rd 3000 Realign Hwy 34 Approach				300	0 3	
Rd 3402 Overlay				13	0 2	
Rd 3410 District Overlay				25	0 4	
Rd 3410 Admin site lot & entry				70	0 2	
DISTRICT TOTAL	1,478	48 6	—	1,439	34 3	—
OREGON DUNES NRA						
Rd 1098504 Horsfall Sand Road Construct	152		2 0			
Various Roads Repair Shoulders	100	10 0				
Various Roads Misc Recon	150	1 5				
Rd 1062000 South Jetty Overlay	600	6 0				
Rd 1070000 Siltcoos Area Various Recon				500	1 0	
Rd 1098000 Horsfall Road Repair & Overlay				300	2 0	
DISTRICT TOTAL	1,002	17 5	2 0	800	3 0	—
WALDPORT						
Rd 1046 Blodgett Reconstruct & Pave	200	5 8				
Rd 5553 Cape Overlook Reconstruct	200	0 5				
Rd 58 Boundary Partial Relocation & Pave	2,000	30 2				
All Roads Rock Crushing and Stockpiling	100					
Rd 56 Tenmile Reconstruct and Widen	400	2 5				
Rd 51 Bayview Partial Reconstruction	80	1 0				
Rd 3462 Canal Cr Recon for two-way traffic				400	1 5	
Rd 55 & 5590 Klickitat vistas & turnouts				100		10 5
Rd 51 Elkhorn Partial Reconstruction				150	2 0	
Rd 53 School Pave Tie-through				100	1 0	
Rd 5694 Cummins Pk Tie-through				100		2 0
DISTRICT TOTAL	2,980	40 0	—	850	4 5	12 5
TOTALS - ALL DISTRICTS	10,841	197 9	17 7	4,284	47 7	13 7

Table B-7. Bridge Activity Schedule (1st Decade)

	FIRST 5 YEARS		SECOND 5 YEARS	
ACTIVITY/PROJECT	**COST** (THOUSAND $)	**LENGTH** (FEET)	**COST** (THOUSAND $)	**LENGTH** (FEET)
HEBO				
Three Rivers #228500-0 78	85	60		
Three Rivers #228500-0 01			63	40
MAPLETON				
Green Creek 1 #3279000-0 1	88	60		
Ion #7000661-0 1	85	60		
Green Creek 2 #3289000-1 9			56	36
Otter Slough Bridge Replacement	60	38		
Lower Indian Creek			100	80
N Fork Smith Recreation			170	120
ALSEA				
Missouri Bend #3412000-0 0			46	158
WALDPORT				
Clover Ridge Tie #1059650-0 01	94	66		
TOTALS - ALL DISTRICTS	412		435	

