United States
Department of
Agriculture

Forest Service

**Pacific
Northwest
Region**

1990



Land and Resource Management Plan

Willamette National Forest

COMMONLY USED ACRONYMS AND ABBREVIATIONS

AC	Acres
AMS	Analysis of the Management Situation*
ARP	Aggregate Recovery Percent*
ASQ	Allowable Sale Quantity*
ATV	All Terrain Vehicle*
AU	Animal Unit
AUM	Animal Unit Month*
BEMA	Bald Eagle Management Area*
BF	Board Foot*
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management*
BMP	Best Management Practices*
BPA	Bonneville Power Administration
BTU	British Thermal Unit
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality*
CF	Cubic Feet*
CFR	Code of Federal Regulations*
CI	Capital Investment*
CMAI	Culmination of Mean Annual Increment*
CRITFC	Columbia River Inter-Tribal Fish Commission
DBH	Diameter at Breast Height*
DEIS	Draft Environmental Impact Statement
DEP	Departure*
DEQ	Department of Environmental Quality (Oregon)
DFSIM	Douglas fir Growth and Yield Simulator
EA	Environmental Analysis*
EHF	Earned Harvest Factor
EIS	Environmental Impact Statement*
EO	Executive Order
EPA	Environmental Protection Agency*
FEIS	Final Environmental Impact Statement*
FERC	Federal Energy Regulatory Commission
FORPLAN	Forest Planning Model
FPFO	Forestry Program For Oregon
FS	Forest Service
FSH	Forest Service Handbook*
FSM	Forest Service Manual*
FY	Fiscal Year
GIS	Geographic Information System
GMS	Grid Mapping System
GNP	Gross National Product
HCRS	Heritage Conservation and Recreation Service
HJA	*HJ Andrews Experimental Forest*
I&DC	Insect and Disease Control
ICOs	Issues, Concerns, and Opportunities
ID	Interdisciplinary
IDT	Interdisciplinary Team*
IMPLAN	Input/Output Model*
IPM	Integrated Pest Management*
KV	Knutson-Vandenburg
LTSY	Long Term Sustained Yield*
MA	Management Area*
MAUM	Thousand Animal Unit Month
MBF	Thousand Board Feet
MCF	Thousand Cubic Feet
MIS	Management Indicator Species*
MM$	Million Dollars
MMBF	Million Board Feet
MMCF	Million Cubic Feet
MOM	Mature and OverMature
MOU	Memorandum of Understanding
MR	Management Requirement*
MRVD	Thousand Recreation Visitor Day
MWFUD	Thousand Wildlife/Fish User Day
NA	No Action*
NC	No Change*
NDF	Nondeclining Flow*
NEPA	*National Environmental Policy Act**
NFMA	National Forest Management Act*
NPB	Net Public Benefits*
NRI	Nationwide Rivers Inventory
OAR	Oregon Administrative Rule
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ONRC	Oregon Natural Resources Council
ONRC	Oregon Natural Resources Council
ORV	Off Road Vehicle*
PA	Preferred Alternative
PAOT	Persons at One Time*
PETS	Proposed, Endangered, Threatened, Sensitive Species
PL	Public Law
PM-10	Particulate Matter, Less Than 10 Microns
PNV	Present Net Value*
R-6	Region 6 (Pacific Northwest Region, USDA Forest Service)
RARE II	Roadless Area Review and Evaluation*
RD	Ranger District
RIM	Recreation Information Management*
RM	Roaded Modified*
RN	Roaded Natural*
RNA	Research Natural Area*
ROD	Record of Decision*
ROS	Recreation Opportunity Spectrum*
RPA	*Forest and Rangeland Renewable Resources* Planning Act (1974)*
RVD	Recreation Visitor Day*
S&G	Standards and Guidelines*
SAF	Society of American Foresters
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SEO	Socioeconomic Overview
SHPO	State Historical Preservation Office
SOHA	*Spotted Owl Habitat Area*
SPM	Semiprimitive, Motorized*
SPNM	Semiprimitive, Nonmotorized*
SRI	Soil Resource Inventory*
T&E	Threatened and Endangered*
TRI	Total Resource Inventory
TSI	Timber Stand Improvement*
TSPIRS	Timber Sale Program Information Reporting System
TSPQ	Timber Sale Program Quantity*
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USGS	United States Geological Survey
VAC	Visual Absorption Capacity*
WFC	Willamette Forestry Council
WFUD	Wildlife and Fish User Day*
WQS	Water Quality Standards
WRS	Wilderness Recreation Opportunity Spectrum
WSR	Wild and Scenic River*

* Term is defined in Glossary

LAND AND RESOURCE MANAGEMENT PLAN

for the

WILLAMETTE NATIONAL FOREST

Pacific Northwest Region

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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 human environment, a detailed statement (environmental impact statement) has been prepared as required by NEPA The Forest Plan represents 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

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YCC member aids archeologist in search of Obsidian chips

CHAPTER I

Introduction

I. FORESTRY PLAN INTRODUCTION

Purpose of the Forest Plan I-1
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Chapter I

FOREST PLAN INTRODUCTION

PURPOSE OF THE FOREST PLAN

The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the Willamette 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;
- Establishes Forest-wide standards and guidelines for future activities;
- Establishes management area direction, including management area prescriptions and standards and guidelines applying to future management activities in that management area;
- Establishes the allowable sale quantity for timber and identifies land suitable for timber management;
- Establishes monitoring and evaluation requirements;
- Establishes nonwilderness multiple-use allocations for those roadless areas that were reviewed under 36 CFR 219.17 and not recommended for wilderness designation.

The Forest Plan embodies the provisions of the National Forest Management Act, 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

The Forest Plan will be revised on a 10 year cycle, or at least every 15 years. It may also 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 policies, goals, or objectives would have a significant effect on Forest-level programs. The Forest Plan also may be amended

RELATIONSHIP OF THE PLAN TO OTHER DOCUMENTS

Relationship To The Environmental Impact Statement And Record Of Decision

This Forest Plan sets forth the direction for managing the land and resources of the Forest. The Forest Plan results from extensive analyses and considerations that are addressed in the accompanying Final Environmental Impact Statement (FEIS), and Record of Decision (ROD). The planning process and the analysis procedures used to develop this Plan are described or referred to in the FEIS. The FEIS also describes other alternatives considered in the planning process. Specific activities and projects will be planned, analyzed, and implemented to carry out the direction in this Plan. Project level environmental analysis will use the data and evaluations in the Forest Plan and FEIS as its basis Project level environmental analysis will be tiered to the FEIS accompanying this Plan.

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 The FEIS For Managing Competing And Unwanted Vegetation

The Forest Plan incorporates the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation. In implementing the Forest Plan through project activities, the Forest will comply with the Record of Decision issued by the Regional Forester dated December 8, 1988, and the Mediated Agreement of May, 1989. Use of all vegetation management techniques is allowed only when other methods are ineffective or will unreasonably increase project costs. Emphasis must be on prevention and early treatment of unwanted vegetation and full public involvement in all aspects of project planning and implementation. Information about the vegetation management FEIS, ROD, and Mediated Agreement are available at the Forest Supervisor's Office.

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 area plan, the direction in any such plan may be incorporated without modification." For this reason the Oregon Cascades Recreation Area Management Plan, as required by the Oregon Wilderness Act of 1984 (Public Law 98-328), is incorporated in the Forest Plan (See Appendix B). This management direction is for the entire area, and can also be found in the *Forest Plans for the Umpqua and Deschutes National Forests.*

Relationship To Other Plans

This Forest Plan serves as the single land management plan for the Willamette National Forest. All other land management plans are replaced by the direction in this Plan; see Chapter 5 for a listing of existing plans that this Forest Plan supersedes.

PLAN ORGANIZATION AND STRUCTURE

The Forest Plan is composed of five chapters, a glossary, and appendices.

Chapter I - Forest Plan Introduction - presents the purpose of the Plan, describes what it contains, describes the Forest's geographic location, and discusses the Plan's relationship to other documents.

Chapter II - Summary of the Analysis of the Management Situation - summarizes the supply and demand situation for market and nonmarket goods and services associated with the Forest. Included is a summary of the resource supply conditions and potentials for the key goods and services on the Forest.

Chapter III - Plan Response to Issues - summarizes the issues and concerns and briefly explains how each is addressed in the Forest Plan through the preferred alternative.

Chapter IV - Forest Management Direction - presents the multiple-use resource goals which the Forest has established for the planning period (next 10 to 15 years) and describes the desired future condition of the Forest at 10 years and at 50 years. The projected resource outputs, and activities are the levels (of goods and services) anticipated with full implementation of the Plan.

Chapter IV also contains the Forest-wide and management area prescriptions for Forest Plan implementation. They apply to the everyday on-the-ground projects and cover a wide range of resources. Some are specific and others identify procedures to follow. Management area prescriptions define the types of activities that can occur within a management area. The allocations of the management areas within the Forest are shown on the map of Alternative W included with the FEIS.

Chapter V - Implementation of the Forest Plan - contains information on implementation, amendments, revisions, and the monitoring program As the Forest Plan is implemented, it will be monitored to determine if the outputs and standards and guidelines in Chapter IV are being met and if the standards and guidelines are adequate and being properly applied.

Glossary - Contains definitions of terms, and abbreviations.

Appendices - Included in the Appendices are detailed schedules of projected activities by resource and an index to this Plan.

Appendix A - Wilderness Management.

Appendix B - Oregon Cascades Recreation Area.

Appendix C - Timber Sale Action Schedule.

Appendix D - Resource Action Schedules.

Appendix E - Watershed Best Management Practices (BMPs).

Appendix F - Budget to Implement the Forest Plan

FOREST DESCRIPTION

The Willamette National Forest stretches for 110 miles along the western slope of the Cascades and extends from the Mt. Jefferson area east of Salem to the Calapooya Mountains northeast of Roseburg. The western edge of the Forest borders the middle and upper Willamette Valley. The Forest is within a two-hour drive from Portland, and a one-hour drive from Salem, Albany, Corvallis, Bend, and Eugene-Springfield.

The Forest contains nearly 1.8 million acres within the proclamation boundary in Clackamas, Douglas, Jefferson, Lane, Linn, and Marion counties in Oregon. National Forest System land within the Forest boundary totals 1,675,400 acres; approximately 123,000 acres are privately owned or managed by other public agencies. Figure I-D-1 displays a breakdown of the Forest acreage by county. The headquarters of the Forest is the Supervisor's Office located in Eugene. The Forest is subdivided into seven Ranger Districts with offices in Oakridge, Westfir, Lowell, Blue River, McKenzie Bridge, Sweet Home and Detroit.

The Cascade Range in Oregon is geologically divided into two physiographic provinces based on similarity of land structures, features, and geomorphic history. These provinces are the High (recent) Cascades and the Western (old) Cascades. Elevations range from 900 feet along the Santiam River to over 10,000 feet at the summits of Mt. Jefferson and the Three Sisters. Most of the Forest lies within an elevation range of 2,000 to 4,000 feet above sea level. Lands of the Forest are contained in both provinces and consequently exhibit a wide variety of geologic and topographic features.

Two-thirds of the Forest lies within the Western Cascades and contains some of the most productive forest land in the United States. The slopes are blanketed with conifers, primarily Douglas-fir. The Forest contributes significantly to the local and regional economy.

Access into and through the Forest is provided by more than 200 miles of County, State, and Federal highways. To facilitate protection, management and use, approximately 6,600 miles miles of permanent forest roads have been constructed and are being maintained. A major railroad traverses the Forest and five electric power transmission corridors have been established.

There are 1,360 miles of trails on the Forest. A number of these are low-elevation, easy-access trails for year-round hiking pleasure. Three very scenic low-elevation trails have been designated National Recreation Trails. They are the McKenzie River Trail, Fall Creek Trail, and South Breitenbush Gorge Trail. The Fall Creek and McKenzie River Trails are within 50 miles of Eugene and the South Breitenbush Gorge Trail is 60 miles from Salem.

The Forest has eight Wildernesses totaling 380,805 acres. These areas, which include low elevation sites as well as major mountain peaks in the Cascades, are popular with hikers, backpackers, and mountain climbers. These Wildernesses have been set aside by Congress to preserve their primitive character, natural landscape, flora, and fauna. Other dedicated areas include an Experimental Forest, the Oregon Cascades Recreation Area, Special Interest Areas, and Research Natural Areas.

Two developed ski areas, Hoodoo and Willamette Pass Ski Areas, operate under special use permits from the Forest. There are two snowmobile areas on the Forest One is located near the Willamette Pass on Waldo Lake road and the other is located near Big Lake just off the Santiam Pass on Highway 20. Cross-country skiing is another popular winter sport, and many Forest roads and trails lend themselves to this activity.

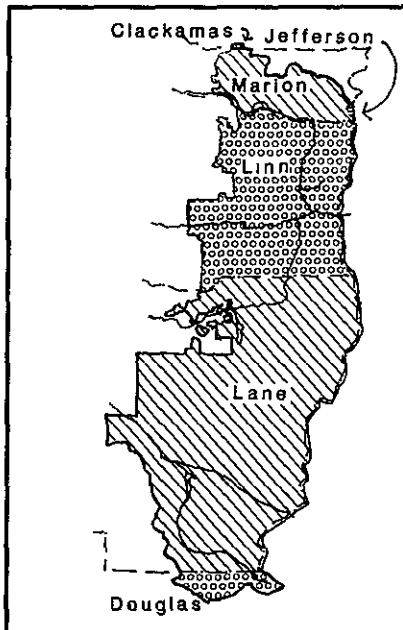
Precipitation on the Forest varies from 40 to more than 150 inches a year, much of it in snow which blankets the higher Cascades each winter. The water from the rain and melting snow is intercepted by several reservoirs for flood control, irrigation, and hydroelectric power The reservoirs also provide many recreation opportunities including boating, water skiing, swimming, and fishing. Many cities and communities in the Willamette Basin get municipal and industrial water from rivers originating in the Forest. There are over 23,000 surface acres of water on the Forest. In addition, there are nearly 400 lakes and 2,700 miles of perennial rivers and streams.

Recreation opportunities on the Forest are numerous. The Forest provides recreation opportunities during all seasons of the year and at a full range of elevations. There are 82 campgrounds and picnic grounds containing 1,386 units. These units are composed of a table, fireplace, and a tent site or trailer parking place. Nearly all campgrounds have water and either pit, vault, or flush toilets.

Nearly 300 wildlife species inhabit the Forest including both game and nongame species. The species commonly hunted are mule deer, black-tailed deer, Roosevelt elk, black bear, cougar, grouse, quail, and waterfowl. Other notable species such as hawks, eagles, owls, herons, coyotes, and beavers as well as many smaller bird, reptilian, amphibian, and mammal species, are present.

Both resident and anadromous fish species are found in the Forest's waters The most important resident species are cutthroat and rainbow trout. Cutthroat are most common in the smaller streams, and rainbow usually are found in the lakes and larger streams. The two species of anadromous fish using the streams are steelhead trout and chinook salmon. Their use is restricted to approximately 80 miles of streams in the Little North Santiam, South Santiam, Calapooya and McKenzie River drainages, and Winberry and Fall Creeks.

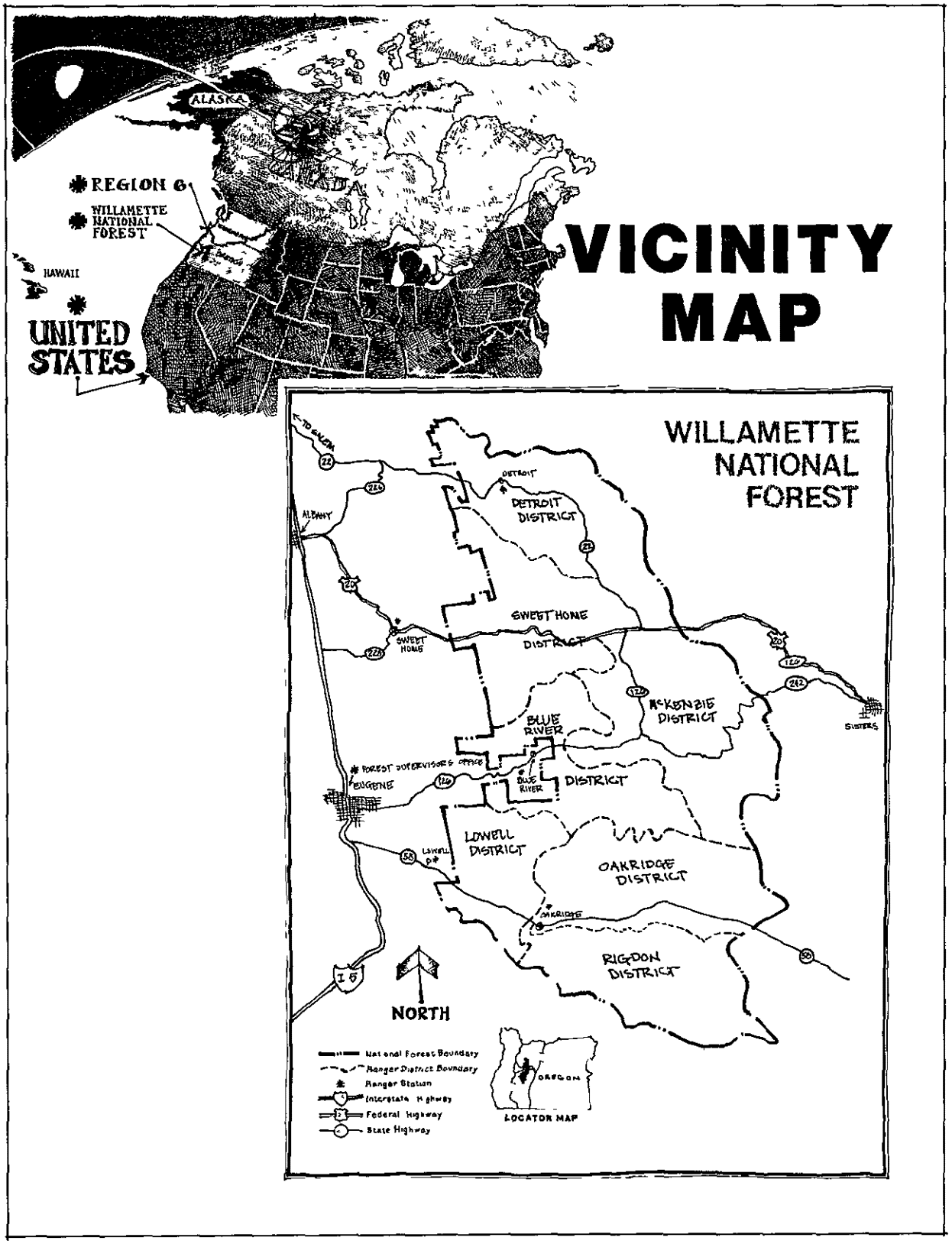
Figure I-1. Willamette National Forest Acreage By County

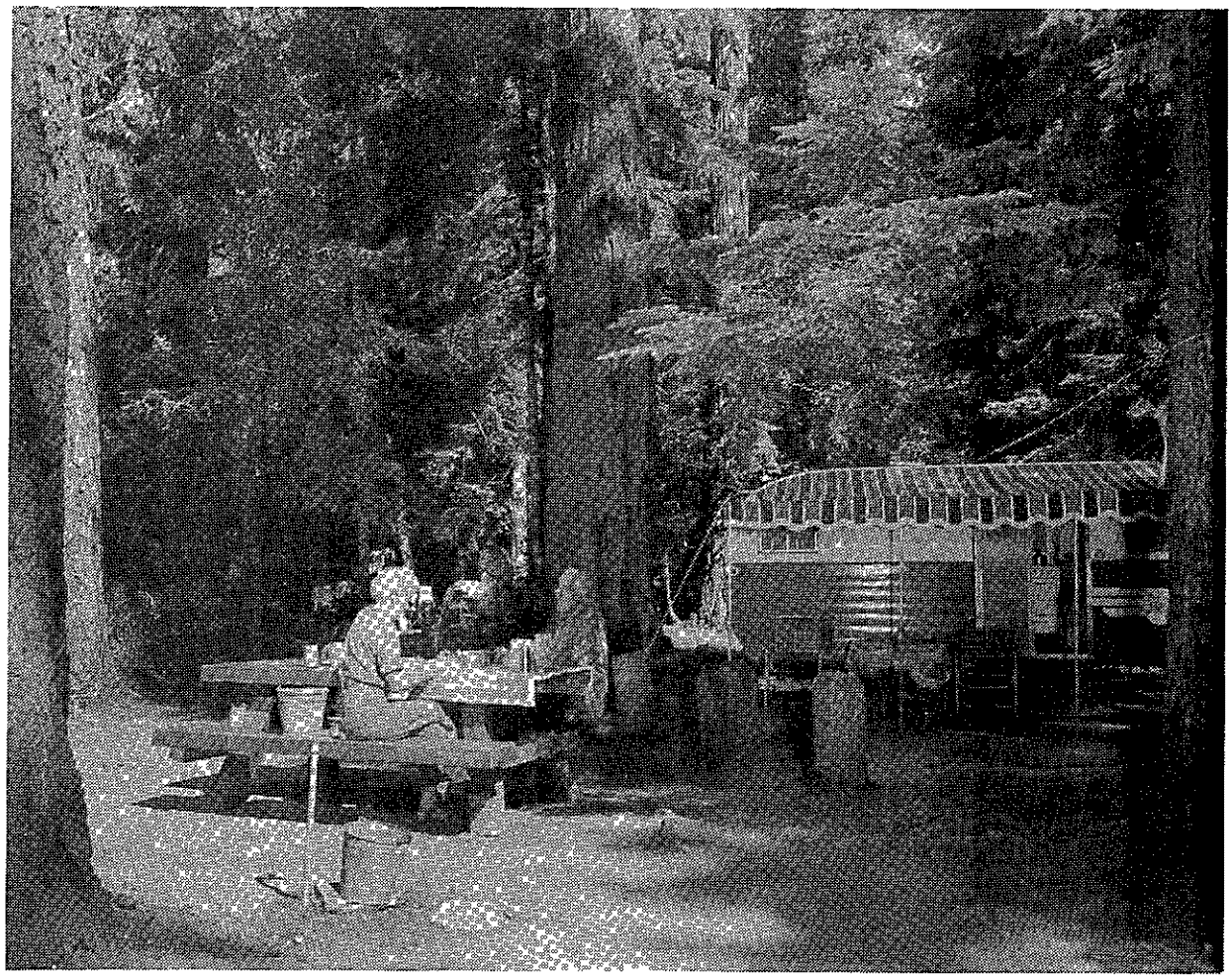


County	WNF Acres In County	% Of WNF By County	Non-National Forest Acres	Acres Within Forest Boundary
Lane	1,021,941	61 0%	59,233	1,081,174
Linn	465,613	27 8%	56,013	521,626
Marion	136,064	8 1%	8,084	144,148
Douglas	50,296	3 0%	0	50,296
Clackamas	853	0 06%	0	853
Jefferson	640	0 04%	0	640
TOTAL	1,675,407	100 0%	123,330	1,798,737

Source. Data base LYR06D (Administrative Boundaries).

Figure I-2.


ALASKA
REGION 6
WILLAMETTE NATIONAL FOREST
HAWAII
UNITED STATES
VICINITY MAP
WILLAMETTE NATIONAL FOREST
DETROIT DISTRICT
SWEET HOME DISTRICT
MCKENZIE DISTRICT
BLUE RIVER DISTRICT
LOWELL DISTRICT
OAKRIDGE DISTRICT
RIGDON DISTRICT
ALBANY
DETROIT
SWEET HOME
BLUE RIVER
EUGENE
LOWELL
OAKRIDGE
SISTERS
NORTH
National Forest Boundary
Ranger District Boundary
Ranger Station
Interstate Highway
Federal Highway
State Highway
OREGON
LOCATOR MAP



Blue Pool Forest Camp (1957).

CHAPTER II

Analysis of the Management Situation

II. SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

Introduction II-1
Resource and Economic Potentials II-1
Resource Demand Projections II-4
Supply and Demand Relationships II-4
The Need to Establish or Change Direction II-9
Information Needs II-9

CHAPTER II

SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

INTRODUCTION

The primary issues which guided the development of the Forest Plan revolve around the management of the timber, fish and wildlife, old growth, water, roadless, scenic, and recreation resources. This Chapter summarizes the supply and demand situation for the key goods and services associated with the Forest. Included is a summary matrix of the resource supply conditions and potentials for two of the Resources Planning Act (RPA) planning periods Production levels attainable under current management direction are displayed Displays also include projections of demand for goods and services where available

RESOURCE AND ECONOMIC POTENTIALS

Benchmarks were developed to help define the resource and economic potentials of the Forest, while meeting legal requirements. Legal requirements include those pertaining to the Management Requirements (MRs) needed to maintain viable populations of fish and wildlife species, to protect water quality, maintain soil productivity, and to the maximum size and dispersion of harvest units.

The benchmarks used to estimate the biological and economic potential of the Forest are described as follows:

- **No Action:** This benchmark specifies the management of the Forest most likely to be implemented in the future if current direction is followed (Alternative A). This benchmark includes MRs, and was rerun between the DEIS and FEIS to reflect changes in data and assumptions.

- **Minimum Level:** This benchmark specifies the minimum level of management which would be needed to maintain the Forest as part of the National Forest System. This benchmark indicates the production potential for some of the resources associated with no-harvest allocations.

- **Maximum Present Net Value:** This benchmark specifies the management of the Forest which will maximize the present net value of those resources that have an established market price Market priced outputs include timber and developed recreation. This benchmark includes MRs, and was rerun between the DEIS and FEIS to reflect changes in data and assumptions.

- **Maximum Timber:** This benchmark defines the highest potential timber harvest production levels for the Forest, subject to legal requirements for other resources and nondeclining even flow policy. This benchmark was rerun between the *DEIS* and *FEIS* to reflect changes in data and assumptions.

- **Maximum Recreation:** This benchmark determines the maximum capability of the Forest to provide a mix of dispersed and developed recreation opportunities.

Table II-1 displays a summary of the average annual outputs, effects and economic consequences associated with the current management direction, Alternative A, No Action, The Forest Plan (Alternative W, the Preferred Alternative), estimated demand levels, and various resource maximization benchmarks which indicate the production potential. Estimates for the outputs associated with all of the benchmarks are contained in Appendix B of the FEIS.



Table II-1. Supply and Demand Projections for Major Issues[1]

Output, Effects, Activity, or Cost	Unit of Measure	Decade	Alternative A No Action	Demand Projection	Production Potential	Forest Plan
Developed Recreation Use	MRVDs	1	1,625	2,056	2,538	2,056
		5	2,101	4,481	6,573	3,073
Nonwilderness Dispersed Recreation Use						
Semiprimitive Nonmotorized Use	MRVDs	1	59	70	125	52
		5	59	148	125	52
Semiprimitive Motorized Use	MRVDs	1	53	64	67	64
		5	53	141	67	76
Wilderness Recreation Use	MRVDs	1	352	413	342	318
		5	438	905	342	342
Wild and Scenic Rivers						
Designated Rivers	Number	-	2	-	13	2
Study Rivers	Number	-	2	-	0	2
Eligible Rivers	Number	-	9	-	0	9
Roadless Lands						
Amount of Total Inventory Remaining	M Acres	-	60	-	172	92
Old-Growth/Mature Timber Retained	M Acres	1	528	-	595	533
		5	337	-	595	365
Visual Quality Objectives						
Preservation	M Acres	-	547	-	390	591
Retention	M Acres	-	78	-	232	119
Partial Retention	M Acres	-	150	-	489	172
Modification	M Acres	-	-	-	484	143
Maximum Modification	M Acres	-	895	-	81	651
Timber Supply[2,3]						
Allowable Sale Quantity (Net)	MMBF	1	608	667	673	491
		5	-	-	-	-
Allowable Sale Quantity (Net)	MMCF	1	110	122	122	87
		5	110	128	122	87
Lands Suitable for Timber Production	M Acres	-	874.3	-	928 0	774 6
Water Yield	M AC-FT	1-5	8,900	-	-	8,900
Fish and Wildlife						
Spotted Owl Habitat Areas	Number	-	59	-	204	59
Pileated Woodpeckers (Unique Sites)	Number	-	97	-	826	97
Pine Marten (Unique Sites)	Number	-	100	-	1,941	100
Big-Game Use	M WFUDs	1	117	-	-	145
		5	125	-	-	168
Smolt Habitat Capability	M Smolt	1	410	-	-	438
		5	536	-	-	572
Economics						
Payments to Counties[5]	Million $	1	39 8	-	47 8	32.9
		5	42 4	-	-	38 2
Changes in Jobs[4]	Number	1	53	-	2,084	-6
PNV (15 Decade Total)[5]	Million $	-	4,138	-	4,919	3,727

[1]Average Annual outputs and effects by benchmark for selected decades Demand projections are included where available
[2]Timber demand based on RPA.
[3]Board foot/cubic foot ratios vary by size class and account for variability of board foot volumes
[4]Changes in jobs are relative to an average level of outputs over the base period of 1977-1985
[5]Figures based on 1990 dollars

RESOURCE DEMAND PROJECTIONS

Economists consider "demand" to be a schedule of quantities of an output that users are willing to take at a range of prices at a given time and given conditions of sale. The term "demand" is used in this section to identify a certain level of consumption at a particular point in time.

Few definitive studies have been made and sparse data is available to assess demand in the sense of the word used for Forest planning. Therefore, the assessment of both current and anticipated future use levels has been based on recent historical trends and some futuring expressions from various industries, organizations and the public. Although estimates of demand are projected over several decades, these projections, like any projections, are expected to be less accurate in the distant future than in the near future.

SUPPLY AND DEMAND RELATIONSHIPS

Supply and demand relationships for some of the key forest resources are discussed below. These discussions incorporate the results of the benchmark analysis displayed in Table II-1. Where appropriate, reference is made to RPA targets or other agency or state goals.

Recreation

The Forest provides a wide range of outdoor recreation opportunities. Opportunities include a number of developed recreation sites, such as campgrounds, ski areas and boat launch ramps, but the primary recreation emphasis on the Forest is on the management of dispersed recreation opportunities. Over time, dispersed recreation experiences can be provided by maintaining a variety of landscape settings, each with distinct attributes of physical character, environmental conditions, and human influences

All of the benchmarks supplied various levels of dispersed and developed opportunities from semiprimitive nonmotorized to roaded modified settings. The extent to which each benchmark provides for semiprimitive motorized and nonmotorized recreation opportunities is illustrated in Table II-1. This is displayed by projections of recreation visitor use.

The Maximum Recreation Benchmark provided the highest amount of recreation potential This was accomplished in part by maintaining all developed, undeveloped and special interest areas, developing enough new recreation sites to meet demand through the year 2040, meeting all of the recommended visual quality objectives and providing sufficient capital investments for trail and dispersed camp construction. Included in this Benchmark were recommendations for the Mt. Hagan Roadless Area to be designated Wilderness, and for the McKenzie River to be included as a Wild and Scenic Recreation River.

Current use of semiprimitive motorized and nonmotorized recreation opportunities on the Forest is estimated to be 112,400 recreation visitor days (RVDs) annually. The future demand for these recreation opportunities is based on a review of Forest recreation use data and several studies: the River Basins Commission study; the Bonneville Power Administration's projected population growth rates for the Pacific Northwest and the State Comprehensive Outdoor Recreation Plan (SCORP) for Oregon.

User demand for semiprimitive motorized and nonmotorized recreation is expected to be 289,000 RVDs by 2040. Both the Maximum Present Net Value and the Maximum Timber benchmarks would provide 6% of this demand and the No Action Benchmark would provide 28% in 2040. Alternative W

would provide about 44%. The Maximum Recreation Benchmark is projected at about 55% and the Minimum Level Benchmark would provide even more opportunities, resulting in about 94% of user demand. In the Minimum Level Benchmark, Roaded Modified acreages shift to the Roaded Natural class by the end of the fifth decade Given significant deterioration of local roads, some areas of the Forest would therefore provide additional semiprimitive motorized and nonmotorized opportunities over time.

The opportunity for Wilderness use and primitive recreation experience is provided through the management of established areas and/or the establishment of new areas Current use is approximately 318,000 RVDs annually and user demand for Wilderness opportunities is expected to be about 905,500 RVDs by the year 2040 Except for the Minimum Level Benchmark which supplies about 24% of the fifth decade demand, the benchmarks all provide between 42 and 55% of demand.

User demand for developed recreation opportunities is expected to be 4,481,300 RVDs by the year 2040. Use of existing developed sites on the Forest is expected to exceed existing practical capacity at this time. Of the nine site types, two are supplied primarily by the private sector: resort hotel/lodges, and private organization sites The demand for organization sites can be met from the potential supply in the Forest regardless of whether they are managed by the public or private sector Although there are enough potential resort hotel/lodge sites in the Forest to meet future demand, it is difficult to predict if economic conditions will exist to make future investments in these sites attractive. The Maximum Recreation Benchmark would provide about 82% of anticipated demand, while all of the other benchmarks would provide between 47 and 76%. Alternative W would provide about 69%.

Old Growth

Old-growth stands on the Forest provide a living connection with the past and an important reference to the natural successional process of the forest environment. Old growth provides key wildlife and plant habitat, and is an important component of many recreational settings. Old-growth wood is of high value for timber products, and its harvest has been of major importance to the wood products industry in the Pacific Northwest for many decades.

There are approximately 594,800 acres of old-growth stands currently on the Forest. This accounts for about 40% of the forested landbase (36% of the total Forest). Although there is agreement that some representation of old-growth timber should be retained, there is a wide disparity of opinion about how much will be needed in the future Because of this, Table II-1 shows the potential old growth in decades one and five, and the changes for Alternatives A and W, but there is no representation of demand.

Allocations that provide for the preservation of old-growth stands include wilderness, roadless areas, riparian areas, old-growth groves, and wildlife habitat areas for Management Indicator Species (MIS). Under the No Action Benchmark, 528,000 acres would be retained in the first decade and a minimum of 337,000 acres would be retained in the fifth decade Alternative W maintains 533,000 and 365,000 acres of old growth in the first and fifth decades

Roadless Lands

Prior to the Oregon Wilderness Act of 1984, 295,137 acres of unroaded lands on the Forest were inventoried. As a result of that Act, 84,930 acres received wilderness classification The remaining 210,207 of lands in an undeveloped condition were released for multiple use. Since 1984 38,200 acres of roadless lands have been affected by ongoing management activities Current roadless land totals

172,007 acres The demand for roadless lands is expressed in part by demand estimates for semiprimitive nonmotorized recreation and Wilderness use.

Table II-1 displays the proportion of the total roadless inventory maintained. The Minimum Level and Maximum Recreation Benchmarks show the production potential at 100% of the roadless inventory, while the Current Direction maintains about 35%, and Alternative W maintains 53%.

Wild And Scenic Rivers

The Oregon Omnibus Wild and Scenic Rivers Act of 1988 designated the McKenzie and the North Fork of the Middle Fork of the Willamette Rivers as included in the National Wild and Scenic Rivers System (55.0 miles and 17,459 acres) and designated the Blue and the South Fork of the McKenzie Rivers (34.2 miles and 10,944 acres) as National Study Rivers. In addition to management of two designated rivers and suitability determinations of two National Study Rivers, the Forest provides interim protection and management of nine other rivers determined eligible (126 2 miles and 43,420 acres) for Wild and Scenic River Status Determination of river suitability and potential inclusion in the National Wild and Scenic Rivers System is an ongoing process.

Scenic Quality

Scenic resource management and maintenance of pleasant visual experiences for forest users is provided primarily through the allocation of lands within viewshed corridors, and through the designation of dispersed recreation settings and travelways to retention and partial retention Visual Quality Objectives.

In areas visible from major Federal and State highways, heavily used forest roads and trails, and destination type recreation areas and sites, 48% of the Forest has been inventoried and classified as highly sensitive to change; 25% as moderately sensitive; and 27% with low sensitivity.

Both the Minimum Level and Maximum Recreation benchmarks would retain almost 100% of the current 407,500 retention and partial retention inventoried acres The No Action Benchmark would maintain about 45% and Alternative W about 71%.

Demand for scenic quality on the Forest is primarily based on demand for uses and activities where scenic quality is an integral aspect of the user experience Tabulation of public comment data in 1981 for the Forest documented that 33% of the respondents felt that scenic quality on the Forest is very important, 49% fairly important, and 15% unimportant.

Timber

The dominant tree species on the Forest are Douglas-fir, western hemlock, Pacific silver fir and mountain hemlock. A number of other conifer species are locally common including subalpine fir, grand fir, noble fir, incense cedar, Alaska cedar, Englemann spruce, white bark pine, lodgepole pine, sugar pine, western white pine, ponderosa pine, and western red cedar Hardwood species make up less than 0 2% of the standing volume on the Forest. The most common species are bigleaf maple, black cottonwood, golden chinkapin, red alder, and Pacific madrone.

Forest land tentatively suited for timber management covers approximately 1,032,000 acres or about 62% of the Forest. Under the 1977 Plan, timber produced and sold from the Forest supplied about 15% of the timber production from National Forests in Region 6 (Oregon and Washington). This represents about 8% of the production from the entire National Forest System.

The Maximum Timber and Maximum PNV Benchmarks utilized the most land suitable for timber production at 928,000 acres, representing the production potential The No Action Benchmark utilized 874,300 acres and Alternative W used 774,600 acres.

The amount of timber that may be sold from suitable lands is called the Allowable Sale Quantity (ASQ). The maximum amount of timber that could be offered for sale without departure from nondeclining even flow with MRs, is 122 MMCF (673 MMBF) per year for the Maximum Timber Benchmark. The ASQ for the No Action Benchmark for the first decade is 110 MMCF (608 MMBF), and for Alternative W is 87 MMCF (491 MMBF). The demand projection is based on RPA data, starting at 122 MMCF (667 MMBF) and increasing to 128 MMCF (695 MMBF) by the fifth decade.

Water

The abundance of forested watersheds on the Forest has produced consistent amounts of water, generally of very high quality. Demand for this water occurs both on and off the Forest, as nonconsumptive instream habitat and recreational uses, and as consumptive fish hatchery, domestic, irrigation, industrial and hydropower use. The on-forest demand for nonconsumptive, instream uses exceeds the demand for direct consumptive uses.

Total water yield from the forest is estimated at 9.8 million acre feet/year (Hubbard et al. 1983) Approximately 85% of the discharge occurs between November 1 and March 31 Local, temporary variations in the timing and amount of water yield may occur where the ability of the vegetation to transpire and intercept moisture is altered All of the benchmarks generated water yields within approximately 3% of the natural levels. Most of the increased yield occurs during the autumn and winter months when water supply exceeds demand.

The nonconsumptive demand for high quality water will continue and increase into the future as the demand for recreation increases. Because of the importance of the instream uses the State of Oregon Water Resources Department has restricted use of some waters on the Forest to recreational, instream, and low consumptive uses, and has established minimum perennial flows for the majority of these streams, and several others. These waters include the Little North Santiam River and Henline Creek above their confluence, Wiley Creek, Breitenbush River, Calapooia River above Biggs Creek, North Santiam above Tunnels Creek, Middle Santiam above Green Peter Reservoir, Quartzville Creek above Panther Creek, South Santiam above Trout Creek, McKenzie River, Salt and Salmon Creeks and their tributaries, all natural lakes above 2000 feet elevation.

No benchmarks were made to assess changes in water quality, but generally water quality decreases as the number of acres harvested and the miles of road built increases.

Fish And Wildlife

The Forest provides a broad diversity of ecosystems which supports a wide range of fish and wildlife species. Over 290 species are present on the Forest. Active cooperation between the Forest and the Oregon Department of Fish and Wildlife (ODFW) is important to wildlife programs. While the Forest is responsible for providing and improving habitat, the ODFW is responsible for managing wildlife population numbers.

All of the benchmarks maintained sufficient amounts and types of habitat to sustain viable populations of all fish and wildlife. Seven birds and mammals, and three groups of birds and fish have been selected as Management Indicator Species (MIS) to represent the habitat needs for the fish and wildlife species

on the Forest Habitat areas for the MIS were maintained at MR levels in all of the benchmarks. These included unique habitat areas for spotted owls, pileated woodpeckers, and marten as indicated in Table II-1.

Roosevelt elk, black-tailed deer, mule deer, black bear and cougar are all big game animals located within the Forest. The ODFW estimates that 3,720 Roosevelt elk and 17,760 black-tailed deer and mule deer live on the Forest. Expected populations for deer and elk varied somewhat relative to the amount of available and suitable habitat provided by the benchmarks.

Projected demand curves for hunting use on the Forest were developed from River Basin Commission estimates. Over 90 million wildlife and fish user days (WFUDs) are projected for the year 1990, rising to over 150 million WFUDs by 2030. All of the benchmark estimates indicate that the demand for big game hunting opportunities will exceed the maximum supply over the RPA planning period. See Table II-1 for big game use projections by decade.

Fishing opportunities on the Forest range from fishing high mountain lakes to large and small streams and reservoirs. There are several species of trout found in Forest waters including rainbow trout, bull trout, brook trout, brown trout and kokanee. Anadromous fish such as winter-run steelhead and spring-run chinook are native to the Forest, and spawn in some Forest streams. Most of the sport catch is in the lower river sections of the Willamette and the Columbia Rivers below the Forest boundary.

The demand for fishing was reviewed for trout, steelhead, and salmon based on catch estimates and stocking programs. Projected demand curves were developed from River Basin Commission estimates. Fishing use is expected to be close to 300 million WFUDs in 1990, rising to almost 500 million by 2030. Only the Maximum Recreation Benchmark would meet or exceed the demand for resident and anadromous fishing opportunities over the RPA planning period Projections show that demand would generally exceed supply in the other benchmarks, particularly for anadromous fish. See Table II-1 for anadromous and resident fish use projections by decade.

Economics

The Forest resources play an important social and economic role locally, regionally, and nationally Many communities rely heavily on the employment and income generated from the extraction of products, primarily timber, from the Forest. A measure of economic stability is derived from a sustained supply of timber being available for harvest, even though supply is not the only determinant of stable markets. Income and employment are also derived from people traveling through communities on their way to use the Forest for recreation and other purposes. There is a growing awareness of the contribution of tourism to economic stability for communities in and adjacent to the Willamette Valley.

The Forest lies primarily in Lane, Linn, and Marion counties, and also extends south into Douglas County, east into Jefferson County, and north into Clackamas County. These counties receive monies equivalent to 25% of the total revenues derived from the gross timber receipts in lieu of taxes that could be generated on National Forest land. The counties also receive 25% of the total revenues derived from other resource uses on the Forest, including campground receipts and grazing fees. For the 51,000 acres of Oregon and California (O&C) Railroad grant lands administered by the Forest, 50% of total revenues is distributed to the counties having these lands.

Potential payments to counties in the first decade range as high as 36.6 million dollars annually in the Maximum PNV Benchmark, and as low as zero in the Minimum Level Benchmark. The No Action Benchmark estimates an annual 30.0 million dollar payment to counties in the first decade, which

increases to 32.6 million dollars annually by the fifth decade. Alternative W estimates 25.3 and 29.4 million dollars respectively for the first and fifth decade payments to counties. Timber receipts comprise more than 99% of the amount returned to the Federal treasury and to the counties.

Generally, changes in jobs vary directly with the level of timber harvest, although variations in projected recreation visits modify this pattern. The maximum increase from the base level (13,257 jobs, established for the period 1980-1989) is 2,084 jobs in the first decade for the Maximum PNV Benchmark. No Action and Alternative W show an increase of 53 and a decrease of 6 jobs respectively, from the base. Appendix B includes a detailed breakdown of jobs by the various categories.

Present Net Value (PNV) variations also follow the basic pattern of varying directly with the level of timber harvest, modified by the level of recreation benefits. The Maximum PNV Benchmark has the highest PNV (4 92 billion dollars), and the Minimum Level Benchmark has the lowest PNV (1.12 billion dollars) of the benchmarks No Action and Alternative W generate a PNV of 4.14 and 3.73 billion dollars respectively. All PNV figures are based on 1990 dollars

INFORMATION NEEDS

This section lists the information, inventory, and research needs that have been identified for the Forest. This information recognizes gaps in data, or scientific knowledge, that would be desirable to fill prior to preparation of the next Forest Land and Resource Management Plan. The concept used to organize and develop these needs recognizes that biological, physical and social ecosystems are the foundation of the planning process

This ecosystem 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 the traditional functional approach. The ecosystem approach has been taken to meet planning needs.

Of the many ecosystems found on the Forest, 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 in the forest are an integral part of these ecosystems, and their needs and expectations should be considered in forest planning

Information needed to address these concerns fall into six general categories This is not a complete list, 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 the physical, biological, social and political processes that influence these interactions and resources.

- Clarify wildlife and fish (especially MIS) response to patterns of habitat created or altered by management activities and natural succession.
- Assess the relationships between the hydrologic recovery concept, peak flows, and channel stability as a result of rain-on-snow flood events.
- Assess the occurrance and role of fog drip in precipitation on the Forest.

- Improve knowledge of distribution and habitat requirements of the northern spotted owl and other species (plant and animal) associated with old growth.
- Improve knowledge of riparian dependent species and interaction with management activities.
- Determine the effects of vertebrate species on other ecosystem components (e.g., effects of insectivorous birds on forest insect populations).
- Develop an understanding of ecosystem response to global atmospheric warming.
- Clarify relationships between old-growth characteristics and ecological and visual diversity, and maintenance of natural gene pools.
- Assess the effects of landscape patterns of timber harvest and road construction on plant and animal diversity, and stability of special habitat areas like Research Natural Areas.
- Identify more precisely the ecological conditions that result in growth of unwanted trees and brush, to provide information for prevention and control of these species.
- Identify the appropriate number and distribution of spotted owl habitat areas needed to ensure the viability of the species.
- Improve total tree biomass information that is needed to evaluate harvest practices.

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 the amount of in-stream large woody debris necessary to maintain stream channel stability and productivity of fish habitat.
- Determine the effects of harvest practices and removing biomass on long-term productivity.
- Determine the effects of forest fragmentation on ecosystem integrity and function, including viability of vertebrate species.
- Further assess the effects of burning and compaction on soils and long-term site productivity.
- Determine the effects of management practices on the incidence and severity of pathogens and insects as they affect long-term productivity.

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

- Improve knowledge and modelling of cumulative effects of timber management practices on peak flows, water quality, stream stability, wildlife habitat and other resources.
- Identify the effects of changing habitat patterns on management indicator species.
- 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.

- Evaluate the effects of planting genetically-selected stock on stand growth and yield, and pathogen and insect population dynamics.
- Identify specific sites and situations where natural regeneration can be a successful management option.
- Improve effectiveness of using fire to manage vegetation when necessary and as an alternative to herbicide use.
- Develop effective techniques for reforesting areas of harsh microclimates, gravelly soils, and/or competing vegetation
- Determine the results of alternative timber management strategies on wood product properties, net value recovery, and the competitiveness of the timber industry in national and international markets.
- Evaluate alternatives for managing old-growth forests and for maintaining habitat characteristics (e g , snags, green trees and logs) in young managed stands.
- Develop and refine monitoring techniques to improve procedures for using habitat information to make inferences about populations, and designing cost-effective sampling schemes that provide information about both habitats and populations with appropriate reliability.
- Improve understanding of the effects of fertilization on timber yields, water quality and soils.
- Further assess the response of elk to spatial distribution and size of timber harvest units, forage enhancement projects, and human activities
- Develop a Forest-wide, quantitative stream inventory database.
- Assess the results of stream rehabilitation projects on fish population dynamics and stream hydrology.
- Determine the amount, sizes and characteristics of timber in riparian areas needed to provide for in-stream large woody debris recruitment
- Determine the thresholds of sediment production above which negative effects on water quality and fish habitat occur.
- Baseline inventory of water quality characteristics of sample lakes on the Forest.
- Establish a baseline inventory and population trends for martens and pileated woodpeckers. Also dispersal patterns, behavior and habitat needs for all management indicator species.
- Baseline inventory and population trends for anadromous and resident salmonids.

- Identify specific cover/forage needs for deer and elk.
- Develop information for modeling predictive capability regarding the location of prehistoric cultural resources.
- Refine information regarding the location of mineral and energy related resources, and probabilities of development.

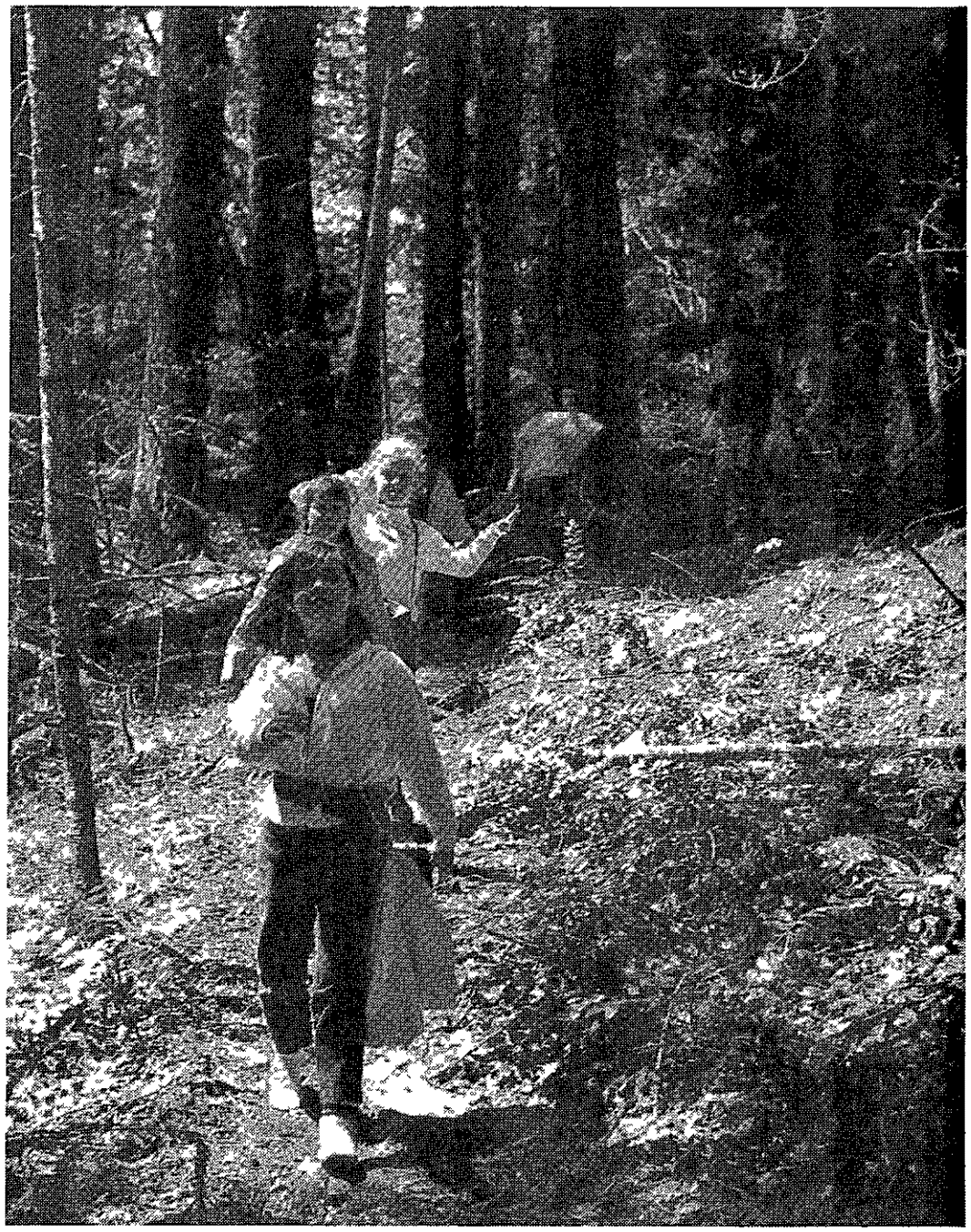
Social-Economic Analysis - Additional studies are needed to increase our understanding of the economic and social effects of many planned wildland activities.

- Evaluate the social and economic impacts of various alternative harvest plans and the aggregate implications of the harvest plans for larger areas.
- Assess the tangible and intangible factors affecting carrying capacity for wilderness and other recreation settings, to determine the practical maximum capacities.
- Evaluate user need and expectations for recreation opportunities.

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

- Determine potential effects of increased human densities in and near the Forest on recreational use, water quality, T&E species protection, timing and location of harvest activities, road construction and use, cultural resource protection, etc , and develop strategies to respond to these relationships.





Girl scouts coming down Clark Butte Trail, Lowell Ranger District.

CHAPTER III

Plan Response to Issues

III. PLAN RESPONSE TO ISSUES

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CHAPTER III

PLAN RESPONSE TO ISSUES

INTRODUCTION

This chapter briefly presents the response of the Forest Plan to planning issues identified 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 Willamette National Forest. The ICOs were developed through citizen participation, including public meetings, interagency coordination, personal contacts with individuals and groups, and comments on the DEIS and Proposed Forest Plan. Appendix A in the FEIS describes the process used to summarize public input on the original ICOs. Chapter I of the FEIS describes how the ICOs have been clarified since the publication of the draft documents

In 1981, a list of 18 issues was approved by the Regional Forester as being important in guiding the development of the Forest Plan. While all of these issues were considered in the analysis of the alternatives in the FEIS, the degree of response to seven major issues was most important in the selection of the Preferred Alternative, on which this Forest Plan is based The seven major issues on the Forest are Dispersed Recreation; Old growth; Roadless Lands; Scenic Quality; Timber Supply; Water, and Wildlife, Fish and Plant Habitat. Following is a brief summary of the response to each major issue as a result of the land allocations and standards and guidelines included in the Forest Plan, which is an extension of Alternative W, the Preferred Alternative in the FEIS. This Forest Plan represents a balance among the demands for resource use and protection. Table III-1 shows a comparison between this Forest Plan and the 1977 Plan for quantitative responses to some indicators of the issues.

IMPORTANT FOREST ISSUES

Dispersed Recreation

How will the Forest provide a variety of recreation experiences?

Demand for a wide variety of recreation opportunities is expected to remain high. People are interested in maintaining a wide variety of options for recreation activities. There is concern about whether roaded and unroaded dispersed recreation opportunities will increase or decrease under the Forest Plan.

The full variety of Recreation Opportunity Spectrum (ROS) Classes will be available, although the demand anticipated in the year 2040 will only be met in the Roaded Modified Class. Semiprimitive opportunities will be slightly increased over the 1977 Plan direction, with 40% of the potential Semiprimitive ROS class opportunities maintained--11% as motorized and 29% as nonmotorized.

This Forest Plan allocates 121,809 acres for semiprimitive motorized and nonmotorized recreation opportunities. Areas available for semiprimitive nonmotorized recreation use total 85,761 acres while

areas available for semiprimitive motorized recreation use total 36,048 acres of Forest land. The Oregon Cascades Recreation Area is managed to provide for motorized use over the entire area during winter, and on designated trails during snow free periods.

While 6% of the Forest is restricted to a specified season of use and/or type of off-road vehicle (ORV), 37% is closed to ORVs, and 57% is open to use by off-road vehicles. This represents a 4% decrease of ORV area use opportunities over current direction.

In addition to retaining all existing non-Wilderness trails, the Forest Plan provides for construction of 60 miles of new trail during the coming decade, which will be a moderate increase over the current plan.

Old Growth

How much of the existing old growth should be preserved?

Old growth and mature stands have provided the majority of the timber harvest from the Forest for several decades. The amount of old growth to be harvested during the next 10 to 15 years is of strong interest to many people. Part of the public sees a need to preserve old growth for its benefits to wildlife habitat and ecosystem diversity, and its recreational and aesthetic values. Another segment of the public recommends continuing the historic harvest levels and converting the old-growth stands to more vigorously growing second growth stands to support future timber production needs.

The Forest has about 594,800 acres which meet the Pacific Northwest Region definition of old growth. In the Forest Plan the old-growth stands are distributed as follows: wilderness = 17%, unsuited soils = 7%, no-harvest allocations = 25%, and areas with scheduled timber harvest = 51%. This Forest Plan schedules harvest on about 61,000 acres of old growth during the first decade, and averages about 46,000 acres of old growth per decade for the first five decades. After five decades, there would be a balance of about 365,000 acres, which represents the minimum amount of old growth in this Forest Plan. Over time, the stands of large mature, small sawtimber, poles and others will gradually take on the characteristics of old growth. The potential amount of old growth is about 730,000 acres, if all the forested acres in no-harvest allocations reach that condition. However, catastrophic events such as fire, wind, insects and disease will keep the Forest below the potential level.

Roadless Lands

How will the Forest manage roadless lands?

There are 172,007 acres in 31 inventoried roadless areas that are currently unroaded and undeveloped. These were released for multiple-use management under the Oregon Wilderness Act of 1984. Some people feel that these inventoried roadless areas should be left undeveloped, retaining an option for future designation as Wilderness. Roading would provide access for management of resources, including timber harvest, and would allow the enjoyment of scenic and recreational values associated with motorized access.

Significant portions of 13 inventoried roadless areas will be maintained in a roadless condition under this Forest Plan There will be about 92,100 acres, 53% of the inventoried roadless acreage, maintained in an undeveloped condition. That is an increase of 18% over the amount that would be retained under the direction in the 1977 Plan which would have maintained 59,800 acres (35%) in an undeveloped condition.

Scenic Quality

What emphasis will be given to scenic quality?

The visual quality of the Forest landscape is of concern to adjacent landowners, travelers and Forest visitors. Many people have expressed the opinion that they do not want to see evidence of timber harvesting from major highways, homesites, and popular recreation sites Other people favor utilization of resources and feel that Visual Quality Objectives (VQO) should play a subordinate role in planning resource management activities.

Approximately 26% of the Forest is allocated to management area prescriptions that propose maintaining a moderate level of scenic quality (retention, partial retention, and modification) in major viewshed corridors. The foreground areas of all State and Federal highways, major Forest roads, and selected trails and use areas will be managed to ensure that landscape alterations will not be evident (retention). The amount of Forest land to be managed under a VQO of Maximum Modification in this Plan is 39%, as opposed to 53% under the 1977 Plan. Lands managed for a Preservation VQO under this Plan is 35%, a 3% increase over the 1977 Plan

Timber Supply

What emphasis will the Forest place on providing timber in this decade?

Since the wood products industry is one of the three major components of the economy of the State of Oregon, concern about the timber supply from the Forest is high. Demands for and concerns about other resources have potential for changing the amount of timber available for harvest. Many members of the public are concerned that the current harvest level, under the Allowable Sale Quantity (ASQ) determined in the 1977 Land and Resource Management Plan, has been too high and that other resources may be adversely affected. Others feel that the level should be maintained or increased to avoid adverse effects on the economy of local communities.

From the total Forest landbase of 1,675,407 acres, about 62% (1,032,138) is considered tentatively suitable for timber management. About 75% of that, or 774,600 acres are suitable for timber production in this Forest Plan. The average annual Timber Sale Program Quantity (gross) will be about 604 million board feet, as compared to the 800 million board feet which is allowed under the latest update of the 1977 Plan. The Allowable Sale Quantity (net) will be 491 million board feet (87 million cubic feet) annually during the first decade, and would be 440 million board feet (87 million cubic feet) in the fifth decade, if the Forest Plan were to be continued into the future. (Although the amount of board feet is lower in the fifth decade because of the conversion rate related to the size of the trees being harvested, the amount of cubic feet stays the same.)

Water Quality And Quantity

What emphasis should the Forest place on water quality and quantity?

The purity and abundance of waters on the Forest is very important to the public. The importance of water from the Forest for recreation, fisheries, and domestic and municipal use are well recognized locally and nationally. The primary public concerns are that road construction and timber harvest may result in long term effects of increasing suspended sediment, (turbidity), water temperature, chemicals and bacterial contaminations. A closely related concern is that management practices may result in decreasing the stability of the streams, wetlands, lakes and riparian ecosystem, with a related

decrease in the high quality of water, fish and wildlife habitat, travel corridors, diversity of plant and animal species, and human recreation use.

This Forest Plan responds to the high level of concern for water and riparian resources by requiring strict application of Best Management Practices, including: retaining live trees along wetlands and Class IV streams where needed; scheduling no harvest in riparian areas along Class I, II and II streams and adjacent to lakes (See Chapter III, Water, in the FEIS for a description of riparian areas); accounting for the potential for adverse cumulative effects in the scheduling of timber harvests; proposing watershed improvement projects to stabilize existing high risk conditions; and by implementing a comprehensive program to monitor water quality and related aquatic habitat. These measures result in a majority of the forest in a category of "Low Risk" of adverse effects as shown in Table III-1.

Wildlife, Fish, And Plant Habitat

What emphasis should the Forest place on providing habitat?

The Forest is very diverse in terms of plant habitat and the variety and richness of wildlife habitat. Maintaining ecological diversity is important for the survival of resident plant, fish, and animal species. Public interest in continuing these populations is high, for prevention of species extinction, viewing enjoyment, hunting and fishing, and photographic opportunities. Conflicts center around balancing the amount of Forest land necessary to support all native species with the demand for production of commercial goods and services.

Fish and wildlife habitat will be managed to maintain viable populations. Sensitive plant species will be maintained through Forest standards and guidelines. In addition to areas purposely maintained for wildlife at MR levels, comparable habitat will be available to wildlife because of compatible management for other resources.

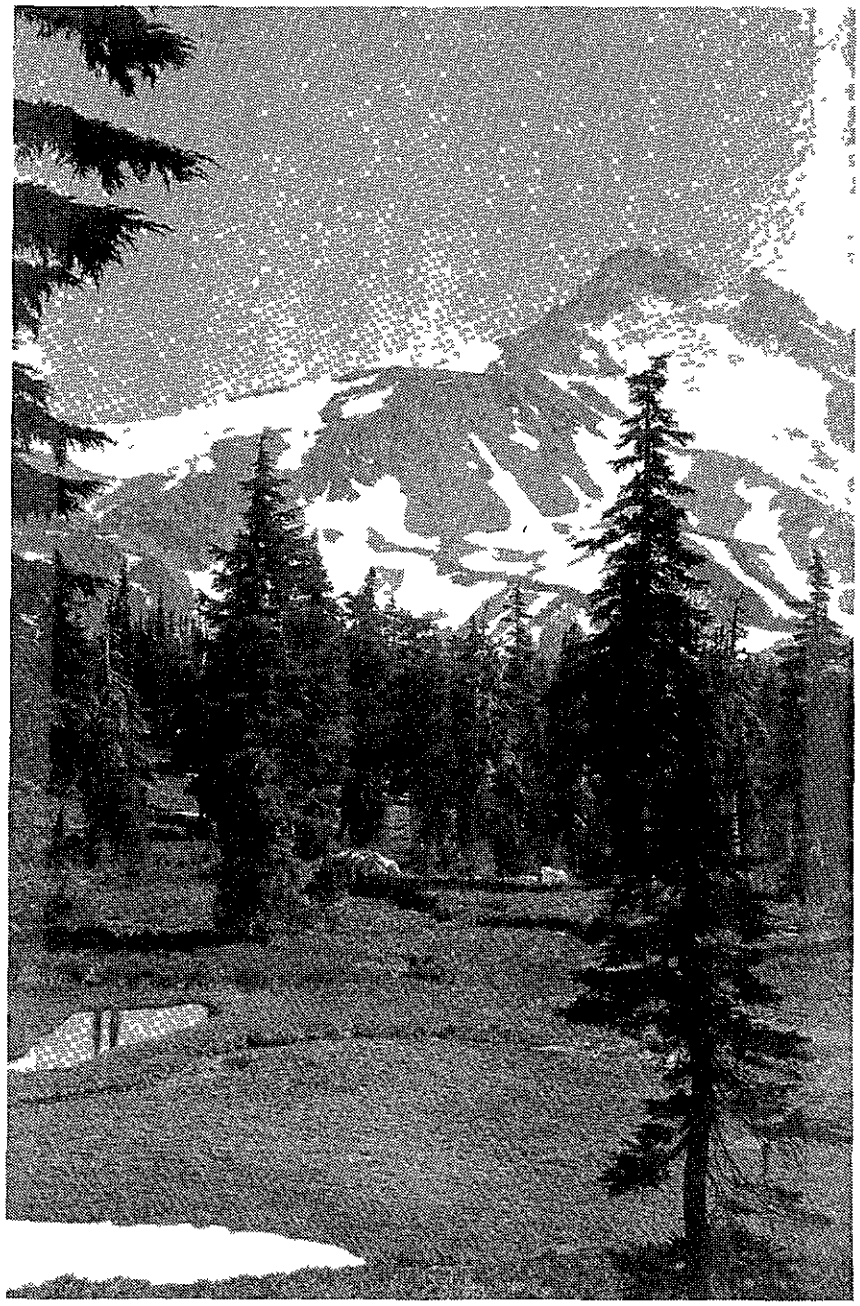
Suitable habitat will be provided for 59 verified pairs of spotted owls; an additional 15 pairs are verified in areas allocated to no-harvest prescriptions. These 74 spotted owl habitat areas (SOHAs) represent an increase of 4 SOHAs over the number which would be maintained under the No-Action Alternative (A). The SOHAs maintain habitat for species dependent on old-growth forest. Old-growth habitat for the marten and pileated woodpecker will include the MR levels of 100 areas (500 acres each) and 38 areas (1,000 acres each), respectively.

Optimal thermal cover will be provided on an estimated 140,000 acres of winter range. Elk populations would increase by 28% from the No Action Alternative in the first decade, and increase by 41% at the end of the fifth decade. There will be a mix of forage and cover for elk and deer as timber is harvested.

Table III-1. Quantitative Indicators of Response to Major Forest Issues

Issue Indicator	Unit of Measure	1977[1] Plan	Forest Plan
Dispersed Recreation			
Lands Allocated to Semiprimitive Nonmotorized	Thousand Acres	72	86
Lands Allocated to Semiprimitive Motorized	Thousand Acres	23	36
Lands Allocated to Special Interest Areas	Thousand Acres	2	31
Trail Construction in the First Decade	Miles	0	60
Old Growth			
Amount of Old Growth Retained at End of First Decade	Thousand Acres	528	533
Roadless Lands			
Roadless Acres Allocated to Nondevelopment	Thousand Acres	60	92
Scenic Quality			
Lands Allocated to a Retention VQO	Thousand Acres	78	119
Lands Allocated to a Partial Retention VQO	Thousand Acres	150	172
Lands Allocated to a Modification VQO	Thousand Acres	5	143
Timber Supply			
Allowable Sale Quantity in the First Decade	Million Board Feet[2]	608	491
Allowable Sale Quantity in the First Decade	Million Cubic Feet[2]	110	87
Long-Term Sustained Yield	Million Cubic Feet	114	95
Water			
Forest Area with a "High" Risk Watershed Impact Rating in the First Decade[3]	Percent	28	0
Forest Areas with a "Moderate" Risk Watershed Impact Rating in the First Decade[3]	Percent	25	0
Forest Area with a "Low" Risk Watershed Impact Rating in the First Decade[3]	Percent	47	100
Erosion in the First Decade (Debris Slides)	Thousands of Cubic Yards[2]	80 3	34 0
Wildlife, Fish, and Plant Habitat			
Land Managed as Spotted Owl Habitat Areas	Number of Areas	59	59
Elk Populations in the First Decade	Thousands of Elk	4 2	4 8
Deer Populations in the First Decade	Thousands of Deer	17 7	24 9

[1]Willamette National Forest Multiple Use Land Management and Timber Management Plan, 1977, with Management Requirements, figures based on the No-Action Alternative (A) as analyzed in the FEIS.
[2]Units are average annual for the Decade specified
[3]See Chapter IV, Draft EIS, Water for further explanation



Mt. Jefferson.

CHAPTER IV

Forest Management Direction

IV. FOREST MANAGEMENT DIRECTION

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CHAPTER IV

FOREST MANAGEMENT DIRECTION

INTRODUCTION

This section of the Forest Plan outlines the direction for managing the Forest This management direction includes:

Forest Management Principles and Goals - Multiple use goals used to develop the Forest Plan and the general philosophy to be followed during its implementation.

Desired Future Condition of the Forest - A description of what the Forest should look like at the end of 10 years and 50 years if the management direction is implemented

Forest Management Objectives - The levels of goods and services which are anticipated as this plan is implemented

Resource Summaries - Brief overview of the individual resource programs to be followed during implementation of this plan including areas of special emphasis or significant change from current management

Forest-wide Standards and Guidelines - The bounds or constraints within which all management activities and practices will be implemented by this plan These standards and guidelines are applicable to all management areas.

Management Area Prescriptions - Management direction, including goals, desired future condition and standards and guidelines, that are unique to each management area

Management Principles

Forest Service programs are governed by hundreds of laws enacted during the past 100 years Over 50 of these laws are considered major acts relating to Forest Service activities Of these, three are generally recognized as providing the overall direction for National Forest management

The Organic Act of 1897 led to the management of National Forests for "the greatest good for the greatest number in the long run." The Multiple-Use, Sustained-Yield Act of 1960 directed that National Forests be managed for a number of forest resources and in a manner that can be sustained in perpetuity The National Forest Management Act of 1976 directed that the management of forest resources be integrated and consider overall ecosystem functions Forest plans would be developed to guide integrated management on each National Forest

Although the broad direction in these Acts seems clear, how to apply them in specific applications as management direction is sometimes confusing and complex. Conflicting and often intense public demands on limited forest resources adds to the uncertainty for National Forest managers.

Continuing public debate about the role of the National Forests and recognition that the demand for many resources approaches or exceeds supply, has characterized the environment in which this plan was developed Being responsive to the public will be one of the greatest challenges for Forest managers in the future

Due to the continuing conflict and scientific complexity facing public forest management, it is important to highlight the basic principles that establish the framework for land and resource management for the Willamette National Forest into the 1990s Since changes in management technology, scientific knowledge and public demands will continue to occur, this framework must be flexible and dynamic to allow creative and innovative response to these changes. At the same time, these flexible principles provide sufficient certainty to lay a solid foundation for implementing this plan in the various situations Forest managers are likely to encounter.

Land Stewardship The Willamette National Forest is managed to conserve natural resources, promote long-term productivity and sustained yield, and enhance environmental quality. Commitment to long-term stewardship must be demonstrated by strong and visible sensitivity to the land in on-the-ground management activities.

Public Trust Managers of the Willamette National Forest are public servants and are charged to listen to and to provide for the public needs to the best of their ability. They will be open and forthright with the public in all matters Regardless of the potential conflict and controversy, public interest in National Forest management is best served by active and informed public participation.

"Caring for the land and serving the people," the Forest Service mission statement, embodies these principles and provides a firm foundation for managing to meet the challenges that lie ahead

Process and promises are not synonymous with land stewardship and public trust The true test of these principles and of the Forest Plan will be how it is "written on the land." The collection of principles, goals, objectives, standards, and guidelines that are in this document are meaningless until implemented and the results evident in the quality of land stewardship practiced and the public trust gained during project implementation.

FOREST MANAGEMENT GOALS

Strategic Goals

Strategic goals provide the basic concepts for managing key features of the forest system and their relationships to the larger social and economic structures around it. They are written to provide a framework for balanced and integrated resource management designed to achieve the desired future condition of the Forest.

Diversity The Forest produces a wide diversity of plants and animals While the vegetative productivity, as characterized by the growth and size of trees is well known, recognition of the healthy interrelationships among all resources within the forest ecosystem is paramount in future Forest management.

GOAL Provide for plant and animal community diversity and ecological health as the foundation to sustain the long-term productivity of the forest

Rivers Four major rivers, several other rivers, numerous feeder streams, creeks, and natural lakes combine to create a pattern of riparian networks throughout the Forest. These riparian networks are sensitive, high density areas, containing an abundance of wildlife habitat, plant habitat and human attractions. They are essential for the use, movement, and flow of people, plants, and animals throughout the Forest.

GOAL· Maintain the integrated ecological functions of rivers, streams, wetlands, lakes, and the associated riparian areas Forest-wide.

Travelways Four major highways, numerous feeder roads, and an accompanying system of trails combine to create a transportation network that provides human and vehicle access to a major portion of the Forest across a wide variety of Forest features and conditions Recognition of significant scenic byways enhances the attractiveness of this transportation system

GOAL. Provide visually pleasing and efficient access for the movement of people and materials involved in the use, protection and management of forest lands

Old Growth The Forest contains a valued component of low to mid-elevation Douglas fir/western hemlock old-growth timber stands Individual trees within these stands are attractive for a variety of purposes, including recreational, spiritual, and commodity uses The stands command attention as an entity themselves: as unique systems that are biologically productive, variable in age and composition, but always dominated by very large and very old trees These systems are not equaled in many other parts of the world These stands characterize the Forest to many people.

GOAL: Provide for the many significant values associated with old-growth forests, including biological diversity, wildlife and fisheries habitat, recreation, aesthetics, soil productivity, water quality, and industrial raw material. Manage vegetation to maintain old-growth components, including structural characteristics and species diversity

Community The term "community" is used in the broadest sense, recognizing the relationship of the Forest to geographical locations, social systems, interest groups, and individuals. These community interests reflect a variety of viewpoints. rural, urban, industrial, environmental, service, growth, and no-growth Forest management culture is shaped by interaction with these diverse communities

As past management of the Forest was shaped by a rich cultural and resource heritage, future management will be similarly shaped A sense of community is key to managing the Forest through the transition of changing concepts and values

GOAL: Recognize and respond to the socio-economic effects of management strategies Recognize the public with all of its varied needs as partners and participants in managing the Forest through awareness, interaction, and communication

Resource Management Goals

Management direction for the Forest was developed considering multiple-use goals for the integrated management of individual Forest resources The goals presented below are broad in scope, and are

responsive to issues, concerns, and opportunities They provide the bases for Forest management objectives and projected outputs of goods and services.

Water Resources

Maintain water quality through acceptable levels of water temperature, suspended sediment, chemicals, and bacteria.

Enhance the volume of water provided throughout the year by maintaining the carrying capacity of streams.

Maintain and enhance the ecological values in floodplains, wetlands, and riparian areas.

Wildlife, Fish, and Plants

Provide special habitat management considerations for threatened, endangered and sensitive wildlife, fish, and plant species

Minimize the conflicts of human activities and occupancy with wildlife, fish, and plant habitats, including impacts of chemical use, road construction, recreation, and timber management activities

Maintain habitat diversity to provide for a wide range of wildlife, fish, and plant species

Facilitate the reproductive process of fish through enhancing the accessibility to, and condition of, spawning areas, and by maintaining hiding cover and food sources.

Recreation

Meet the goals and objectives of the National Recreation Strategy.

Provide a range and amount of dispersed recreation opportunities which is consistent with public demand for a variety of activities and settings

Maintain and protect existing and potential recreation sites, consistent with public demand, through operation, maintenance, and rehabilitation activities

Provide for distribution of a broad spectrum of developed recreation opportunities and experiences consistent with Forest use patterns and public demand.

Provide Forest visitors with opportunities to experience the important historical, cultural, and natural aspects of the Forest.

Provide for the protection, management and, where practicable, enhancement of the "outstandingly remarkable values" of designated Wild and Scenic Rivers

Scenic Resources

Provide Forest visitors with visually appealing scenery, consistent with the type of Forest use and public demand.

Wilderness

Maintain a lasting system of quality Wilderness, recognizing public use and the unique characteristics of Wilderness

Research

Promote research through identification of research needs.

Benefit from research information by maintaining a close, continuous relationship with scientists conducting research at the H J Andrews Experimental Forest.

Range/Livestock Grazing

Provide forage for domestic livestock, and facilitate use of the Forest's transitory range consistent with demand

Timber Management

Provide a sustained yield of timber for commercial products

Enhance the amount of timber provided in the future through increased growth rates and by reducing the loss from fire, insects, and disease

Old Growth

Provide old-growth tree stands for their contribution to ecological and visual diversity, habitat for associated plant and wildlife species, maintenance of natural gene pools

Minerals and Energy

Facilitate the exploration and development of mineral and energy resources where available on the Forest in a manner compatible with other resource values

Economic

Produce Forest goods and services in the most cost efficient way consistent with maximizing net public benefits

Generate revenues from permits, leases, user fees, and product receipts.

Human and Community

Promote area economic well-being by using Forest resources to generate revenues for local counties and providing direct or indirect employment opportunities

Manage the recreational and scenic resources of the Forest in a manner that enables local communities to capitalize on the potential of these resources to contribute to economic well-being.

Provide opportunities for use of Forest resources by disadvantaged persons

Provide equal opportunity to all persons regardless of race, color, creed, sex, marital status, age, handicap, religion, or national origin.

Coordinate planning activities with other federal agencies, State and local governments, Indian tribes, private landowners, and various community organizations.

DESIRED FUTURE CONDITION

FOREST IN TEN YEARS

Significant changes may be apparent in those areas where projects have been implemented to meet the Forest Plan goals and objectives, but the overall character and appearance of the Forest will change only slightly over the first decade.

Landscape View The appearance and patterns of vegetation across the Forest will be affected mostly by timber harvests with about 90,000 acres of mature stands harvested during the planning period. Most of the timber harvesting will occur in stands of mature and old growth timber between young stands that were harvested and regenerated in the prior years. When viewed from a distance at the landscape level the result will be larger expanses of young stands and fewer small stands of mature timber Where relatively large acreages of contiguous mature stands existed at the beginning of the planning period, the landscape will appear more broken and fragmented by 40 to 60 acre harvest units such as in the inventoried roadless areas where timber harvest is allowed.

Other major features will also contribute to the overall texture of the landscape. The beginnings of a network of mature stands along perennial rivers and streams will become evident where harvesting has removed mature trees adjacent to the riparian area. Mature stands of 160 to 300 acres reserved for wildlife will be prominent as will the mature stands remaining on those lands unsuitable for timber management due to soil instability or regeneration difficulty. In many cases, the spatial arrangement of these mature stands will be contiguous with other mature stands in the drainage.

Stand Level View The coarseness of texture of the forest vegetation will also be evident when viewed at the subdrainage or individual stand level Recently harvested stands will have a different appearance from those harvested prior to Forest Plan implementation due to the retention of a greater amount of both live and dead vegetation in managed stands Live overstory trees, averaging 2 to 10 per acre, and varying numbers of dead trees will remain after the final harvest The remaining trees will provide current and future habitat for primary cavity excavator species, contribute to the maintenance of long-term soil productivity and provide some of the structural components of mature stands within managed stands. Mature trees will also be evident within harvest units adjacent to Class IV streams with potentially unstable or moderately stable banks Large pieces of down wood will be evident in many harvest units.

Old Growth Some old-growth stands will not be harvested during the planning period. The largest, contiguous blocks will continue to be in Wilderness Stands varying from more than a thousand to ten acres in size will remain intact in no-harvest management areas such as nonmotorized dispersed recreation, Research Natural Areas, Special Interest Areas, designated Old-Growth Groves, and areas designated as habitat for spotted owls, pileated woodpeckers and martens. Blocks of several hundred

acres will also remain within the general forest allocations with largest, contiguous acreages occurring in those unroaded areas allocated to general forest.

Rivers In addition to retaining mature trees adjacent to streams and lakes, enhancement projects will add large woody debris in some waterways to mitigate the losses of sources for natural recruitment of large wood as a result of previous management activities. Projects will provide diverse stands of hardwoods and conifers in previously harvested riparian areas.

Visual and recreational values will be maintained or enhanced along rivers designated as Wild and Scenic Rivers and in the corridors adjacent to rivers identified as eligible for Wild and Scenic designation in the Forest Plan The combination of Wild and Scenic designations, visual management objectives, riparian protection and recreation uses along the rivers will result in a network of rivers and streams that retain and enhance their natural appearance and ecological function

Travelways Approximately 400 miles of new roads will be constructed, primarily to provide access for timber harvests Some of these roads will enter several hundred acre blocks of mature stands within general forest allocations, while other roads built will be short spur roads or extensions of existing roads in currently roaded areas Design and construction techniques will be employed to make these roads lay easy on the land, reducing the potential soil erosion and mass movement In addition, 1,740 miles of road will be reconstructed in conjunction with timber harvests and recreation management In some cases, the reconstruction projects will correct or alleviate erosion and road stability problems and provide for safe public access Various roads, generally local and collector roads, will have restricted access to enhance wildlife habitat or to protect soil and water values

Scenic quality will be maintained and enhanced along approximately 385 miles of Forest Service, county, state and federal highways that cross the forest Two roads, Aufderheide Memorial Drive and the McKenzie Pass-Santiam Pass Loop are designated Scenic Byways and the recreational aspect of travel along these routes will be emphasized

Wildlife Diversity Habitats for species dependent on mature and old-growth stands will be provided primarily in areas not allocated to timber management. Some suitable habitats will remain in general forest allocations, although they will generally be smaller and more isolated than areas withdrawn from harvest.

The acres of suitable habitat and the number of identified sites for bald eagles and peregrine falcons will exceed the levels in the recovery plans for these species. Habitat for other threatened, sensitive, and endangered species will meet or exceed levels needed to maintain or promote recovery of the species.

Elk habitat will be improved or maintained in areas managed for a high emphasis objective for big game Forage enhancement projects, well distributed mature conifer stands for optimal cover, and controlled road access in the winter ranges will be evident in the high emphasis areas The basic habitat components of forage and cover will be provided in areas with moderate or low emphasis objectives also, but in lesser quantity, distribution and quality

Recreation Dispersed recreation opportunities will have been enhanced by 60 miles of new trail and an intensive annual maintenance program. These trails traverse a variety of land allocations across the Forest, with increased miles available in lower elevations

About 145,000 acres of the roadless area inventory will remain unroaded after 10 years.