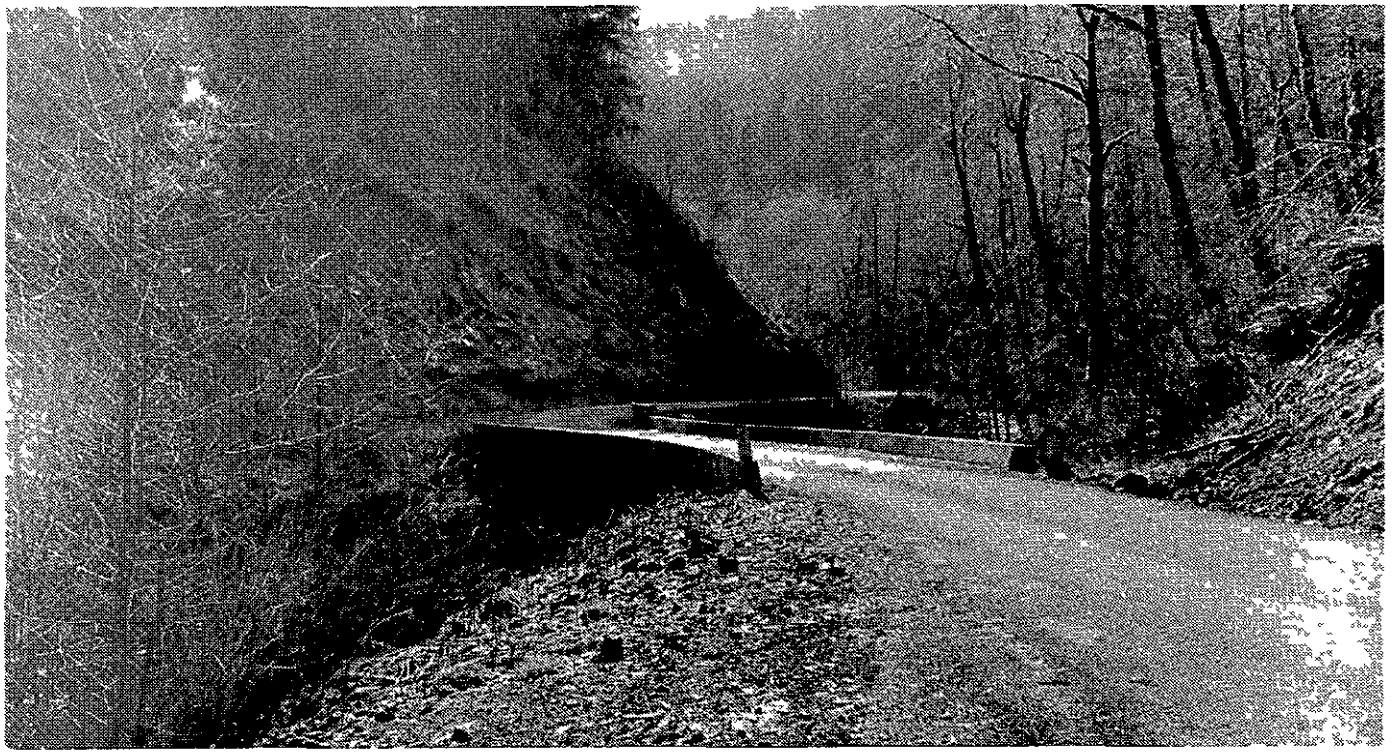
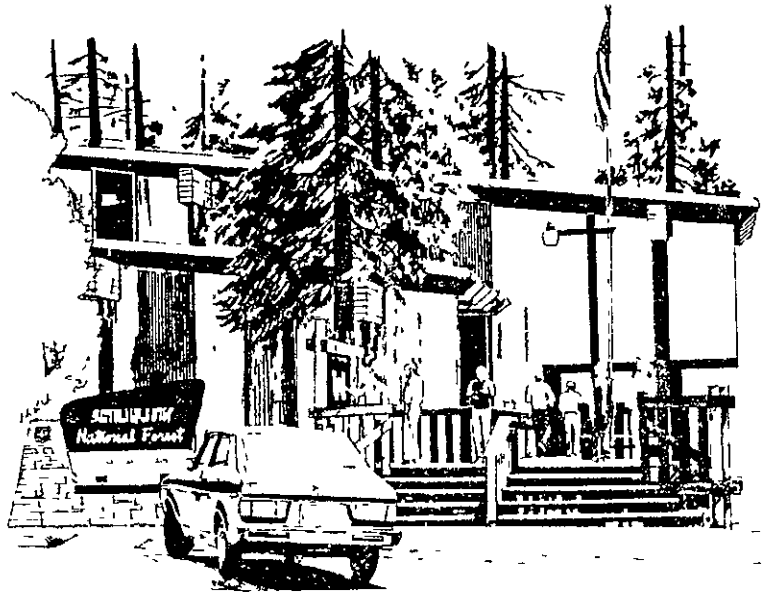


Table B-8. Facilities Activity Schedule (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST (THOUSAND $)	SECOND 5 YEARS COST (THOUSAND $)
HEBO		
Hebo Office - Construct Additional Office and Parking Space #2002	250	
Hebo Warehouse #2200 - Temporary Renovation until New Office Space is Acquired	25	
Cascade Water System - Provide New Supply and Distribution System #1800	15	
Cedar Creek Water System - Reconstruct to Meet Current Standards	20	
Cedar Creek Gas House - Remove Existing Underground Tank and Replace	35	
Cedar Creek Residences #s 1005 and 1008 - Rewire to Meet Current Code	5	
Hebo Office - Replace/Upgrade Office HVAC	25	
Cedar Creek Warehouse #2301 - Add Sliding Doors		10
Cascade Head Warehouse #2310 - Remove		5
Hebo Trailers - Remove When New Office Space is Available		5
Hebo Site - Remove Paint Storage Building		1
DISTRICT TOTAL	365	21
MAPLETON		
Mapleton Office - Acquire or Lease New Office Space	2,000	
Mapleton Work Center - Acquire or Lease New Warehouse Facilities	1,000	
Mapleton Office - Acquire Temporary Office Space Until New Office is Available	25	
Mapleton Old Ranger Office - Renovate for Conference Area	30	
Mapleton Upper Compound - Remove 9 Buildings When New Space is Available		45
Hillcrest Housing - Renovate or Replace 7 Units		100
Sutton Adminstrative Building - Construct New Facilities Near Sutton CG		50
DISTRICT TOTAL	3,055	195
ALSEA		
Alsea Fuel/Flammable/HazMat Area - Replace Existing Facilities and Create One Area on the Station	100	
Alsea Sewerage System - Construct Single Facility to Collect, Treat, and Dispose of All Waste Water		500
Alsea Fire Hose Building - Construct a Facility to Clean and Dry Fabric Hose		75
Marys Peak Electronic Site - Construct New Structure to House All Electronic and Communications Equipment		150
Alsea Employee Room - Construct Employee Lunch Room		25
Alsea Warehouse #2290 - Construct Additional Covered Storage Area		25
Big Elk Facilities - Remove Structures		15
Mill Creek Site - Dispose of Site/Remove Facilities		5
DISTRICT TOTAL	100	795

Table B-8 (Continued). Facilities Activity Schedule (1st Decade)

ACTIVITY/PROJECT	FIRST 5 YEARS COST (THOUSAND $)	SECOND 5 YEARS COST (THOUSAND $)
OREGON DUNES NRA		
Gardiner Site _ Modify Restrooms	5	
ODNRA Headquarters - Trade Gardiner Site and Acquire or Lease New Facility		200
Eel Creek Paint House - Replace With Flammable Storage Structure		15
Siltcoos Paint/Gas House - Replace With Flammable Storage Structure		30
Eel Creek Warehouse - Replace With Suitable Building		15
Eel Creek Site - Install Security System		50
Siltcoos Site - Install Security System		50
DISTRICT TOTAL	5	360
WALDPORT		
Waldport Ranger Station - Acquire Adjacent Land for Additional Administrative Use	100	
Waldport Gas/Oil House - Reconstruct to Meet Standards	30	
Waldport Ranger Station Parking - Reconstruct to Improve Site Parking and Traffic Flow	100	
Waldport Residences - Construct Garages for Three Houses		75
Blodgett Site - Reconstruct and Pave Vehicle Traffic Areas		100
Waldport Ranger Station - Place Power and Phone Utilities Underground		38
Blodgett Work Center - Place Power and Phone Utilities Underground		38
Blodgett Work Center - Construct Heavy Equipment Storage Building		25
DISTRICT TOTAL	260	276
SUPERVISOR'S OFFICE		
Airport Industrial Site Facilities - Replace Buildings	100	
Beaver Creek Gas House - Remove Tank	5	
Airport Industrial Site Facilities - Replace Buildings		250
S O TOTAL	105	250
TOTALS - ALL UNITS	3,890	1,897



APPENDIX C
Landownership Plan

APPENDIX C

LANDOWNERSHIP ADJUSTMENT PLAN

INTRODUCTION

Landownership patterns can be changed over time through exchanges of National Forest System land for land of other ownerships, through direct purchase of land (usually with Land and Water Conservation Funds), through donation to the Forest Service, and through transfers with other Federal agencies. This plan establishes guidance for landownership adjustments during the plan period. These adjustments will further the objectives of the Forest Land and Resource Management Plan and result in a landownership pattern that best accommodates the direction contained in the Plan.

National Forest System lands and certain lands in other ownerships within and surrounding the Forest have been classified and priorities for acquisition or exchange were set with the intent of eventually achieving the best land pattern for Plan implementation. All lands so classified have been placed in one of the following groups.

Group 1

These are lands where Congress has either directly or indirectly instructed the Forest Service to retain ownership and acquire non-Federal lands for a designated National purpose. The objective for Group I lands is to retain existing ownership and acquire the remaining lands as implied by Congressional direction. Acquisition of less than fee title will be considered if direction and land management objectives can be met.

Examples on the Siuslaw National Forest of Group 1 lands are the Oregon Dunes National Recreation Area, Cascade Head Scenic Research Area, and the Wildernesses.

Group 2

These lands have been recognized for a special kind of management and are allocated to meet specific purposes. They include Special Interest Areas, Research Natural Areas, and other areas with specific designated management objectives such as recreation management, fish and wildlife protection, visual quality, watershed protection, and soil protection. The objective for Group II lands is to retain existing ownership and acquire private lands as the opportunity or need occurs. Acquisition of less than fee title will be considered if direction and land management objectives can be met.

Examples of Group 2 lands on the Siuslaw National Forest include the Cape Perpetua Scenic Area, the Sutton area, and Threatened and Endangered species habitat.

Group 3

Lands in this group are in areas where management objectives would be similar whether the lands are in public or private ownership. National Forest System lands in this group will generally be available for exchange unless disposition would break up contiguous blocks of Federal ownership. Areas of mixed private and Federal ownership are included with the objective of rearranging ownership patterns to

benefit management efficiency for both ownerships. These lands will usually provide most of the land considered in exchange projects.

Most of the Forest has been placed in Group 3, recognizing however, that the large contiguous blocks of Federal land will not be available for exchange.

Group 4

These lands include small isolated tracts of National Forest System land situated away from contiguous blocks of Federal land and private lands that are managed for intensive uses such as agriculture, residential subdivision, or industrial development. Federal lands in this group will normally be made available for disposal in land exchanges to acquire private lands in Groups 1, 2, or 3. Private lands in this group are generally not available and will normally not be acquired by the Forest Service.

Group 5

These are lands which need more intensive study and planning before landownership decisions can be made. Land acquisition and disposal decisions will be deferred until the needed studies have been completed.

Private lands in Group 1, 2, and 3 respectively have the highest priorities for acquisition to meet National Forest management needs. National Forest System lands in Group 4 and 3 respectively have the highest priority for disposal in exchange for private lands.

Table C-1 displays approximate acreages of National Forest System lands in Groups 3 and 4 and private lands in Groups 1, 2, and 3.