Wilderness use will continue to grow. Areas with high user impacts will be protected from degradation or rehabilitated as necessary through a combination of site recovery projects, user education and user management

Additional opportunities for interpretation and public use of areas with exceptional scenic, cultural, biological or geological characteristics will be provided by the 46 Special Interest Areas and 34 Old-Growth Groves identified in the Forest Plan Each area will be managed to maintain its unique qualities and provide for public education and enjoyment

Nine Research Natural Areas could be available for scientific use, including five that are recommended for designation in the Forest Plan.

Communities The Forest will take advantage of opportunities to enhance the vitality of surrounding communities by applying a new focus to look and work beyond the traditional boundaries. This focus will reaffirm and emphasize working with other government agencies, local businesses, and the communities themselves in the spirit of interdependence and cooperation that has always existed at the local Ranger District level. Communication, cooperation, and partnerships between the Forest and local citizens will be fostered and enhanced.

FOREST IN FIFTY YEARS

The Forest Plan, by law, must be revised at least every 10 to 15 years. If the direction in this Plan were continued, unchanged over the next 50 years, however, many changes would be readily apparent.

Landscape View The forest will present a contrast of age classes, including large blocks of mature and older stands of trees in areas deferred from timber harvesting interspersed with managed stands 0 to 90 years old. Although some of the texture and mosaic of mature stands and varying ages of managed stands at the landscape level that existed after the first 10 years will still exist, the acres of mature stands in the general forest will have decreased by about 450,000 acres Within areas available for timber harvest, natural, mature stands will appear as isolated patches or linear corridors mostly in areas with extended rotations such as visually sensitive areas or land that is unsuitable for timber management. Harvest units of 40 to 60 acres will be evident in areas where the predominant stand age is 60 to 90 years old.

The network of natural, mature stands along rivers and steams and in areas maintained for wildlife habitat will be readily apparent, although in some cases, the retention of large trees in 40 to 50 year managed stands will soften the contrast between the natural and the managed stands. Gaps in the network of mature, natural stands along the rivers and streams will be less apparent as reforestation projects mature.

Stand Level View Visible differences in managed stands created before implementation of the Forest Plan and those created after its implementation will be less apparent than at 10 years. Most of the general forest will consist of trees 0 to 90 years old. Although the size of the regenerated trees at 50 to 60 years will tend to reduce the visual impact of the increased retention of live and dead vegetation within harvested stands, the ecological functioning of these stands may be significantly different. The retention of some live and dead vegetation will be apparent in recently harvested units.

Old Growth All of the natural, mature and old-growth stands within no-harvest allocations will still exist in essentially the same condition as they were at the beginning of Plan implementation. It is possible, however, that unpredictable events such as wildfires, windstorms or insect epidemics may have changed the appearance in some of these areas. Few old-growth stands will remain in areas managed for timber production except in visually sensitive areas along highways and major river corridors.

Rivers Water quality will be high. Most of the stream segments on the Forest will have a natural appearance and improved channel conditions as a result of natural input of woody debris and steam enhancement projects On a broader scale, all of the river and stream systems on the Forest will have a natural appearance and a stable, functioning ecosystem.

The implementation of rehabilitation and improvement projects will result in increased populations of resident fish and increased habitat capacity for anadromous species

Travelways The road system needed for resource management and protection, completed at approximately 7,200 miles, will appear mature and more stable as vegetation is established on areas of exposed soil Reductions in new construction and reconstruction or closure and restoration of roads with stability problems will reduce the amount of erosion and soil movement Many roads will be maintained for timber harvest and public access, while others will be closed during certain times of the year or for certain uses to enhance wildlife habitat and to protect soil and water resource values.

Visual corridors along major highways, some Forest roads and rivers will appear natural or near natural Small openings and younger stands of trees may be apparent in some areas as a result of timber harvesting, although the retention of 10 green overstory trees in harvest units will create a varied texture

Wildlife Diversity Populations of species dependent on mature and old-growth habitats will be lower, but will be stable and remain above viable levels. Habitat for these species will exist primarily in areas withdrawn from timber harvest, in Wilderness and possibly some in long rotation management areas such as visual corridors.

Populations of threatened, endangered, or sensitive species will be above the levels necessary for viability and habitat will be available to maintain these populations.

Elk habitat quality will be lower in moderate and low emphasis areas, but will remain at or above the objective levels Habitat in high emphasis areas will be capable of supporting larger, stable population levels.

Recreation Demand for recreation will be higher Construction of additional developed recreation sites will provide increased opportunities for developed recreation activities

About 92,000 acres of the roadless area inventory will remain unroaded after 50 years. Other areas that were unroaded at the beginning of Plan implementation will be roaded.

Primitive and semiprimitive recreation opportunities will be limited to Wilderness and areas withdrawn from harvest. In Wildernesses, high use areas will be returned to a more primitive condition.

Community Each community will have capitalized on its uniqueness and involved its citizens in the development of a desired future Forest activities will continue to support the goals and plans of resource-dependent communities

FOREST MANAGEMENT OBJECTIVES

Objectives are the activities and outputs expected to achieve the Forest management goals and its desired future condition. The average annual levels of goods and services to be produced or made available for use on the Forest are summarized in Table IV-1 The annual funding levels necessary to supply the estimated outputs are also included in this table. The individual resource programs and the types of activities that may be implemented to produce the objectives listed in Table IV-I are briefly explained in the next section of this chapter, Resource Summaries

The annual schedule of outputs are not promises, but best estimates based on available inventory data and assumptions, subject to the annual budget. For example, the ASQ in the Forest Plan is the maximum amount of chargeable timber volume which may be sold in a decade, subject to the broad discretion of the Forest Service to sell timber as part of the multiple-use concept. In the event it becomes impossible to produce the mix of outputs and services as shown in this Plan, it is subject to change through amendment and revision as discussed in Chapter V

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

		Decade				
Output, Effect, Activity, or Cost	**Unit of Measure**	**1**	**2**	**3**	**4**	**5**
Developed Recreation Use	MRVDs	2,056	2,953	3,000	3,000	3,073
Nonwilderness Dispersed Recreation Use						
Semiprimitive Nonmotorized Use	MRVDs	52	52	52	52	52
Semiprimitive Motorized Use	MRVDs	64	76	76	76	76
Roaded Natural Use	MRVDs	1,278	1,880	2,100	2,200	2,310
Roaded Modified Use	MRVDs	376	553	627	719	839
Wilderness Recreation Use	MRVDs	342	342	342	342	342
Trail Construction	Miles	6 0	0 0	0 0	0 0	0 0
Trail Reconstruction	Miles	72	72	72	72	72
Developed Site Construction	PAOT	327	56	--	--	25
Developed Site Reconstruction	PAOT	844	953	---	---	1014
Visual Quality Objectives Allocations						
Preservation	M Acres	591 1				
Retention	M Acres	118 8				
Partial Retention	M Acres	171 7				
Modification	M Acres	143 0				
Maximum Modification	M Acres	650.8				
Unroaded Areas Assigned to Roaded Rx but Still Unroaded After First Decade	M Acres	52 7	30 6	---	---	0
Unroaded Areas Assigned to Unroaded Rx	M Acres	92 1	92 1	92 1	92 1	92 1

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

Output, Effect, Activity, or Cost	Unit of Measure	Decade				
		1	2	3	4	5
Big-Game Use	MWFUDs	145 0	177 O	--	--	168 0
Other Wildlife Use	MWFUDs	941 0	1,153 0	--	--	1,094 0
Anadromous Fish Use	MWFUDs	100 0	123 0	140 0	159 0	180 0
Resident Fish Use	MWFUDs	105 0	127 0	144 0	162 0	182 0
Spotted Owl Habitat Areas (Dedicated Sites)	Areas[1]	59	59	59	59	59
Bald Eagle (Protected Sites)	Sites[1]	24	24	24	24	24
Pileated Woodpeckers (Dedicated Sites)	Areas[1]	97	97	97	97	97
Marten (Dedicated Sites)	Areas[1]	100	100	100	100	100
Elk	PTI[2]	1 3	1 6	1 6	1 5	1 5
Deer	PTI[2]	1 4	1 7	1 7	1 6	1 6
Primary Cavity Excavators on Lands Suitable for Timber Harvest	%/bio-pot	40	40	40	40	40
Livestock Grazing Use	AUMs	200 0	200 0	200 0	200 0	200 0
Timber Sale Program Quantity (gross)[3]	MMBF	604				
Timber Sale Program Quantity (gross)[3]	MMCF	107 0	107 0	107 0	104 0	98 0
Allowable Sale Quantity (net)[4]	MMBF	491				
Allowable Sale Quantity (net)[4]	MMCF	87 0	87 0	87 0	87 0	87 0
Firewood[5]	M Cords	42 4	42 4	--	--	25 0
Reforestation	M Acres	9 1	9 4	8 0	8 0	8 1
Timber Stand Improvement[6]	M Acres	18 1	17 7	16 7	16 7	17 8
Long-Term Sustained Yield	MMCF	94 7				
Timber Growth	MMCF	46 9	61 7	66 5	79 3	88 9
Water Yield	M Ac-Ft	8,895 0	8,895 0	8,895 0	8,895 0	8,895 0
Erosion (Debris Slides)	M Cu Yds/Yr	34 0	15 5	12 4	11 9	11 6
Improved Watershed Condition	Acres	533 0	540 0	---	---	444 0
Old-Growth at End of Decade	M Acres	533 4	479 1	432 5	391 5	365 2
Road Construction	Miles	40	7	6	5	2
Road Reconstruction	Miles	174	171	171	171	171

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

Output, Effect, Activity, or Cost	Unit of Measure	Decade				
		1	2	3	4	5
Roads Suitable for Public Use						
Passenger Car	Miles	1,580	1,585	1,585	1,585	1,585
High Clearance Vehicles Only	Miles	4,530	4,550	4,570	4,570	4,570
Roads Closed	Miles	890	935	--	--	1,045
Available for Mineral Exploration	M Acres	1,082	1,082	1,082	1,082	1,082
Tentatively Scheduled Timber Harvest						
Clearcut	M Acres	9 1	9 4	8 0	8 0	8 1
Commercial Thin	M Acres	2 8	2 1	7 6	6 5	6 8
Lands Tentatively Suitable for Timber Production	M Acres	1,032 1				
Lands Suitable for Timber Production	M Acres	774 6				
Timber Yield on Suitable Lands						
Full Yield (95-100%)	M Acres	689 2				
75-94% of Full Yield	M Acres	42 9				
50-74% of Full Yield	M Acres	42 5				
1-49% of Full Yield	M Acres	0 0				
Fuel Treatment	M Acres	9 1	9 4	8 0	8 0	8 1
Total Budget (1982 base year $)	Million $	49 2	46 2	--	--	45 2
Returns to Government	Million $	101 2	108 0	--	--	117 6
Payments to Counties	Million $	25 3	27 0	--	--	29 4
Present Net Value - 15 Decades	Million $	2,858				
Changes to Jobs (Historic level = 12,187)	Number	+204[1]				
Changes in Income (1977 $ - Historic level = 238 5)	Million $[1]	-5 6				

[1]For total planning period, not annually
[2]Population Trend Index (PTI), trend values compared to a current level of 1 0, values reflect effects of habitat improvement
[3]Includes net green volume plus salvage, cull, unregulated, and miscellaneous convertible products
[4]Includes only live, sound wood
[5]Historically the firewood supply has come from a portion of the cull material, and is included in the Timber Sale Program Quantity above
[6]TSI includes release from competing vegetation, precommercial thinning, and fertilization
MRVDs = Thousands of Recreation Visitor Days
PAOT = Persons at One Time
M Acres = Thousand Acres
MWFUDs = Thousands of Wildlife and Fish User Days
%/bio-pot = Percent of Bio-potential
AUMs = Animal Unit Months
MMBF = Million Board Feet
MMCF = Million Cubic Feet
M Ac-Ft = Thousand Acre-Feet
M Cu Yds/Yr = Cubic Yards per Year

RESOURCE SUMMARIES

This section contains supplementary narrative information regarding resource objectives, outputs and schedules of planned activities. These resource summaries, augmented by detailed resource schedules, are the basis for developing the Forest's annual program of work and subsequent budget.

Soil and Water

The soil and water program is designed to meet the Forest's goals of providing quality water, maintaining fish habitat and riparian ecosystem functions, and enhancing soil productivity Management of soil and water is focused on coordination with all management activities to ensure protection and enhancement of watershed values. Monitoring efforts will focus on evaluating whether or not implementation of the Forest Plan is producing the desired water quality and stream condition, as well as verifying the cumulative effects assessment

The Willamette National Forest Soils Resource Inventory (Legard and Meyer 1973) serves as a source document for program and project planning It is supplemented and supported by existing technical expertise Programs and projects involving the soil resource will be evaluated in terms of the existing productive capacity and the anticipated changes to productivity if the proposed program or project is carried out Objectives for ground-disturbing projects are to prevent significant changes to soil productivity and to mitigate or restore degraded soils to the conditions that existed prior to the management activity if preventive measures cannot be applied during the project

The principal focus of the soil and water program is to minimize the effects of land management activities Through the application of the Forest-wide standards and guidelines (S&Gs), management area prescriptions, and Best Management Practices, water quality is intended to be in compliance with standards for the State of Oregon Watersheds with the greatest risk of experiencing effects on water resources will receive the most conservative blend of protective measures

The process of minimizing the effects of land management activities begins at the watershed level, with the scheduling of harvest and road construction in the 10-Year Action Plan On a Ranger District basis, the sensitivity of subdrainages will determine the amount of timber harvest throughout the decade Professional knowledge of current conditions, relative sensitivity and hydrologic recovery will be used to minimize the risk of negative consequences, by dispersing harvest activities where possible, to the subdrainages in the best condition In some instances, subdrainages will be scheduled for minimal harvest entry, for the express reason of collecting Knutson-Vandenberg funds (generated from timber sale receipts) for the purpose of rehabilitating and improving problem areas

Planning at the subdrainage or project level is the most appropriate for a focused cumulative effects analysis and site-specific design of mitigation measures and Best Management Practices. The scope and intensity of the subdrainage cumulative effects analysis will be predicated on the current condition and subdrainage sensitivity The attributes and relative sensitivity of areas within the subdrainages will be analyzed for cumulative or direct effects from past management and projected to options for future management, based on the most current knowledge, management direction, and desired condition of aquatic resources. The risk of increasing peak streamflow and channel instability will be analyzed using the hydrologic recovery slope stability concepts. Through the use of an interdisciplinary process, trade-offs between management options and relative risk of effects will be assessed As a result, a site-specific reasoned decision which best meets multiple-use goals and mitigates or avoids direct or cumulative effects will be implemented

An integral part of the soil and water program is the rehabilitation or improvement of road stability, soil productivity, water quality, and stream channel stability. Projects will be implemented if flood or fire damage occur, if protective measures fail, or if opportunities for improvement are present. The amount of work accomplished will be dependent upon funding availability as well as the occurrence of catastrophic flood events.

Fire/Fuels

A full fire prevention program will be implemented and high use areas will be patrolled on Precaution Class II and higher days and peak use periods. Four primary (including Warner Mountain) and three emergency lookouts will be staffed Aerial detection on Precaution Class II and higher days and after lightning storms, will be provided. An initial attack program which emphasizes cost-effective presuppression and suppression while minimizing resource loss will be provided.

Logging residue will be utilized for multiple purposes including fuelwood and other commercial products while achieving reforestation and air quality objectives. Prescribed burning will be limited to times and sites which will not impact high use areas of the Forest and population centers adjacent to the Forest. All prescribed burning will be performed in compliance with the State of Oregon Smoke Management Plan, State of Oregon Implementation Plan for the requirements of the Clean Air Act, and the USDA--Forest Service Pacific Northwest Regional Guide.

Fish and Wildlife

Table IV-2 summarizes habitat improvement activities of the Forest Plan.

Table IV-2. Fish and Wildlife Habitat Improvements

Species	Unit of Measure	Amount
Deer and Elk	Acres	51,300[1]
Primary Cavity Excavators	Trees	13,000
Wildlife Structures	Structure	4,510
Bald Eagle/Peregrine Falcon	Sites	50
Anadromous Fish	Stream Miles	60
Resident Trout	Acres	1,450

[1]Includes prescribed fire as enhancement activity

Implementation of the Forest Plan provides for an increase in the number of catchable trout and an increase in anadromous fish habitat capability as shown in Table IV-3. The smolt habitat capability index used to project the increases was based on the best available information. Stream habitat surveys will be conducted on all anadromous fish-bearing streams on the Forest to provide new and better information for fish management activities The smolt habitat capability index will be revised, based on rearing habitat capability and density coefficients derived from the site specific studies or rearing habitat capability and density coefficients agreed to by fisheries and land management agencies within

the Columbia Basin Planned increases in fish production during the first decade are provided through application of S&Gs for soil, water, and riparian habitat, and direct improvement projects

Table IV-3. Smolt Habitat Capability Index

	Smolt Produced[1]
Existing Habitat	438
Potential Habitat	569
Total	1,007

[1]Coefficients described in *Anadromous Fish Planning Coefficients, 1920 memo, May 1, 1987* Index is thousands of smolts

The Forest Plan provides dedicated areas of mature and old-growth tree habitat to ensure maintenance of viable populations of selected management indicator species, surrogates for a diversity of species dependent on old-growth habitat In addition to dedication of habitat areas, management coordination with other resources, especially timber, recreation, fish, fire and fuels management, and road development, is undertaken to maintain or improve conditions of these areas The Forest-wide S&Gs and the management area prescriptions provide the basis for coordination among Forest resources

This Plan dedicates suitable habitat areas of mature and old-growth timber to sustain the Management Requirement (MR) level of 60 verified pairs of spotted owl and provides suitable habitat for an additional 35 verified pairs within several no-harvest management areas Habitat provided for pine marten and pileated woodpecker during the Plan period includes 100 and 38 areas respectively, in addition to habitat shared with the spotted owl Primary cavity excavators, a group of wildlife species dependent on dead and defective trees, are maintained by providing 1 6 hard snags per acre in all conifer types by successional stages. This action is expected to maintain populations of primary cavity excavators at 40% of their biological potential Forest-wide Table IV-4 is a summary of wildlife habitats to be maintained during the Plan period.

The effectiveness of big-game habitat will be affected during the Plan period, through adjustments of the Forest's existing cover/forage ratio Emphasis is placed on management of cover quality, forage quality, and open road density to improve the conditions and quality of big-game habitat With major areas of the Forest managed to maintain relatively high levels of habitat effectiveness for deer and elk populations are planned to increase

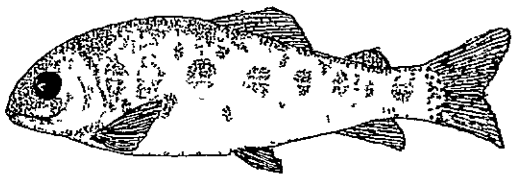


Table IV-4. Summary of Wildlife Habitats

HABITATS				
Old Growth	Dedicated Habitat Acres[1]			
Management Indicator Species	Acres Suitable for Harvest	Acres Unsuitable for Harvest and Withdrawn	Total Forest-wide	Number of Dedicated Sites Explicitly for Each MIS
Spotted Owl	69,045	17,581	86,626	59
Pileated Woodpecker	8,318	3,668	11,986	38
Marten	13,587	3,178	16,765	100

Threatened and Endangered	Habitat Acres			Number of Habitat Sites		
Management Indicator Species	Dedicated Existing Use[2]	Potential Use[3]	Total	Existing[2]	Potential[3]	Total
Bald Eagle	1,472	2,500	3,972	4	20	24

Winter Range	Available Habitat Acres[4]		
Management Indicator Species	Optimal Cover	Total Winter Range	Percent Optimal Cover[5]
Deer and Elk	269,950	624,740	43%

Dead and Decaying	Percent Biological Potential	
Management Indicator Species	Based on Suited Acres for Harvest	Based on Total Acres Forest-wide
Primary Cavity Excavators	40	45

[1]Acres adjusted due to minimum mapping resolution of 21 3 acres
[2]Roosting, foraging, and nesting habitat identified in Bald Eagle Mgmt. Plans
[3]Potential nest sites identified around key feeding area and existing nest sites without management plans complete
[4]Habitat provided at beginning of first decade
[5]Based on a Forest-wide average, individual subdrainages will provided varying amounts of optimal cover

This Plan also establishes special fish and wildlife related habitat areas for selected species and uses A special habitat management plan that provides detailed direction or management requirements specific to the wildlife species of concern will be prepared for each habitat area Approximately 85 special habitat areas totalling over 31,555 acres are established by this Plan and will provide a broad spectrum of habitats including meadows, elk wallows, cliffs and talus

Threatened and Endangered Species

The bald eagle and peregrine falcon are Federally-listed threatened and endangered species found on this Forest. The bald eagle requires forested habitat containing old-growth conifer trees for nesting located in close proximity to available food sources The peregrine falcon requires rock cliffs containing ledges for nesting and abundant populations of prey species

Recommendations received from the USDI Fish and Wildlife Service (USFWS) as a result of informal consultation have been incorporated into this Plan

Bald eagle habitat is provided by land allocations in three MAs and by Forest-wide S&Gs Protecting habitat for the bald eagle is accomplished by prohibiting habitat alterations, restricting access, and limiting disruptive influences from adjacent areas Active bald eagle territories (MA 8) shall have site specific management plans prepared in cooperation with the USFWS and Oregon Department of Fish and Wildlife (ODFW) Potential roost sites and foraging perches will be protected by land allocations specific to MA 10f (Lakeside areas) and MA 15 (Riparian).

The 7 known active bald eagle nest sites and 18 potential sites will be protected during the Plan period Forest Plan direction, as well as providing for the care and maintenance of currently used habitats, requires that utilized habitat discovered during the life of the Plan shall be managed in accord with S&Gs applicable to presently active habitat

Forest-wide S&Gs provide direction for protection and conservation of peregrine falcons. One active nest site has been documented on the Forest A site specifec management plan will be prepared in cooperation with the USFWS and ODFW Twelve additional sites with high potential have been identified and will be protected under S&Gs for MA 9d (special wildlife habitat)

There are no Federally-listed threatened or endangered plant species known to be present in the Forest Sensitive species are those plant species for which viability is a concern A listing of sensitive plants is maintained by the Regional Forester and is updated periodically If a listed plant is found to occur a determination is made as to the extent of the population so as to analyze potential impacts of the proposed project and develop mitigation measures to avoid any adverse consequences

Forest-wide S&Gs require preparation of site specific biological evaluations for activities having the potential to impact proposed, endangered, threatened, or sensitive plant and animal species

Monitoring plans (Chapter V) have been revised to include productivity and population surveys for bald eagles, peregrine falcons, and other sensitive species Monitoring will address the implementation and effectiveness of Forest direction for the conservation of proposed, endangered, threatened, and sensitive plant and animal species

Cultural Resources

Cultural resource inventory and evaluation, according to established prescriptions and consultation procedures, will precede all ground-disturbing projects Appropriate historic preservation laws, regulations and policies, in addition to the Forest-wide S&Gs will direct future management decisions regarding cultural resources

In managing cultural resources, emphasis will be placed on conducting inventories of site areas of proposed ground disturbing projects on a stratified basis. In addition to updating the Forest's cultural

resources overview, efforts will be employed to ensure the rights of Native Americans to practice their traditional religion. Interpretation of cultural sites and public awareness efforts will be continued for the life of this Plan at existing levels Table IV-5 summarizes specific cultural resource program actions to be taken during the course of Plan implementation.

Table IV-5. Projected Cultural Resource Program

		Plan Period in Years									
Activity	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Inventory Area	M Acres										
Project		61	58	54	64	53	58	58	56	60	58
Non-Project Related		6	6	6	6	6	6	6	6	6	6
Inventory Sites	Sites	88	84	76	92	78	84	84	82	86	84
Evaluations	Sites	20	20	19	18	21	18	19	19	20	19
Data Recoveries	Sites	1	1	2	1	1	1	1	1	1	1
Management Plans	Plans	1	1	1	1	1	1	1	1	1	1
Overview Updates	Number	--	--	--	--	1	--	--	--	--	1

Recreation

A broad range of recreation opportunities is provided, ranging from semiprimitive dispersed areas to highly developed facilities

Developed Sites All existing developed sites are maintained for public use. Current capacity for both publicly and privately managed sites will be expanded during the life of this Plan All new sites, current fee sites, and high use non-fee sites will be operated and maintained for optimum levels of public use at a standard service level. Operation and maintenance of all other publicly managed sites will be provided at a less than standard service level. Table IV-6 is a summary of existing and proposed developed sites provided for public use during the effective period of this Plan

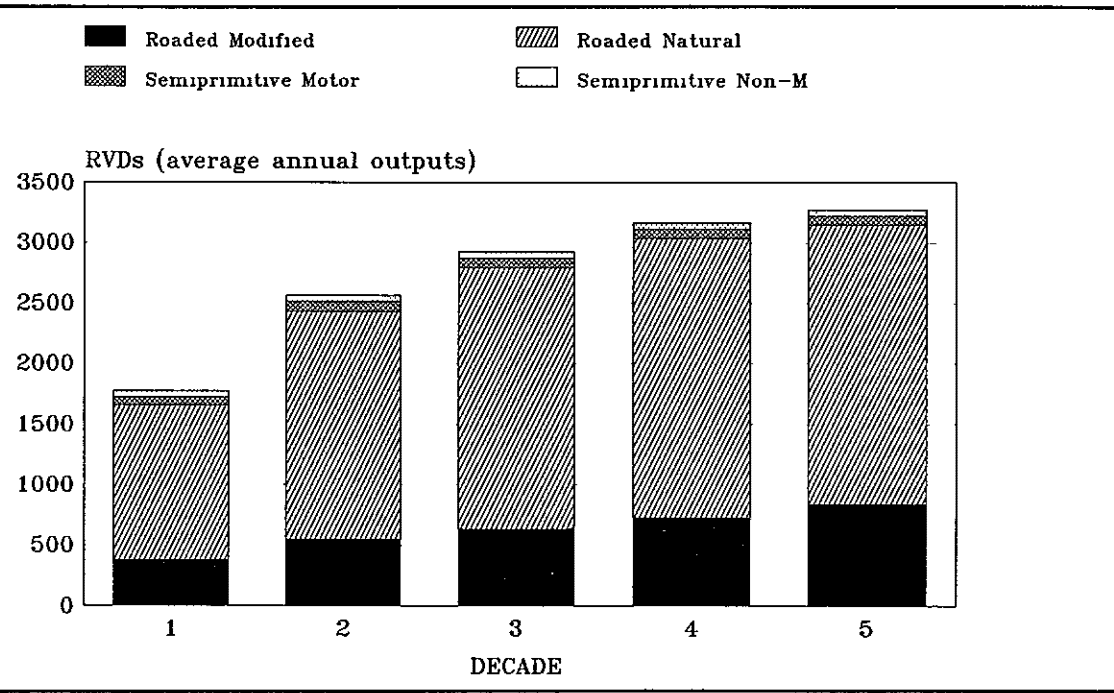
Table IV-6. Developed Recreation Sites

Management Sector	Existing Sites	New Sites	Total Sites
Public			
Number of Sites	174[1]	25	199
Private[2]			
Number of Sites	30	5	35
Total Number of Sites	204	31	235

[1]Managed season is equal to 108 days
[2]Areas provided for private development

Dispersed Areas A full range of dispersed recreation opportunities is provided during the Plan period. Semiprimitive recreation use, as inventoried under the Recreation Opportunity Spectrum (ROS), is available from 121,816 acres of Forest land: 85,768 acres nonmotorized, and 36,048 acres motorized. Figure IV-1 illustrates the estimated average annual visitor day outputs for dispersed recreation opportunities over a five decade period

Figure IV-1. Dispersed Recreation Opportunities and Outputs



		RVDs by Decade[1]				
ROS Class	**Acres Allocated**	**1**	**2**	**3**	**4**	**5**
Semiprimitive Nonmotorized	85,768	51 8	51 8	51 8	51 8	51 8
Semiprimitive Motorized	36,048	64 0	76 3	76 3	76 3	76 3
Roaded Natural	378,991	1,278 4	1,879 8	2,160 2	2,309 0	2,309 8
Roaded Modified	793,775	376 5	553 0	635 5	730 3	839 2
TOTAL		1,770 7	2,560 9	2,923 8	3,168 2	3,277 1

[1]Average Annual Outputs

Semiprimitive recreation experience opportunities provided by this Plan may be obtained from numerous areas within the Forest. Table IV-7 is a listing of areas established to provide for both motorized and nonmotorized dispersed recreation use opportunities Roaded Natural and Roaded Modified recreation experience opportunities are also available throughout the Forest as provided from a wide array of management areas.

Table IV-7. Designated Semiprimitive Recreation Areas

Area Name	District	Recreation Opportunity Type	Acres
Henline Mountain	Detroit	Semiprimitive Nonmotorized	6,236
Bachelor Mountain	*Detroit*	*Semiprimitive Motorized W/Harvest*	2,716
Big Meadows	Detroit	Semiprimitive Nonmotorized W/Harvest	960
Lava Lake	Sweet Home	Semiprimitive Nonmotorized	2,368
Echo Mountain	Sweet Home	Semiprimitive Nonmotorized	3,491
Gordon Lakes	Sweet Home	Semiprimitive Nonmotorized	1,846
Browder Ridge	Sweet Home	Semiprimitive Nonmotorized	4,074
Santiam Pass	McKenzie	Semiprimitive Motorized W/Harvest	16,929
Scott Lake	McKenzie	Semiprimitive Nonmotorized	2,730
Obsidian	McKenzie	Semiprimitive Nonmotorized	490
English Mountain	McKenzie	Semiprimitive Nonmotorized	2,001
Deer Butte-Cupola Rock	McKenzie	Semiprimitive Nonmotorized	3,794
Highway 242-Scott Lake	McKenzie	Semiprimitive Motorized	3,010
Slick Creek/Bed Rock Creek	Lowell	Semiprimitive Nonmotorized	2,235
Hardesty Mountain	Lowell	Semiprimitive Nonmotorized	768
Chucksney Mountain	Oakridge	Semiprimitive Nonmotorized	9,564
Waldo Lake-Road Corridor	Oakridge	Semiprimitive Motorized	9,724
Waldo Lake	Oakridge	Semiprimitive Nonmotorized	24,057
Larison Rock	Rigdon	Semiprimitive Nonmotorized	2,816
Larison Creek	Rigdon	Semiprimitive Nonmotorized	2,495
Emigrant Creek	Rigdon	Semiprimitive Nonmotorized	960
Emigrant Pass	Rigdon	Semiprimitive Motorized	2,325
Bulldog Rock	Rigdon	Semiprimitive Nonmotorized	533
Oregon Cascades Recreation Area	Rigdon	Semiprimitive Nonmotorized	4,906
Oregon Cascades Recreation Area	Rigdon	Semiprimitive Motorized	1,152

The Oregon Cascades Recreation Area (OCRA) was established by Congress through the Oregon Wilderness Act of 1984 and provides additional dispersed recreation opportunities. This unique area was established by Congress ". . . to conserve, protect, and manage, in a substantially undeveloped condition, certain National Forest System lands in the State of Oregon having unique geographic, topographic, biological, ecological features and possessing significant scenic, wildlife, dispersed recreation, and watershed values within the Umpqua, Willamette, Winema, and Deschutes National Forests." (Oregon Wilderness Act of 1984)

The Willamette National Forest's portion (6,122 acres, including developed sites) of the OCRA includes both dispersed and developed recreation opportunities, consisting of two non-fee campgrounds and 20.2 miles of developed trails The area is apportioned spatially and seasonally among developed sites, and dispersed motor and nonmotorized use opportunity areas.

The Oregon Cascades Recreation Area (OCRA) is managed to provide for motorized use over the undeveloped areas when snow depths permit and on designated trails during snow free periods. The Pacific Crest National Scenic Trail is closed to motor use all year For additional information on the management of the OCRA, see management area prescriptions 2a, and 2b in this chapter of the Forest Plan and the OCRA Management Plan in Appendix B of this document

Off-Road Vehicles This Plan maintains 57% of the Forest as open to off-road vehicle (ORV) use Six percent of the Forest area is restricted to seasonal use of ORVs and 37% of the Forest is closed to ORV use For a general display of management areas open, restricted, or closed to ORV use, refer to the Forest Plan map included in the accompanying map packet and management area S&Gs in this chapter Specific management direction concerning regulation and management of ORVs, ATVs and mountain bikes will be provided through development of Ranger District Recreation Access and Travelway Management Guides Refer to Forest-wide S&Gs for Travelway Management Guide requirements and Appendix D for the proposed development schedule for these guides

Trails Existing and potential trails included in this Plan are managed in accord with the S&Gs of one of four Trail Management Classes. The description of Trail Management Classes I through IV and management direction are included in Forest-wide S&Gs In addition a complete listing of existing and potential trails, by name, respective Trail Management Class, trail number, and length in miles is included in Appendix G of this document A summary of how the Forest's existing and potential trail system is distributed among the four Trail Management Classes is provided in Table IV-8 and is displayed on the Forest Trail System map.

This Plan schedules the construction of 60 miles of new trails during the next 10 to 15 years Development priority for new trails is given to those located with in semiprimitive recreation areas and to provide access to new recreation opportunities included in this Plan Existing nonwilderness trails will be reconstructed and maintained on a regularly scheduled basis Trail reconstruction is scheduled for 720 miles of Forest trails during the effective period of this Plan

Table IV-8. Trail Management Classes [1]

Management Classes	Existing Trail Miles[2]	Potential Trail Miles[2]	Total Miles
Trail Class I	349 1	231 4	625 5
Trail Class II	115 0	78 1	193 1
Trail Class III	127 7	92 6	220 3
Trail Class IV	76 9	150 1	227 0
Total Miles	713 7	552 2	1,265 9

[1]Mileages are for non-Wilderness trails
[2]Trail management classes are defined by the Forest-wide Trail standards and guidelines in this chapter

Scenic Resources

Management of the Forest's scenic resources is emphasized within the viewsheds of federal and state highways and major Forest roads. The visible land areas adjacent to selected travel routes are managed for a variety of Visual Quality Objectives (VQOs) including retention, partial retention, and modification.

Viewshed corridor management guides to be developed during the Forest Plan period will provide implementation guidance for vegetation manipulation activities Viewshed guides will provide information on the location, distribution, and design of harvest activities to ensure attainment of the desired future condition of each viewshed corridor and enhance long-term visual characteristics of the Forest. Table IV-9 displays the amount of area scheduled for harvest treatment within each viewshed corridor by management area and decade The amount of forest area shown as available of treatment is based on the amount of suited land, management area harvest rate and harvest history with in each viewshed.

In addition to timber harvest activities, landscape management and design principles will also be utilized in the planning and implementation of a wide range of other resource management activities. A schedule for development of viewshed corridor management guides is included in Appendix D of this document

Table IV-9. Schedule of Viewshed Harvest Acres by Decade

	Available Acres by Management Area (MA)					
Viewshed	MA	Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
Little North Santiam	MA 11a	343	343	343	343	343
	MA 11b	5	5	5	5	5
	MA 11d	10	10	10	10	10
	MA 11f	81	81	81	81	81
	MA 14a	353	353	353	353	353
Breitenbush	MA 11a	890	890	890	890	890
	MA 11c	341	341	341	341	341
	MA 11d	102	102	102	102	102
	MA 14a	2347	2352	2352	2352	2352
North Santiam	MA 11a	1,446	1,446	1,537	1,537	1,537
	MA 11c	883	929	929	929	929
	MA 11d	109	109	114	114	114
	MA 11f	254	254	254	254	254
	MA 14a	1,733	1,733	1,733	1,733	1,733
South Santiam	MA 11a	1,660	1,660	1,660	1,660	1,660
	MA 11c	219	219	219	219	219
	MA 11d	0	25	25	25	25
	MA 11f	223	223	223	223	223
	MA 14a	902	902	902	902	902

Table IV-9 Cont. Schedule of Viewshed Harvest Acres by Decade

	Available Acres by Management Area (MA)					
Viewshed	**MA**	**Decade 1**	**Decade 2**	**Decade 3**	**Decade 4**	**Decade 5**
McKenzie	MA 10b	288	288	288	288	288
	MA 11a	475	475	475	475	475
	MA 11c	758	758	762	762	762
	MA 11e	311	311	311	311	311
	MA 11f	232	232	232	232	232
	MA 14a	5,325	5,325	5,325	5,325	5,325
North Fork/South Fork	MA 6b	0	0	0	19	19
	MA 6c	210	210	210	210	210
	MA 11a	3,578	3,578	3,578	3,578	3,578
	MA 11c	230	230	230	230	230
	MA 11d	91	91	91	91	91
	MA 11f	0	16	16	16	16
	MA 14a	1,884	1,884	1,884	1,884	1,884
Fall Creek	MA 11c	520	520	520	520	520
	MA 14a	4,760	4,760	4,760	4,760	4,760
Willamette	MA 11a	1,837	1,837	1,841	1,841	1,841
	MA 11c	1,470	1,470	1,470	1,470	1,470
	MA 11d	27	27	27	27	27
	MA 11f	459	459	459	459	459
	MA 14a	4,362	4,362	4,362	4,362	4,362
Waldo	All MAs	0	0	0	0	0
Middle Fork Willamette	MA 11a	1,614	1,614	1,651	1,651	1,651
	MA 11c	603	603	615	615	615
	MA 11d	249	249	249	249	249
	MA 11f	99	99	99	99	99
	MA 14a	4,736	4,736	4,736	4,736	4,736

Wilderness

The Oregon Wilderness Act of 1984 established four new Wildernesses in the Forest for a total of eight. Management of the Forest's eight Wildernesses is governed by S&Gs for management areas 1a through 1d in the Management Area section of this Chapter, and by individual Wilderness Management Plans included in Appendix A. Use opportunities to be provided from each Wilderness during the effective period of this Forest Plan are illustrated in Table IV-10.

Management of Wilderness resources and conditions is focused on accommodating Wilderness use within the limits of estimated capacity. S&Gs for managing Wilderness use within the limits of Wilderness Resource Spectrum class capacities are provided in each Wilderness management area prescription in this chapter. In addition, a series of specific sequential actions are listed under Management Area 1 that will be employed as necessary to eliminate and mitigate the effects of excessive use in Wilderness. Trail maintenance, resource protection, and site rehabilitation measures will be employed routinely. During the Plan period 29 miles of Wilderness trails will be reconstructed annually. Wilderness management activities are also directed toward protecting and maintaining soil mantles, water quality, wildlife habitats and vegetative communities

Table IV-10. Wilderness Resource Spectrum Classes

Wilderness	Units	Pristine	Primitive	Semi-Primitive	Transition	Total
Bull of the Woods	Acres	6,314	1,152	0	0	7,466
	PAOT[1]	1-5	5-35	0	0	6-40
Mt Jefferson	Acres	55,501	9,335	7,337	192	72,565
	PAOT	27-41	134-207	172-227	14-16	347-491
Middle Santiam	Acres	7,188	256	1,109	0	8,533
	PAOT	2-5	7-8	26-68	0	35-81
Menagerie	Acres	4,352	0	597	0	4,949
	PAOT	1-3	0	3-37	0	9-40
Mt Washington	Acres	36,992	2,560	1,514	0	40,996
	PAOT	17-28	76-79	92-94	0	195-201
Three Sisters	Acres	147,880	22,610	17,427	1,429	189,346
	PAOT	70-111	234-350	360-432	71-79	735-972
Waldo Lake	Acres	27,025	4,373	5,439	320	37,157
	PAOT	13-20	82-135	202-236	33-35	330-426
Diamond Peak	Acres	14,590	3,467	1,536	170	19,773
	PAOT	6-11	72-107	55-76	20-22	153-216
TOTAL	Acres	299,773	43,963	34,958	2,111	380,805
	PAOT	147-224	610-921	915-1,170	138-152	1,810-2,467

[1]Persons At One Time

Special Areas

In addition to Lamb Butte, a previously established Special Interest Area, 44 new Special Interest Areas are provided to preserve special cultural, historic, geologic, zoologic, botanic and scenic qualities of the Forest Management actions within these areas will focus on protection of the important historic, cultural, and natural aspects of the nation's heritage, and where appropriate, foster public use, study and enjoyment of designated lands

Use within designated areas will be managed to the extent necessary to protect the unusual features of individual sites. Area management guides which provide direction and detailed implementation requirements will be prepared as appropriate to the conditions and features of each area Table IV-11 is a listing of each Special Interest Area established by this Plan

Table IV-11. Designated Special Interest Areas

Area Name[1]	Ranger District	Approximate Acres	Classification
Baby Rockshelter	Oakridge	107	Cultural
Bradley Lake	Rigdon	789	Botanical
Carpenter Mountain	Blue River/McKenzie	576	Geological
Chuckle Springs	Rigdon	107	Scenic
Clear Lake	McKenzie	469	Geological
Constitution Grove	Oakridge [2]	21	Scenic
Cougar Rock	Sweet Home	171	Cultural
Daly-Parrish Lakes	Sweet Home	405	Scenic
David Douglas	Oakridge	1,152	Geological
Deadhorse Rockshelter	Rigdon	43	Cultural
Doe Mountain	Sweet Home	149	Cultural
Eagle Creek	Oakridge	449	Scenic
Fall Creek	Lowell	2598	Recreational
Fish Lake	McKenzie	235	Cultural
Gold Hill	Sweet Home/Blue River	1,152	Cultural
Hardesty Mt	Lowell	3,178	Ecological
Hell Hole	Oakridge	85	Geological
Hidden/Lulu Lakes	Blue River	597	Botanical
Hills Creek	Detroit	256	Zoological
Horsepasture Cave	Rigdon	21	Cultural
Iron Mt/Cone Peak	Sweet Home	2560	Botanical
Lamb Butte	McKenzie/Blue River	390	Scenic
McKenzie River	McKenzie/Blue River	1,386	Recreational
Monument Peak[3] [4]	Detroit	384	Botanical

Table IV-11 Cont. Designated Special Interest Areas

Area Name[1]	Ranger District	Approximate Acres	Classification
Moon Point [5]	Rigdon	2,005	Botanical
OCM Wagon Road	Rigdon	43	Cultural
Opal Creek	Detroit	298	Scenic
Phantom Natural Bridge	Detroit	128	Geology
Pinnacle Peak	Detroit	235	Geological
Rider Swamp	Blue River	21	Botanical
Rigdon Ranch	Rigdon	107	Cultural
Riggs-Don Lakes	Sweet Home	192	Scenic
Roaring River Springs	Blue River	256	Geological
Salt/Diamond Canyon	Oakridge	555	Scenic
Sand Mountain	McKenzie	363	Geological
Santiam Wagon Road	Sweet Home/McKenzie	2,559	Cultural
Shelter Falls	Sweet Home	64	Geological
South Fork McKenzie	Blue River	4,180	Recreational
Tamolitch Valley[3]	McKenzie	149	Geological
Terwilliger Hot Springs	Blue River	96	Geological
Three Pyramids	Sweet Home	1,877	Botanical
Tumblebug Gorge[3]	Rigdon	469	Geological
Vine Rockshelter	Rigdon	21	Cultural
White Cliffs Cave	Oakridge	21	Cultural
Wolf Rock/Lake[3]	Blue River	576	Geological/Botanical
TOTALS 45 Areas	--	31,120	--

[1]Descriptions of individual areas are included in the planning record
[2]Included within the NF MF Willamette Wild and Scenic River corridor
[3]Areas recommended for establishment in the 1977 Land Management Plan.
[4]Establishment Report--Monument Peak SIAs, March 24,1981.
[5]Moon Point Environmental Assessment--Interim Management Plan, March 16,1982

Other special areas established in this Plan are Old-Growth Groves. Outstanding and highly accessible specimen groves of old-growth trees of the Western Cascades are established for education, use and enjoyment by the public Designated groves are managed to provide access to educational, recreational, and aesthetic opportunities, and to provide habitat for old-growth dependent plant and animal species An area management guide will be prepared for each grove that provides detailed management and project implementation guidance specific to the features and conditions of each grove. Table IV-12 is a listing of each Old-Growth Grove designated in this Plan

Table IV-12. Designated Old-Growth Groves[1]

Old-Growth Grove	District	Dominant Species	Significant Attribute	Acres
Big Swamp	Rigdon	Douglas fir/w redcedar	Tree diameter	192
Camp Creek	Sweet Home	Noble fir	Tree diameter	363
Castle Rock	McKenzie	Douglas fir	Accessibility	43
Cayuse Creek	Oakridge	Douglas fir/true fir	Tree diameter	43
Cliff's Creek	Detroit	Douglas fir/w hemlock	Accessibility	107
Delta	Blue River	Douglas fir/true fir	Accessibility	149
Elk Camp	Oakridge	Douglas fir, Pacific silver fir	Outstanding example	128
Fall Creek	Lowell	Douglas fir	Tree diameter	85
Fisher Creek	Oakridge	Douglas fir	Tree diameter	85
Fish Lake Creek	McKenzie	Douglas fir	Stand Density	43
Gold Lake	Oakridge	Douglas fir/Mtn hemlock	Outstanding example	448
Hackleman Creek	Sweet Home	Douglas fir/W white pine	Accessibility	21
Highway 20	McKenzie	Douglas fir	Stand Density	85
Hugging Tree	Lowell	Douglas fir	Tree diameter	21
Indian Creek	Sweet Home	Douglas fir/w white pine	Outstanding example	43
Joe's Prairie	Rigdon	Douglas fir	Tree Diameter	85
Johnny Creek	Lowell	Douglas fir	Stand Density	43
Kelsey Creek	Oakridge	Douglas fir	Tree diameter/age	192
Little Fall Creek I	Lowell	Douglas fir	Tree height	107
Little Fall Creek II	Lowell	Douglas fir	Tree height	192
Lost Creek	McKenzie	Douglas fir/w redcedar	Accessibility	192
Outerson Mountain	Detroit	Alaska yellow cedar/w hemlock	Outstanding example	384
Sardine Butte	Oakridge	Douglas fir	Tree diameter/age	64
Scar Creek	Sweet Home	Douglas fir/T fir/w red cedar	Outstanding example	85
Scar Mountain	Sweet Home	True fir	Park-like stand	192
SevenMile	Sweet Home	Douglas fir	Outstanding example	85
Slick Creek/Bedrock	Lowell	Douglas fir	Stand Density	43
South Fork Breitenbush	Detroit	Douglas fir/w hemlock	Accessibility	384
Three Creeks	Sweet Home	Douglas fir	Tree diameter/age	1792
Tumble Lake	Detroit	Alaska y cedar/Douglas fir	Outstanding example	576
Upper Furnish Creek	Oakridge	Douglas fir/Pacific s fir	Stand diversity	128
Upper Salmon Creek	Oakridge	Noble fir	Park-like stand	64
Wall Creek	Oakridge	Douglas fir/w redcedar	Accessibility	107
Whitewater Bend	Detroit	Douglas fir/w hemlock	Accessibility	85
TOTALS	34 Areas	--	--	6,655

[1]Descriptions of individual areas are included in the planning record

Research Areas

Areas provided for research in this land management Plan include one Experimental Forest and nine Research Natural Areas (RNAs)

H.J. Andrews Experimental Forest The H J. Andrews Experimental Forest (HJA) was established in the Blue River Ranger District in 1948 as a site for research and education on the ecology and management of coniferous forest and watersheds in the Douglas-fir region of Oregon by the Pacific Northwest Forest and Range Experiment Station. Through a use agreement, Oregon State University uses the HJA extensively in teaching programs and for student research projects. Management of the Experimental Forest is a joint effort of the Pacific Northwest Forest and Range Experiment Station and the Forest. During the life of this Plan, the HJA will continue to provide research data to Forest managers related to the efforts of timber harvest and road construction on soils, water quality and quantity, fisheries and wildlife habitats

Research Natural Areas Research Natural Areas (RNAs) are part of a federal system of tracts established for non-manipulative research and educational purposes Each RNA is a site where some features are preserved for scientific purposes and natural processes are allowed to dominate. Their main purposes are to provide: (1) baseline areas against which effects of human activities can be measured, (2) sites for study of natural processes in undisturbed ecosystems; and (3) gene pool preserves for all types of organisms, especially those which are classified as rare and endangered.

Of the nine RNAs included in this Plan, four areas were formally established during the period of 1963 to 1979. The remaining five areas and one proposed addition to an established area are included as candidate RNAs to be formally established by the Chief of the Forest Service Table IV-13 lists established RNAs and areas proposed for establishment as RNAs

The five candidate areas plus the proposed Wildcat Mountain RNA addition have been determined by the Research Natural Area committee for the Pacific Northwest Region, to represent the best examples of specific ecosystems in the region; and are needed to meet present and future demand for research opportunities. However, prior to formal establishment, a comprehensive report will be prepared for each candidate area and submitted for approval.



Table IV-13. Established and Proposed Research Natural Areas

Area Name	Status	Acreage	Attribute Description
Middle Santiam[1]	Est 1979	1,152	Old-growth Douglas-fir/Western Hemlock Forest
Wildcat Mountain	Est 1968	1,003	Noble fir stands of the Western Cascades
Ollalie Ridge	Est 1963	725	Mt Meadows-true fir/Mt hemlock in W Cascades
Gold Lake Bog	Est 1965	469	Prime subalpine bogs
Wildcat Mountain Addition	Proposed	384	Noble fir stands of the Western Cascades
Three Creeks	Proposed	725	Old-growth Douglas-fir of extreme age W Cascades
McKenzie Pass[1]	Proposed	1,130	Vegetation of subalpine lava flows
Mt Hagan	Proposed	1,280	Second growth Douglas-fir
Torrey-Charlton[1]	Proposed	2,133	High Cascades Mt Hemlock/subalpine lakes/ponds
Rigdon Point	Proposed	469	Knobcone pine in dry site Douglas-fir type
Total Acres	--	9,470	--

[1]Portions of these areas, totaling 2,346, acres are included within designated Wilderness

Wild and Scenic Rivers

Protection and management of Wild and Scenic Rivers is provided in this Plan for 2 designated Wild and Scenic Rivers, 2 designated Wild and Scenic Study Rivers, and 9 rivers determined eligible for inclusion into the National Wild and Scenic Rivers System Protection and management of free-flowing conditions and outstandingly remarkable values of designated, study, and eligible rivers is provided, at the highest river classification for which they qualify, in accord with the Wild and Scenic Rivers Act of 1968 (as amended) and the management area S&Gs for Wild and Scenic Rivers included in this Plan These management S&Gs apply to a designated river until a River Management Plan is approved and to a designated Study River until it has been determined not suitable for inclusion into the National System Protection of eligible rivers is also extended until a river segment is determined not suitable for inclusion into the National System

This Plan schedules continued river management planning through the development of River Management Plans for the McKenzie River and The North Fork of the Middle Fork of the Willamette River during 1991; the completion of suitability studies for the Blue River and the South Fork of the McKenzie River during 1991; and suitability studies of 9 eligible rivers during the period 1991-1994. The current designation status, river classification, and related information of Forest rivers, whose free-flowing conditions and outstandingly remarkable values are protected in this Plan, is provided in Tables IV-14a,b,c.

As Wild and Scenic River planning activities are completed, the Forest Plan will be amended as necessary to incorporate river management plans for the McKenzie River and the North Fork of the Middle Fork of the Willamette River as well as the results of the suitability studies of the 11 rivers listed in Table IV-14b and 14c Also, as directed by the Wild and Scenic River Act, completed river plans will include final corridor boundaries and specific management direction for each designated river. See Forest-wide and management area S&Gs in this chapter for current direction for designated and potential Wild and Scenic rivers. A complete description of each river is in Appendix E of the FEIS.

Table IV-14a. Designated Wild and Scenic Rivers

River	Segment	River Class	Outstanding Values	Miles	Acres [1]
McKenzie River	Segment 1	Recreation	Recreation	1 8	749
	Segment 2	Recreation	Scenic	4 3	1,789
	Segment 3	Recreation	Fish Geology H2O Quality	6 6	2,091
NF of the MF Willamette River	Segment 1	Wild	Recreation	8 8	2,820
	Segment 2	Scenic	Scenic	6 5	1,850
	Segment 3	Recreation	Ecological Geology H2O Quality	27 0	8,160

Table IV-14b. Wild and Scenic Study Rivers

River	Segment	River Class	Outstanding Values	Miles	Acres [1]
Blue River	Segment 1	Recreation	Unknown	8 5	2,720
SF of the McKenzie River	Segment 1	Wild	Unknown	5 2	1,664
	Segment 2	Recreation	Unknown	16 0	5,120
	Segment 3	Recreation	Unknown	4 5	1,440

Table IV-14c. Wild and Scenic Eligible Rivers

River	Segment	River Class	Outstanding Values	Miles	Acres [1]
Little North Santiam River	Segment 1	Scenic	Scenic	7 8	2,626
Opal Creek	Segment 1	Wild	Scenic	4 0	1,493
South Fork Breitenbush River	Segment 1	Wild	Scenic, Wildlife	4 0	1,749
	Segment 2	Scenic	Scenic, Wildlife	6 5	1,834
Breitenbush River		Recreation	Recreation	10 5	3,200
North Santiam River	Segment 1	Wild	Wildlife	3 8	1,450
	Segment 2	Scenic	Scenic	4 2	1,088
	Segment 3	Recreation	Ecological	19 5	6,912
Quartzville Creek	Segment 1	Recreation	Scenic	2 3	875
	Segment 2	Recreation	Scenic	10 0	2,944
Middle Santiam River	Segment 2	Scenic	Scenic	2 0	853
	Segment 3	Wild	Scenic Ecological	6 0	1,493
South Santiam River	Segment 1	Wild	Scenic	4 0	1,706
	Segment 3	Recreation	Scenic Wildlife Historical-Cultural	15 3	4,287
Middle Fork Willamette River	Segment 1	Scenic	Scenic Historical-Cultural Ecological	16 0	5,674
	Segment 2	Recreation	Recreation Wildlife Historical-Cultural	14 0	5,247
TOTALS	2 Designated Rivers	--	--	55 0	17,459
	2 Study Rivers	--	--	34 2	10,944
	9 Eligible Rivers	--	--	126 2	43,420

[1] Acreages are based on a 1/2-mile-wide corridor as represented in the Forest Grid Mapping System database

Range

Current obligations of four cattle and sheep allotments and 15 recreation grazing allotments representing 200 AUMs of actual use will continue to be administered. Future use allows allotments and permits up to potential supply, including transitory range (8,000+ AUMs/year) Range improvements will be made to prevent resource damage or to sustain existing permits.

Facilities

Facilities will be maintained, replaced, or constructed to prevent building deterioration, reduce hazards, provide for energy savings, meet higher resource production objectives, and provide for equal employment opportunity and handicapped access needs. Current administrative sites are on 662 acres dispersed over seven Ranger Districts.

Transportation

Forest development roads are constructed, operated, and maintained for the administration and protection of National Forest lands. They are not public roads in the same sense as roads under the jurisdiction of states and counties. They are not intended to meet the transportation needs of the public at large. Instead, they are designed to standards appropriate for their intended use, considering safety, cost of transportation, and impacts on land and resources.

Table IV-15 displays the future development and management of the Forest Transportation System. Most of the new road construction will occur in the first decade of the Plan. The planned new construction includes approximately 400 miles of roads in the first decade. Roads are generally designed for a single user with low speeds, primarily for timber harvest and intermittent post harvest management access. Collector roads will be constructed to a higher standard than local roads and may be designed to accommodate a mix of commercial traffic and recreational traffic The actual on-the-ground location of projects will determine the actual miles required

Table IV-15. Management of the Forest Transportation System

	Miles by Decade				
Activity	*1*	*2*	*3*	*4*	*5*
Road Construction	400	70	60	50	20
Road Reconstruction	1,740	1,710	1,710	1,710	1,710
Roads Suitable for Public Use					
Passenger Cars	1,580	1,585	1,585	1,585	1,585
High Clearance Vehicles Only	4,530	4,550	4,570	4,570	4,570

Within and adjacent to existing inventoried roadless areas, the Forest Plan indicates the eventual construction of a road system totalling 221 miles. Approximately 64 miles will be constructed during the first decade.

Source Documents The Forest Road Development Plan includes:

Transportation Information System (TIS) - Inventory system to store data relative to the different facilities comprising the Forest development transportation system

1:24000 Transportation System Update Map - Shows all forest development roads on the primary base series quadrangles

Ten-Year Capital Investment Program The Transportation System Capital Investment Program for the Forest Plan (first decade) will include·

Reconstruction of existing roads.

Replacement of bridges

Construction of new arterial/collector routes and bridges

Coordination Requirements For state highways crossing National Forest land, the Regional Forester's Memorandum of Understanding with the State of Oregon will be consulted This memorandum contains S&Gs for coordinating the location, construction, maintenance, and signing of the Forest Highway Program It also includes direction on access and control, third-party occupancy, landscape management, rest areas, and right-of-way grants for highways.

The Forest will continue to cooperate with county governments, and share in the cost of construction, reconstruction, improvement, and maintenance of certain Forest and county roads Existing agreements that provide S&Gs for consultation, maintenance, and rights-of-way are included in this Plan by reference

Whenever possible or feasible, the Forest will avoid duplicating existing or planned road systems by negotiating agreements with interested parties to share in the costs of a single system to serve all tributary ownerships All future agreements and supplements and all existing agreements will be reviewed to ensure compliance with the management area prescriptions in this Forest Plan

Lands

All existing special use permits representing 3,775 acres will be administered to established standards. Necessary landline location will be done to support all resource programs. Investments in permanent markers will be maintained. Rights-of-way necessary to support revenue producing resource activities will be acquired. The desired land ownership pattern will generally be achieved with methods other than purchase

Communication sites will be managed to provide service where alternative private sites are not available. The sites will be managed to maximize the number of compatible uses. Construction will be minimized and visual concerns will be evaluated during site planning. Site plans will be developed for existing sites with facilities in place that do not have one. The following sites are designated communication sites:

Stony Ridge
Hall's Ridge
Coffin Mountain
Cougar Rock
Iron Mountain
Hoodo Butte
Buck Mountain
Frissel Point
Little Smokey
Mt Hagan
Indian Ridge
Huckleberry Mountain
Dead Mountain
Wolf Mountain
Warner Mountain
Lowell Butte

Timber

Timber planning implementation requires information on land suitability, allowable sale quantity, planned sale program and harvest methods

Land Suitability The total Forest landbase includes 1,675,408 acres, of which 1,032,138 acres are tentatively suited for timber management From among these lands timber harvest is scheduled on 774,608 acres to facilitate wood fiber production and achieve other multiple-use objectives Table IV-16 illustrates the availability of suited Forest land for scheduled timber harvest by management area

Although timber harvest may occur in some management areas unavailable for scheduled harvest, such as the H J. Andrews Experimental Forest, harvest activities are for purposes other than wood fiber production. Table IV-17 provides a land suitability summary for timber management.

Table IV-16. Land Suitability By Management Area

Management Areas	Suitability Classification				
	Nonforest	Unsuitable[1]	Tentatively Suitable[2]	Total Acres	Suitable[3]
1 Wilderness					
Management Area 1a-d	74,890	89,671	216,265	380,805	---
2 Oregon Cascades Recreation Area					
Management Area 2a	171	357	816	1,344	---
Management Area 2b	256	1,521	2,937	4,714	---
3 Experimental Forest					
Management Area 3	875	2,112	12,392	15,379	---
4 Research Natural Area					
Management Area 4a-b	1,045	3,007	3,072	7,124	---
5 Special Interest Area					
Management Area 5a	4,095	6,719	17,128	27,942	---
Management Area 5b	43	299	2,837	3,178	---
6 Wild and Scenic River					
Management Area 6b	21	43	1,173	1,237	1,173
Management Area 6c	1,237	1,685	10,281	13,203	10,281
7 Old-Growth Grove					
Management Area 7a	256	832	5,567	6,655	---
8 T & E Species					
Management Area 8	---	---	1,472	1,472	---
9 Special Habitat					
Management Area 9a	---	7,807	61,238	69,045	---
Management Area 9b	---	2,624	6,890	9,513	---
Management Area 9c	---	2,496	12,073	14,568	---
Management Area 9d	5,205	6,740	19,410	31,355	---
10 Dispersed Recreation					
Management Area 10a	---	277	21	299	21
Management Area 10b	2,473	7,956	9,215	19,645	9,215
Management Area 10c	341	1,301	7,231	8,873	---
Management Area 10d	299	21	640	960	640
Management Area 10e	7,977	20,136	41,785	69,898	---
Management Area 10f	555	512	2,538	3,605	---

Table IV-16 Cont. Land Suitability By Management Area

Management Areas	Suitability Classification				
	Nonforest	Unsuitable[1]	Tentatively Suitable[2]	Total Acres	Suitable[3]
11 Scenic					
Management Area 11a	3,541	11,945	122,690	138,176	122,690
Management Area 11b	---	149	107	256	107
Management Area 11c	2,965	8,020	59,105	70,090	59,105
Management Area 11d	1,109	1,450	21,757	24,316	21,757
Management Area 11e	704	3,029	4,479	8,212	4,479
Management Area 11f	2,432	2,261	31,696	36,389	31,696
12 Developed Recreation					
Management Area 12a	661	192	1,856	2,709	---
Management Area 12b	1,386	107	896	2,389	---
13 Special and Administrative Use					
Management Area 13a	3,690	---	128	3,818	---
Management Area 13b	661	---	21	683	---
14 General Forest					
Management Area 14a	28,476	53,944	563,901	646,320	563,901
Management Area 14b	---	43	619	661	---
15 Riparian					
Management Area 15	789	2,687	47,075	50,552	---
TOTAL ACRES	146,153	239,943	1,289,312	1,675,408	825,066[3]

[1]These are acres of soil types that are unsuitable for growing timber They are shown for the Congressionally withdrawn lands and no-harvest management areas as a matter of interest

[2]These are acres of soil types that are suitable for growing timber They are shown for the Congressionally withdrawn lands and no-harvest management areas as a matter of interest

[3]Includes 24,764 acres of roads and 25,694 acres in big game cover and class IV stream protection Net acres = 774,608

Table IV-17. Land Suitability for Timber Management

Category	Unsuitable and Unavailable Lands	Total Acres
I Total National Forest Area		1,798,737
A. Other Ownerships	123,330	
II Net National Forest Area		1,675,407
A. Water	23,101	
B Nonforest Lands and Uses	123,052	
C Roads	24,764	
III Forested Lands (10% or more tree cover)		1,504,490
A. Withdrawn from Scheduled Harvest		
1 Wilderness	305,915	
2 Research Natural Areas (established)	1,450	
3 Oregon Cascades Recreation Area	5,631	
4 H J Andrews Experimental Forest	14,505	
B Risk of Irreversible Resource Damage	9,662	
C Regeneration Difficulty (5+ years)	135,189	
IV Forested Lands Tentatively Suitable		1,032,138
V Tentatively Suitable Land Unavailable Due to		
A. Meeting Multiple-Use Objectives		
1 Research Natural Areas (proposed)	3,072	
2 Special Interest Areas	19,965	
3 Old-Growth Groves	5,567	
4 Special Wildlife Habitats	19,410	
5 Dispersed Recreation Areas	51,554	
6 Developed Recreation Areas	2,752	
7 Riparian 1, 2, and 3	47,075	
8 Stipulated Mining Claims	128	
9 Riparian 4/Big game cover	25,694	
10 Deferred/Administrative Site	640	
B Meeting Wildlife Management Requirements		
1 Spotted Owl Habitat	61,238	
2 Pileated Woodpecker Habitat	6,890	
3 Marten Habitat	12,073	
4 T and E Species--Bald Eagle	1,472	
VI Forested Land Suitable and Available for Scheduled Timber Harvest		774,608
VII Total Unsuitable and Unavailable	1,024,129	

As illustrated in Table IV-17, 75% of the Forest's suited land base is available for scheduling timber harvest activities during the Plan period. From among the lands available for harvest activities, about 10% will be managed for less than full potential, in consideration of other resource management needs. Table IV-18 is a listing of suited forest land acreages by allocations that will be managed for reduced yield during the life of this Forest Plan.

The land suitability classification 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 36 CFR 219.14(a) and (c).

Table IV-18. Reduced Yield Lands

Category	Maximum Harvest Rate/Decade	Suitable Forest Land Acreage	Rotation Age (yrs)	Expected Percent[1] of Full Yield
Wild and Scenic Rivers				
Management Area 6b	5%	1,173	200	62-84%
Management Area 6c	5%	10,281	200	62-84%
Dispersed Recreation				
Management Area 10b	7%	9,215	143	74-94%
Management Area 10d	5%	640	200	62-84%
Scenic				
Management Area 11d	7%	21,757	143	74-94%
Management Area 11e	7%	4,479	143	74-94%
Management Area 11f	5%	31,696	200	62-84%

[1]Range of values due to different working groups and management intensities.

Table IV-19 displays the Forest acres by productivity classification based on the 1981 Timber Inventory. The unsuitable lands producing less than 20 cubic feet per acre per year are non-forest acres (less than 10% tree cover) and include water and roads The remaining unsuitable lands are estimates based on the same relationship to productivity classes as the suitable acres

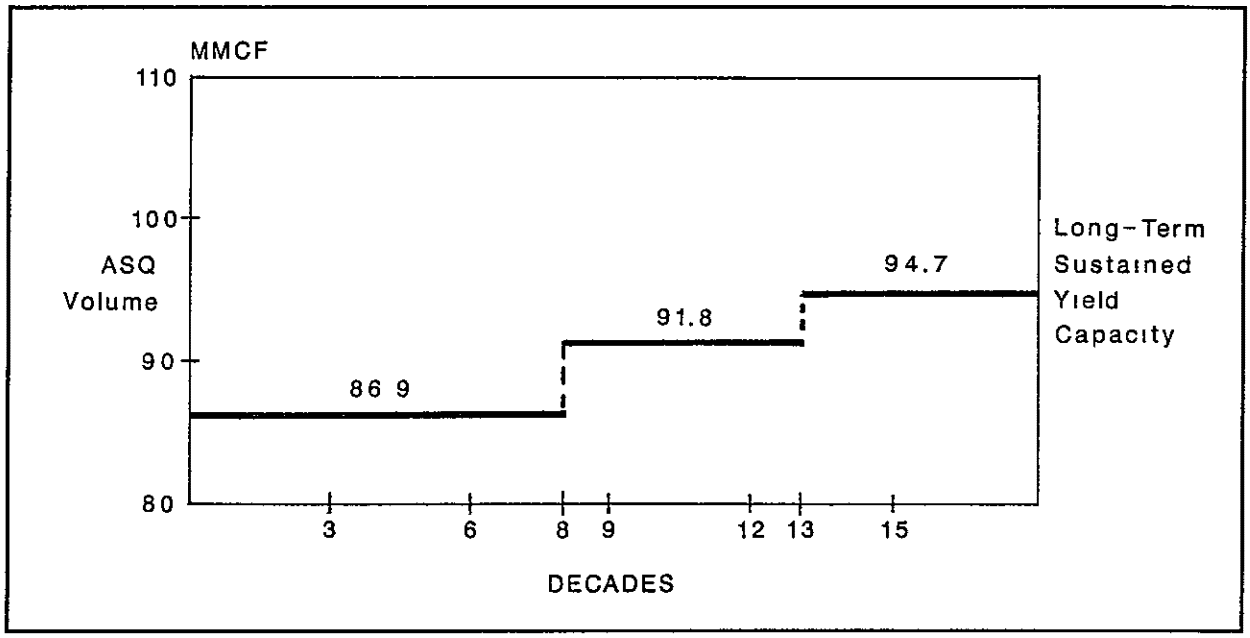
Allowable Sale Quantity During the Forest Plan period, the annual allowable sale quantity (ASQ) will be 491 million board feet or 87 million cubic feet. The allowable sale quantity of this Plan includes chargeable green timber meeting minimum utilization standards specified in the Pacific Northwest Regional Guide. Figure IV-2 is a display of the allowable sale quantity or base sale schedule of the Forest Plan and a projection of the Forest's long-term sustained yield capacity over the next 150 years In addition, nonchargeable volume is also provided including cull, chip material, firewood, and special products. An average annual total of 113 million board feet or 20 million cubic feet of nonchargeable wood products is estimated to be available during the period of this Plan.

Table IV-19. Timber Productivity Classification

Potential Growth (cubic feet/acre/year)	Suitable Lands (acres)	Unsuitable Lands[1] (acres)
Less than 20 (non-forest)	0 0	170,917
20-49	27,111	25,546
50-84	169,639	159,844
85-119	233,157	219,694
120-164	289,704	272,976
165-224	51,899	48,902
225+	3,098	2,920
TOTAL	774,608	900,799

[1] Unsuitable lands producing less than 20 cf/ac/yr are non-forest acres The remaining unsuitable lands are estimates based on the same breakdown as suitable acres

Figure IV-2. Allowable Sale Quantity and Long-Term Sustained Yield Capacity



Planned Sale Program A detailed presentation of planned timber sales is provided in Appendix C. The planned sale schedule is an estimate of probable locations, volumes, and acres of proposed harvest activities. It is likely that adjustments to this program will be necessary following field verification and after unit measurements are taken. Table IV-20 shows how the components of the timber sale program quantity are allocated to the Ranger Districts for the first decade. The average annual harvest during the effective period of this Plan is achieved from a mix of management area allocations with various harvest rate constraints. Table IV-21 displays the first decade harvest acres by District for each of the different harvest rate allocations

Table IV-20. Annual Timber Sale Program Volumes (MMBF) - By District and Type

	Volume Types			
District	Sound	Cull, PAM, Salvage, etc.	Firewood[1]	Total
Detroit	96 3	17 9	4 2	118 4
Sweet Home	70 0	13 0	3 1	86 1
McKenzie	54 0	10 1	2 4	66 5
Blue River	50 1	9 3	2 2	61 6
Lowell	62 9	11.7	2 8	77 4
Oakridge	90 9	17 0	4 08	111 9
Rigdon	66 9	12 5	2 9	82 3
TOTAL	491 1	91 5	21 6	604 2

[1]This is the portion of PAM (per acre material) historically utilized as firewood and dependent on the market for chips An additional 10 MMBF (20,000 cords) is available annually through PUM (piled unmerchantable material)

Table IV-21. Distribution of 1st Decade Timber Harvest (Acres)

	Ranger District							
Harvest Rate/Decade	Detroit	Sweet Home	McKenzie	Blue River	Lowell	Oakridge	Rigdon	Total
5%	68	1,077	65	42	0	333	1,522	3,107
7%	307	48	296	105	1,336	283	191	2,566
10%	636	209	741	403	697	672	304	3,662
12%	1,738	2,122	119	1,652	727	2,919	1,241	10,578
General Forest	15,251	9,898	8,779	7,478	8,140	12,394	9,142	71,083
TOTAL	18,000	13,354	10,000	9,680	10,900	16,601	12,400	90,935

Harvest Methods Harvest methods to be used during the effective period of this Plan are based on criteria set forth in the Pacific Northwest Regional Guide and the National Forest Management Act regulations. In addition to these criteria listed below, site specific conditions are considered before a final harvest method is chosen However, no method of harvest will be selected solely because it results in the greatest dollar return or provides the highest output of timber, or which would permanently reduce site productivity, or could not ensure conservation of water and soil resources.

The selected method must permit the production of a volume of marketable trees sufficient to utilize all trees that meet the utilization standards and are designated for harvest

The selected method must use available and acceptable logging methods

The selected method must be capable of meeting special management objectives.

The selected method must permit the control of vegetation to establish desired species composition, density, and rates of growth

The selected method must promote a stand structure and species composition which minimizes risks from insects, disease, and wildfire

The selected method must ensure that lands can be adequately restocked within 5 years.

The selected method must be practical and economical in terms of transportation, harvesting, preparation, and administration of timber sales.

A range of harvest methods and techniques is used to achieve timber management objectives of this Plan Even-aged management, including clearcuts and shelterwood, will be the principal system employed, although selection harvest will be utilized in dispersed recreation areas, riparian zones, and scenic corridors as appropriate Table IV-22 illustrates the average annual acres by vegetation management practices for the Plan period Timber stand improvement includes release, precommercial thinning, and fertilization



Table IV-22. Planned Annual Treatment by Vegetation Management Practices

Practice	Acres	MMCF
Regeneration Harvest		
Clearcut	8,457	77.0
Shelterwood and seed tree		
Preparatory cut	0.0	0.0
Seed cut	637	4.1
Removal cut	637	1 7
Selection	0 0[1]	0 0
Intermediate Harvest		
Commercial thinning	2,830	4 2
Salvage/sanitation	[2]	
Timber Stand Improvement	18,100	
Reforestation[3]	9,094	

[1] None planned, but may be prescribed in some areas to meet specific resource needs
[2] Historically salvage has accounted for about 3 5% of the TSPQ, but the acres are highly variable and cannot be reasonably estimated. This program must be balanced with the need to maintain wildlife trees and large woody debris within subdramages
[3] Includes natural and artificial Natural regeneration is estimated at about 4% of the acres.

Present and Future Forest Conditions Table IV-23 shows the volume of growing stock on the Forest by suitable and unsuitable lands. There is currently nearly 50 billion board feet (BBF) of growing stock on the Forest with about 20.8 BBF on lands suitable for harvest in this Plan. Also shown is the amount of live cull and salvable dead material. Volumes for the future (150 years) are shown only in cubic feet. The growing stock level falls from about 3.8 billion cubic feet (BCF) to about 3.1 BCF as the high volume per acre existing stands are harvested over the first five decades This level is then maintained into the future. The annual net growth increases as the slow growing older stands are replaced with managed stands. After six decades, the growth increases from about 47 MMCF per year to over 90 MMCF per year.

Table IV-23. Present and Future Forest Conditions

	Unit of Measure	Suitable Land	Unsuitable Land[1]
Present Forest			
Growing Stock	MMCF	3,813	5,100
	MMBF	20,780	28,000
Live Cull	MMCF	595	795
	MMBF	3,242	4,300
Salvable Dead	MMCF	133	178
	MMBF	727	970
Annual Net Growth	MMCF	47	63
	MMBF	256	340
Annual Mortality	MMCF	12	16
	MMBF	65	87
Future Forest			
Growing Stock	MMCF	3,148	
Annual Net Growth	MMCF	92	
Rotation Age	Years		
Douglas fir/hemlock	78[2] - 200		
Douglas fir/true fir	93[2] - 200		
True fir	93[2] - 200		
Mountain hemlock/lodgepole pine	99[2] - 200		

Age Class Distribution Acres[3] (suitable lands)	Age Class	Present Forest	Future Forest
	10	77,961	84,556
	20	114,897	87,788
	30	48,100	91,321
	40	21,342	90,164
	50	12,610	90,537
	60	20,577	79,179
	70	--	59,459
	80	--	51,638
	90	--	30,243
	100	--	16,348
	110	--	5,392
	120	44,243	5,181
	130	--	4,044
	140	403	5,673
	150	--	357
	160	11,207	7,057
	170	--	--
	180	191,023	--
	190	10,418	756
	200+	162,363	5,452

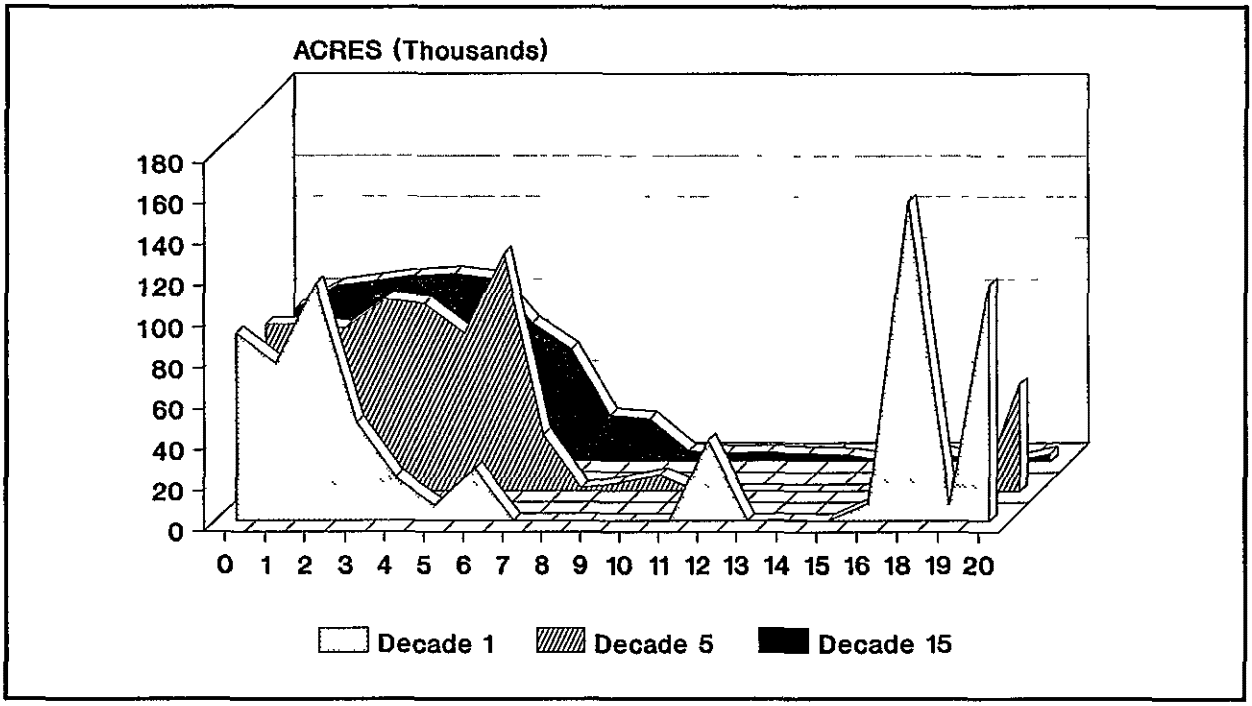
[1] Estimates based on data for suitable lands

[2] Average rotation age for regenerated stands on lands with timber emphasis by major forest types

[3] Not all acres are represented here due to FORPLAN reporting limitations

Age Class Distribution Figure IV-3 shows how the age class distribution changes over time on the acres managed for some level of timber harvest Even though all age classes are found on the Forest, the inventory averaged the ages for each species and size class, resulting in some gaps. Over time the distribution of age classes becomes more consistent as the stands have been harvested at least once, and some are into the third rotation As can be seen, after the fifth decade, there are relatively few acres in the 100 to 200 year age class within harvest allocations. Table IV-23 shows the acres by age class at the beginning of the first decade and at the 15th decade. Some of the acres are not shown because they do not get harvested in the first 150 years. This table also shows the range of rotation ages by species. The average rotation length in the general forest management area is about 80 years, with the breakdown by species as follows: Douglas fir/hemlock = 78 years, Douglas fir/True fir and True fir = 93 years; and Mountain hemlock/lodgepole pine = 99 years.

Figure IV-3. Age Class Distribution Over Time



Minerals/Energy

All energy related applications and notices of intent or operating plans for locatable minerals will be responded to in a timely manner Active permits and claims will be administered to established standards to minimize adverse impacts to surface resources All anticipated major energy projects, mining opportunities and leases, and claims with potential for development will be identified

The amount of land withdrawn from entry for mineral and energy development will be increased All public and private applications for common mineral materials will be responded to along with Forest Service and cooperative agency use

FOREST-WIDE STANDARDS AND GUIDELINES

INTRODUCTION

The following Standards and Guidelines (S&Gs) state the bounds or constraints within which all practices will be carried out in achieving the planned goals and objectives of the Willamette National Forest. The intent of the S&Gs is to help the manager stay within the constraints prescribed by law as well as provide environmental safeguards for management activities 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 S&Gs

Two categories of S&Gs are applied to management of the Forest Forest-wide S&Gs apply to all management areas, unless specifically exempted or amended by direction for an individual management area The S&Gs specific to the management areas are presented in the section following the Forest-wide S&Gs.

Specific terminology used in the S&Gs identifies the type of direction and degree of compliance required Correct interpretation of the terms is critical to understanding the intent of the direction.

> The first intent is conveyed by the word "**shall.**" With this degree of compliance the action is mandatory in all cases
>
> The second intent is conveyed by the word "**should.**" With this degree of restriction, action is required, unless justifiable reason exists for not taking action This direction is intended to require a practice unless it entails unacceptable hardship or expense Exceptions to "should" restrictions are expected to occur infrequently

All direction statements in both the Forest-wide and Management Area Standard and Guideline sections are printed in bold type The S&Gs in both sections are also numbered for ease of reference during implementation. In addition to the S&Gs or direction in the following section, some information is also provided to clarify the intent of the direction and as an aid to implementation of the S&Gs In contrast to the bold typed direction statements, these explanatory statements are in regular type and do not use the words "shall" or "should" The words "may" and "will" are commonly used in these explanatory statements and are not meant to be management direction

The word "may" is used to identify how the objectives of a particular standard can be met by describing situations or circumstances typically encountered The word "will" applies only to a statement of future condition or an expression of time It does not convey a degree of compliance

Levels of resource management prescribed in the S&Gs must be met Consistent with the goals of each management area, however, land managers will employ all available inventory information to maximize enhancement and minimize impairment of every resource value involved.