Table C-1. Approximate Acreages for Acquisition and Disposition

Ownership	Group 1	Group 2	Group 3	Group 4
Available National Forest System Land	NA	NA	250,000	5,000
Private Land to Acquire	3,000	1,500	20,000	NA

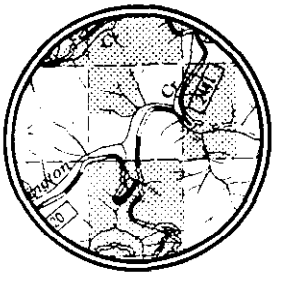
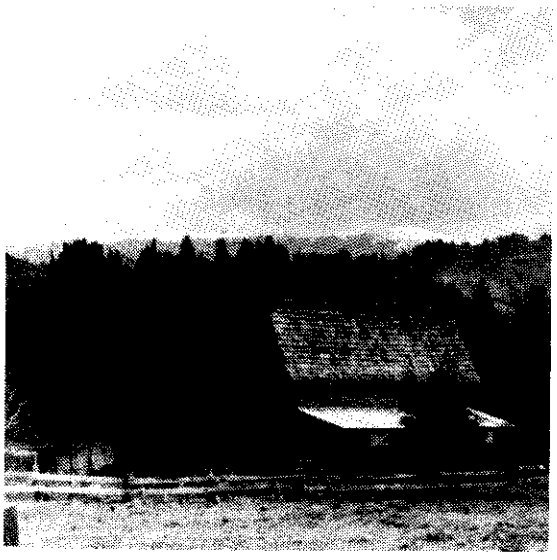


Table C-2 displays the relationship of the management areas to the landownership groups.

Table C-2. Management Areas and Landownership Groups

Management Area	Group 1	Group 2	Group 3	Group 4	Group 5
1	X				
2		X			
3		X			
4	X				
5		X			
6	X				
7		X			
8		X			
9		X			
10	X				
11		X			
12	X				
13		X			
14		X	X		
15		X	X	X	X



APPENDIX D
Road and Area Closure

APPENDIX D

ROAD AND AREA CLOSURE PLAN

PURPOSE

The purpose of the road and area closure plan is to provide management direction for vehicular use of the Forest, provide for public safety of all forest users, provide for diverse use and benefits of the Forest, and minimize conflicts among pedestrian and motor vehicle users.

BACKGROUND

Executive Order 11644, dated February 8, 1972, as amended by Executive Order 11989, and Section 36 of the Code of Federal Regulations, Part 295 [36 CFR 295] provide the process for the Siuslaw National Forest to establish restrictions concerning the use of motor vehicles off of forest developed roads. Enforcement of these regulations is provided through 36 CFR 261

Siuslaw National Forest lands are open to off-road vehicle (ORV) use unless a written order has been issued specifying the area, road, or trail to be closed. All Wilderness areas by law and regulation are closed to motor driven equipment of any kind (36 CFR 261 16). Some Forest roads are closed to motor vehicles yearlong or seasonally, as needed, to meet administrative needs, protect wildlife habitats, or provide nonmotorized recreation areas

The Forest has identified two general types of closures. 1) land area closures and 2) specific trail and road closures.

CLOSURES AND RESTRICTIONS

Area Closures and Restrictions

Area closures are needed for a variety of considerations, including protection of wildlife habitat; conservation of erodible soils, meadows and fragile vegetation; and prevention of user conflicts Vehicular use is generally incompatible with the need to meet these considerations

Area closures may be seasonal or year-long In area closures the developed roads are open to vehicle use unless they are posted and specifically closed Of the approximately 631,000 acres of National Forest land within the boundaries of the Forest, about 9% (59,000 acres) will be closed year-long

Table D-1 provides a list of the vehicle restrictions for specific Forest areas Additionally, specific bald eagle sites or Spotted Owl Habitat Areas may be closed on a temporary basis to protect nesting activity or to maintain the suitability of the habitat

Trail Closures and Restrictions

Many of the trails in the Forest are short and adjacent to developed recreation sites Closures have been initiated to resolve conflict with pedestrian use Trails that are susceptible to soil erosion or afford

access to research natural areas and designated Special Interest Areas are also closed to motorized use.

There are about 99 miles of trail on the Forest All are closed to motor vehicles. Table D-2 provides a list of the trail closures, including lengths and Ranger District location.

Road Closures and Restrictions

Road closures will influence approximately five percent of the 2,500 miles of existing travelways on the Forest. The majority of the closures affect Forest local roads, rather than arterial or collector roads.

In cooperation with the Oregon Department of Fish and Wildlife, road closures have been established within elk habitat areas to reduce disturbance on high quality forage meadows and to protect calving areas Some of these closures are only seasonal

Other road closures are for administrative purposes, such as right-of-ways and electrical site protection, and for recreational purposes. In addition, closures have been applied to unsurfaced roads which have unacceptable soil loss or other damage due to motorized traffic

Table D-3 provides a list of road closures by Ranger District and indicates the reason for the closure Roads will be reviewed periodically to assess the need to continue the closure. The list of closures, therefore, is subject to change and will not necessarily result in an amendment to the Forest Plan

IMPLEMENTATION OF REGULATIONS

All closures and restrictions will be posted on the ground in a manner that will reasonably inform the public of the intended action. In addition, maps and information about the designated closures are available at the Supervisor's Office, Corvallis, and at the Ranger District offices.