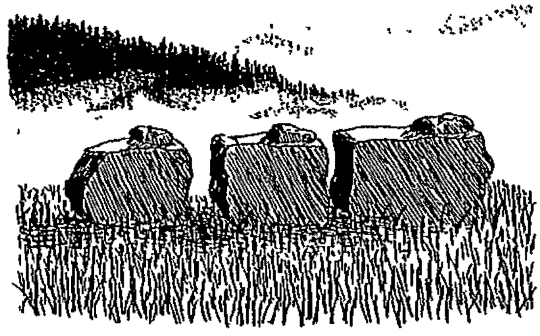
The S&Gs describe what will and will not occur in a particular area to achieve the desired goal Because of the great variety of resources and circumstances; however, provision has been made for unusual and unforeseen implementation problems Some of these problems will be the result of insufficient or inaccurate inventory data The NEPA process will guide project planning and Forest Plan implementa-

tion, and must be followed to make a departure from the S&Gs. This will result in an amendment to the Forest Plan. These situations will be fully described, alternatives developed, and costs evaluated Mitigation measures will be employed to produce a result as close as possible to that called for The long-term goal for a particular management area will not change

The S&Gs are grouped by resource element in the following order:

Recreation Management
Forest Trail System
Scenic Resources
Wild and Scenic Rivers
Soil and Water Quality
Fisheries
Wildlife Management
Potential Endangered, Threatened and Sensitive Species
Timber Management
Biological Diversity and Old Growth
Air Quality
Fire and Fuels Management
Integrated Pest Management
Cultural Resources
Lands
Minerals and Energy Resources
Facilities

Each S&G is numbered on the left margin to help highlight specific statements of direction and to facilitate referencing the S&Gs during project assessments. The FW prefix indicates Forest-wide direction while the 3 numerals following the prefix are a unique identifier for each S&G in this section The numbers are sequential through the entire Forest-wide S&G section.



RECREATION MANAGEMENT

FW-001 **The Forest shall provide for a wide range of developed and dispersed recreation opportunities compatible with individual management area objectives and sensitive to public demand and/or use.** Natural processes, historic or cultural features will be interpreted and displayed for public awareness and enjoyment

FW-002 Public information is integral to the management of recreation resources **The public should be informed on a continual basis using the media outlined below.**

Forest Recreation maps.
Wilderness Brochures
Wild and Scenic River Brochures and Maps
Trail Pamphlets
Radio & TV Spots and Videos
News Releases
Coordination with individuals, private organizations, and other agencies

FW-003 **Maps should be reviewed, and updated if needed, at intervals not to exceed 5 years for recreation maps and 10 years for Wilderness maps**

FW-004 **The Recreation Information Management (RIM) Inventory shall be updated annually to monitor levels and types of recreation use on all areas of the Willamette National Forest. All sources of information should be used to gather data for the RIM report including trailhead registration boxes, river registration, permits, employee or public observations.**

FW-005 **Use levels and effects shall be monitored as established in Chapter V of the Forest Plan.**

Developed Recreation

FW-006 **The Forest Service should provide for developed recreation opportunities throughout the Forest commensurate with projected need and in partnership with other recreation providers and user-groups.** Marketing surveys and similar tools will be used to determine customer (recreation users) interests and needs

FW-007 **Comprehensive and detailed site plans shall be developed prior to site construction or expansion in accord with requirements specified in FSM 2330.**

FW-008 **Site designs shall be based upon the ROS class and development scale concept. A vegetation management prescription should be prepared and implemented for each site or group of sites.**

FW-009 **Site plans should show the specific location and design of all facilities and shall provide for proper utilization of the site, control of traffic, public safety, sanitation, site protection, grading, landscape planting, and use distribution.**

FW-010 **Barrier-free access shall be considered during the development and reconstruction of recreation facilities.**

FW-011 **Each site should be analyzed periodically to determine whether its intended function is being served and if it requires alteration, replacement, closure, or elimination.**

FW-012 **As management activities are planned in areas adjacent to identified potential development sites, those potential sites shall be protected to maintain their character until scheduled for development.**

FW-013 **Potential and existing developed recreation sites shall be designed to minimize annual maintenance and operating costs. The design should discourage vandalism to the extent that is possible to avoid a high level of surveillance and operating requirements.**

Users will be encouraged to assist in the maintenance and development of recreation sites and facilities.

FW-014 **The service level for administration, operation and maintenance of developed sites shall be based on site capacity, site protection needs, and seasonal demands by the public for use. Selected sites should be open for public use during the managed use season, at the minimum level of service specified below:**

- **Administration - Administration of public use at developed recreation sites shall include: inspection for hazards to public health and safety, compliance with applicable regulations, prevention of resource damage, and collection of fees when appropriate.**
- **Operations - Cleanup and sanitation of facilities at developed sites should occur to accommodate public use. This activity shall include testing of potable water when provided.**
- **Maintenance - Site facilities shall be maintained in a condition to meet standards for public health and safety. No more than 10% of facilities in any site should be below maintenance class II.**
- **Resource Management Treatment - Other resource management treatments *should be accomplished for public safety and site or resource protection* (e.g., vegetation management, rehabilitation).**

Dispersed Recreation

FW-015 **The Forest shall provide a broad range of recreation opportunities in a variety of settings, including Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Natural, and Roaded Modified Recreation Opportunity Spectrum (ROS) and Wilderness Resource Spectrum (WRS) classes.**

FW-016 **Determination of capacity for individual areas of the Forest shall be based on the appropriate ROS use coefficient as outlined in "Process for Estimation and Use of Dispersed ROS Capacity Coefficients" (Longcore, 1990).**

FW-017 **If use exceeds area capacity for a given ROS class, the following management actions, in order of priority, should be employed to address the impacts or effects to the recreation setting:**

1. **Inform public and restore site;**
2. **Regulate use;**
3. **Restrict number of users.**

FW-018 **Dispersed camp areas should be located to take advantage of topographic screening and be placed outside of foreground view (100 feet minimum) from lakes, streams, trails and key features.** Open campfires may be limited to designated sites.

FW-019 **Recreation users should be educated about the proper disposal of human waste and to the principles of no-trace camping (Pack It In - Pack It Out).** This may be accomplished through the use of public contact, brochures, and media.

FW-020 **Area and trail closures or restrictions should be based upon the mandatory and discretionary planning criteria listed in FSM 2355.12.**

FW-021 **Visitor contact shall be made for the purposes of:**

- **Informing users of area management goals and objectives;**
- **Encouraging user behavior that is respectful of area resources;**
- **Ensuring that visitor activities are in compliance with established standards;**
- **Emphasizing user safety.**

FW-022 **The Forest Service shall assist within its capacity and as requested by the County Sheriff in search and rescue and evacuation operations.**

Off-Road Vehicle Recreation

FW-023 **Recreation Access and Travel Management Guides shall be developed by each Ranger District.** These guides will identify specific areas, roads, trails and water surfaces that are open, restricted, or closed to motorized and nonmotorized mechanical conveyance or watercraft and conditions of use

FW-024 **A diversity of off-road vehicle recreational opportunities should be provided across the Forest where consistent with the criteria specified in FSM 2355.12.** These criteria include:

- The use is compatible with established land management and resource objectives.
- The use is consistent with the capability and suitability of the resources.
- There is demonstrated demand which cannot be better satisfied elsewhere.

FW-025 **The monitoring activities established in Chapter V of the Forest Plan and management review procedures should be used to evaluate off-road vehicle use effects, and enforcement of restrictions and closures.**

FW-026 **Areas closed or restricted to off-road vehicle use shall be posted.** A brief explanation of the reasons for the closure will also be posted.

Cave Management

FW-027 **Caves should be managed in partnership with caving organizations, scientists, and outdoor recreationists.** A public education program will ensure an understanding of the value and the wise and safe use of these irreplaceable resources.

FW-028 **Significant and potentially significant caves should be protected and managed in accordance with the Federal Cave Resources Protection Act of 1988.** Surveys will be conducted to determine the significance of all caves which have been found on the Forest and the list will be periodically updated

FW-029 **A management plan should be developed for each significant cave which includes an inventory and map of cave resources, proposed research and monitoring programs, and when necessary, a cleanup or restoration program.**

FW-030 **Access should be determined by the cave's capacity to withstand the impacts of visitation and should be documented in the management prescription.**

FW-031 **The location of caves should be kept confidential when needed to protect major archaeological sites, habitat for endangered wildlife, sensitive cave biota, or unique geological features.**

FW-032 **Measures for the protection of caves should be incorporated into project plans for road construction, timber harvest, tree planting, and blasting near caves; and any activity which could change cave temperatures and drainage patterns.**

FW-033 **Communication and cooperation between the Forest Service, caving organizations, and recreationists should be fostered.** Exchanged information will not be made public if it could lead to the degradation of sensitive caves

FOREST TRAIL SYSTEM

FW-034 **The Forest shall provide for the use of the existing trail system that serves the needs of recreationists and satisfies demand levels for a wide range of trail related motorized and non-motorized activities consistent with individual management area objectives.** Management of trails within Wilderness is provided for in Wilderness Management Areas 1a-1d, and in separate Wilderness Management Plans included in Appendix A Wilderness and non-Wilderness trails are displayed on the appended supplemental trails map

Trail System Planning

FW-035 **Through the development of trail management guides, trail system planning should determine:**

- **Specific trail management objectives,**
- **Types of use,**
- **The preferred long-term location, and**
- **Operation and maintenance needs.**

FW-036 **Integrated trail and transportation system planning should minimize existing and future road crossings and other trail/road related conflicts.**

FW-037 **Trail relocation should place a trail in its optimum location considering recreation and other resource management needs and objectives.**

Operation and Maintenance

FW-038 **All trails included in the Forest trail system should be inspected annually to identify trail maintenance needs.**

FW-039 **Operation and maintenance activities should be conducted:**

- **In a manner consistent with trail management objectives,**
- **To protect trails as well as other resource values, and**
- **To meet requirements for user safety.**

Trail Displacement

FW-040 **Displacement of Forest trails by new roads should be avoided wherever possible. The need for displacement of a trail segment by a new road should be evaluated and documented through an interdisciplinary analysis.**

FW-041 **Where displacement does occur and recreation-use levels warrant, new trails should be constructed to:**

- **Replace lost trail sections,**
- **Protect the trail systems integrity, and**
- **To ensure quality recreation opportunities.**

FW-042 **When trail access and use is interrupted by management activities, a temporary trail closure should be declared. When a closure would remain in affect for longer than one season, a detour should be provided.** Public notification will be given where trail closures and detours are in affect. A "season" for purpose of trail management is usually considered as about 3 months. Generally, trail access closures and detours will be signed at trailheads, trail junctions, and at junctions along the primary access route.

Trail Management Classification

FW-043 **All existing and proposed non-wilderness trails, or trail segments, shall be assigned a trail management classification.**

FW-044 **The assignment of trail segments to one of four trail management classes shall be coordinated with the objectives and standards of management areas they traverse.** This assignment process will take into account types of trail use, trail difficulty, and the continuity of trail experiences to be provided on trails that pass through one or more management areas as well as trails that connect important recreation-use areas. The assignment of trails to one of the four management classes will also take into account public sensitivity to trail management issues.

Forest Development Trails

Trail Corridor Width

FW-045 CLASS I-IV **Trail corridors should be identified by an interdisciplinary process with consideration for public concerns and interests.** Trail corridors will vary in width from 100 feet to a maximum of 300 feet each side of the trail. Actual corridor width will be based on trail management objectives, public sensitivity and topographic and vegetative screening Site specific cases will vary from maximum and minimum widths to address special trail management needs, opportunities, or agreements.

Timber Harvest

FW-046 CLASS I-IV **Scheduled even-aged timber harvest should not exceed the specified amount of the suitable and available area within each trail class during the first 10 years following plan implementation. The harvest rate percentage, applicable to individual trail segments, for each trail class is as follows:**

CLASS I	**0%**
CLASS II	**5%**
CLASS III	**7%**
CLASS IV	**10%**

FW-047 **The amount of trail frontage affected by harvest activities should be limited to 600 lineal feet per mile per 10 year period.**

Some variation in harvest rate is permitted in consideration of uneven-aged silvicultural systems, difference in rotation length due to site conditions or species dependent growth rates and to assure operational feasibility of harvest treatments

Size of treatments will be based on such factors as corridor width, topographic and vegetative screening, adjacent conditions, level of recreation use/sensitivity, and related trail objectives

FW-048 **Although no timber harvest is programmed for CLASS I trails, silvicultural treatments should be employed, as necessary, to maintain or enhance recreation opportunities and achieve trail related objectives.**

Road Crossings

FW-049 CLASS I-IV **New permanent road crossings should be minimized and existing local roads should be closed where appropriate. Temporary road crossings of trail corridors should be rehabilitated.**

In CLASS I trail corridors, preferred crossings are no closer than 1 mile of trailheads, semiprimitive recreation areas or Wilderness boundaries or two miles of an existing road crossing

In CLASS II and III trail corridors preferred crossings are no closer then one-half mile of trailheads, semiprimitive recreation areas, or Wilderness boundaries or within 1 mile of an existing road crossing

To minimize the effect of road crossings on trail facilities and user experiences, the following is the preferred relationship of road and trail locations in order of priority:

- No new road crossings or roads in the trail corridor.
- Parallel road located below trail.
- Parallel road located above trail.
- Road crossings should occur at right angles to the trail.
- Road replaces a short segment of trail.

Visual Quality Objective (VQO)

FW-050 CLASS I-IV **Trail corridor management activities and practices shall be commensurate with the VQO assigned to each trail class. Where trails pass through a management area with a more restrictive standard, the more restrictive standard shall apply. The Visual Quality Objective for each trail is as follows:**

CLASS I-II	**Retention**
CLASS III	**Partial Retention**
CLASS IV	**Modification**

Projects will be designed to minimize form, line, color and textural contrast of harvest or salvage treatments with the character of the surrounding landscape, through manipulation of edge effect, shape, size, scale, and spatial distribution of treatments commensurate with the specified VQO.

Recreation Opportunity Spectrum (ROS) Class

FW-051 CLASS I-III **Trail corridor activities and management practices shall provide at least a physical setting for Roaded Natural ROS class opportunities. Where trails of this class pass through a management area with a more restrictive standard, the more restrictive standard shall apply.**

FW-052 **Alterations within the trail corridors should be shaped and blended in a manner consistent with the ROS setting and the desired visual condition specified for each trail management class.**

FW-053 **Facilities provided at trailheads should be moderate in amount and complexity for user comfort and convenience. Generally native and or rustic materials should be used for trailhead facilities and markings.**

Non-native materials may be appropriate for some viewpoints, interpretive areas, barrier-free facilities, highly developed sites, or other special-purpose areas

FW-054 CLASS IV **Trail corridor management activities and practices shall provide at least a physical setting for Roaded Modified ROS class opportunities. Where trails pass through a management area with a more restrictive standard, the more restrictive standard shall apply.**

FW-055 **Alterations within the trail corridor should be shaped and blended in a manner consistent with the ROS setting and the desired visual condition.**

FW-056 **Facilities provided at trailheads should be simple, and informational and be constructed of native and/or rustic materials.**

National Scenic and National Recreation Trails

FW-057 **Trail segments identified as National Scenic and National Recreation Trails shall be managed to meet the objectives of the National Trail System Act of 1968. To assure compliance with the National Trail System Act, National Scenic and National Recreation Trails located outside Wilderness, shall be assigned to trail management Class I.** The following Trails or Trail segments are designated as National Scenic (NST) or National Recreation Trails (NRT):

Trail Name	Designation
Pacific Crest	NST
Breitenbush	NRT
Lava River	NRT
McKenzie River	NRT
Fall Creek	NRT

SCENIC RESOURCES

Visual Quality Objectives

FW-058 **Management activities shall be designed and implemented to achieve or exceed the assigned Visual Quality Objective (VQO) for the area.**

FW-059 **The assigned VQO by Management Area shall be as shown in Table IV-24.**

Table IV-24. Visual Quality Objectives by Management Area

VQO	Management Area
Preservation	1a, 1b, 1c, 1d, 2a, 2b, 4, 5a, 5b, 6a, 7, 10d
Retention	6b, 8, 9a, 9d, 10c, 10e, 10f, 11e[1], 11f[1]
Partial Retention	6c, 9b, 9c, 10a, 10b, 11c[1], 11d[1], 12a, 12b, 15
Modification	11a[1], 11b[1]
Maximum Modification	13a, 13b, 14a, 14b

[1]Management emphasis in these areas will be to coordinate with other resource programs to ensure that Visual Quality Objectives are maintained.

FW-060 **Opportunities to restore landscapes containing undesirable visual impacts to a desired visual quality level should be identified during project planning.** This may include short-term implementation practices such as rehabilitation and enhancement (See Agricultural Handbook 462, USDA 1974).

FW-061 **The following descriptions shall be used to design and implement management activities to meet assigned visual quality objectives:**

Preservation

FW-062 **This VQO allows ecological changes only. Management activities, except for very low visual-impact recreation facilities, should be prohibited.**

Retention

FW-063 **Activities should only repeat the natural form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, and pattern should not be evident.**

FW-064 **Mitigation treatments for impacts to the visual resource should be accomplished either during operation or immediately after.**

Partial Retention

FW-065 **Activities should repeat form, line, color, or texture common to the characteristic landscape. Changes in their qualities of size amount, intensity, direction, and pattern should remain visually subordinate to the characteristic landscape. Activities may also introduce form, line, color, or texture which are found infrequently or not at all in the natural landscape, but they should remain subordinate to the visual strength of the characteristic landscape.**

FW-066 **Mitigation treatments for impacts to the visual resource should be accomplished as soon after project completion as possible or within one year.**

Modification

FW-067 **Activities which alter vegetation and land forms should borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Facilities, including roads and signs, should be designed to be visually compatible with the natural surroundings.**

FW-068 **Mitigation treatments for impacts to the visual resource should be accomplished within two years after project completion.**

Maximum Modification

FW-069 **Activities which alter vegetation or land forms, and dominate the characteristic landscape should be allowed. However, when viewed as background, the visual characteristics should be those of natural occurrences within the surrounding area or character type.** When viewed as foreground or middle ground, they may not appear to completely borrow from naturally established form, line, color, or texture Alterations may also be out of scale or contain detail which is incongruent with natural occurrences as seen in foreground or middle ground

FW-070 **Introduction of structures, roads, slash, and root wads should remain visually subordinate to the proposed composition as viewed in background.**

FW-071 **Mitigation treatments for impacts to the visual resource should be accomplished within five years after project completion.**

Rehabilitation

FW-072 **Short-term activities designed to restore landscapes containing undesirable visual impacts to a desired visual quality should provide a more visually desirable landscape in the interim.** Rehabilitation may be achieved through alteration, concealment, or removal of obtrusive elements.

Enhancement

FW-073 **Short-term activities aimed at increasing positive visual variety where little now exists should create additional variety of forms, edges, textures, patterns,**

or spaces. Enhancement may be achieved through addition, subtraction, or alteration of vegetation, rock, earthforms or structures

National Forest Scenic Byways

FW-074 **Implementation Guides shall be prepared for each established National Forest Scenic Byway describing the site-specific management objectives, enhancement program, and other acceptable uses and activities.** Established Scenic Byways on the Forest are the Robert Aufderheide Memorial Drive and the McKenzie Pass - Santiam Pass Loop. More Byways may be designated during the life of this Plan.

FW-075 **Project planning, preparation, implementation and monitoring shall be accomplished to maintain the VQO and ROS objectives of all management areas within the designated Scenic Byway corridor.** This classification does not preclude other activities such as creating new views, vistas, or filtered views; interpretive programs; wildlife projects, meadow habitat improvement, or timber harvesting.

WILD AND SCENIC RIVERS

The rivers shown in Table IV-25 are identified as eligible or designated as study rivers under the Wild and Scenic Rivers Act. The segment description, outstandingly remarkable features, and acres are listed in FEIS, Appendix E, Wild and Scenic Rivers. Outstandingly remarkable values and potential river classifications will be verified by resource assessments completed during suitability studies. Changes in potential river classifications will result in a Forest Plan amendment.

Table IV-25. Wild and Scenic Eligible or Designated as Study Rivers

River	Segment	Classification
Little North Santiam	Battle Axe Creek to Forest boundary	Scenic
Opal Creek	Opal Lake to confluence with Battle Axe Creek	Wild
South Fork Breitenbush	Russell Lake to Wilderness boundary Wilderness boundary to Breitenbush River	Wild Scenic
Breitenbush River	North Fork Breitenbush River to Detroit Reservoir	Recreation
North Santiam River	Headwaters to Wilderness boundary Wilderness boundary to Highway 22 Highway 22 to Rainbow Creek	Wild Scenic Recreation
Quartzville Creek	Headwaters to un-named creek West of Bruler Creek Un-named creek west of Bruler Creek to Forest boundary	Recreation Recreation
Middle Santiam River	West boundary of Section 31 to Wilderness boundary Wilderness boundary to Forest boundary	Scenic Wild
South Santiam River	Headwaters Sevenmile Creek to Squaw Creek Sevenmile Creek to Forest boundary	Wild Recreation

Table IV-25 Cont. Wild and Scenic Eligible or Designated as Study Rivers

River	Segment	Classification
Middle Fork Willamette River	Lower Timpanogas Lake to Echo Creek	Scenic
	Echo Creek to Hills Creek Reservoir	Recreation
Blue River (Study)	Headwaters to Blue River Reservoir	Recreation
South Fork McKenzie River (Study)	Headwaters to Wilderness boundary	Wild
	Wilderness boundary to Cougar Reservoir	Recreation
	Cougar Dam to McKenzie River	Recreation

Wild Rivers

FW-076 **The potential Wild classification attributes within a 1/4-mile wide corridor on each side of the eligible or study river segments shall be protected pending Congressional action on river designation or until determined to be unsuitable. Comply with all standards for Wild rivers as specified in FSH 1909.12 Chapter 8 (1987) and standards specified in Management Area 6a.**

Scenic Rivers

FW-077 **The potential Scenic classification attributes within a 1/4-mile wide corridor on each side of an eligible or study river segment shall be protected pending Congressional action on river designation or until determined to be unsuitable. Comply with all standards for Scenic rivers as specified in FSH 1909.12, Chapter 8 (1987) and standards specified in Management Area 6b.**

Recreation

FW-078 **The potential Recreation classification attributes within a 1/4-mile wide corridor on each side of eligible or study river segments shall be protected pending Congressional action on river designation or until determined to be unsuitable. Comply with all standards for Recreation rivers specified in FSH 1909.12, Chapter 8 (1987) and standards specified in Management Area 6c.**

SOIL AND WATER QUALITY

Soil Productivity

FW-079 **Land management activities shall be planned and conducted to maintain or enhance soil productivity and stability.**

FW-080 **Forest management activities shall meet or exceed the stated objectives in the Organic Administration Act of 1897, the Multiple Use Sustained Yield Act of 1960, NFMA of 1976, FSM 2550, and FSM 2520 R-6, Supplement 50.**

Detrimental Soil Conditions

FW-081 **The total area of cumulative detrimental soil conditions should not exceed 20% of the total acreage within the activity area, including roads and landings. Severely burned areas should not exceed 10% of an activity area.** Detrimental soil conditions include compaction, displacement, puddling, and severely burned soil layers. These conditions are defined as follows:

- **Compaction.** An increase in soil bulk density of 15% or more and/or by a reduction of macropore space of 50% over the undisturbed soil.
- **Soil puddling.** A physical change in soil properties due to shearing forces that destroy soil structure and reduce porosity.
- **Displacement** Removal of more than 50% of the topsoil or humus enriched soil horizons from an area of 100 square feet which is at least 5 feet in width.
- **Severely burned** Soils are considered to be severely burned when the top layer of mineral soil has been significantly changed in color, usually to red, and the next 1/2 inch blackened from organic matter charring by heat conducted through the top layer.
- **Activity Area** The total area for which a ground-impacting activity is planned. Examples of ground-impacting activities are individual units of a timber sale, slash disposal project, site preparation project, or grazing allotment, including the transportation system (and landings) directly in and adjacent to the activity area.

FW-082 **Past, present, and future activities shall be considered when evaluating soil conditions. (BMP reference: T-5, T-9, T-11, T-12, F-2, F-3)**

FW-083 **Tractor operations should not occur on ground with slopes greater than 30%.**

Soil Erosion

FW-084 **To minimize off-site movement of soil, management activities shall be planned to retain the soil duff and litter using the following limits:**

- **Mineral soil exposed on soils classed low-to-moderate surface erosion hazard should not exceed 40%.**
- **Mineral soil exposed on soils classed high surface erosion hazard should not exceed 30%.**
- **Mineral soil exposed on soils classed very high surface erosion hazard should not exceed 15%.**
- **Duff retention on cold and/or wet soils should be evaluated in each case, but generally retention of higher amounts of duff will be required.**

Surface erosion hazard is defined in the Willamette National Forest Soil Resources Inventory (SRI). Permanent facilities and temporary roads are excluded (BMP reference: T-13, T-11, T-12, VM-1)

Nutrient Cycling

FW-085 **Management activities shall be planned to maintain enough large woody material (dead and down) to maintain a healthy forest ecosystem and ensure adequate nutrient cycling. Site specific needs shall be considered in environmental analysis** (See Forest-wide Standards and Guidelines for Biological Diversity).

Mass Movement

FW-086 **Mass movement shall be managed to meet Forest standards for soil productivity, water quality, riparian condition, and to protect public safety, roads, and facilities.**

Water Quality

FW-087 **Management activities shall analyze, protect, enhance, treat, and evaluate soil and water resources and monitor the effects of the practices (36 CFR 219.13(f)).**

FW-088 **Management activities shall comply with state and federal requirements for protection of waters of the State of Oregon through planning, application, and monitoring of Best Management Practices (BMPs).**

FW-089 **Management activities shall be in conformance with the Clean Water Act of 1972, as amended (1977 and 1982), Oregon Administrative Rules (Chapter 340-41-001-975), and regulations or federal guidance issued thereto. Also as described in 1990 Memorandum of Understanding pursuant to Section 319 of the Clean Water Act.**

Use the existing agreed upon process to implement the State Water Quality Management Plan on Lands Administered by the Forest Service This is described in the Memorandum of Understanding (MOU) between the Oregon Department of Environmental Quality and U S Department of Agriculture, Forest Service (2/12/82 and 12/7/82), and "Attachments A and B" referred to in this MOU (See Implementation Plan for Water Quality Planning on National Forest Lands in the Pacific Northwest 12/78 and Best Management Practices for Range and Grazing Activities on Federal Lands, respectively)

FW-090 **In cooperation with the State of Oregon, the Forest shall use the following process:**

1. **Select and design BMPs based on site-specific conditions, technical and economic feasibility, and the water quality standards for those waters potentially impacted.**

2. **Implement and enforce BMPs.**

3. **Monitor BMPs to ensure correct application and effectiveness as designed in attaining water quality standards.**

4. **Mitigate to minimize impacts caused by activities when BMPs do not perform as expected.**

5. **Adjust BMPs when there is evidence that beneficial uses are not protected and water quality standards are not achieved. Evaluate the adequacy of water quality criteria for assuring protection of beneficial uses. Recommend adjustment to water quality standards as is appropriate.**

FW-091 **The Forest shall develop and maintain a contingency plan to respond to spills of hazardous material which may adversely affect water quality.**

FW-092 **Water quality shall be protected with Best Management Practices. (See General Water Quality Best Management Practices, Pacific Northwest Region, 11/88.)** Included in the BMP Handbook is a description of the process, limitations and use of these BMPs. Each BMP listed includes the Title, Objective, Explanation, Implementation, 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.

FW-093 **The potential for cumulative effects of operating and scheduling practices on beneficial uses and stream channel conditions shall be considered in project design. The potential for cumulative effects of past, present and reasonably foreseeable projects shall be assessed on the watershed area which contributes to the potential effect, including private land where appropriate. The assessment should consider the effects of management practices on riparian conditions, mass movements, and hydrological recovery. Activities on National Forest lands should be dispersed in time and space to the extent practicable, and to the extent needed to protect beneficial uses. In areas with intermingled ownerships scheduling of activities should be coordinated.** (BMP W-5)

Road Construction and Maintenance

FW-094 **Road design, construction, and maintenance shall be implemented with Best Management Practices to meet State Water Quality standards.** Additional BMPs may be appropriate in many situations.

FW-095 **Culvert design shall consider upslope snow accumulation in created openings where the potential exists for increased peak flows during rain on snow events.** (BMP R-1)

FW-096 **No uncompacted soil should be side-cast on slopes over 55%, except when evaluated on a site-specific basis by an interdisciplinary group, including a watershed specialist.** (BMP R-5)

FW-097 **Existing roads which contribute sediment to streams should be considered for reconstruction to stabilize surfaces, fills and drainage structures.** (BMP R-7)

FW-098 **Stable fills shall be constructed across all stream crossings.** (BMP R-9)

FW-099 **Measures described in Section 204 *Soil Erosion and Water Pollution* in "Forest Service Specifications for Construction" shall be implemented as appropriate.** Additional project specifications may be designed as needed for site-specific Best Management Practices. (BMP R-9)

FW-100 **Drainage structures should be inspected annually unless identified as low risk.** Priorities on use of road maintenance funds will be based on resource protection needs such as maintaining drainage structures (BMP R-14)

FW-101 **Temporary roads should be closed as part of the project work. Methods used, timing, and mitigation measures should be in accordance with the site-specific project plan. Such roads shall be designed to reestablish vegetative cover on the disturbed area as soon as practicable, not to exceed 10 years after the termination of the contract permit, or lease (36 CFR 219.27(a)(11)).**

FW-102 **Permanent drainage structures shall be removed from temporary roads. Measures shall be taken to ensure that subsurface and surface drainage patterns are reestablished to minimize the risk of future mass movement, surface erosion, and channel erosion. (BMP R-23)**

Streamside Protection

FW-103 **Class IV stream channel functioning and streambank stability shall be maintained or enhanced.** The role of future input of woody material, and the role of root strength of live trees will be considered.

FW-104 **On potentially highly unstable land along steambanks, all trees should be retained to maintain stability and provide long-term input of large woody material to the stream. On moderately stable land along streambanks, some trees should be retained in critical areas to provide stability. The long-term stability of the channel should be evaluated prior to salvage of trees adjacent to Class IV streams.** (BMP T-7)

Streamside areas along Class I, II and III and unstable IV streams are described in Riparian Management Area 15.

Management of Mass Movement

FW-105 **Areas which are identified as being unsuited for timber production because of irreversible damage to soil and water shall be excluded from timber harvest units.** (BMP T-6)

FW-106 **During project analysis, areas with a high probability of mass movement which have not been identified as unsuitable due to soil conditions, shall be evaluated for timber suitability on a site specific basis. Areas identified as unsuitable for**

timber production shall be documented and removed from the acres suitable for timber management.

FW-107 **For areas that are potentially highly unstable but are suited for timber harvest, appropriate measures shall be taken to reduce the risk of failure.** Potentially highly unstable lands are typically steep slopes with soft bedrock material.

FW-108 **Sites should be evaluated where timber harvest, road building, or other management activities could alter the hydrologic characteristics or soil strength characteristics to the extent that there may be a probability failure.** Retention of added selected hardwood or conifer trees along with road construction restorations could help eliminate failure.

FW-109 **Analysis of stability concerns shall consider that the occurrence of mass movements is dependent on subsurface water levels (storm event intensity and duration), root strength, soil cohesion characteristics, and slope.**

FW-110 **Analysis shall consider that mass movement may occur 5 to 20 years after removal of the trees, when a large storm could coincide with minimum root strength.**

FW-111 **Timber sale planning shall consider hydrologic processes.**(BMP T-1)

FW-112 **Sewage treatment and disposal facilities shall be approved by the Department of Environmental Quality or its contract agents and shall be in compliance with rules of the Environmental Quality Commission.**

Instream Flow

FW-113 **Instream flow on National Forest System Lands shall be protected through environmental analysis of proposed water uses, diversions, transmissions applications, and renewal of permits.** Instream flow will be protected by the Forest response to the state on applications, assertion of claims for this water under federal or state laws where applicable, providing special requirements in use permits, or reaching formal agreements

Watershed Enhancement

FW-114 **When water quality objectives for water temperature, turbidity, and sediment levels cannot be met, enhancement projects should be implemented.** Enhancement may include stabilization of streambanks, road fills and cutbanks, or riparian treatments

FISHERIES

FW-115 **All project proposals in or adjacent to anadromous fish habitat shall implement the adopted Northwest Power Planning Council natural fish production objectives.**

FW-116 **Anadromous fish habitat improvement projects shall be prioritized using the Northwest Power Planning Council natural production objectives.**

FW-117 **Fish habitat improvement proposals shall be based on watershed limiting factor analysis.** Projects will be implemented by trained and experienced personnel who can translate species needs to site specific prescriptions. Each project proposal will document the method, intensity, and frequency of sampling; data storage and analysis responsibility

FW-118 **The Forest shall develop and maintain an inventory of potential habitat rehabilitation and improvement activities to meet Plan goals, to facilitate program planning, and to aid in developing partnerships to share costs. Priority should be given to indicator species and species on the Regional Forester's Sensitive Species list.**

FW-119 **Recreation and wilderness objectives, lakeshore rehabilitation needs and lake productivity shall be used to develop short- and long-term stocking strategy for high elevation lakes.**

FW-120 **Opportunities to improve the fish production potential of reservoirs should be identified and included in annual fisheries program development during the planning period.** Fisheries potential of reservoirs on the Forest are not fully utilized and will benefit from active management and publicity

WILDLIFE MANAGEMENT

FW-121 **Fish and wildlife habitat resources on the Forest, in particular the habitat of management indicator species, shall be managed in cooperation with State and Federal fish and wildlife agencies. At the Forest level, fish and wildlife habitat shall be managed to maintain viable populations of all existing native and desired non-native plant and animal species. Distribution of habitat shall provide for species viability and maintenance of populations throughout their historic range on the Forest.** Monitoring and inventory plans have been developed for indicator species and others (See Chapter V).

The Forest will adhere to all pertinent State statutes and laws This includes ORS 496 012, which deals with providing for viable populations of all species of fish and wildlife and preventing the serious depletion of any indigenous species.

Wildlife Tree (Snag) Habitat

FW-122 **Habitat capability for primary cavity excavators (indicators for cavity-nesting species) shall be maintained to provide for at least 40% or greater potential populations. Habitat shall be provided and monitored at the subdrainage level.**

FW-123 **Selection of live or dead wildlife trees should be based on the Region 6 publication *Guidelines for Selecting Live or Dead Standing Tree Wildlife Habitat*. Replacement trees (those trees needed to provide snags in future decades) should be sound and have little evidence of sweep, root rot, or other defects that will significantly affect the longevity of the standing tree.** Replacement trees need to have a low risk of falling and a high potential of lasting through the timber rotation Trees that currently have moderate to high levels of rot will deteriorate rapidly and may not meet the long term snag habitat requirements

FW-124 **The Willamette National Forest Wildlife Tree Guide shall be revised within one year after approval of the Forest Plan.** This guide will display the species present, habitat requirements and differences in high elevation and low elevation habitat types.

FW-125 **All timber harvest units shall provide snag habitat capable of supporting at least 20% or greater potential populations of cavity-nesting species.** Older timber sale units (pre late 1970s) often contain low numbers of wildlife trees In new sale areas, additional wildlife trees may need to be left to offset lower numbers in older units in the vicinity. In these situations the objective is to maintain an average 40% population level within as small an area as feasible (such as a small subdrainage)

FW-126 **Distribution of snag habitat within harvest units should at least meet the territory requirements of the species with the most limited territory.** The red-breasted nuthatch has been identified as the primary cavity excavator on the Forest with the most limiting territory size. A 5-acre territory is used to determine the distribution requirement

FW-127 **Designated wildlife trees shall be protected during forest management activities including wood cutting.**

FW-128 **Dead, defective, and live green trees retained for current snag habitat and future replacement snag habitat shall be greater than 18 inches in diameter (DBH) or the largest size available within the stand being treated.** Some lodgepole pine and mountain hemlock stands may not contain trees greater than 18 inches in diameter at final harvest

FW-129 **Snags with the largest DBH should be selected whenever possible.**

FW-130 **Only snags in decay classes I, II, or III and greater than 20 feet tall shall be counted toward meeting habitat requirements for cavity nesting species.** Snags taller than 40 feet provide the best nesting habitat for the most cavity nesting species and will be preferred habitat

FW-131 **Snags in decay classes IV and V provide foraging habitat for insectivorous species and should be retained wherever possible.**

FW-132 **Operator select C-clauses should be used for implementing timber sale area wildlife tree prescriptions.** Placement of wildlife trees may present operational safety concerns that may be dealt with more effectively by the operators during harvest operations than by the Forest during presale activities Monitoring will be used to measure the effectiveness of operator placement and retention of leave trees

Other Raptors (Birds of Prey), and Colonial Nesting Birds

FW-133 **Active roost and nest sites (including rookeries) shall be protected. Timber management and road building activities should be prohibited or curtailed during the nesting season.** Timber harvest may be foregone in a primary zone extending up to 500 feet from the nest or roost site Where activities of significant disturbance and duration are near active roost sites it may be necessary to establish a secondary Restricted Activity Zone outside the primary zone This secondary zone could range up to 1,000 feet

or more from the nest or roost site, depending on the individual situation. Timing or duration of operations may be restricted within the secondary zone

FW-134 **Coordination and/or consultation with State and Federal wildlife biologists should be done as appropriate on an individual project basis.** The intent of this guideline is to ensure protection as provided by the Migratory Bird Act

DEER AND ELK MANAGEMENT

Management objectives for deer and elk habitat apply to specific mapped "Emphasis Areas" within the Willamette National Forest. The mapped areas consist of one to several subwatersheds and range from 1,000 to 15,000 acres in size Each emphasis area may overlap one to several management areas.

Each emphasis area has been assigned a rating of high, moderate, or low The following standards and guidelines may apply to all emphasis areas or just to one specific rating High Emphasis Areas may include up to 30% lands with habitat potential more typical of Moderate or Low Emphasis Areas Most Moderate and some Low Emphasis Areas have inclusions of lands which have habitat potential typical of High Emphasis Areas

The standards and guidelines have been developed in cooperation with the Oregon Department of Fish and Wildlife Habitat conditions will be maintained or enhanced within each emphasis area to meet habitat effectiveness objectives and support the potential populations of deer and elk Habitat effectiveness objectives are assigned to each emphasis rating However, the standards and guidelines will provide a process for changing the habitat effectiveness objectives of individual emphasis areas

Standards and Guidelines Common To All Emphasis Areas

FW-135 **Districts should evaluate and implement projects that establish increasing trends in habitat effectiveness with the exception of Low Emphasis Areas** Habitat effectiveness may show decreasing trends within Low Emphasis Areas

FW-136 **Differing Habitat Effectiveness (HE) objectives for cover quality (HEc), forage quality (HEf), open roads (HEr), and size and spacing of cover and forage areas (HEs&s) may be established for individual emphasis areas provided that site specific analysis, conducted in cooperation with Oregon Department of Fish and Wildlife and interested publics, indicates appropriate habitat objectives can be achieved at the changed HE values.** The establishment of changed HE objectives may be most appropriate in High Emphasis Areas which have inclusions of lands with habitat potential more typical of Moderate or Low Emphasis Areas Moderate and Low Emphasis Area HE objectives provide flexibility to manage inclusions of high value habitat at HE values established for High Emphasis Areas

FW-137 ***A Model to Evaluate Elk Habitat in Western Oregon* shall be used to evaluate effects of projects occurring within the emphasis area boundaries and for monitoring trends in achieving habitat effectiveness objectives. The exception to this standard is that the HE value for cover quality within High Emphasis Areas shall be assessed on the winter range only.**

FW-138 **Monitoring of forage quality on a variety of vegetation types and conditions and subsequent refinement of the forage quality rating table should be given high priority. Amendments to the model shall be incorporated as they are approved.** More information is needed to accurately rank and score all potential forage enhancement activities The existing model assumes differences in forage quality resulting from enhancement activities, and that these differences apply to summer and winter periods.

FW-139 **Projects within High Emphasis Areas that significantly impact habitat components shall analyze the cumulative effects of the proposed and projected activities for the next 10 to 15 years on these components. The analysis should include a projected schedule of proposed activities (including enhancements) and their effect on the overall habitat objective.** This analysis and schedule will provide a basis for planning and scheduling future activities within High Emphasis Areas.

FW-140 **Habitat effectiveness analysis for projects (i.e., timber harvest, road construction/reconstruction, and habitat enhancement) shall be conducted to include the entire emphasis area. An exception to this standard shall apply to the analysis of cover quality within High Emphasis Areas.** Project level decisions may be for activities which occur on all or a portion of the area, but decisions will generally be tiered to a habitat effectiveness analysis for all of the affected emphasis area

FW-141 **Project planning and the Willamette National Forest Road Closure Policy should be used to determine locations, seasons, types, and extent of access management structures and/or signing within each emphasis area.** Closures will generally be located on dead end spur roads Few collector roads are expected to be closed

FW-142 **Use of closed roads for agreed-to Forest management activities (timber harvest, tree planting, slash burning) should not constitute an upward change in the HE value for roads.** The intent of this standard is to provide security for elk populations while allowing for normal forest management activities

FW-143 **Seasonal restrictions should be considered for activities such as road construction and timber harvest activities when they occur within sensitive sites** (i e , key wintering areas, calving grounds, migration corridors).

FW-144 **Where access management structures have been placed, access restrictions should apply to all activities, except emergency vehicles, during the general rifle elk season.** The intent is to provide a balance of walk-in hunting and drive-in hunting opportunities Site specific analysis will determine the locations of open and restricted access areas

FW-145 **Forage enhancement activities which require burning to prepare a seed bed for establishment of grasses, legumes, and/or other high quality forage species should be located within winter range. Emphasis should be placed on establishment of plant species native to the Cascade Range.** Burning may not be required to establish adequate beds of forage species

FW-146 **Compensation between the habitat variables should be used to evaluate the management activities which contribute the highest net gain in habitat effectiveness, and thus provide high cost/benefit returns.**

High Emphasis Areas

FW-147 **Habitat conditions shall provide high quality cover within the winter range. High quality forage should be available throughout the area.** Access Management will be used to provide escapement and security for deer and elk occurring within the area. Management intent is to increase or maintain an "overall" Habitat Effectiveness Value (HE) for cover quality (HEc), forage quality (HEf), open roads (HEr), and size and spacing of cover and forage areas (HEs&s) within the "highly viable" range as described in *A Model to Evaluate Elk Habitat in Western Oregon*

High Emphasis Areas will provide habitat capability for a potential population of two elk and ten deer per one hundred acres of winter range

FW-148 **The habitat effectiveness objective for each variable** (HEc,HEf,HEr,& HEs&s) **should be within the range > 0.5 to 1.0. The overall habitat effectiveness value should be maintained above or increased to > 0.6 within the first 10 years of the planning period** Exceptions may occur where opportunities to meet the habitat objectives are limited due to existing poor conditions and/or a limited amount of project activity within the planning period

FW-149 **Within High Emphasis Areas, the Habitat Effectiveness Value of 0.5 for cover (HEc) shall apply to the winter range portion of the area.** The 0 5 value requires a significant portion of the cover acres to be in optimal thermal condition The intent of this standard is to ensure that the optimal cover is located on the winter range, thereby providing its most important biological function for winter survival

Moderate Emphasis Areas

FW-150 **Habitat conditions shall provide good quality cover and forage distributed within the emphasis area boundaries.** Management's intent is to increase or maintain an "overall" Habitat Effectiveness Value (HE) for cover quality (HEc), forage quality (HEf), open roads (HEr), and size and spacing of cover and forage areas (HEs&s) within the "viable" range as described in *A Model to Evaluate Elk Habitat in Western Oregon*

Moderate Emphasis Areas will provide habitat capability for a potential population of 0 8 elk and four deer per 100 acres of winter range

FW-151 **The habitat value for each variable should be within the range of > 0.4 to 1.0. The overall habitat effectiveness (HE) value for the emphasis area should be maintained above or increased to > 0.5 during the first 10 years of the planning period.**

Low Emphasis Areas

FW-152 **Habitat conditions provided may be of low quality for all four variables.** Management of resources other than deer and elk may result in a poor distribution of cover and forage. Where consistent with achieving other resource objectives, however, the quality of elk and deer habitat may be managed at as high a level of habitat effectiveness as possible

Within Low Emphasis areas Habitat Effectiveness Values for cover quality (HEc), forage quality (HEf), open roads (HEr), and size and spacing of cover and forage areas (HEs&s) will be within the "marginal" range as described in *A Model to Evaluate Elk Habitat in Western Oregon*

Low Emphasis Areas will provide habitat capability for a potential population of 0 01 elk and 0 5 deer per 100 acres of winter range

FW-153 **The habitat effectiveness objective for each variable should be within the range of > 0.2 to 1.0. Where existing habitat conditions result in values below this range, an increasing trend should be established through project implementation.**

PROPOSED, ENDANGERED, THREATENED, OR SENSITIVE SPECIES

FW-154 **Proposed, endangered, threatened and sensitive species (PETS) shall be identified and managed in cooperation with the USDI Fish and Wildlife Service, Oregon Department of Fish and Wildlife, and Oregon Department of Agriculture. Legal and biological requirements for these plants and animals shall be met.**

FW-155 **Habitat for existing federally-classified threatened and endangered species shall be managed to achieve habitat and population objectives of recovery plans.**

Legal Requirements

FW-156 **Biological Evaluations shall be prepared for each project authorized, funded, or conducted on Forest land to determine the possible effects the proposed activity will have on proposed, endangered, threatened, or sensitive species (FSM 2672.4, including R-6 Supplement 47).** Several projects may be evaluated within the same assessment For example, a timber sale Biological Evaluation may consider effects on post sale activities as well as the timber harvest and road building The Biological Evaluation consists of five steps

1 Prefield review of existing information
2 Field reconnaissance of the project area
3 Determination of whether local populations of endangered, threatened, proposed, or sensitive species will be affected by a project (consult with USDI Fish and Wildlife Service if endangered, threatened, or proposed species are found)
4 Analysis of the significance of project effects on local and total populations of sensitive species
5 If Step 4 cannot be completed due to lack of information, a biological or botanical field investigation will be conducted to complete the analysis of significance

FW-157 **If endangered, threatened, or proposed species are found in a project area, consultation requirements with the USDI Fish and Wildlife Service shall be met in accordance with the Endangered Species Act (Public Law 93-205) and FSM 2671.45. Before a project can be carried out, protection or mitigation requirements shall be specified (NFMA, 36 CFR 219.27(a)(8)).** Four interrelated factors determine the type of review and consultation procedures to follow in determining effects on listed or proposed species They include· presence of listed or proposed species;

Forest Service determination of effect in the biological evaluation; type of project (construction or not); and extent of environmental impact (See FSM 2671 4 for detailed consultation procedures)

FW-158 **Species management guides should be prepared to address the effects of land management activities on local populations of sensitive species at a broader scale, and to identify opportunities to enhance and develop habitat.**

FW-159 **Lists of endangered, threatened and sensitive plant and animal species shall be maintained and updated annually.** Pertinent information will be submitted to the Regional Office for updating the Regional Forester's Sensitive Species Lists, and sent to the appropriate agencies for inclusion in State-wide data bases.

FW-160 **Forest personnel shall not identify specific location information that could jeopardize the welfare of a proposed, endangered, threatened, or sensitive species (FSM 2671.2).**

FW-161 **Inventories shall be conducted to verify presence or absence of proposed, endangered, threatened, and sensitive species on the Forest. Occupied essential habitat shall be protected through development of species management guides.**

Biological Requirements

The following standards and guidelines contain direction specific to the Threatened, Endangered, and Sensitive wildlife species on the Forest

Peregrine Falcon (Endangered Species)

FW-162 **American peregrine falcons and their habitat shall be protected and managed in accordance with the Pacific Coast Recovery Plan 1982.** One peregrine falcon nest site is known on the Willamette National Forest, and additional potential nesting habitat does exist **Twelve potential nest sites shall be maintained in suitable cliff habitats that have been identified through inventory.**

Bald Eagle (Threatened Species)

FW-163 **Bald eagles and their habitat shall be protected and managed in accordance with the *Pacific Bald Eagle Recovery Plan* (USDI Fish and Wildlife Service 1986) and the *Working Implementation Plan for Bald Eagle Recovery in Washington and Oregon* (The Bald Eagle Working Team for Oregon and Washington 1989).**

FW-164 **Habitat suitability of existing and potential nesting, foraging, and roosting sites in recovery areas as shown in Table IV-26 shall be maintained or enhanced.** Potential nesting, roosting, and foraging habitat has been designated within 1 1 miles of the following reservoirs, lakes, and rivers Six known nest sites and 15 potential sites have been identified to date

Table IV-26. Potential and Existing Bald Eagle Sites

Location	Potential Sites	Existing Sites
Detroit Reservoir	1	1
Green Peter Reservoir	1	0
Cougar Reservoir	2	0
Blue River Reservoir	2	0
Waldo Lake	1	1[1]
Fish Lake/Clear Lake	0	1
Lookout Point Reservoir	2	2
Hills Creek Reservoir	2	1
Upper McKenzie River	2	0
Middle Santiam River	1	0
South Santiam River	1	0
TOTAL SITES	15	6

[1]Nest site at Erma Bell Lakes

FW-165 **At least 125 acres of nesting habitat shall be maintained for each potential nest site. Potential nesting habitat should possess mature or old growth forest characteristics as outlined by Anthony and Isaacs (1981).** Existing nest site zone sizes may vary reflecting topography, potential for timber blowdown, and location of important habitat components For more specific direction refer to Bald Eagle Management Area (MA 8)

FW-166 **Forest land within 1.1 miles of identified lakes, reservoirs, and rivers should be considered potential bald eagle habitat.**

Northern Spotted Owl (Sensitive Species)

FW-167 **Spotted owl habitat shall be managed in accordance with direction specified in the Supplement to the Environmental Impact Statement for an Amendment to the Pacific Northwest Regional Guide (USDA 1988).** Spotted owl habitat areas (SOHAs) established to meet the Regional Guidelines are identified as part of Management Area 9 (MA 9)

FW-168 **The Forest shall assist the Regional Office in meeting the terms of the 1988 Interagency Agreement on spotted owl. The four agencies (USDA Forest Service, USDI Fish and Wildlife Service, Bureau of Land Management, and National Park Service) have agreed to cooperate in an effort to maintain population viability for spotted owls.**

FW-169 **A Biological Evaluation shall be prepared on ALL activities that may impact spotted owls. Project areas within suitable habitat shall be surveyed for the presence of spotted owls. Standards for the evaluation shall meet R-6 guidelines for field inventory and directives established in FSM 2670.**

FW-170 **Nest sites and Habitat Activity Centers (HACs) outside Management Area 9 (special wildlife habitat) shall be protected.** A HAC consists of an area of concentrated activity or use by a verified pair of spotted owls. A nest tree, natal area, or pair roost site will identify the center of activity

FW-171 **Northern spotted owl pairs not within MA 9a shall be protected by deferring harvest and road building within at least a 330-foot radius of the identified habitat activity center.**

FW-172 **For disturbance activities (timber harvest, road building, trail construction/ *maintenance, slash burning) near Habitat Activity Centers, operating restrictions* shall apply within 1,320 feet of Natal Area boundaries.** Natal areas usually encompass approximately 80 acres and can be delineated as as a circle with a 1,050-foot radius from the nest tree or roost site

FW-173 **The following guidelines apply to the use of all motorized equipment:**

- **Where nesting is verified, restrictions shall apply March 1 to September 30.**
- **For verified pair locations, operating restrictions shall apply until nonnesting has been verified.** If nonnesting is verified, restrictions may be waived

Wolverine (Sensitive Species)

FW-174 **Reported wolverine sightings shall be evaluated. In cooperation with state fish and wildlife agencies, surveys should be conducted to verify the presence and distribution of the species. Direction for management of occupied habitat shall be provided through a species management guide or plan.**

Bull Trout and Oregon Chub

FW-175 **All project proposals within or affecting existing or historic bull trout and Oregon chub habitat shall maintain or improve habitat to levels consistent with biological needs of these species.** The Forest will actively participate in studies or other activities that support the recovery objectives.

TIMBER MANAGEMENT

Harvest Scheduling

FW-176 **The harvest schedule shall support a Forest structure that will enable perpetual timber harvest at the long-term sustained yield capacity (LTSYC).**

FW-177 **The 10-year timber harvest schedule shall comply with nondeclining flow on a Forest-wide basis (36 CFR 219.16(a)(1)).**

FW-178 **An environmental analysis shall be conducted for areas considered for harvest according to the procedures found in FSM 1950, Environmental Policies and Procedures.**

FW-179 **Timber harvest activities shall be planned, implemented and monitored according to Best Management Practices (BMPs) listed in *General Water Quality Best Management Practices, Pacific Northwest Region*, 11/88.**

FW-180 **District Rangers shall recommend additions or deletions to lands determined to be physically suited for timber management to the Forest Supervisor based upon project level data and analysis. Recommended changes should be reported annually. District Rangers shall maintain detailed records of recommended changes.**

FW-181 **Regulated timber harvest shall occur only on suitable lands for timber production (36 CFR 219.27(c)(1)).** Timber cutting may occur for the following purposes on other lands that are unavailable or unsuited for timber production and are not contributing to the LTSYC of the Forest:

- To remove timber from road locations needed for the harvest of timber or for other management purposes.
- To construct or protect capital improvements such as campgrounds, buildings, fuelbreaks, and dispersed recreation sites, or to accomplish projects designed to enhance other resource values
- To remove hazards to human life and health
- To remove significant dispersed dead material or timber killed by catastrophic events, such as fire, windthrow, drought, insects, or disease (36 CFR 219 27(c)(1))
- To allow cutting of unsuitable areas (unsuited due to regeneration problems) located within otherwise suited harvest units provided more logical management units and road locations would result in less resource impacts. Reduced impacts may be achieved by reduced landing or road construction, or by reduced soil and vegetation disturbance caused by dragging logs
- To study and test the feasibility of silviculture and harvesting practices that could be successful on these lands This could provide useful information for the 10-year reevaluation of these lands
- To accomplish integrated resource management activities

FW-182 **Timber should not be harvested until it has reached or surpassed 95% of culmination of mean annual increment (CMAI) in cubic feet.** Exceptions may be made for commercial thinning, or where special resource considerations require earlier harvest (36 CFR 219.16(a)(2)(iii)) Average stand diameter will range from about 14 inches to over 20 inches at 95% CMAI

FW-183 **The utilization standards to be used in determining harvest levels shall be separated into empirical and managed stands. Standards in Table IV-27 shall apply, except where individual market areas and/or specific products present opportunities for standards utilizing a higher proportion of the tree:**

Table IV-27. Timber Utilization Standards

Species (Groups)	Min. d.b.h.[1]	Min. top d.i.b [2]
Empirical mature except lodgepole pine	9"	6"
Empirical commercial thinning size and lodgepole pine	7"	4"
Managed stands All species	7"	4"

[1]d b h = diameter at breast height
[2]d i b = diameter inside bark

Silvicultural Methods

FW-184 **A silvicultural prescription shall be prepared, or approved after field review, by a Region 6 certified silviculturist (FSM 2478.03(5)) prior to any vegetative manipulation projects such as timber harvests, thinnings, release, planting, and brush control.**

FW-185 **Silvicultural prescriptions shall be based on the site potential as indicated by plant associations.**

FW-186 **Even-aged management should be the preferred timber management system (FEIS Appendix F).** Even-aged harvests will have a different appearance from previous harvest units as a result of S&Gs for wildlife, biological diversity and watershed protection Some large trees, live and dead, will be left in even-aged units to meet other resource needs Down wood may also be left in greater amounts than in the past

FW-187 **Uneven-aged systems should be considered, if after a site specific analysis, it is determined such a silvicultural system is necessary to meet multiple use objectives for all resources.**

FW-188 **Timber harvesting shall be done in such a way that there is assurance that each area can be adequately restocked within 5 years after the final harvest for clearcutting and selection cutting.**

FW-189 **Shelterwood and seed tree cutting shall be done in such a way that there is assurance that each area can be adequately restocked within 5 years of the seed cut.** This time period may be extended to 10 years if documented through an environmental analysis **In all cases, adequate stocking shall be assured within 5 years of the final overstory removal.**

FW-190 **Tree species used in planting harvest units should be based on the potential of the site as indicated by plant associations and adjacent stand conditions. Stands should be regenerated to maintain a mixture of hardwood and conifer species, as appropriate for maintaining diversity on the site.**

FW-191 **Vegetation treatments in managed stands shall be consistent with the Pacific Northwest Region's EIS for Managing Competing and Unwanted Vegetation (USDA, 1988).**

FW-192 **Prior to removal of woody plants to increase growth of timber crop trees, a prescription shall be developed that ensures:**

- **No native species should be eliminated from the site.**
- **Native species targeted for removal from the site should be retained to at least 10% of the number of individual plants and their spatial distribution prior to treatment.**
- **When clumps are being treated, at least 5-6 stems per acre should be retained.**

FW-193 **Forest openings created by even-aged silviculture should not exceed 60 acres unless otherwise justified. (See USDA Forest Service "Regional Guide for the Pacific Northwest Region," pages 3-3, 3-7, and 3-8.)** Units will be shaped or blended with the natural terrain to achieve aesthetic and wildlife habitat objectives to the extent practicable Exceptions include

- Catastrophic events,
- Use of an economically feasible logging system that reduces disturbance to other resources and minimizes the fragmentation of old-growth habitat

FW-194 **Created openings should be separated by areas that contain one or more logical harvest unit. (Regional Guide, 3-8).**

FW-195 **Unless more stringent standards are required for specific resource values (e.g., visual, wildlife, riparian), a harvested area of commercial forest should not be considered a created opening when:**

- **Crop trees are at or above 4.5 feet in height and free to grow, and**
- **Stocking surveys carried out in accordance with Regional instructions indicate that crop trees meet minimum stocking levels, as shown in Table IV-28.**

Table IV-28. NFMA Minimum 5-Year Stocking Level

	Minimum Trees Per Acre	Minimum Spacing Between Crop Trees
DF Site Class III and Better	125	6 feet
All Others	150	6 feet

Harvest Practices

FW-196 **Uphill falling shall be used in harvesting old growth and large sawtimber on slopes of 30% or greater, except where not operationally feasible or where in conflict with resource protection.**

FW-197 **Directional falling should be used where necessary to protect other resource values.**

FW-198 **All available logging systems should be considered for use. The selection of a logging system shall be based on resource considerations, economics and technological feasibility.**

Consistent with other resource needs, utilization of other forest products (i e , boughs, christmas trees, beargrass, posts, poles) and miscellaneous plant products should be encouraged through short- or long-term contracts

Changed Environmental Conditions

FW-199 **When changed conditions occur, environmental analysis shall be conducted to determine the effects of the changed conditions on resource values, and to re-evaluate and consider modification of existing management area objectives.** Visual quality settings, wildlife habitat effectiveness, recreational experiences and timber harvest opportunities may be affected by unforeseen changes in environmental conditions Changed conditions may result from events, such as catastrophic wind, fire, floods and insects, or by projects that are allowable under law such as minerals development

FW-200 **The decision to salvage harvest for catastrophic losses after changed conditions shall be based on an environmental analysis. The overall wildlife tree habitat conditions and coarse woody debris levels in the subdrainage shall be analyzed, particularly when scattered mortality harvests are considered.** Refer to standards and guidelines for wildlife and biological diversity in the Forest-wide direction and management area standards and guidelines for further direction "Catastrophic loss" indicates tree mortality significantly exceeding the endemic mortality rate assumed in timber yield tables used in the forest plan analysis

BIOLOGICAL DIVERSITY AND OLD GROWTH

Biological diversity is the distribution and abundance of different plant and animal communities and species Biological diversity is considered within several different spatial scales, biological scales, and temporal scales. Spatially, diversity can be viewed at scales such as within Forest stands, within basins, and within provinces Biologically, diversity is considered at the population level, the species level, the community level, and the genetic level Temporally, diversity scales may include historic condition, short-term changes, long-term changes, and evolutionary changes. Diversity is determined by ecosystem function, patterns of biotic communities, and human activities (36 CFR 219 19 and 219.27)

Old-growth forests provide a diverse array of plant and animal habitats and are a major component of natural biological diversity Old-growth forests encompass the late stages of stand development and are distinguished by old trees and related structural attributes.

These attributes, such as tree size, canopy layers, snags, and down trees, generally define forests that are in an old-growth condition The specific attributes vary by forest type Old-growth definitions will be developed by forest type or type groups for use in determining the extent and distribution of old-growth forests. Effective interior old-growth habitat is provided in an old-growth stand where edge effects do not alter the natural plant composition or structure

Biological diversity encompasses management direction for a variety of individual resources. The following standards and guidelines provide only part of the management direction intended to address biological diversity Many of the standards and guidelines listed under other topic headings and management areas such as Timber, Wildlife, Fire, and Management Area 15 - Riparian, provide additional direction for meeting biological diversity objectives

Forest Level Diversity

FW-201 **Biological diversity shall be maintained or enhanced by providing an ecologically sound distribution and abundance of plant and animal communities and species of all age classes at the Forest, basin, and stand level.** This distribution will contribute to the goal of maintaining all native and desirable introduced species and communities

FW-202 **Within management areas scheduled for future timber harvest, potential old-growth stands shall be evaluated to determine their significance. Significance should be based on its potential value as a functioning old-growth ecosystem, its potential value as a connective corridor facilitating the movement of animals and plant genes between blocks of old-growth ecosystems, and for unique characteristics.** The purpose of this evaluation is to help establish priorities for the scheduling of timber harvests

FW-203 **Analysis of significant old-growth shall occur at both the individual stand level and at the larger landscape level (e.g., small watershed or several sub-drainages).**

Landscape Level Diversity

FW-204 **Project analysis during Forest Plan implementation shall evaluate the broad scale habitat patterns created by management areas and the proposed activities in the Forest Plan.** The natural stands that will be retained in SOHAs, riparian corridors, old-growth groves, and other management areas allow for the potential movement of species that prosper in interior habitat Timber harvests, past and present, generate a succession of habitats that occur after stand removal The spatial interaction of these two major types of habitats is a major source of diversity

FW-205 **Management activities should minimize adverse effects on significant old-growth stands and connective corridors. To the degree feasible, timber harvests should be planned in areas of least impact to old-growth values.**

FW-206 ***Evaluation of landscape patterns shall:***

1. **Identify and rank old-growth stands using ecological criteria.** The ecological criteria used will consider the current research studies as well as public concerns identified through project scoping

2. **Identify connective corridors that maintain or enhance interaction between habitat islands.** Connective corridors that link large scale land forms, such as watersheds, SOHAs, and Wildernesses are a high priority Riparian areas, meadows, and lands unsuited for timber harvest, may also be considered in the evaluation of corridor location

Stand Level Diversity

Nonforested as well as forested areas provide an abundance of different plant and animal communities and species.

FW-207 **During project planning, site specific analysis shall consider biological diversity and ecosystem function.**

FW-208 **Old-growth stands possessing unique characteristics significantly different from other mature stands on the Forest shall be identified and protected during project planning.**

FW-209 **Inventories of potential old-growth should be field verified during project planning to identify old-growth attributes and biologically diverse characteristics.**

FW-210 **At least 10 green dominant or co-dominant trees per acre (in addition to wildlife trees) should be left in harvest units in Management Areas 6b, 6c, 10b, 10d, 11d, 11e, and 11f.** These areas are managed on rotations of 150-200 years Retaining remnants of the existing overstory will provide some of the structural characteristics of old-growth stands

FW-211 **Special wildlife and plant habitats not currently identified in non-harvest management areas shall be maintained. This should include the ecotone and a buffered area sufficient to maintain the microclimate of the site.** Examples of special habitats include mineral springs, mineral licks, unique plant associations, small meadows, and caves Further direction can be found in standards and guidelines for Management Areas 9d and 15

FW-212 **Prescriptions should be developed prior to timber harvest to identify the amount, sizes, and distribution of downed logs to be left on site after timber harvest. These prescriptions should incorporate the following specifications:**

Table IV-29. Allowable Downed Woody Material

Diameter [1]	Tons/Acre	Downed Trees/Pieces/ Acre	Length
0" - 3"	7 - 11	NA	NA
3" - 9"	8 - 12	NA	NA
9" - 16"	18 - 20	NA	NA
> 16"	NA	8 - 15	> 20 ft

[1]Diameter = small end

FW-213 **In addition, at least 50% of down material greater than 16 inches in diameter should be in decay class 1. Remainder of material may be in decay classes 2 and 3. All material in decay classes 4 and 5 shall be left.**

FW-214 **Management activities shall provide enough wildlife trees to maintain a healthy forest ecosystem.** *See Wildlife Tree (Snag) Habitat Standards and Guidelines*

AIR QUALITY

FW-215 **Management activities shall maintain air quality for the protection and use of the National Forest resources, and meet or exceed applicable federal and state standards and regulations (36 CFR 219.27(a)(12)).**

FW-216 **The Forest shall cooperate with local air-quality authorities on actions required to permit new or modified air pollution sources. Review of air quality studies *submitted with new source permits should be completed within 30 days.***

FW-217 **The Forest shall coordinate with appropriate air-quality regulatory agencies. Prescribed burning operations shall comply with the procedures identified in the Smoke Management Operations Plan (Oregon State Forestry Directive 1-4-1-601).**

FW-218 **The Forest shall demonstrate a reasonable reduction in total suspended particulate emissions from prescribed burning consistent with the State of Oregon Implementation Plan.** The best available predictive methods and models *together with the most cost-efficient technology will be used*

FW-219 **Established visibility standards shall be followed for each Wilderness.** Prescribed fire implementation plans developed to meet the objectives of FSM 2324 will include the impacts on visibility in Wilderness areas Visibility factors will be maintained within the Limits of Acceptable Change

FIRE AND FUELS MANAGEMENT

Fire Planning

FW-220 **Action plans shall be developed for fire prevention, detection, presuppression and suppression programs. Plans shall address the specific requirements of *each management area with regard for other resource objectives.***

Forest-wide planning will utilize the National Fire Management Analysis System to determine the most cost-efficient fire protection organization As conditions change and better information is developed, the fire organization will be re-evaluated with in this system

Equipment and training will be provided for Forest Service employees outside of the fire management organization to assist in initial attack

Prevention (Wilderness and Non-Wilderness)

FW-221 **Plans should be developed to minimize industrial, railroad, and debris disposal fire starts.**

Cost-effective plans for the prevention of human-caused fires will be aimed at specific risks determined by on-going monitoring of current and historical fire reports

FW-222 **The planned program for other prevention activities should rely upon direct and indirect methods of prevention.**

FW-223 **Public contact should be scheduled during periods of high fire danger.** Contact may include use of Wilderness rangers or prevention stations at critical points such as trailheads and arterial roads

Detection (Wilderness and Non-Wilderness)

FW-224 **Detection should be provided by a combination of aerial detection flights and primary lookouts.** The mix of aerial and ground detection activities will be reviewed periodically to maintain the most appropriate combination

Presuppression (Wilderness and Non-Wilderness)

FW-225 **Table IV-30 specifies the maximum number of acres that should be allowed to be burned by wildfire on non-Wilderness acres, based on a 10-year average.** This table, through the use of the National Fire Management Analysis System, is a tool in determining appropriate Forest staffing and equipment levels

Table IV-30. Maximum Allowable Burned Acres: Non-Wilderness

Fire Intensity Level	Annual Maximum Burned Acres by Fire Size			Maximum Total Acres		Average Per Year
	0-100 Ac.	100-500 Ac.	300+Ac.	Annual	10-Yr.	
1	100	0	0	100	1,000	100
2&3	100	400	0	500	2,500	250
4-6	200	300	0	500	2,500	250
TOTALS				1,100	6,000	600

FW-226 **Table IV-31 specifies the maximum number of acres that should be allowed to be burned by wildfire on Wilderness acres, based on a 10-year average.** This table, through the use of National Fire Management Analysis System, helps determine Forest staffing and equipment levels

Table IV-31. Maximum Allowable Burned Acres: Wilderness

Fire Intensity Level	Annual Maximum Burned Acres by Fire Size			Maximum Total Acres		Average Per Year
	0-100 Ac.	100-500 Ac.	300+Ac.	Annual	10-Yr.	
1	200	200	0	400	2,000	200
2&3	200	200	0	400	2,000	200
4-6	200	0	0	200	1,000	100
TOTALS				1,000	6,000	500

All restriction or closures necessary for any program shall conform to direction contained in FSM 5110

Suppression: Nonwilderness

FW-227 **All wildfires shall receive an Appropriate Suppression Response. The associated strategies and tactics should be the most cost-effective commensurate with the objectives for the management area on which the fire occurs.**

FW-228 **An on-site analysis should be utilized to identify the appropriate fire suppression strategy which is most cost-effective and environmentally acceptable.**

FW-229 **A control strategy shall be utilized where public or firefighter safety is threatened.**

FW-230 **An Escaped Fire Situation Analysis (EFSA) shall be prepared for any wildfire which is not contained/controlled at 5 acres or less in size or any fire if containment is not expected prior to the second burning period.**

If an EFSA is not required, an assessment of environmental impacts should be made prior to implementation of any suppression tactic

FW-231 **Cooperative agreements with adjacent protection units should be maintained.**

Suppression: Wilderness

FW-232 **All naturally occurring fires in Wilderness shall be treated as wildfires unless an approved Wilderness Fire Management Implementation Plan (WFIP) exists (FSM 2324). A WFIP should be completed following Forest Plan implementation.**

FW-233 **In suppression of wildfire, preference should be given to those suppression methods and strategies that result in limiting the burned area to within the Wilderness boundary.** Other factors to consider include cost-effectiveness, the preservation of the Wilderness values, and the threat to people, other resource values or private property

FW-234 **All fires that do not meet the standards set forth for prescribed fires shall be suppressed in an appropriate manner.**

FW-235 **A Control Strategy shall be utilized where public or firefighter safety is threatened.**

FW-236 **An Escaped Fire Situation Analysis (EFSA) shall be prepared for a wildfire which is not contained/controlled at 10 acres or less in size or any fire if containment is not expected prior to the second burning period.**

FW-237 **Suppression practices should have the least physical impact on the land consistent with other management considerations.** Preference will be given to use of natural fuel breaks In some cases direct attack with a minimum width of hand fireline, or wet line using power driven pumps and hose may be more cost-effective and cause the least overall damage to Wilderness values

FW-238 In most cases, ground forces consisting of project personnel will be used for all initial attack and suppression work **Crew camps should be small and located away from popular camping areas. Camps should be rehabilitated after the fire, removing all litter, hose, gas cans, or other evidence of human occupation.**

Aerial resources may be used for all critical fires or fires which occur at 3H or higher action class and have the potential of becoming costly to suppress; or when this tactic would minimize effects on Wilderness resources

Chainsaws may be used for control purposes only when the fire danger is rated 3H or greater.

FW-239 **An assessment of the environmental impacts should be made before using retardants to determine if the advantages outweigh the disadvantages.**

FW-240 Helicopters may be used to retrieve suppression resources whenever there is a shortage of personnel for fires **Helispots requiring no ground disturbance should be utilized first.** Construction of helispots will have minimum ground disturbance and not result in an unacceptable impact to the Wilderness.

FW-241 **Felling of snags should be restricted to the absolute minimum for containment and/or safety purposes.**

FW-242 **After the fire is declared out, appropriate actions should be taken to rehabilitate and restore the site to a natural condition.**

FW-243 **Where modified suppression practices have been used, care should be taken to ensure that the fire is completely out.**

Prescribed Fire: Wilderness

FW-244 **Prescribed fire (unplanned and planned ignitions) shall be allowed only on vegetative types where the natural role of fire has been identified.**

FW-245 **A decision to use prescribed fire in Wilderness shall be based on an evaluation of the natural role of fire in retaining a variety of plant communities and overall ecosystem processes.**

All proposed planned ignitions within Wilderness will meet the following criteria

1 Evaluation and recommendation for the proposed use of prescribed fire by an interdisciplinary team of resource specialists

2 Involvement of interested public's in the decision process

FW-246 **Prescribed burning (and wildfire suppression to the degree possible) should be carried out in a manner that minimizes smoke impacts to air quality.**

FW-247 **All prescribed burning shall be done so as not to threaten public safety or resources on adjacent non-Wilderness areas.**

Prescribed Fire: Nonwilderness

FW-248 **Fuels treatment plans should provide for reductions in the hazard level of fuels by the most cost-effective method or combination of methods to levels commensurate with protection standards and other resource considerations.**

FW-249 **Fuels treatments should be tied to the requirements of the specific management area. A wide array of fuels treatment alternatives should be considered when determining how best to meet the intent of fuels reduction and management area objectives.**

FW-250 **Prescribed burning should be utilized only when analysis indicates that it will be cost-effective, practical, and ecologically sound. This analysis should include consideration of measures to mitigate impacts on air quality and maintain long-term site productivity.**

FW-251 **In areas where prescribed burning is practiced, burn intensities should remain within the predetermined prescription criteria to successfully meet planned resource objectives.**

FW-252 **To ensure control of wildfires within established parameters for non-Wilderness areas, treatment should be planned to maintain fuel loadings in management activity-created fuels at or below the maximum acceptable ranges as indicated in Table IV-32, on 95% of the affected acreage:**

Table IV-32. Maximum Acceptable Fuel Loadings

Allowable Downed Woody Material			
Diameter[1]	Tons/Acre	Pieces/Acre	Length
0" -3"	7 -11	NA	NA
3" -9"	8 -12	NA	NA
9" -16"	18 -20	NA	NA
> 16"	NA	8 - 15	> 20 ft

[1]Diameter = small end

FW-253 **In addition, at least 50% of down material greater than 16 inches in diameter should be in decay class 1. Remainder of material may be in decay classes 2 and 3. All material in decay classes 4 and 5 shall be left.**

With supporting analysis, fuels treatment prescriptions to meet other resource requirements may specify lower or higher desired fuel loadings than identified in Table IV-32

INTEGRATED PEST MANAGEMENT

FW-254 **The Forest shall cooperate with the State, counties, and other Federal agencies in the control of animal, insect or disease problems, noxious weeds, and in the monitoring and application of pesticides.**

FW-255 **Silvicultural methods and cultural treatments shall be applied in such a way as to reduce hazards from insects, diseases and weed species (36 CFR 219.27(c)(7)).**

FW-256 **When normal insect surveillance indicates the threat of an epidemic, project level detection and control operations, including coordination with other land ownerships, shall be evaluated on a Forest-wide basis.**

FW-257 **In timber harvest areas, where harmful agents may prevent reforestation within 5 years, control methods shall be used. In timber harvest areas, where harmful agents result in lower than projected growth rates, control methods should be considered.**

FW-258 **Vegetation control should be considered along Forest roads and administrative sites to protect resources and investments, or to provide for safety, aesthetics, and other use requirements in accordance with the Pacific Northwest Region's EIS for Managing Competing and Unwanted Vegetation (USDA, 1988).**

FW-259 **Project plans should consider existing noxious weed infestations within the project area. Activities should be designed to minimize the risks of spreading the infestation. Mitigation measures should be used as needed to reduce the spread of noxious weeds.**

FW-260 **Pesticides shall be used only after an analysis of alternatives (based on *effectiveness, specificity, environmental effects, and benefit/cost*) clearly demonstrates that pesticide-use best meets management goals.** Pesticide-use may be considered in non-epidemic situations to protect seed orchards, seed production areas and individual seed trees

FW-261 **Project areas should be monitored during and after pesticide operations in order to detect unanticipated non-target effects.**

CULTURAL RESOURCES

The Forest is mandated by Federal laws and regulations to protect significant cultural and historical resources for future generations. The standards and guidelines described in this section were developed to ensure that proposed projects will not inadvertently harm or destroy important cultural resources

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 Interpretive plans will be prepared for sites selected for public use

Overview

FW-262 **The Forest shall develop and maintain a Forest-wide cultural resources overview which compiles and summarizes known cultural resources information.**

Identification

FW-263 **A cultural resource inventory program shall be conducted for each proposed ground-disturbing activity or other activities with a significant potential to affect cultural resources. The inventory shall be administered by qualified archaeologists and/or historians in compliance with applicable Federal law (Forest Service Manual 2360; Davis 1988).** The results of inventory will be documented in a report which will serve as a planning document

FW-264 **The Forest's strategy for cultural resource inventories, as outlined in FSM 2360, shall be used to guide the inventory of all Forest lands to identify all cultural resources. This strategy should be reviewed and updated annually to incorporate changes in the site inventory data base, management objectives, legislation, and Regional or Forest research information.**

Evaluation and Assessment

FW-265 **Inventoried sites shall be evaluated using the criteria for eligibility to the National Register of Historic Places.** Sites can be treated as individual properties, thematic groups, or historic districts Properties that may be affected by project activities will receive priority. **As available resources allow, a plan should be developed to evaluate other cultural resources as the Forest-wide inventory nears completion.**

Nomination

FW-266 **The Forest shall nominate cultural resource sites that meet the appropriate criteria to the National Register of Historic Places.** Nominations will be scheduled incidentally until completion of the Forest-wide inventory of cultural resources

Protection and Enhancement

FW-267 **Measures shall be developed to protect significant sites from adverse effects due to ground-disturbing and other activities. The Oregon State Historic Preservation Officer (SHPO), and as necessary, the Advisory Council on Historic Preservation (ACHP) shall be consulted.** Measures developed to protect specific values range from complete avoidance of the site and corresponding protection of its environmental setting to mitigation procedures which conserve the historic or scientific values of the resources Examples of the latter may include data recovery through scientific excavation of subsurface cultural resources, photo documentation of surface features and standing structure, and (in some cases) site restoration

FW-268 **Eligible cultural resources shall be protected from depredation and natural destruction.** Protection plans may include physical protection (i e , fences and barriers), scientific study and collection, patrol and anonymity, and gaining public understanding and support through education.

FW-269 **Cultural resources determined eligible to the National Register of Historic Places should be periodically inventoried to discover possible vandalism, artifact theft, or unauthorized use.**

FW-270 **Eligible cultural resources should be protected from natural deterioration caused by fire, flood, earthquake, precipitation, wind, or other degradation. Cultural resources evaluated as having National Register significance should be periodically inventoried to evaluate the affects of environmental factors.**

Scholarly/scientific use of designated prehistoric sites may be permitted in coordination with the relevant Native American groups This could require "banking" of sites for future use, and processing of antiquities permits for testing and excavation of sites by qualified professionals

Maintenance of Historic Sites and Trails

FW-271 **Eligible historic sites and historic trails shall be maintained and/or adverse effects shall be mitigated.** Damaged significant sites may be stabilized or rehabilitated The maintenance level for eligible historic structures will be based on an analysis of utility,

interpretive value, public interest, existing site or area allocation, funding sources and existing agreements Protective measures may range from complete avoidance of the site and protection of the environmental setting to mitigation procedures which conserve the historic or scientific values

Interpretation

FW-272 Cultural resources may be interpreted as suitable for the recreational use and educational benefit of the general public **Suitability criteria should include accessibility, feasibility for protection, condition of the property, compatibility with other resource management activities within or adjacent to the area, thematic representation, and value to public groups. Interpretive services and facilities should be compatible with the qualities of the cultural sites selected for enhancement.** Preferred interpretive methods include brochures, signs, displays, interpretive trails, tours, and video or slide programs

Mitigation

FW-273 **Mitigation measures established during the environmental analysis of a given project shall be monitored to maintain a current record of site conditions.** Tracking of the mitigation plan is necessary during and following ground-disturbing activities

Management

FW-274 **Long-term management of cultural resources shall be coordinated with the State Historic Preservation Office and others as necessary. Cultural resources should be assigned to management categories such as interpretation, scientific investigation, adoption, and preservation, for developing future scientific needs.** A data redundancy category will be developed in the future when inventory and excavation data become sufficient to make such a judgment

The following are management priorities for Cultural Resources

1 Preservation in-place of cultural resources for future scientific study

2 Controlled data recovery by means of professional excavation, mapping, photo documentation and reporting to answer questions about prehistoric/historic use and development

3 Adaptive use of historical structures, for example, administrative sites, residences, interpretive centers, etc

4 Interpretive use, such as directing public attention to a site for educational/ entertainment purposes

American Indian Religious Freedom Act

FW-275 **Management of traditional religious sites or plans for projects which may affect religious sites shall be coordinated with local American Indian tribes.**

LANDS

Land Adjustments

FW-276 **The Lands program shall identify and document areas that meet general criteria for acquisition or exchange.**

FW-277 **Opportunities to acquire or exchange lands within proclamation boundaries should be pursued to provide for or improve:**

1. **Protection within Wilderness;**
2. **Wildlife and fish management opportunities;**
3. **Access opportunities;**
4. **Efficiency of NFS lands management through consolidation;**
5. **Recreation management opportunities.**

Landlines

FW-278 **Property boundary surveys, marking and posting shall be accomplished as needed to support resource programs.** Priorities for landline surveys will consider resource values on National Forest System lands and the compatibility of adjacent uses with management area objectives of the Forest

All survey monuments and markers shall be protected during management activities.

Special Uses

FW-279 **Special-use permit requests should be evaluated against the following priorities:**

1. **Relating to public safety, health, and welfare;** highways, power lines, and public service improvements
2. **Contributing to the general public benefit associated with National Forest resources.**
3. **Benefiting primarily private users;** road permits, power line right-of-ways, telephone lines, water lines.