The state of Oregon has regulations that apply to ORV use on the Oregon Dunes National Recreation Area and on the Sand Lake area, Hebo Ranger District These and the federal regulations on equipment standards and use should be consulted before driving ORVs on Forest land.

Off-road vehicle use will be monitored during Plan implementation to determine compliance with closures and to survey environmental effects within the areas open to ORVs (Forest Plan, Chapter IV) If unacceptable use occurs, closures may be adjusted to correct the problem and the Plan amended accordingly

MAPS

The Road and Area Closure map accompanying the Forest Plan shows the restricted areas and a majority of the closed roads. There are three classes of forest roads. arterial, collector and local roads. Road signs and map road numbers are designated as follows:

APPENDIX D

ROAD AND AREA CLOSURE PLAN

PURPOSE

The purpose of the road and area closure plan is to provide management direction for vehicular use of the Forest, provide for public safety of all forest users, provide for diverse use and benefits of the Forest, and minimize conflicts among pedestrian and motor vehicle users

BACKGROUND

Executive Order 11644, dated February 8, 1972, as amended by Executive Order 11989, and Section 36 of the Code of Federal Regulations, Part 295 [36 CFR 295] provide the process for the Siuslaw National Forest to establish restrictions concerning the use of motor vehicles off of forest developed roads. Enforcement of these regulations is provided through 36 CFR 261

Siuslaw National Forest lands are open to off-road vehicle (ORV) use unless a written order has been issued specifying the area, road, or trail to be closed All Wilderness areas by law and regulation are closed to motor driven equipment of any kind (36 CFR 261 16). Some Forest roads are closed to motor vehicles yearlong or seasonally, as needed, to meet administrative needs, protect wildlife habitats, or provide nonmotorized recreation areas

The Forest has identified two general types of closures: 1) land area closures and 2) specific trail and road closures

CLOSURES AND RESTRICTIONS

Area Closures and Restrictions

Area closures are needed for a variety of considerations, including protection of wildlife habitat; conservation of erodible soils, meadows and fragile vegetation; and prevention of user conflicts Vehicular use is generally incompatible with the need to meet these considerations

Area closures may be seasonal or year-long In area closures the developed roads are open to vehicle use unless they are posted and specifically closed Of the approximately 631,000 acres of National Forest land within the boundaries of the Forest, about 9% (59,000 acres) will be closed year-long

Table D-1 provides a list of the vehicle restrictions for specific Forest areas Additionally, specific bald eagle sites or Spotted Owl Habitat Areas may be closed on a temporary basis to protect nesting activity or to maintain the suitability of the habitat

Trail Closures and Restrictions

Many of the trails in the Forest are short and adjacent to developed recreation sites. Closures have been initiated to resolve conflict with pedestrian use Trails that are susceptible to soil erosion or afford

access to research natural areas and designated Special Interest Areas are also closed to motorized use.

There are about 99 miles of trail on the Forest All are closed to motor vehicles Table D-2 provides a list of the trail closures, including lengths and Ranger District location.

Road Closures and Restrictions

Road closures will influence approximately five percent of the 2,500 miles of existing travelways on the Forest The majority of the closures affect Forest local roads, rather than arterial or collector roads

In cooperation with the Oregon Department of Fish and Wildlife, road closures have been established within elk habitat areas to reduce disturbance on high quality forage meadows and to protect calving areas Some of these closures are only seasonal

Other road closures are for administrative purposes, such as right-of-ways and electrical site protection, and for recreational purposes In addition, closures have been applied to unsurfaced roads which have unacceptable soil loss or other damage due to motorized traffic.

Table D-3 provides a list of road closures by Ranger District and indicates the reason for the closure. Roads will be reviewed periodically to assess the need to continue the closure The list of closures, therefore, is subject to change and will not necessarily result in an amendment to the Forest Plan

IMPLEMENTATION OF REGULATIONS

All closures and restrictions will be posted on the ground in a manner that will reasonably inform the public of the intended action In addition, maps and information about the designated closures are available at the Supervisor's Office, Corvallis, and at the Ranger District offices.

The state of Oregon has regulations that apply to ORV use on the Oregon Dunes National Recreation Area and on the Sand Lake area, Hebo Ranger District These and the federal regulations on equipment standards and use should be consulted before driving ORVs on Forest land.

Off-road vehicle use will be monitored during Plan implementation to determine compliance with closures and to survey environmental effects within the areas open to ORVs (Forest Plan, Chapter IV). If unacceptable use occurs, closures may be adjusted to correct the problem and the Plan amended accordingly

MAPS

The Road and Area Closure map accompanying the Forest Plan shows the restricted areas and a majority of the closed roads. There are three classes of forest roads: arterial, collector and local roads Road signs and map road numbers are designated as follows:

1 Arterial roads - Road sign is 7 digits First 2 digits specify the road number
Example: FR 2500 000

Map designation is 2 digits. Example: '25'

2 Collector roads - First 4 digits of 7-digit road number specify the collector road number.
Example: FR 2508 000

Map designation is 4 digits Example· '2508'