FW-280 **No special use request should be approved if it can be reasonably accommodated or met on private lands unless such use is clearly in the public interest.**

FW-281 **Opportunities to acquire rights-of-way for public and administrative access to National Forest System lands should be considered whenever possible. Limited access to National Forest lands should not be acquired unless there is alternative public access.** Temporary access may be considered if the need is limited to one time,

the accessible area is small and isolated, and the cost of accumulated entries is less than acquiring permanent access

FW-282 **All right-of-way permits issued to the Oregon Department of Transportation should be converted to USDA or US Department of Transportation easements.**

FW-283 **Small Tracts Act (P.L. 97-465; 96 Stat. 2535, 1/12/83) cases shall be identified and completed in a timely manner. This direction will be used to resolve cases which are within the authority of the Act.**

FW-284 **Sites designated for electronics use should be managed to maximize the number of compatible uses which minimize construction of individual buildings and facilities. Existing sites should be used before developing new sites if coverage is comparable.**

FW-285 **Site plans shall be developed for new special use sites prior to installation of facilities. Site plans should be developed for existing sites with facilities already in place where no site plan currently exists.**

FW-286 **New corridor proposals should be accommodated within existing corridor locations when practicable. New corridors needed for major utilities and highways shall be evaluated and designated through the NEPA process and interagency evaluation as recommended in the Western Regional Corridor Study, 1986.**

FW-287 **Utility transmission corridors shall be excluded from crossing the crest of the eastern boundary of the Forest with the exception of five potential windows.** The five windows are Emigrant Pass, Willamette Pass, McKenzie Pass, Santiam Pass, and the North Fork of the Breitenbush River **Prior to the designation and development of any of these areas for a utility corridor, an evaluation shall be done to identify avoidance areas that may be necessary to maintain scenic quality, wildlife and recreation resource values.**

FW-288 **Corridors through or in close proximity to Wilderness (Management Area 1), Wild Rivers (Management Area 6a), and Research Natural Areas (Management Area 4), shall be excluded from consideration as potential routes. New corridors should be accommodated within existing corridor locations through or in close proximity to Scenic and Recreation Rivers (MA 6a,b).**

MINERAL AND ENERGY RESOURCES

FW-289 **Mineral resource uses shall be consistent with cultural resource values and management area direction. Leases for mineral activities shall be consistent with management area objectives such as visual quality, soil, water, wildlife, and fish habitat.** Minerals development is a valid use for many areas on the Forest

FW-290 **An environmental analysis shall be done for all applications for mineral permits, leases, or licenses to evaluate environmental effects and determine necessary mitigation.**

FW-291 **An operating plan shall be completed prior to any site development for mineral exploration, development, or extraction (36 CFR 228).** Mining operation methods will be evaluated through the review and approval of operating plans

FW-292 **Reclamation standards shall ensure that the land is returned to a productive condition in a timely manner to the extent reasonable and practicable. When appropriate, opportunities to enhance other resources may be considered.** Concurrent reclamation will be stressed Reclamation bonds will be based on actual reclamation costs and formulated using technical and other resource input, and will be adjusted to current on-site conditions

WITHDRAWALS

FW-293 **Withdrawal of lands from appropriation or entry under the mining or mineral leasing laws shall be in accordance with Section 204 of the Federal Land Policy and Management Act of 1976 (FLPMA) and current direction. Areas with mineral potential should be recommended for withdrawal from mineral entry only when mitigation measures would not adequately protect other resource values which have designated protected status or which are of equal or greater public benefit.** Review of existing withdrawals will be made to determine whether the continuation of existing withdrawals is consistent with the statutory objectives of the programs for which the lands were dedicated

Mineral activities include prospecting, exploration, development, extraction, and rehabilitation. These activities vary by the category of minerals involved locatable, leasable, or salable.

Locatable Minerals

This category includes valuable mineral deposits including hard rock minerals such as gold, silver, and copper

FW-294 **Locatable minerals on reserved and O & C lands shall be administered in accordance with applicable laws and regulations including the General Mining Law of 1872 as amended.**

FW-295 **Claims on which application for patent have been made shall be examined by a certified mineral examiner; a conclusion of validity shall be presented to the Bureau of Land Management for final action.**

Leasable Minerals

This category includes coal, oil, gas, and geothermal on all lands as well as hard rock minerals on acquired lands

FW-296 **Leasable minerals shall be administered in accordance with the Minerals Lands Leasing Act of 1920 as amended and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.**

FW-297 **Permits for leasable minerals shall provide for protection and rehabilitation of surface resources.**

FW-298 **Applications for permits and leases shall be evaluated in an environmental analysis.**

FW-299 **A "no-surface-occupancy" stipulation on leases should be considered when:**

1. **surface occupancy would cause significant resource disturbance which could not be mitigated by any other means;**
2. **where resource impacts would be irreversible or irretrievable; or**
3. **the activity is incompatible with surface management objectives.**

FW-300 **Off-lease support facilities and/or activities may be authorized by appropriate Forest Service land use permits.**

FW-301 **Geothermal resources shall be administered in accordance with the direction established by the final decisions in the following environmental analyses: Breitenbush Area Final Environmental Impact Statement, 1978; Geothermal Leasing on Nonwilderness Areas Environmental Assessment, 1982; Belknap-Foley Final Environmental Impact Statement, 1981. These documents are on file at the Willamette National Forest Supervisor's Office.**

Salable Minerals

This category includes common variety minerals such as sand, stone, gravels, cinders, pumice, pumicite, and clay

FW-302 **Salable minerals shall be administered in accordance with the Materials Act of 1947 and the Multiple-Use Mining Act of 1955.**

FW-303 **An environmental analysis shall be done for all requests for extraction operations. Activities allowed by permit should be consistent with the multiple-use *objectives for the area.***

FW-304 **Rock quarry location, design, and operations should meet safety, visual, watershed, and economic objectives.** In sensitive viewsheds and near recreation areas, consideration will be given to design criteria such as low quarry faces to minimize impacts Rock use will emphasize conservation Emphasis will be given to effective utilization of existing sources before development of new sources

FW-305 **Rock sales may be discouraged in areas deficient in quarry rock.**

FW-306 **All mineral permits, contracts, or leases issued by the Forest Service, involving removal of rock material, should prohibit unnecessary soil disturbance beyond the materials source boundary and provide for reasonable restoration of the site.** Removal of rock material by a mineral materials permit will be governed by a plan

providing for development and rehabilitation requirements designed to meet the objectives for the management of the site

FW-307 **All contracts requiring rock source development shall contain a plan providing for development and rehabilitation requirements designed to meet the management objectives for the site.**

FACILITIES

Forest Development Roads

FW-308 **The development, maintenance and management of the Forest development road system shall be continued as needed to respond to resource management objectives.** Many road-related activities will occur in support of the timber management program with additional projects undertaken to facilitate recreational use, Forest administration and resource protection

FW-309 **Forest development roads shall be located, designed, constructed, and reconstructed based on the following criteria: resource management objectives, environmental needs, safety, traffic requirements, traffic service levels, vehicle characteristics, road users, season(s) of use, and economics.**

FW-310 **Major through-roads, most commercial haul routes, roads in and to developed recreation or administrative sites, and roads leading to moderate or high-use trailheads, should be maintained for low-clearance vehicles. (Maintenance levels 3, 4 and 5)**

FW-311 **Roads needed only for administrative uses, minor commercial haul, and/or low use dispersed recreation should be maintained for high-clearance vehicles.** (Maintenance level 2)

Road Closures

FW-312 **Existing roads determined not to be needed for current or future use shall be permanently closed to motor vehicles and have vegetation cover reestablished on the roadway and areas where the vegetative cover has been disturbed by the construction of the road.**

Road closures or travel restrictions may be implemented to meet wildlife and other resource needs, reduce or eliminate conflicts between user groups, provide public safety, or reduce road damage and maintenance costs (Maintenance Level 1)

FW-313 **Road closures or access restrictions shall consider the effects on developed and dispersed recreation sites and trailheads.** Proposed access restrictions will consider season of use, alternate routes, and availability of similar experiences

Temporary Roads

FW-314 **Roads planned and constructed as temporary roads should be closed as part of the project work. Methods used, timing, and mitigation measures should be in accordance with the site-specific project plan. Such roads shall be designed to re-establish vegetative cover on the disturbed area as soon as practicable, not to exceed 10 years after the termination of the contract, permit, or lease (36 CFR 219.27 (a)(11)).**

FW-315 **Permanent drainage structures shall be removed from temporary roads. Measures shall be taken to ensure that subsurface and surface drainage patterns are reestablished to minimize the risk of mass movement, surface erosion, and channel erosion.**

FW-316 **Temporary roads left from past activities should be evaluated as they are encountered during project environmental analysis and rehabilitated as soon as practicable.**

FW-317 **Roads subsequently determined to be needed as part of the Forest development road system shall be added to the road system development plan.**

Waldo/Charlton Lake Road

The Waldo/Charlton Lake Road connection between the Deschutes and Willamette National Forests has been identified as having potential to enhance and facilitate use of recreation opportunities in the Waldo Lake Basin and along Century Drive Improvement of the route would be necessary to provide access across the common Forest boundary and to accommodate use of passenger cars and recreation vehicles

FW-318 **Prior to any decisions or actions to improve or alter the current status of the Waldo/Charlton Lake Road an environmental analysis, including public involvement, shall be conducted according to the NEPA process.**

FW-319 **Until a decision is reached and the NEPA process is complete, the Waldo/Charlton Lake Road shall remain a gravel surface road.** In this interim period, crushed rock and dust oil may be applied for safety and routine maintenance purposes Other road surfacing materials may be applied in selected locations on an experimental basis Testing and monitoring of the experimental surface applications will be accomplished to determine an optimum road surface.

Administrative Sites

FW-320 **Administrative site development planning analysis shall be conducted prior to ground disturbance.**

FW-321 **Design standards shall be based on site management objectives, environmental constraints, user safety, national and local uniform building codes, traffic requirements, and economics.**

FW-322 **All new sites shall be planned, constructed, and managed to provide the anticipated uses safely with a minimum impact to adjacent uses and landowners. Completed projects shall include provisions for reducing adverse environmental effects of sight, sound, odor and drainage.**

Site or structure closures may be implemented to meet health and safety needs, or to reduce damage and maintenance costs

MANAGEMENT AREA PRESCRIPTIONS

Background

This section describes direction specific to the management areas (MAs) on the Forest There are 15 management area groups each having a similar management theme such as Wilderness, wildlife habitat or visual quality Within each group there are 1 to 6 individual MAs with specific management direction. Forest-wide S&Gs apply to all MAs unless specifically exempted or modified by the MA direction

MA direction consists of an emphasis statement, goals, desired future condition, description and standards and guidelines (S&Gs) A single primary resource emphasis is identified for each MA, however, the overall direction is designed to produce a variety of resource benefits consistent with this emphasis S&Gs are printed in boldface type and are sequentially numbered for easy reference.

MAs are units of land with boundaries that can be located on the ground In some cases, such as Wilderness, legal boundaries are specified in various Congressional Acts In others, boundaries have been identified based on varying levels of resource inventory and survey data In these cases, the location of MA boundaries during Forest Plan implementation may result in minor boundary adjustments to reconcile ground conditions with MA descriptions and objectives.

Management Area Maps

Management locations and boundaries are shown on the Forest Plan map, with the exception of MAs 1a, 1b, 1c, 1d, and 15 as previously explained A Forest Plan Control Map is on file at the Forest Supervisor's Office in the planning records and at each District Ranger Station These maps are on 1 24,000 scale quadrangle maps and are the source maps for the smaller scale Forest Plan maps

The direction for MAs 9a, spotted owl habitat areas, 9b pileated woodpecker habitat areas, and 9c, marten habitat areas applies to some areas within other no-harvest MAs where they overlap with the management requirement habitat network for these species. These overlaps are displayed by shading on the Forest Plan maps Where these overlaps occur, the intent is to protect the habitat as described in MAs 9a, 9b, and 9c while meeting the primary emphasis of the assigned MA as shown on the map The overlapping acres by MA are shown in Table IV-33

Table IV-33. Management Requirement Network Acre Overlaps With No-Harvest MAs

Management Area	Spotted Owl	Pileated Woodpecker	Marten	Total
3	2,880	--	171	3,050
5a	2,346	747	470	3,562
5b	2,005	--	--	2,005
6a	704	--	--	704
6b	448	--	21	469
6c	661	128	320	1,109
7	874	192	256	1,322
9d	1,557	1,002	363	2,923
10c	512	43	--	555
10e	7,636	320	747	8,703
10f	235	43	--	278
12a	234	--	21	255
12b	21	--	--	21

All MAs except MA 15, riparian, are shown on the Forest Plan map In addition, only the exterior boundary of MA 1, Wilderness is shown on the Forest Plan map Maps of the individual Wilderness Resource Spectrum classes, MAs 1a-d, are maintained in planning records

Riparian MA locations will be identified through site specific evaluations and will be recorded for use in future planning efforts The identification process and location criteria are explained in detail in the MA 15 section The estimated acres of streamside and lakeside riparian area that overlap with the MAs as displayed on the Forest Plan map are shown in Table IV-34 The total acres by MA, Table IV-35, have been corrected for the riparian overlap The acres of riparian overlap in MAs with timber harvest are excluded from the acres shown in Table IV-35

Table IV-34. Overlap of Riparian Acres (MA 15) With Mapped MAs

Management Area	Class I Streams	Class II Streams	Class III Streams	Lakeside Areas	Total
1a,b,c,d	704	1,301	2,261	1,109	5,375
2b	--	--	64	43	107
3	--	341	256	--	597
4	43	43	43	--	129
5a	2,069	448	299	213	3,029
5b	--	128	85	--	213
6a	491	--	21	--	149
6b	128	--	21	--	1,556
6c	1,791	234	--	--	682
7	235	192	149	64	640
8	--	85	21	107	213
9d	469	320	512	64	1,365
10a	--	--	43	--	21
10b	43	--	43	--	86
10c	107	64	43	128	342
10d	85	--	--	64	149
10e	171	384	1,216	363	2,134
10f	--	64	21	213	298
11a	683	2,410	3,519	43	6,655
11c	1,003	981	1,322	256	3,562
11d	2,560	747	235	235	3,777
11e	64	64	85	--	213
11f	3,541	789	533	1,173	6,036
12a	384	21	21	85	511
12b	107	--	--	43	150
13a	277	43	107	64	491
14a	4,543	12,819	18,472	192	36,026
14b	--	43	43	--	86
Total	19,495	21,522	29,628	4,462	75,107

In addition to the MA maps, supplemental maps of elk emphasis area objectives and the Forest trail classification system are part of the entire Forest Plan map packet Both the elk areas and trail classes are explained in detail in the Forest-wide S&Gs

Table IV-35. Description and Size of Management Areas

Management Area	Description	Acres
1a	**WILDERNESS, TRANSITION CLASS** - This MA protects Wilderness resources and restores areas to Semiprimitive WRS class	2,111
1b	**WILDERNESS, SEMIPRIMITIVE CLASS** - This MA protects Wilderness resources and maintains Semiprimitive WRS class	34,958
1c	**WILDERNESS, PRIMITIVE CLASS** - This MA protects Wilderness resources and maintains Primitive WRS class	43,963
1d	**WILDERNESS, PRISTINE CLASS** - This MA protects Wilderness resources and maintains Pristine WRS class	299,773
2a	**OREGON CASCADES NATIONAL RECREATION AREA** - This MA provides semiprimitive, motorized recreation opportunities	1,152
2b	**OREGON CASCADES NATIONAL RECREATION AREA** - This MA provides semiprimitive, nonmotorized recreation opportunities	4,906
3	**H.J. ANDREWS EXPERIMENTAL FOREST** - This MA provides opportunities for study and research of forest resources and effects of management activities	15,379
4	**RESEARCH NATURAL AREAS** - This MA protects representative physical and biological systems in a natural condition for scientific study	4,245
5a	**SPECIAL INTEREST AREAS** - This MA protects sites with unique geologic, biological, cultural or scenic characteristics and provides opportunities for interpretation and education	27,942
5b	**SPECIAL INTEREST AREAS** - This MA protects diverse plant and animal communities in the Hardesty Mt - Mt June area as a basis for research and monitoring	3,178
6a	***WILD AND SCENIC RIVERS, WILD*** - This MA protects the outstanding values in the section of the North Fork, Middle Fork Willamette River and adjacent corridor designated as a Wild river	1,983
6b	**WILD AND SCENIC RIVERS, SCENIC** - This MA maintains the outstanding values in the section of the NF, MF Willamette River and adjacent corridor designated as a Scenic river	1,237
6c	**WILD AND SCENIC RIVERS, RECREATION** - This MA maintains the outstanding values in the sections of the NF, MF, Willamette River, McKenzie River and adjacent corridors designated as Recreation rivers	13,225
7	**OLD GROWTH GROVES** - This MA protects the representative stands of old-growth trees and provides opportunities for interpretation and scenic enjoyment	6,655
8	**T & E SPECIES, BALD EAGLE** - This MA protects habitat required for the recovery of the northern bald eagle	1,472
9a	**WILDLIFE HABITAT, NORTHERN SPOTTED OWL** - This MA protects stands of mature and old-growth forests necessary for a viable population of northern spotted owls and species with similar habitat needs	69,045

Management Area	Description	Acres
9b	**WILDLIFE HABITAT, PILEATED WOODPECKER** - This MA protects stands of mature forest habitat necessary for a viable population of pileated woodpeckers and species with similar habitat needs	9,513
9c	**WILDLIFE HABITAT, MARTEN** - This MA protects stands of mature forest habitat necessary for a viable population of martens and species with similar habitat needs	14,568
9d	**WILDLIFE HABITAT, SPECIAL AREAS** - This MA maintains or enhances unique wildlife habitats and botanical sites	31,355
10a	**DISPERSED RECREATION, ROADED NATURAL** - This MA provides opportunities for motorized recreation in a natural setting in conjuction with other resource uses	299
10b	**DISPERSED RECREATION, SEMIPRIMITIVE** - This MA provides opportunities for motorized recreation in a semiprimitive setting in conjunction with other resource uses	19,645
10c	**DISPERSED RECREATION, SEMIPRIMITIVE** - This MA provides opportunities for motorized recreation in a semiprimitive setting and restricts some resource activities	8,873
10d	**DISPERSED RECREATION, SEMIPRIMITIVE** - This MA provides opportunities for semiprimitive recreation in an area with no motor vehicles and in conjunction with other resource uses	960
10e	**DISPERSED RECREATION, SEMIPRIMITIVE** - This MA maintains the opportunties for semiprimitive recreation without motor vehicles and restricts some resource activities	69,898
10f	**DISPERSED RECREATION, LAKES** - This MA provides for recreation opportunities while preserving the wildlife habitat and scenic quality in areas surrounding natural lakes	3,605
11a	**SCENIC, MODIFICATION** - This MA maintains scenic quality in middleground areas of moderate sensitivity in conjunction with timber harvests and other management activities	138,176
11b	**SCENIC, MODIFICATION** - This MA maintains scenic quality in foreground areas of moderate sensitivity in conjunction with timber harvests and other management activities	256
11c	**SCENIC, PARTIAL RETENTION** - This MA maintains scenic quality in middleground areas of high sensitivity in conjunction with timber harvests and other management activites	70,090
11d	**SCENIC, PARTIAL RETENTION** - This MA maintains scenic quality in foreground areas of high sensitivity in conjunction with timber harvests and other management activities	24,316
11e	**SCENIC, RETENTION** - This MA maintains scenic quality in middleground areas of very high sensitivity in conjunction with timber harvests and other management activites	8,212
11f	**SCENIC, RETENTION** - This MA maintains scenic quality in foreground area of very high sensitivity in conjunction with timber harvests and other management activities	36,347
12a	**DEVELOPED RECREATION** - This MA provides developed recreation opportunities in developed campground and picnic sites as well as preseving sites with potential for future development	2,709

Management Area	Description	Acres
12b	**DEVELOPED RECREATION, PERMITS** - This MA provides developed recreation opportunities such as downhill skiing, that are operated by private individuals under Forest Service permit.	2,389
13a	**SPECIAL USE PERMIT AREAS** - This MA directs the administration of sites on the Forest used for electronic sites, power right-of-ways and railroad corridors that are used by private parties under Forest Service permit	3,839
13b	**ADMINISTRATIVE USE AREAS** - This MA includes areas of the Forest necessary for management and administration such as ranger stations, fire lookouts and warehouses	704
14a	**GENERAL FOREST** - This MA provides for intensive management of vegetation for timber production and other resource uses Multiple resource values are maintained or enhanced	646,320
14b	**GENERAL FOREST, DEFERRED** - This MA defers the implementation of timber harvests and management practices for the planning period	661
15	**RIPARIAN** - This MA preserves and enhances the vegetation and lands adjacent to rivers, streams and lakes, as well as other wetlands for animal and plant species that are dependent on them	50,552

Table IV-36. Proposed and Probable Management Practices by Management Area

Management Practice or Activity	NAS Code	Units	Proposed Level	Management Area																					
				1	2	3	4	5	6a	6b/c	7	8	9	10a	10b	10c	10d	10e	10f	11	12	13	14a	14b	15
Recreation Site Construction	AN2	PAOT	327																		X				
Recreation Site Reconstruction	AN2	PAOT	844																		X				
Semiprimitive Nonmotor Rec Use	AN1	MRVD	52	X	X				X								X	X							
Semiprimitive Motor Rec Use	AN1	MRVD	64		X		X								X	X		X	X						
Roaded Natural Rec Use	AN1	MRVD	1,278					X		X	X	X	X	X				X	X	X					X
Roaded Modified Rec Use	AN1	MRVD	376			X																	X	X	
Wilderness Recreation Use	AW1	MRVD	342	X																					
Trail Construction	AT2	Miles	60		X			X			X		X	X	X	X	X	X							X
Trail Reconstruction	AT2	Miles	72		X			X			X		X	X	X	X	X	X							X
Wildlife Habitat Improvements																									
Big Game	CW2	M Ac	51										X	X	X		X			X			X		
Cavity Excavators	CW2	Trees	13,000										X	X	X		X			X				X	
Structures	CW2	Struct	4,510																						
Bald Eagle	CW2	Sites	50									X													
Fishery Habitat Improvements																									
Anadramous	CA2	Miles	60																						X
Resident	CI2	Acres	A,450																						X
Timber Harvest																									
Clearcut/Shelterwood	ET1	M Ac	91							X				X	X		X			X			X		
Commercial Thin	ET1	M Ac	21							X				X	X		X			X			X		
Reforestation	ET24	M Ac	91							X				X	X		X			X			X		
Timber Stand Improvement	ET25	M Ac	181							X				X	X		X			X			X		
Road Construction	L1	Miles	40			X	X	X		X	X			X	X		X			X	X	X	X		
Road Reconstruction	L1	Miles	174			X	X	X		X	X	X	X	X	X		X			X	X	X	X	X	X
Fuels Treatment	PF2	M Ac								X				X	X		X			X			X		
Cultural Resource Survey	AC	M Ac	67		X			X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Watershed Improvements	FW2	Acres	533																						
Range	DN1	AUM	200											X	X	X	X	X					X	X	

MANAGEMENT AREA 1 Wilderness

INTRODUCTION

Management Area 1 includes all designated Wilderness on the Forest. This management area is stratified into 4 subdivisions based on the Wilderness Resource Spectrum (WRS). Each of the WRS strata are individual management area designations with individual goals, desired future condition, description and standards and guidelines for each. Because much of the wilderness management direction is common to all WRS classes, however, a list of standards and guidelines common to MA 1a,b,c, and d is provided to minimize duplication The individual WRS management areas immediately follow this section

In addition to the management direction in this section, additional information pertaining to management goals and objectives for individual Wildernesses is included in Appendix A, Wilderness Management Plans.

The following S&Gs apply to all Wilderness Management direction for the specific WRS strata also applies to MAs 1a, b, c, and d as shown on the Forest Plan map.

Standards and Guidelines Common to MA 1a, 1b, 1c, and 1d

Area Use

MA-1-01 **Highest priority in general Wilderness management shall be accorded those uses which are most dependent upon the Wilderness environment, cannot be reasonably accommodated elsewhere, and least affect the Wilderness environment** (See FSM 2323.1).

MA-1-02 **Wilderness shall be made available for maximum public recreation use and enjoyment, consistent with resource preservation and maintenance of the Wilderness environment.** Contests, races, promotions, or fund raisers or any kind will not be permitted in Wilderness

MA-1-03 **Group sizes should not exceed 12 persons or 12 persons and 12 head of stock (combined maximum of 24, but never more than 12 people or 12 head of stock)** Larger groups of up to 12 people and 18 head of stock may be allowed by permit. For areas designated for larger parties, Limits of Acceptable Change (LAC) inventory data must show ability to withstand the additional recreation use.

MA-1-04 **Campsites should be located to take advantage of vegetative screening and topography to provide a moderate to high degree of solitude.** Where terrain allows, camps should be separated from each other and set back at least 100 feet from ponds, lakes, streams, trails, and key interest features

Campfires may be banned or limited to designated sites when resource damage or air quality impacts are unacceptable.

MA-1-05 **Pets should be under voice control and/or physical restraint. They may be banned for the protection of wildlife or to decrease social and resource effects.**

Visitor Contact

MA-1-06 **Information and educational material shall be provided to prospective users through community information distribution channels, at administrative headquarters, and at all Wilderness entry portals.**

MA-1-07 **User education programs shall be initiated by Wilderness managers. Information sharing should be designed to meet management objectives and increase visitor awareness of the ecosystemic complexities and values of Wilderness, rather than promote use. Visitor information and education programs shall emphasize behavior which protects Wilderness resources, inform visitors of alternative areas to visit that will meet their needs, and explain various management actions.**

MA-1-08 **Protection of ecological and social values of Wilderness or other Wilderness management objectives should be located outside the Wilderness, at trailheads, and boundary portals. Examples: the posting of formal regulations, orders, and/or permits employed to assure management objectives.**

Structures and Improvements

MA-1-09 **Managers shall determine the historic significance of any structure or improvement, its tenure in place, and its long-term function.**

MA-1-10 **Structures and other improvements which are not of historic significance shall be limited to those needed for the protection and management of Wilderness.** Exception: See Management Area 1d for management direction for Pristine WRS Class.

MA-1-11 **No permanent evidence of past human use shall be allowed unless an area, site, or structure qualifies as historically significant, is otherwise authorized by provision of the Wilderness Act or other legislation, or is necessary to attain Wilderness management objectives.** Management of non-historic structures is discussed under Management Area prescriptions.

MA-1-12 **Signing shall not be used within the Pristine WRS Class.**

MA-1-13 **Signs should be provided as necessary to protect the Wilderness resource and for administrative purposes within Transition, Semiprimitive, and Primitive WRS Classes.**

- **Geographic features shall not be signed within the Wilderness.**
- **Signing should not be provided for visitor convenience or for environmental interpretation within Wilderness but should be provided at trailheads or on routes leading into Wilderness.**
- **Regulatory or informational signs should be used in situations where control of excessive resource damage is needed and other corrective actions are unsuccessful.**

MA-1-14 **With the exception of the Pristine WRS Class where trails are not provided, trails shall be reconstructed, relocated, and maintained in a manner consistent with the purposes of the Wilderness Act and for administrative purposes within the Transition, Semiprimitive, and Primitive WRS Classes.**

MA-1-15 **Trail maintenance and reconstruction shall be sufficient to protect soil and water resources and meet minimum requirements for health and safety.** Exception: See Management Area 1d for management direction for Pristine WRS Class.

MA-1-16 **With the exception of Pristine WRS Class, the following stipulations shall apply to the Pacific Crest National Scenic Trail:**

- **Where this trail traverses Wilderness areas, it shall be managed to meet Wilderness objectives.**
- **Relocation shall be authorized only if necessary to meet Wilderness objectives.**
- **The trail shall not be publicized as a special attraction within the Wilderness.**
- **Markers should be used only to the minimum extent necessary to direct users at trail junctions.**
- **Reconstruction and maintenance should meet the same standards as other trails in this WRS Class.**
- **Winter use should be accommodated where practicable and feasible.**
- **Use of the Pacific Crest National Scenic Trail corridor shall comply with LAC standards and management area standards for each WRS Class.**

MA-1-17 **A range of trail travel opportunities should be provided in the Transition, Semiprimitive, and Primitive WRS Classes, however, trail systems shall not be expanded into currently untrailed areas without consideration of public comment and approval of the Forest Supervisor.** Trails in Transition, Semiprimitive, and Primitive WRS Classes must not access all attraction features; the opportunity for crosscountry travel must remain.

MA-1-18 **Roads shall not be permitted within Wilderness.**

MA-1-19 **Existing roads should be blocked, stabilized, revegetated with local species, and allowed to revert to natural conditions.**

MA-1-20 **Helispots utilizing natural openings shall not be marked on the ground or shown on recreation maps.** Helispots may be permitted when approved by the Forest Supervisor and may be shown on district maps intended primarily for Forest Service use.

Search and Rescue

MA-1-21 **The Forest Service should assist (within its capacity) in search, rescue, and evacuation operations as requested by the county sheriff.**

Motorized/Mechanical Equipment Use

MA-1-22 **Wilderness travel shall be by non-mechanical means consistent with the primitive character of Wilderness (FSM 2326). Use of motors or motorized equipment shall be prohibited.** The Forest Supervisor may approve exceptions for emergencies involving threats to life, health, or property. The Regional Forester may approve use of mechanized equipment for other situations.

Research

MA-1-23 **Scientific research shall be conducted in accord with the Wilderness Act and limitations identified for activities and uses in FSM 2320.**

Administrative Coordination

MA-1-24 **Where Wilderness management is shared by two or more administrative units, coordinating conferences shall be held at least annually to ensure continuity and consistency of management decisions and actions. Specific considerations should include reviewing and discussing priorities for available financial and human resources; reviewing trail maintenance schedules; reviewing outfitter guide permit administration; consideration of the Memorandum of Agreement between the US Forest Service, PNW Region, and the State of Oregon Department of Environmental Quality of October 18, 1972; and coordination of training for Wilderness management personnel to achieve consistency in public contact, program accomplishment, and law enforcement.**

Cooperation with Other Agencies

MA-1-25 **The Forest shall develop a cooperative process which allows other agencies, such as the Oregon Department of Fish and Wildlife, to meet their responsibilities within Wilderness as provided for in the Wilderness Act.**

MA-1-26 **The Forest shall apply State standards for air quality, water pollution, and noise** (see the Memorandum of Agreement between the Forest Service, PNW Region, and the State of Oregon Department of Environmental Quality of October 18, 1972).

Capacity

MA-1-27 **Wilderness management plans shall establish maximum levels of use without impairing Wilderness values and while allowing natural processes to continue (36 CFR 219.18(a)).** Capacity estimates for each Wilderness are contained in the Wilderness management plans for individual Wildernesses in Appendix A of this plan.

MA-1-28 **The Limits of Acceptable Change (LAC) System for Wilderness Planning shall be utilized to establish appropriate levels of recreation use (Stankey et al.**

General Technical Report INT-176 January 1985). Individual management plans for each Wilderness include additional information regarding the LAC System.

MA-1-29 **When human use results in effects which exceed standards and guidelines for Wilderness management as contained in this Forest Plan, actions shall be taken to mitigate and eliminate such effects.** Specific actions which depend on conditions in each Wilderness are outlined in individual management plans for each Wilderness (See *Appendix A, Wilderness Management Plans*).

MA-1-30 **The following sequence of actions should be used in most cases:**

First Level Action - Public Information and Site Restoration

1. **De-emphasize attraction of excessively used areas and promote use of alternative areas.**
2. **Inform the public of optimum user practices through public service media messages, portal notices, and personal contact. Emphasize "no-trace camping."**
3. **Adjust or remove administrative and informational signing.**
4. **Remove or reduce any facilities contributing to concentration of use beyond capacity.**
5. **Reduce accessibility.**
6. **Reduce use by anglers, in coordination with Oregon Department of Fish and Wildlife, if excessive impacts occur at a specific location.**
7. **Revegetate damaged areas and post site restoration messages.**
8. **Restrict commercial outfitter guide use of the affected area.**

Second Level Action - Use of Regulations

1. **Limit or ban campfires.**
2. **Designate campsites.**
3. **Require minimum spacing between campsites.**
4. **Impose a minimum setback from water and trails for campsites.**
5. **Restrict types of use in a specific area or on trails leading to an affected area.**

6. **Limit length of stay.**

7. **Close revegetated campsites.**

8. **Install toilet facilities to correct major sanitation problems (Transition and Semiprimitive WRS Classes only).**

9. **Restrict group size.**

Third Level Action - Restrict Number of Users

1. **Allow only day use.**

2. **Restrict time of entry.**

3. **Restrict location of entry.**

4. **Restrict number of entries.**

Fourth Level Action - Close Area to All Users

1. **An area may be closed to all recreation use until it is rehabilitated and restored to Wilderness conditions.**

LAND USE MANAGEMENT

MA-1-31 **Special use permits shall require that commercial outfitter guides practice minimum impact Wilderness use.** Appropriate information describing minimum impact Wilderness use will be provided to the guides.

MA-1-32 **Permits should require commercial outfitter guides to bear the responsibility for trail maintenance and other resource management activities resulting from uses under the permit.** In some cases this responsibility may be discharged by the guide actually performing work; in other cases a collection agreement to cover Forest Service costs in discharging the permittee's responsibilities may be used. Outfitter guides operating under a special use permit in Wilderness may be encouraged to relocate their provided services to non-Wilderness areas.

MA-1-33 **Expansion of existing summer and winter outfitter guide services should consider the following:**

Educational programs providing opportunities to alter-abled persons and having minimum resource impacts may be considered for expanded use.

Giving preference to those outfitter guides who have demonstrated that they model sound Wilderness ethics and practice quality customer service. The annual evaluation form will provide relevant information.

MA-1-34 **When an existing outfitter guide permitee sells or discontinues all or part of his or her business, an evaluation shall be made to determine whether recreational use is approaching maximum levels permitted in this Plan, using LAC data**

and evaluating other relevant resource management considerations. The following options shall then be considered:

Reallocate all or a reduced number of service days to the new owner.

Issue new permits for all or a reduced number of service days to new permittees following issuance of a prospectus and subsequent competitive selection.

Reallocate all or a reduced number of service days to one or more of the existing outfitter guide permitees.

Elect not to reallocate or issue a new permit for any number of service days.

FISH AND WILDLIFE MANAGEMENT

MA-1-35 **Riparian habitat shall be protected from human and livestock damage (FSM 2636.4).**

MA-1-36 **Reestablishment of native species or establishment of threatened, endangered, and sensitive species shall be permitted to mitigate previous human activities.** This standard applies only for those species resident prior to classification.

MA-1-37 **Vertebrate and invertebrate populations shall be monitored to ensure early detection of possible threats to non-Wilderness resources.**

M1-1-38 **No action shall be taken to control naturally occurring population dynamics unless a clear threat exists to resources outside Wilderness. If such a threat exists, an environmental analysis (consistent with NEPA process requirements) shall be conducted to determine if suppression actions are appropriate. The least adverse effects to Wilderness values shall be emphasized.**

MA-1-39 **Fish and wildlife indigenous to the area at the time of designation shall be maintained with emphasis on preservation of threatened and endangered species.**

MA-1-40 **All habitat improvements and activities necessary for management of indigenous fish and wildlife populations in Wilderness shall be accomplished with non-motorized equipment and shall conform to management plan guidelines.** Chemical treatment of waters may be permitted for the reestablishment of native aquatic species, the establishment of threatened and endangered aquatic species, or to correct undesirable conditions resulting from human activity only after an environmental analysis of the proposed action has been completed.

MA-1-41 **Fish stocking should not be expanded unless necessary to achieve Wilderness management objectives.** Fish stocking may continue where it has historically occurred **Stocking of native species should be given preference.**

MA-1-42 **Aerial fish stocking should be permitted where this practice is of record prior to 1964 Wilderness Act or to classification of an area as Wilderness. Landing of**

aircraft shall be prohibited. Stocking should not interfere with peak recreation use. Barren lakes may be considered for stocking of fish after agreement between the Forest Service and Oregon Department of Fish and Wildlife that scientific and Wilderness values will not be affected. Exception· See Management Area 1d for management direction for Pristine WRS Class.

MA-1-43 **Natural ecological dynamics of fish and wildlife populations shall be allowed to occur.** Where non-Wilderness resource values are threatened an environmental analysis of site specific conditions should be conducted through the NEPA process to determine appropriate actions

MA-1-44 **The taking of fish and wildlife shall be permitted under state regulations. Management of hunting and fishing activities shall be consistent with Wilderness values. The use of direct fish and wildlife control measures shall be applied only where clear need is demonstrated (FSM 2323.3).**

AIR QUALITY

MA-1-45 **Air quality shall be maintained in accord with the Federal Clean Air Act and state air quality standards.**

WATER AND SOIL MANAGEMENT

MA-1-46 **Water and soil management practices that modify plant cover, treat soil mantles (except for site rehabilitation), or are designed to supplement natural water yield shall be prohibited in Wilderness (FSM 2502 and 2323.4).**

MA-1-47 **Any effects on water quality from management activities should be only transitory in nature so that water quality returns to its previous level when the activity ceases. Water quality changes should also comply with Environmental Standards specified in Chapter 340-14-020, Oregon Administrative rules.** Exception: See Management Area 1d for management direction for Pristine WRS Class.

MA-1-48 **Soil compaction shall not exceed limits which will prevent natural plant establishment and growth except at established campsites, administrative sites, and trails.** Exception: See Management Area 1d for management direction for Pristine WRS Class.

MA-1-49 **Soil displacement and erosion should closely approximate rates of natural processes.**

RANGE MANAGEMENT

MA-1-50 **Grazing by recreational stock should be permitted. Confined stock shall be at least 200 feet from ponds, lakes, springs, streams, trails, camps, and other high interest features.**

Commercial grazing allotments may be allowed if under approved management plan and to the extent that such use is compatible with all Wilderness resource values Exception: See Management Area 1d for management direction for Pristine WRS Class.

VEGETATION MANAGEMENT

MA-1-51 **Pathogens and plant diseases shall be monitored to ensure early detection of possible threats to resources outside the Wilderness.**

MA-1-52 **Actions taken to control natural ecosystem dynamics should be avoided unless a clear threat exists to resources outside Wilderness. If such a threat exists, an environmental analysis (consistent with NEPA process requirements) shall be conducted to determine if suppression actions are appropriate. Actions having the least adverse effect on Wilderness values shall be emphasized.**

MA-1-53 **Timber harvest shall not be allowed in response to tree mortality associated with ecosystem processes in Wilderness.**

MA-1-54 **All revegetation projects shall meet the following conditions:**

Projects should be undertaken only where use patterns which have caused loss of vegetation can be modified.

Only species native to the Wilderness should be used.

Revegetated areas should be closed until new vegetation is established. Temporary signing or string fences should be used as a protective barrier where appropriate.

Revegetation should be site specific and may include:

a. rest only (elimination of use for a period allowing natural revegetation)
b. rest plus seedbed preparation to encourage natural revegetation
c. rest plus seedbed preparation and planting.

MA-1-55 **Fertilizer should be used on a limited basis and only where a clear need is demonstrated.**

MA-1-56 **Management of vegetation shall be directed toward retaining the primeval character of the Wilderness environment and allowing natural ecological processes to operate freely. Trees shall not be harvested or sold except under specified conditions of valid mining claims or under emergency conditions such as fire, insect, or disease control (FSM 2323.5).**

MA-1-57 **Healthy native vegetation around campsites shall be maintained.**

MA-1-58 **All standing vegetation (dead or living) should be left in place.** Dead down vegetation may be utilized in amounts that can be replaced annually through natural accumulation.

MA-1-59 **Human presence should be managed to avoid hazards from dead standing vegetation.** Exception: See Management Area 1d for management direction for Pristine WRS Class

MA-1-60 **There shall be no long-term modification, and only limited short-term modification of natural plant succession as a result of human activity.** Exception: See Management Area 1d for management direction for Pristine WRS Class.

MA-1-61 **Impacts along trails should be within the limits noted in the design specifications for construction or reconstruction.** Exception: See Management Area 1d for management direction for Pristine WRS Class.

MA-1-62 **Effects to vegetation along trails shall be confined to trail corridors.** exception: See Management Area 1d for management direction for Pristine WRS Class.

MINERALS MANAGEMENT

MA-1-63 **Where valid leases or locatable mineral interests exist, the rights of the minerals claimant shall be met with the least possible effect on Wilderness resources.** Minerals in Wilderness are withdrawn from all forms of appropriation under mining laws effective January 1, 1984 and from disposition under all laws and amendments pertaining to mineral leasing.

MA-1-64 **No common materials pits or quarries shall be permitted.**

MA-1-65 **Operating plans shall be developed for all activities.**

The operating plan shall emphasize restoration of the site by minimizing, mitigating, preventing, or repairing adverse impacts on Wilderness.

No geothermal leasing shall be permitted in Wilderness.

CULTURAL RESOURCE MANAGEMENT

See *Forest-wide Standards and Guidelines for Cultural Resources* for additional or more complete discussion of cultural resource management in Wilderness.

MA-1-66 **Cultural resources shall be inventoried and historic significance determined.**

MA-1-67 **Cultural resources determined eligible for inclusion on the National Register of Historic Places should be periodically inventoried to discover possible vandalism, artifact theft, or unauthorized use.**

MA-1-68 **Cultural resources evaluated as having National Register significance should be periodically inventoried to evaluate the effects of environmental factors.**

MA-1-69 **Eligible historic sites and historic trails shall be maintained and adverse effects shall be mitigated.** Protective measures may range from complete avoidance of the site and protection of the environmental setting to mitigation procedures which conserve the historic or scientific values.

MA-1-70 **Decisions to maintain or abandon, but not remove, historic structures shall meet requirements of 36 CFR 800.**

MA-1-71 **Retained or maintained historically significant structures shall be managed to have a minimum impact on other Wilderness resources. A management plan shall be developed for such structures.**

MA-1-72 **Historically significant structures that are to be abandoned shall be allowed to deteriorate naturally in accord with 36 CFR 800. If it is determined that a structure is not of historic significance it should be removed by a method compatible with Wilderness objectives and the site should be restored to a natural condition.**

MA-1-73 **Nonhistoric structures shall not be maintained, rehabilitated, restored, or interpreted.**

FIRE MANAGEMENT

See *Forest-wide Standards and Guidelines* for additional or more complete discussion of fire management in Wilderness.