3 Local roads - All 7 digits of road number are used to specify the local road number.
Example· FR 2508 651

Map designation is the last 3 digits Example: '651'

Most of the local road numbers do not appear on the Road and Area Closure map. Approximate locations can be found by locating the collector road Local roads are spurs off the collector road

Table D-1 Restrictions on the Use of Motor Vehicles in Forest Areas

Area Name	Ranger District
All use of motor vehicles is **prohibited** in the following areas Refer to the Forest Plan standards and guidelines for MA 12 for more information	
Drift Creek Wilderness	Waldport
Cummins Creek Wilderness	Waldport
Rock Creek Wilderness	Waldport
Off-road use of motor vehicles is **prohibited** in the following areas Refer to the Forest Plan standards and guidelines for the respective management areas for more information	
Mt Hebo SIA (MA 1)	Hebo
Cascade Head Experimental Forest (MA 7)	Hebo
Cascade Head Scenic-Research Area	Hebo
Sand Lake RNA	Hebo
Reneke Creek RNA	Hebo
Marys Peak SIA (MA 5)	Alsea
Flynn Creek RNA (MA 13)	Alsea
Drift Creek Adjacent Undeveloped Area (MA 11)	Waldport
Cape Perpetua SIA (MA 5)	Waldport
Rock Creek/Big Creek Silverspot Butterfly habitat	Waldport
Kentucky Falls SIA (MA 5)	Mapleton
Portions of Sutton Area (MA 9)	Mapleton
Wassen Creek Undeveloped Area (MA 11)	Mapleton
Restrictions on motor vehicles vary in the following areas Specific rules can be obtained from the Supervisor's Office or District Offices	
Sand Lake	Hebo
Bays Creek Meadows	Hebo
Corvallis Watershed	Alsea
Heceta Head	Waldport
Sutton Beach	Mapleton
South Jetty	ODNRA
Cleawox	ODNRA
Waxmyrtle	ODNRA
Tahkenitch	ODNRA
Threemile	ODNRA
Umpqua Dunes	ODNRA
Army Hill	ODNRA
Dunes View (Horsfall)	ODNRA
Bluebill	ODNRA
Wildlife Management	All Districts

ODNRA = Oregon Dunes National Recreation Area

Table D-2. Trails Closed to Motor Vehicles

NUMBER	NAME	LENGTH	DISTRICT
1300	Pioneer-Indian	8 0	Hebo
1301	Hebo Plantation	0 6	Hebo
1303	Harts Cove	2 7	Hebo
1306	Plantation	1 6	Hebo
1308	Oregon Coast-Neptune	1 3	Waldport
1310	Cascade Head	6 0	Hebo
1311	Hebo Lake Loop	0 3	Hebo
1313	North Ridge Tie	1 0	Alsea
1320	Bog Trail	0 1	Mapleton
1321	Sutton Campground	1 3	Mapleton
1322	Alder Dune Lake	1 0	Mapleton
1324	East Ridge Marys Peak	2 5	Alsea
1325	Meadow Edge	2 0	Alsea
1326	Holman Vista	0 1	Mapleton
1330	Lagoon	0 8	ODNRA
1331	Bluebill	1 2	ODNRA
1333	Siltcoos Lake	3 5	ODNRA
1334	Overlook Loop	3 2	ODNRA
1337	Waxmyrtle Beach	1 4	ODNRA
1338	Threemile Lake	6 8	ODNRA
1342	Blackberry	0 4	Alsea
1343	Alsea Run	1 0	Alsea
1345	Nature Conservancy	1 0	Hebo
1347	Harris Ranch	3 5	Waldport
1350	Marys Peak North	3 5	Alsea
1352	Eel Dunes	1 8	ODNRA
1353	Tahkenitch Dunes	1 8	ODNRA
1359	Chief Tsiltcoos	1 4	ODNRA
1362	Horse Creek	5 0	Waldport
1363	Cape Cove	0 3	Waldport
1363 1	Capt Cook	0 6	Waldport
1364	Restless Waters	0 4	Waldport
1365	Giant Spruce	1 0	Waldport
1365 2	St Perpetua	1 5	Waldport
1365 3	Whispering Spruce	0 3	Waldport
1366	Cummins Ridge	6 5	Waldport
1368	Baker Beach Horse	0 9	Mapleton
1369	Sutton Creek South	1 3	Mapleton
1370	Heceta Lighthouse	0 2	Waldport
1371	Gwynn Creek	3 0	Waldport
1372	Cook's Ridge	3 7	Waldport
1373	Lanham Bike and Hike	0 3	Waldport
1374	Sutton Creek Loop	1 3	Mapleton
1375	Sutton Creek North	1 3	Mapleton
1376	Kentucky Falls	2 0	Mapleton
1379	Niagara Creek Falls	1 0	Hebo
1380	Ten Mile Creek	2 5	ODNRA
1382	Cummins Creek	4 2	Waldport
1383	Ocean Beach	0 1	Waldport
1384	Carter Dunes	1 0	ODNRA
4000	Alsea River	0 9	Alsea
	Total	**99.1**	

Table D-3. Roads Closed to Motor Vehicles

ROAD NO.	CLOSURE RATIONALE	DURATION
HEBO DISTRICT		
1503-000	Wildlife	Jan 1-Aug 31
1500-123	Wildlife	Yearlong
1500-136	Wildlife	Yearlong
1861-118	Alder/Conifer Study	Yearlong
8172-117	Meadow Protection	Yearlong
8172-118	Meadow Protection	Yearlong
8205-000	Recreational Management Derek Rd	Seasonal
8205-111	Recreational Management Boy Scout Rd	Seasonal
8205-113	Recreational Management Original Boy Scout Rd	Seasonal
MAPLETON DISTRICT		
2400-953	R/W Agreement Davidson	Yearlong
2900-057	R/W Agreement Davidson	Yearlong
2900-061	R/W Agreement Davidson	Yearlong
2300-942	Hazardous Road	Yearlong
7000-744	Wildlife	Yearlong
1060-791	Seasonal, Campground	Yearlong
1060-792	Seasonal, Campground	Yearlong
1060-793	Seasonal, Campground	Yearlong
1060-794	Seasonal, Campground	Yearlong
1060-796	Seasonal, Campground	Yearlong
2170-762	Maintenance	Yearlong
2170-763	Wildlife	Yearlong
2170-764	Wildlife	Yearlong
2300-933	Maintenance	Yearlong
2400-960	R/W Agreement, Int'l Paper	Yearlong
2400-965	R/W Agreement, Int'l Paper	Yearlong
2480-937	Security	Yearlong
2480-938	Maintenance	Yearlong
2480-939	Maintenance	Yearlong
2500-638	Game Management	Yearlong
2500-640	Game Management	Yearlong
2500-641	Game Management	Yearlong
2500-642	Game Management	Yearlong
2500-643	Game Management	Yearlong
2500-644	Game Management	Yearlong
2500-645	Game Management	Yearlong
2500-646	Game Management	Yearlong
2500-647	Game Management	Yearlong
2500-648	Game Management	Yearlong
2500-649	Game Management	Yearlong
2500-650	Game Management	Yearlong
2500-652	Game Management	Yearlong
2500-654	Game Management	Yearlong
2500-790	Maintenance	Yearlong
2600-815	F S Admin Site	Yearlong

Table D-3 Cont. Roads Closed to Motor Vehicles

ROAD NO.	CLOSURE RATIONALE	DURATION
2600-822	Seasonal, Campground	Yearlong
2800-731	Land Use Permit	Yearlong
3200-653	Maintenance	Yearlong
3200-740	Maintenance	Yearlong
3200-741	Maintenance	Yearlong
3600-816	F S Admin Site	Yearlong
4800-117	Road Use Permit, Champion	Yearlong
4800-828	Share Cost Area, Champion	Yearlong
4800-829	Share Cost Area, Champion	Yearlong
4800-831	R/W Agreement, Tekander	Yearlong
4800-833	Share Cost Area, Champion	Yearlong
4880-820	Share Cost Area, Champion	Yearlong
4880-821	Share Cost Area, Champion	Yearlong
4880-914	Share Cost Area, Champion	Yearlong
5800-637	Game Management	Yearlong
5800-655	Game Management	Yearlong
5800-656	Game Management	Yearlong
5800-657	Game Management	Yearlong
5800-660	Game Management	Yearlong
5800-663	Game Management	Yearlong
5800-664	Game Management	Yearlong
5800-665	Game Management	Yearlong
5800-666	Game Management	Yearlong
5800-670	Game Management	Yearlong
5800-671	Game Management	Yearlong
5800-672	Game Management	Yearlong
5800-673	Game Management	Yearlong
5800-675	Game Management	Yearlong
5800-676	Game Management	Yearlong
5800-677	Game Management	Yearlong
5800-710	Game Management	Yearlong
5800-711	Game Management	Yearlong
5800-712	Game Management	Yearlong
5800-714	Game Management	Yearlong
5800-748	Game Management	Yearlong
5800-749	Game Management	Yearlong
5800-750	Game Management	Yearlong
5800-753	Game Management	Yearlong
5800-754	Game Management	Yearlong
5800-756	Game Management	Yearlong
5800-766	Game Management	Yearlong
5800-795	Land Use Permit	Yearlong
5840-624	Game Management	Yearlong
5840-625	Game Management	Yearlong
5840-627	Game Management	Yearlong
5840-630	Game Management	Yearlong
5840-631	Game Management	Yearlong
5840-632	Game Management	Yearlong
5840-633	Game Management	Yearlong
5840-636	Game Management	Yearlong
5840-637	Game Management	Yearlong

Table D-3 Cont. Roads Closed to Motor Vehicles

ROAD NO.	CLOSURE RATIONALE	DURATION
5841-754	Game Management	Yearlong
5841-755	Game Management	Yearlong
5841-758	Game Management	Yearlong
5841-759	Game Management	Yearlong
5842-000	Game Management	Yearlong
5842-768	Game Management	Yearlong
5842-769	Game Management	Yearlong
5842-771	Game Management	Yearlong
5842-777	Game Management	Yearlong
5842-778	Game Management	Yearlong
5842-788	Game Management	Yearlong
7000-657	Game Management	Yearlong
7000-658	Game Management	Yearlong
7000-659	Game Management	Yearlong
7000-735	Game Management	Yearlong
7000-736	Game Management	Yearlong
7000-737	Game Management	Yearlong
7000-739	Game Management	Yearlong
7000-748	Game Management	Yearlong
7000-749	Game Management	Yearlong
ALSEA DISTRICT		
2005-000	Watershed Protection	Yearlong, except hunting
2005-111	Watershed Protection	Yearlong
2005-123	Watershed Protection	Yearlong
3000-111	Dirt Spur	Yearlong
3005-000	Watershed Protection	Yearlong, except hunting
3010-000	Botanical Protection Electrical Site	Yearlong
3010-112	Botanical Protection Electrical Site	Yearlong
3010-114	Facility Protection	Winter months when campground closed
3010-115	Botanical Protection Electrical Site	Yearlong
3012-114	Right-of-Way Agreement	Yearlong
3020-000	Right-of-Way Agreement	Yearlong
3100-117	Wildlife Protection	Yearlong-to be installed
3100-118		
3100-128		
3100-140	Wildlife Protection	Yearlong
3105-127	Dirt Spur & R/W Agreement	Yearlong
3127-114	Wildlife Protection	Yearlong
3205-111	Right-of-Way Agreement	Yearlong
3215-000	Wildlife Protection	Yearlong
3222-000	Wildlife Protection	Yearlong
3228-116	Wildlife Protection	Yearlong-to be installed

Table D-3 Cont. Roads Closed to Motor Vehicles

ROAD NO.	CLOSURE RATIONALE	DURATION
3230-113	Wildlife Protection	Yearlong
3230-116	Wildlife Protection	Yearlong
3230-118	Wildlife Protection	Yearlong
3250-113	Wildlife Protection	Yearlong
3250-115	Wildlife Protection	Yearlong
3250-119	Wildlife Protection	Yearlong
3400-119	Facility Protection	When campground not under Permit
3405-000	Watershed Protection	Yearlong, except specified days during hunting season
3420-115	Wildlife Protection	Yearlong
3430-111	Dirt Road Right-of-Way Agreement	Yearlong
3430-112	Wildlife	Yearlong
3430-115	Right-of-Way Agreement	Yearlong-to be installed
3431-000	Elk Calving	May 15 - June 30
3700-142	Wildlife Protection	Yearlong
3700-147	Wildlife Protection	Yearlong
3700-200	Wildlife	Yearlong
3705-112	Wildlife Protection	Yearlong
3705-115	Wildlife Protection	Yearlong
3705-116	Wildlife Protection	Yearlong
3706-115	Wildlife Protection	Yearlong
5800-411	Electronic Site	Yearlong
5814-000	Elk Calving	May 15 - June 30
5821-000	Wildlife Protection	Yearlong
6200-111	Right-of-Way Agreement	Yearlong
OREGON DUNES NATIONAL RECREATION AREA		
1078-000	Habitat Protection Coincide with State Beach Closures	Mar 15 - Sept 15
WALDPORT DISTRICT		
1000-411B	Admin site	Yearlong
1000-414	Campground	As Needed
1000-514	Campground	Nov 1 - May 1
1000-519	Visitor Center	Nov 1 - May 1
1000-525	Admin Site	Yearlong
1045-411	Municipal Water	Yearlong
1046-411	Municipal Water	Yearlong
1053-000	Wildlife	Yearlong

Table D-3 Cont. Roads Closed to Motor Vehicles

ROAD NO.	CLOSURE RATIONALE	DURATION
1053-514	Wildlife	Yearlong
1053-518	Wildlife	Yearlong
1053-520	Wildlife	Yearlong
1055-618	Wildlife	Yearlong
1055-624	Wildlife	Yearlong
1055-636	Wildlife	Yearlong
1055-640	Wildlife	Yearlong
1057-650	Wildlife	Yearlong
1059-612	Wildlife	Yearlong
3462-420	Campground	Oct 15 - May 1
5200-212	Electronic Site	Yearlong
5200-328	Wildlife	Yearlong
5264-370 (last half)	Wildlife	Yearlong
5347-000	Wildlife	Yearlong
5360-441	Wildlife	Yearlong
5415-000	Wildlife	Yearlong
5415-001	Wildlife	Yearlong
5415-456	Wildlife	Yearlong
5420-000	Wildlife	Yearlong
5562-000	Campground	Yearlong
5597-000	Wildlife	Yearlong
5597-514	Wildlife	Yearlong
5597-515	Wildlife	Yearlong
5597-516	Wildlife	Yearlong
5597-517	Wildlife	Yearlong
5597-518	Reduce Maintenance	Yearlong
5597-521	Wildlife	Yearlong
5682-000	Wildlife	Yearlong
5694-514	Electronic Site	Yearlong
5695-516	Wildlife	Yearlong

☆ U S GOVERNMENT PRINTING OFFICE 1989—791-061/05,104 REGION NO 10