MA-1-74 **Fires resulting from human activities shall be prevented, controlled, and suppressed.**

MA-1-75 **Natural fires which threaten life or property within Wilderness or pose unacceptable risk to life, resources, or property outside Wilderness shall be controlled or suppressed.**

MA-1-76 **Suppression practices should have the least physical impact on the land consistent with other management considerations. Preference should be given to use of natural fuel breaks.** In some cases direct attack with a minimum width of hand fireline, or wet line using power driven pumps and hose may be more cost-effective and cause the least overall damage to Wilderness values.

MA-1-77 **Fire management activities within Wilderness shall be compatible with Wilderness management objectives. Preference should be given to methods and equipment that minimize: alteration of the landscape; disturbance of surface vegetation and soil; disturbance of visitor solitude; reduction of visibility; adverse effects on air quality; disturbance to wildlife habitat or cultural resources.**

MA-1-78 **After the fire is declared out, appropriate actions should be taken to rehabilitate and restore the site to a natural condition.**

MA-1-79 **The need for mechanized equipment (portable pumps, power saws, etc.) in suppression efforts shall be determined by the Escaped Fire Situation Analysis.**

MA-1-80 **The use of tractors or ground disturbing mechanized equipment shall be approved by the Regional Forester.**

MA-1-81 **The use of helicopters shall be approved by the Forest Supervisor.**

MANAGEMENT AREA 1a WILDERNESS

Emphasis: Transition Wilderness Resource Spectrum Class

Management Goals

The Transition WRS Class areas will be managed:

- To regain through rehabilitation, restoration, and regulation the characteristics of the Semiprimitive WRS Class.
- With an emphasis on visitor education and information, and public outreach programs.
- At a capacity that will preserve, enhance, and restore the Wilderness resource and opportunities for Wilderness recreation.
- By implementation of the Limits of Acceptable Change System and process.
- To comply with the Wilderness Act of 1964 and the Oregon Wilderness Act of 1984 (Public Law 98-328)

Desired Future Condition

By application and implementation of Wilderness S&Gs and individual Wilderness Management Plans, the Transition WRS Class areas will eventually be eligible for reclassification as Semiprimitive Class Through management activities, the Transition Class areas will be restored to predominantly unmodified natural environments These areas will offer moderate to high opportunities for experiencing isolation, closeness to nature, and tranquility. Visitors will be challenged by a natural environment with a moderate to high degree of risk

Description

The Transition WRS Class is characterized by conditions of relatively concentrated visitor use where opportunities for solitude are limited and management activities are highly evident. Those portions of the Wilderness where Transition Class management applies are typically staging areas or trailheads. Also included are areas where day use is predominant due to easy access and relatively short trails.

Standards And Guidelines

GENERAL WILDERNESS MANAGEMENT

Area Use

MA-1a-01 **There should be greater than an 80% chance of not more than 12 encounters with other parties per day while on trails.**

MA-1a-02 **There should be an 80% probability that 5 or fewer camps are visible from any other campsite.**

Visitor Contact

MA-1a-03 **Management presence shall conform to established party size limitations and social and resource standards.** Management activities may be scheduled during peak use periods if necessary. Where necessary to meet management objectives Wilderness Rangers may contact 75-100 percent of the overnight users, particularly at areas of concentrated recreation use.

MA-1a-04 **Visitor contacts shall:**

- **Inform users of Wilderness values and management goals and objectives.**
- **Encourage user behavior that is respectful of the Wilderness resource.**
- **Ensure that visitor activities are in compliance with established management standards and regulations.**

Management presence may be moderate to high and generally through contact with Wilderness Rangers and other personnel

Structures and Improvements

MA-1a-05 **Native and natural materials should dominate. Dimensional and non-native materials may be used, but should not be apparent to the Wilderness user. Structures should harmonize with the site.** In extreme cases, primitive-type toilets may be provided for resource protection and human safety only if all other resource changes remain within acceptable limits.

MA-1a-06 **No distance information should be included on signs** A maximum of two directional signs may be provided at two-way junctions with no more than two route designations per sign.

MA-1a-07 **Trail construction and maintenance should be consistent with protection of Wilderness values and the S&Gs outlined in the Forest Plan.**

FISH AND WILDLIFE MANAGEMENT

MA-1a-08 **Evaluation of the effects of visitor use on wildlife habitat should include consideration of adjacent areas as well as the Transition WRS Class. Effects of visitor use shall not decrease habitat effectiveness in Wilderness by more than 20% (average of all WRS Classes).**

VEGETATION MANAGEMENT

MA-1a-09 **Loss of trees due to recreational effects should not occur. Fewer than 6 trees per site should show signs of recreation related damage.**

MA-1a-10 **Loss of groundcover should be less than 625 square feet at any one site, or less than 1.5 percent of any acre. Accepted modifications are those which should generally recover in one growing season.**

MANAGEMENT AREA 1b - WILDERNESS

Emphasis: Semiprimitive Wilderness Resource Spectrum Class

Management Goals

The Semiprimitive WRS Class areas will be managed:

- By minimum, but subtle, on-site controls and restrictions.
- With an emphasis on visitor education and information, and public outreach programs.
- At a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.
- By implementation of the Limits of Acceptable Change System and process.
- To comply with the Wilderness Act of 1964 and the Oregon Wilderness Act of 1984 (Public Law 98-328).

Desired Future Condition

The Semiprimitive WRS Class will offer moderate to high opportunities for experiencing isolation from the sights and sounds of human activity; independence; closeness to nature; tranquility; and self-reliance in a natural environment that offers a moderate to high degree of challenge and risk. The character and unique Wilderness values of the Semiprimitive WRS Class areas will be maintained, enhanced, and restored if necessary. Effective wildlife habitat and ecosystem dynamics have not been significantly affected by recreation use of the area.

Description

The Semiprimitive WRS Class is characterized by predominantly unmodified natural environments of moderate to large size. Visitor use may be low, but encounters between users may be fairly common and evidence of human use may be relatively apparent

Standards and Guidelines

GENERAL WILDERNESS MANAGEMENT

Area Use

MA-1b-01 **There should be greater than an an 80% chance of not more than 10 encounters per day while on trails.**

MA-1b-02 **There should be an 80% probability that 2 or fewer campsites are visible or audible from any other camp.**

Visitor Contact

MA-1b-03 **Management presence in the Semiprimitive WRS Class should be moderate to low generally through periodic contact by Wilderness Rangers and other personnel.**

MA-1b-04 **Visitor contacts shall:**

- **Inform users of Wilderness values and management goals and objectives.**
- **Encourage user behavior that is respectful of the Wilderness resource.**
- **Ensure that visitor activities are in compliance with established management standards and regulations.**

MA-1b-05 **Management presence in this management area should conform to established party size limitations and social and resource standards. Where feasible, management activities should be scheduled during low use periods.** Where necessary to meet managment objectives, Wilderness Rangers may contact from 50-75 percent of the overnight users within the Semiprimitive WRS Class, particularly in areas of concentrated recreation use.

Structures and Improvements

MA-1b-06 **Native and natural materials should dominate and structures should harmonize with the site. Dimensional and non-native materials may be acceptable, but should not be apparent to Wilderness users.** In extreme cases, primitive-type toilets may be provided for resource protection and human safety only if all other resource changes remain within acceptable limits

MA-1b-07 **A maximum of two directional signs should be provided at two-way junctions with no more than two route designations per sign. No distance information should be included on signs.**

MA-1b-08 **Trail reconstruction and maintenance should be consistent with protection of Wilderness values and the S&Gs outlined in the Forest Plan.**

FISH AND WILDLIFE MANAGEMENT

MA-1b-09 **Evaluation of the effects of visitor use on wildlife habitat should include consideration of adjacent areas as well as the Transition WRS Class. Effects of visitor use shall not decrease habitat effectiveness in Wilderness by more than 20% (average of all WRS Classes).**

VEGETATION MANAGEMENT

MA-1b-10 **Loss of trees due to recreational effects should not occur. Fewer than 6 trees per site should show signs of recreation related damage.**

MA-1b-11 **Loss of groundcover should be less than 400 square feet at any site or 1 percent of any acre. Accepted modifications are those which should recover in one growing season.**

MANAGEMENT AREA MANAGEMENT AREA 1c - WILDERNESS

Emphasis: Primitive Wilderness Resource Spectrum Class

Management Goals

The Primitive WRS Class areas will be managed:

- In a non-obtrusive manner emphasizing minimal visible evidence of management restrictions and controls.
- To ensure that Wilderness practices provide for indigenous plant and animal communities to sustain natural processes, preserve endangered and threatened species, and ensure that levels of human use are compatible with Wilderness values.
- With an emphasis on visitor education and information, and public outreach programs.
- At a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.
- By implementation of the Limits of Acceptable Change System and process.
- To comply with the Wilderness Act of 1964 and the Oregon Wilderness Act of 1984 (Public Law 98-328).

Desired Future Condition

Wilderness areas classified as Primitive WRS Class will be essentially unmodified natural environments offering visitors the opportunity to experience considerable isolation from the sights and sounds of human activity; independence; closeness to nature; solitude and tranquility. Visitors will understand that Primitive WRS Class areas require a high degree of self-reliance and knowledge of primitive outdoor skills in order to meet the inherent challenge and risk.

Description

The Primitive WRS Class includes areas surrounding existing trails which are essentially unmodified natural environments. Concentration of visitors is low and evidence of human use is minimal.

Standards and Guidelines

GENERAL WILDERNESS MANAGEMENT

Area Use

MA-1c-01 **There should be greater than an 80% chance of not more than 7 encounters per day while on trails.**

MA-1c-02 **There should be an 80% probability that 1 or no camps are visible from any other campsite.**

Visitor Contact

MA-1c-03 **Management presence in this management area should conform to established party size limitations and social and ecological standards. Emphasis should be placed on scheduling work during low use periods.** Wilderness Rangers may contact from 20-30 percent of the overnight users within the Primitive WRS Class, particularly in areas of concentrated recreation use.

MA-1c-04 **Management presence in the Primitive WRS Class should be low and generally through periodic contact by Wilderness Rangers and other personnel.**

MA-1c-05 **Visitor contacts should:**

- **Encourage user behavior that is respectful of the Wilderness resource.**
- **Ensure that visitor activities are in compliance with established management standards and regulations.**

MA-1c-06 **Visitor contact to promote Wilderness values and management goals and objectives should be minimized in this WRS Class.**

Structures and Improvements

MA-1c-07 **Native and natural materials should be used. Structures should harmonize with the site and be generally unnoticeable to users.**

MA-1c-08 **Toilets should not be provided in the Primitive WRS Class.**

MA-1c-09 **No more than one directional sign with no more than two route designations indicated should be provided at two-way trail junctions. No distances should be indicated.**

MA-1c-10 **Trail management, including reconstruction and maintenance, should be consistent with the protection of Wilderness values.**

FISH AND WILDLIFE MANAGEMENT

MA-1c-11 **Generally, wildlife should be unaffected by recreation or other human use. Recreation use should not displace wildlife from critical habitat.**

VEGETATION MANAGEMENT

MA-1c-12 **No loss of trees due to recreational effects should occur.**

MA-1c-13 **Fewer than 4 trees per site should show signs of recreation related damage, such as exposed roots.**

MA-1c-14 **Loss of groundcover should be less than 225 square feet at any site or 0.5 percent of any acre. Accepted modifications are those which should recover in one growing season.**

MANAGEMENT AREA MANAGEMENT AREA 1d - WILDERNESS

Emphasis: Pristine Wilderness Resource Spectrum Class

Management Goals

Those areas classified as Pristine WRS Class will be managed:

- To remain entirely untrammeled and unaffected by human activity.
- To maintain natural processes and ecological dynamics.
- To assure the retention of unmodified landscape as a remnant of the Cascade Range prior to the entry of Euro-Americans.
- At a capacity that will preserve the Wilderness resource and opportunities for Wilderness recreation compatible with the Pristine WRS classification.
- Through implementation of the Limits of Acceptable Change System and process.
- To comply with the Wilderness Act of 1964 and the Oregon Wilderness Act of 1984 (Public Law 98-328).

Desired Future Condition

The area will be free of evidence of management restrictions and controls. Facilities will not be required to protect the Wilderness resource or structures will not be present unless considered eligible for inclusion on the National Register of Historic Places. Natural ecosystem processes will not be measurably affected by human use. Visitors will understand that Pristine WRS Class areas require a maximum degree of self-reliance and knowledge of primitive outdoor skills in order to meet the inherent challenge and risk of an entirely natural environment.

Description

The Pristine WRS Class includes the untrailed areas of Wilderness. These are areas characterized by an extensive, unmodified environment. Natural ecosystem processes and conditions have not been measurably affected by human use. This management area provides the most outstanding opportunities for isolation and solitude and is virtually free of evidence of past human activities. Visitors to Pristine Wilderness areas have only infrequent encounters with other users. Extensive opportunities exist to travel cross-country.

Standards and Guidelines

GENERAL WILDERNESS MANAGEMENT

Area Use

MA-1d-01 **There should be greater than an 80% chance of not more than 1 encounter per day.**

MA-1d-02 **Campsites should not be visible or audible from any other campsites. Most, if not all, campsites which have been located by Wilderness Rangers should be naturalized.**

Visitor Contact

MA-1d-03 **Management presence in the Pristine WRS Class should be low.** Wilderness Rangers and other personnel will only occasionally be present.

MA-1d-04 **Visitor contacts shall:**

- **Encourage user behavior that is respectful of the Wilderness resource.**
- **Ensure that visitor activities are in compliance with established management standards and regulations.**

MA-1d-05 **Visitor contact to promote Wilderness values or management goals and objectives should be avoided in this WRS Class.**

MA-1d-06 **Management presence should conform to established party size limitations and social and ecological standards. Management activities should be scheduled for low use periods.**

MA-1d-07 **Wilderness Rangers should only infrequently contact recreationists; less than 3 percent of users should be directly contacted.**

Structures and Improvements

MA-1d-08 **Structures should be of native, natural materials and should be unnoticeable to users.**

MA-1d-09 **No toilets should be provided in the Pristine WRS Class.**

MA-1d-10 **User travel should be managed to avoid the establishment of trails.**

MA-1d-11 **User-developed trails to obscure locations should be rehabilitated.**

MA-1d-12 **Structures and other improvements which are not of historic significance shall be limited to only those critical for protection, use, and management of Wilderness. In the Pristine WRS Class there should be very few situations which make structures of any sort acceptable.**

MA-1d-13 **Signs shall not be provided within this WRS Class.**

MA-1d-14 **Trails shall not be provided within this WRS Class.**

FISH AND WILDLIFE MANAGEMENT

MA-1d-15 **Wildlife populations should be unaffected by recreation or other human uses.**

MA-1d-16 **Lakes naturally barren of fish should not normally be considered for stocking.**

WATER AND SOIL MANAGEMENT

MA-1d-17 **Natural water quality shall be maintained; no measurable degradation should be allowed. Water quality shall also comply with Environmental Standards specified in Chapter 340-14-020, Oregon Administrative rules.**

RANGE MANAGEMENT

MA-1d-18 **Commercial grazing allotments should not be allowed in the Pristine WRS Class.**

VEGETATION MANAGEMENT

MA-1d-19 **No loss of trees due to recreational impacts should occur. Fewer than 2 trees per site should show signs of recreation related damage such as exposed roots.**

MA-1d-20 **Loss of groundcover should be less than 100 square feet at any site or 0.5 percent of any acre. Accepted modifications are those which should recover in one growing season.**

MA-1d-21 **There shall be no long-term modification of natural plant succession as a result of human activity.**

MANAGEMENT AREA 2a

Emphasis: Oregon Cascades Recreation Area
Semiprimitive Motorized Use

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a semiprimitive motorized experience through the management of user activities and natural resource settings
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through the application of outdoor skills in an environment that offers some challenge and risk.
- Provide for the conservation of unique geographic, topographic, biological, and ecological processes, as well as significant scenic, wildlife, recreation, and watershed values.

Desired Future Condition

Management activities will maintain the area in a near natural state while providing a wide range of recreation opportunities There will be a moderate degree of isolation from the sights and sounds of human activity along developed hiking trails and primitive campgrounds. Recreational use will vary by season but will generally remain light and user interaction will be infrequent. Activities associated with this area are both motorized and nonmotorized in nature Specific activities are centered around nonconsumptive use of land and water areas including hiking, fishing, hunting, horseback riding, ORV use, canoeing, nature study, camping, mountain biking, and snowmobiling. There will be moderate evidence of other users, but the concentration of use will remain low Human activities will not interfere with natural processes involving the development of vegetation communities or the interactions of wildlife with its habitat No programmed timber harvest will occur. Access will include trails and existing roads within the management area Except as necessary to protect fragile resources, facilities will be limited to trail shelters or to meet sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape The area will be managed to minimize the presence of on-site controls and use restrictions. Site modification will be minimal and not draw the attention of area users

Description

This portion of the OCRA administered by the Forest consists of 22 miles of trail corridors within the Timpanogas basin. Most of the area is a true fir-mountain hemlock forest type, dotted with numerous small lakes, and forms the headwaters of the Middle Fork of the Willamette River Developed recreation use is concentrated at two non-fee campgrounds.

Standards and Guidelines

RECREATION MANAGEMENT

MA-2a-01 **This management area shall be made available for maximum use for a range of activities that provide Semiprimitive Motorized experiences as directed in the 1989 OCRA Management Plan.** (See Appendix B, OCRA Management Plan.)

MA-2a-02 **Group sizes, with any combination of people and livestock, should not exceed 25.** Larger groups may be accommodated by permit.

MA-2a-03 **Recreation stock should be held overnight outside the foreground viewing areas of lakes, streams, camp areas, and trailsides.**

MA-2a-04 **Access by motorized vehicles, other than on roads to developed sites, shall be limited to snowmobiles, trailbikes, and ORVs not greater than 42 inches in width.**

FOREST TRAIL SYSTEM

MA-2a-05 **Trail feasibility should be coordinated with adjacent managing forests.** The development of ORV, mountain bike and cross-country ski trails are encouraged.

SCENIC RESOURCES

MA-2a-06 **All design and implementation practices should be modified as necessary to meet the VQO of Retention. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Partial Retention.**

WILDLIFE MANAGEMENT

MA-2a-07 **Management activities should be implemented in such a way as to minimize adverse effects on wolverine habitat.**

MA-2a-08 **Habitat improvements, including vegetation management, to benefit wolverines shall be permitted.**

TIMBER MANAGEMENT

MA-2a-09 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

FIRE MANAGEMENT

MA-2a-10 **Suppression strategies, practices and activities shall be limited to those which have minimal impacts to Semiprimitive Motorized recreation values.**

LANDS

MA-2a-11 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-2a-12 **Location of utility corridors shall be excluded in this Management Area.**

MINERALS AND ENERGY

MA-2a-13 **Subject to valid existing rights, all lands within this management area are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and geothermal leasing and all amendments thereto.** (*Oregon Omnibus Wilderness Act of 1984.*)

MA-2a-14 **Subject to valid existing rights, all mining activities within the area shall be consistent with the purposes for which the OCRA is established.**

MA-2a-15 **Exploration and development access requirements, as well as operating plans, shall include measures to protect or enhance effectiveness of the area to provide for Semiprimitive Motorized recreation.**

FACILITIES

MA-2a-16 **Roads serving developed sites shall remain open.** All other existing roads are closed to motorized use and access, except off-road vehicles

MA-2a-17 **No new roads shall be developed.**

MA-2a-18 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and nonnative materials may be used, but visual effects should appear subtle to area users.

MA-2a-19 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.**

MANAGEMENT AREA 2b

Emphasis: Oregon Cascades Recreation Area
Semiprimitive Nonmotorized Use

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a semiprimitive nonmotorized experience through the management of user activities and natural resource settings.
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through the application of outdoor skills in an environment that offers some challenge and risk.
- Provide for the conservation of unique geographic, topographic, biological, and ecological processes, as well as significant scenic, wildlife, recreation, and watershed values.

Desired Future Condition

Management activities will maintain the area in a near natural state while providing a wide range of recreation opportunities. There will be a high degree of isolation from the sights and sounds of human activity away from developed hiking trails and primitive campgrounds. Recreational use will vary by season but will generally remain light and user interaction will be infrequent. Activities associated with this area are exclusively nonmotorized and nonmechanized in nature, except for permitted over-the-snow use. Specific activities are centered around nonconsumptive use of land and water areas including hiking, mountain climbing, nature study, camping, fishing, hunting, and snowmobiling. There will be some evidence of other users, but the concentration of use will remain low. Areas providing *semiprimitive nonmotorized recreation opportunities may be separated by motorized access corridors.* Human activities will not interfere with natural processes involving the development of vegetation communities or the interactions of wildlife with its habitat. No programmed timber harvest will occur. Access within and through the area will be limited to trails. Facilities, except those necessary to protect fragile resources, will be limited to trail shelters, and sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape. The area will be managed to minimize the presence of on-site controls and use restrictions. Site modification will be minimal and not draw the attention of area users.

Description

This portion of the Oregon Cascades Recreation Area (OCRA) administered by the Forest consists of *the areas outside of trail and access corridors within the Timpanogas basin. Most of the area is a true* fir-mountain hemlock forest type, dotted with numerous small lakes, and forms the headwaters of the Middle Fork of the Willamette River.

Standards and Guidelines

RECREATION MANAGEMENT

MA-2b-01 **This management area shall be made available for maximum use for a range of activities that provide Semiprimitive Nonmotorized experiences as directed in the 1989 OCRA Management Plan.**

MA-2b-02 **Groups should not exceed 25 including livestock.** Larger groups may be accommodated by permit.

MA-2b-03 **Recreation stock should be held overnight outside the foreground viewing areas of lakes, streams, camp areas, and trails.**

MA-2b-04 **The general area shall be closed to off-road and off-trail vehicles, except for over-the-snow use.** Mountain bike use is restricted to established trails and roads.

SCENIC RESOURCES

MA-2b-05 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Retention.**

WILDLIFE MANAGEMENT

MA-2b-06 **Management activities should be implemented in such a way as to minimize adverse impacts to wolverine habitat.**

MA-2b-07 **Habitat improvements, including vegetation management, to benefit wolverine shall be permitted.**

TIMBER MANAGEMENT

MA-2b-08 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

FIRE MANAGEMENT

MA-2b-09 **Suppression strategies, practices and activities shall be limited to those which have minimal impacts to Semiprimitive Nonmotorized recreation values.**

LANDS

MA-2b-10 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-2b-11 **Location of utility corridors shall be excluded in this management area.**

MINERALS AND ENERGY

MA-2b-12 **Subject to valid existing rights, all lands within this management area are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and geothermal leasing and all amendments thereto.** (*Oregon Omnibus Wilderness Act of 1984.*)

MA-2b-13 **Subject to valid existing rights, all mining activities within the area shall be consistent with the purposes for which the OCRA is established.**

FACILITIES

MA-2b-14 **Roads serving developed sites shall remain open.** All other existing roads are closed to motorized use and access.

MA-2b-15 **No new roads shall be developed.**

MA-2b-16 **New trails should be commensurate with management objectives established in the OCRA Plan.**

MA-2b-17 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and nonnative materials may be used, but visual effects should appear subtle to area users.

MA-2b-18 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.**

MANAGEMENT AREA 3

Emphasis: H. J. Andrews Experimental Forest

Management Goals

The goals of this Management Area are to:

- Develop better methods for managing forested lands in the Western Cascades by studying the effects of management activities on soils, fish, wildlife, site productivity, water quality and quantity.
- Research, monitor, and conserve genetic diversity and ecosystem functioning as a designated International Biosphere Reserve and Experimental Ecological Reserve.

Desired Future Condition

The H. J. Andrews Experimental Forest (HJA) will be managed to meet the continuing demand for knowledge to protect and manage the renewable resources of forest lands. Research activities will alter the vegetation and landforms on an irregular spatial and temporal basis. Many stages of natural plant succession will be observable across the landscape as a result of timber harvest and road construction. The appearance of these human alterations will be softened through time. Alterations induced for the purpose of research will create short-term impacts to wildlife habitat, soil, and water resources. These impacts may be viewed as detrimental from an environmental standpoint, but they are desirable and essential in a research context Protection of two spotted owl habitat areas located within the HJA will require restrictions for some research activities. Other minor changes in area conditions are anticipated if and when natural events such as wind, fire, and pests occur. Roads will be maintained for access and safety purposes. There are no developed recreation facilities within the HJA but many forms of dispersed recreation will continue to be enjoyed throughout the drainage, except where restrictions are posted

Description

The HJA contains 15,700 acres encompassing the entire Lookout Creek drainage north of the town of Blue River. It has steep densely forested, slopes ranging from 1,500 to 5,000 feet elevation. Rich forest soils and a mild wet climate provide an excellent growing medium for high quality/quantity Douglas-fir with minor amounts of other conifer and hardwood species Administration of the Experimental Forest is a joint effort of the Pacific Northwest Forest and Range Experiment Station and the Blue River Ranger District.

Standards and Guidelines

ADMINISTRATION

MA-3-01 **Public use shall be managed under the same standards as for the National Forest lands, except where additional restrictions are required to protect research project areas or objectives.**

MA-3-02 **The objectives of the 5-year coordination agreement between the Pacific Northwest Forest and Range Experiment Station (PNW) and the Willamette National Forest shall be met.** This includes providing all necessary support and protection measures specified.

MA-3-03 **The research and operating plan prepared by the PNW should be reviewed annually to ensure research projects are designed to provide solutions to current and anticipated management problems.**

Any or all of the Forest-wide Standards and Guidelines may be waived to meet the needs of specific research needs.

RECREATION MANAGEMENT

MA-3-04 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Modified.**

MA-3-05 **The general area shall be closed to off-road vehicles.**

SCENIC RESOURCES

MA-3-06 **All design and implementation practices should be modified as necessary to at least meet the VQO of Maximum Modification.**

TIMBER MANAGEMENT

MA-3-07 **No programmed harvest shall be scheduled.** Harvest activities are planned, designed, and administered to accomplish and support research objectives or projects.

Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis. (Refer to Forest-wide Standards for Changed Environmental Conditions.)

MA-3-08 **Timber mangement research projects shall be included in the Forest's 5-year action plan and accomplished through the normal timber management program.**

LANDS

MA-3-09 Special uses should be allowed if consistent with agreement objectives.

MINERALS AND ENERGY

MA-3-10 These lands have been administratively withdrawn from mineral entry. (*Public Land Order 1702*).

MANAGEMENT AREA 4

Emphasis: Research Natural Areas

Management Goals

The goals of this management area are to preserve naturally occurring physical and biological units where natural conditions are maintained insofar as possible for the purposes of:

- Comparison with those lands influenced by man.
- Provision of educational and research areas for ecological and environmental studies.
- Preservation of gene pools for typical as well as rare and endangered plants and animals.

Desired Future Condition

Research Natural Areas (RNAs) will be managed to provide for naturally occurring physical and biological processes without undue human intervention. Plant and animal communities native to an area will be allowed to evolve unaltered, serving as a gene pool source and as a baseline for measuring long-term ecological change. RNAs will provide for nonmanipulative environmental research, observation and study. They will serve as control areas for comparing results from manipulative research, and for monitoring effects of resource management techniques and practices. Areas will preserve a wide spectrum of pristine values or natural settings that have unique educational and scientific interest. No programmed timber harvest will occur. Access will be limited to trails and roads that do not compromise the objectives of the RNA.

Description

This prescription applies to existing RNAs and areas recommended for inclusion during the life of this Plan. The sites designated as Research Natural Areas include:

Area Name	Acres	District	Date Established
Ollalie Ridge	720	McKenzie	1963
Gold Lake Bog	463	Oakridge	1965
Wildcat Mountain	1,000	Sweet Home	1968
Middle Santiam	1,145	Sweet Home	1979
Hagan Block	1,280	Blue River	1990
McKenzie Pass	1,195	McKenzie	1990
Rigdon Point	300	Rigdon	1990
Three Creeks	661	Sweet Home	1990
Torrey-Charlton	2,154	Oakridge	1990
Wildcat Mtn Addition	384	Sweet Home	1990

Site-specific resource values and management activities will be prescribed in individual Establishment Records. The Regional Forester and Pacific Northwest Station Director will prepare an Establishment Report for each recommended area; this document will describe features, objectives for establishment, and specific management direction.

Standards and Guidelines

PLANNING

MA-4-01 **A management plan shall be prepared for each RNA to fulfill objectives of the Establishment Report.**

MA-4-02 ***An implementation schedule for baseline data collection and periodic remeasurement* shall be prepared for each RNA.** The baseline data will serve as a benchmark for research needs as well as for long-term assessments of changes in the forest ecosystem.

MA-4-03 **Ecological responses to management activities or natural disturbances on or adjacent to RNAs should be measured when appropriate. Studies may be prioritized based on the significance of the potential impact.**

RECREATION MANAGEMENT

MA-4-04 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

MA-4-05 **Recreation activities and uses within RNAs shall be discouraged.** This includes overnight camping; recreation use within 200 feet of lakes, ponds and streams; and pack and saddle stock use.

MA-4-06 **All recreation ORV use shall be prohibited.**

MA-4-07 **Hunting and trapping shall be discouraged.**

MA-4-08 **If other recreation use threatens research or education values, closures or permits should be instituted.**

MA-4-09 **Educational use of an RNA should generally be directed toward the graduate level, but may be approved for any educational level.**

MA-4-10 **On-site interpretive or demonstrative facilities shall be prohibited.**

MA-4-11 **Publicity that would attract the general public to the RNA shall be avoided.**

FOREST TRAIL SYSTEM

MA-4-12 **New trails shall not be constructed unless they are needed for research purposes.** Existing trails may be allowed to remain as long as the RNA objectives are not compromised.

WILDERNESS

MA-4-13 **If an RNA is established within wilderness, wilderness management direction shall take precedence.**

SCENIC RESOURCES

MA-4-14 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation.**

WILDLIFE MANAGEMENT

MA-4-15 **Introduction of exotic plant and animal species shall not be permitted.** Reintroduction of former native species, including fish stocking, may be permitted if the objectives of the RNA are met.

MA-4-16 **Control of excessive animal populations should be evaluated and control activities may be implemented where such populations threaten the RNA objectives.**

Habitat improvement projects may be approved if they meet the objectives of the RNA.

TIMBER MANAGEMENT

MA-4-17 **No programmed harvest shall be scheduled.**

MA-4-18 **Cutting and removal of all vegetation, including firewood, shall be prohibited, except as part of approved scientific investigation.**

MA-4-19 **Felled trees shall remain in place, unless lying across trail or road. Trees shall not be removed.** Hazard tree felling may be permitted along boundary trails or roads for safety.

FIRE MANAGEMENT

MA-4-20 **If fire is used to perpetuate a sere, it should mimic a natural fire, but with prudent measures to avoid catastrophe.** Managed or naturally occurring fire may be used to perpetuate the sere and thus the cell that the RNA is meant to represent.

MA-4-21 **Suppression strategies, practices and activities shall be limited to those which have minimal impacts to RNA values.**

MA-4-22 **Chemical fire retardants shall be avoided.**

MA-4-23 **Fuels normally should be allowed to accumulate at natural rates unless they threaten the objectives of the RNA.**

INTEGRATED PEST MANAGEMENT

MA-4-24 **No action shall be taken against insects or diseases unless the outbreak threatens to drastically alter the natural ecological processes within the RNA or is an immediate threat to adjacent lands.**

LANDS

MA-4-25 **Rights-of-way easements, including utility corridors, existing before RNA establishment shall be honored. Upgrading that would compromise the objectives of the RNA should be discouraged.**

MA-4-26 **FERC licenses or permits that compromise the objectives of the RNA shall not be recommended.**

MA-4-27 **All lands shall be retained and private inholdings acquired.**

MINERALS AND ENERGY

MA-4-28 **RNAs shall be recommended for withdrawal from locatable mineral exploration.**

MA-4-29 **RNAs may be recommended for lease issuance with a no surface occupancy stipulation.**

FACILITIES

MA-4-30 **New trail or road construction should not occur, except to enhance RNA values.**

MA-4-31 **Construction of new facilities shall be prohibited.** Existing facilities may be allowed to deteriorate without replacement. Temporary research facilities and installations may be approved under permit.

MANAGEMENT AREA 5a

Emphasis: Special Interest Areas

Management Goals

The goals of this management area are to:

- Preserve lands in Special Interest Areas (SIAs) that contain exceptional scenic, cultural, biological, geological or other unusual characteristics.
- Foster public use and enjoyment in selected special interest areas through facility development.

Desired Future Condition

Special Interest Areas will continue to provide a variety of examples of outstanding or unique physical, cultural or biological features occurring on the Forest. Plant and animal communities inhabiting these unique or special areas will flourish in a mostly undisturbed environment. No programmed timber harvest will occur. Facility development will be initiated in selected areas to accommodate the use, study and enjoyment of important historic and natural aspects of our national heritage. Sites chosen for development and substantial improvements will be directed toward activities of viewing and interpreting the special features of the area. Development activities may include roads, trails, trailheads, sanitation facilities, interpretive signing, or others as appropriate. Barrier-free access will be accommodated where demand and area compatibility make this an option. In areas where the primary emphasis is recreation, management activities will be directed toward resource protection. Access to areas will be provided by trail or roads. Within the boundaries of the area, access by trails will be preferred but roads may be used where compatible with resource objectives. Use of these lands will be restricted to the extent necessary to protect or enhance the unusual features. Each area will have an approved Implementation Guide which will provide direction for specific protection requirements, acceptable development and enhancement, and other uses or activities which are appropriate for the area.

Description

This prescription applies to inventoried Forest lands exhibiting unique ecological and biological communities, cultural features, or geological characteristics. A list of the 31 identified Special Interest Areas including size and classification can be found in the Resource Summary section of this chapter.

Standards And Guidelines

PLANNING

MA-5a-01 **An Implementation Guide shall be prepared for each SIA describing the site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site. Site

development plans will be prepared as part of the Implementation Guide, showing the design and location of proposed facilities.

RECREATION MANAGEMENT

MA-5a-02 Area management practices should result in a physical setting that meets or exceeds the Roaded Natural ROS class.

Dispersed recreation and ORV use may occur if consistent with the objectives listed in the Implementation Guide.

FOREST TRAIL SYSTEM

MA-5a-03 Trails should be designed to accommodate the type and numbers of users specified in the Implementation Guide.

SCENIC RESOURCES

MA-5a-04 All design and implementation practices should be modified as necessary to meet the VQO of Retention. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Partial Retention.

TIMBER MANAGEMENT

MA-5a-05 No programmed harvest shall be scheduled. Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-5a-06 Cutting and removal of vegetation shall be prohibited except to provide for the safety of users or to maintain or enhance the values in the area.

MA-5a-07 Firewood gathering should be prohibited except for incidental recreational use.

FIRE MANAGEMENT

MA-5a-08 Suppression strategies, practices and activities shall be limited to those which have minimal effects on Special Interest Area values.

MA-5a-09 Fires should be suppressed at the lowest acreage practicable.

LANDS

Special uses which are consistent with the Implementation Guide may be considered for approval.

MINERALS AND ENERGY

MA-5a-10 **SIAs shall be recommended for withdrawal from mineral location.**

FACILITIES

MA-5a-11 **New road and trail construction should be permitted to meet site-specific objectives identified in the Implementation Guide. Roads that detract from the special values of the area shall not be developed.**

MA-5a-12 **In sites selected for facilities development the physical, cultural, and biological attributes of the management area shall be maintained.** Locations of facilities will consider the use of native plants, locating parking areas and trailheads outside of SIA boundaries, availability of toilets, and interpretive signing needs.

MANAGEMENT AREA 5b

Emphasis: Hardesty - Mt. June Ecological Area

Management Goals

The goals of this management area are to:

- Preserve the diverse genetic base of native plant and animal communities and ensure that biological and physical processes continue unimpeded.
- Protect the area as a benchmark for measuring the effects of management activities conducted in similar landscapes and as a basis for research, education, and monitoring.

Desired Future Condition

The Hardesty - Mt June Ecological Area will be managed to protect and enhance its exceptional ecological values with an emphasis on the preservation of large undeveloped, intact, ecosystems. The area will also be managed to provide habitat for a wide range of wildlife species, including threatened, endangered and sensitive species. No timber harvest activities will occur, with the exception of actions taken to minimize significant losses which may threaten the unique qualities for which this area was established. The physical setting of this area will be characterized by an environment that may, though not encouraged, provide for semiprimitive nonmotorized recreation experiences. Recreation activities associated with this area will be generally nonmotorized and non-mechanical in nature Specific activities will be oriented toward non-consumptive use of the land and water resources within the area. Use of this area will be restricted to the extent necessary to protect its outstanding natural features. Access to the area will be provided by trail or nearby roads Within the boundaries of the area, access may be provided by existing trails and roads. New trail access will be limited to providing for study, research and monitoring of physical and biological processes.

Description

The Hardesty - Mt. June Ecological Area is described in Appendix C of the FEIS.

Standards and Guidelines

ADMINISTRATION

MA-5b-01 **To assure continuity of Plan implementation and compatibility with management area standards and guidelines, proposed or planned activities should be coordinated with the Umpqua National Forest.**

RECREATION MANAGEMENT

MA-5b-02 **This management area shall be made available for maximum use for a range of activities that provide Semiprimitive Nonmotorized ROS class experiences while maintaining the natural conditions of the area.**

MA-5b-03 **Users shall be accommodated with existing facilities. Group sizes should not exceed 12.**

MA-5b-04 **Developed recreation facilities and use shall be discouraged.** However, low impact nature trails may be provided for ecological interpretation.

MA-5b-05 ***Dispersed camp areas should be located to take advantage of topographic screening and be placed outside of foreground view (100 feet minimum) from lakes, streams, trails and key features.*** Open campfires may be limited to designated sites.

MA-5b-06 **Recreation stock should be held overnight outside the foreground areas of lakes, streams, camp areas, and trailsides.**

MA-5b-07 **Mountain bike use shall be prohibited.**

MA-5b-08 **The general area shall be closed to off-road and off-trail vehicles.**

MA-5b-09 **Area and trail closures or restrictions should be based upon the mandatory and discretionary planning criteria listed in FSM 2355.12.**

MA-5b-10 **The Forest Service shall assist within its capacity and as requested by the County Sheriff in search and rescue and evacuation operations.**

SCENIC RESOURCES

MA-5b-11 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Retention.**

TIMBER MANAGEMENT

MA-5b-12 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

FIRE MANAGEMENT

MA-5b-13 **Suppression strategies, practices and activities shall be limited to those which have minimal impacts to the area's ecological values.**

LANDS

MA-5b-14 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-5b-15 **Location of utility corridors shall be avoided in this Management Area.**

MINERALS AND ENERGY

MA-5b-16 **This area shall be recommended for withdrawal from mineral entry.**

FACILITIES

MA-5b-17 **Road development shall not be permitted.**

MA-5b-18 **Existing roads shall be closed to motorized use and access.**

MA-5b-19 **New structures shall be developed only after an assessment of need and potential impact to the area's resources.** Structures and improvements may be provided to facilitate area study, protect resource values, and for administration.

MANAGEMENT AREA 6a

Emphasis: Wild and Scenic Rivers - Wild

Management Goals

The Wild River Management Area will be managed to:

- Preserve its essentially primitive character and outstandingly remarkable values.
- Maintain and improve the quality of water which enters the river.
- Maintain and improve fish and wildlife habitat.
- Provide opportunities for river-oriented recreation which are dependent on free-flowing conditions of the river consistent with the primitive character of its surroundings.
- Comply with all standards for Wild rivers as specified in FSH 1909.12, Chapter 8 (1987) and the Wilderness Preservation Act of 1964.

Desired Future Condition

The character and outstanding recreational value of the Wild segments of the designated rivers within the Forest boundaries will be maintained. Wild river segments will have the following characteristics:

- Free of impoundments and generally inaccessible except by trails.
- Watersheds or shorelines in essentially primitive condition and unpolluted water.
- Segments appear as wild to the user and represent vestiges of primitive America.
- The potential for visitors to experience a high degree of tranquility and solitude with many opportunities to appreciate the natural environment.

This prescription applies to designated WSRs classified as Wild rivers and serves as interim management for Wild segments of mandated Study Rivers and eligible river segments until their suitability has been determined.

Description

At present, only one designated segment of a Willamette National Forest river has been classified as Wild: the North Fork of the Middle Fork of the Willamette River from Waldo Lake to the south boundary of Section 36 T19S R5 1/2E of the Willamette Meridian. This river segment is located entirely within the Waldo Wilderness. Designated boundaries will be determined during development of WSR management plans.

Table IV-37. Designated Wild Rivers

River Name	River Miles	Acres	Est. Date
North Fork of the Middle Fork Willamette River Waldo Lake to south boundary Section 36	8 8	2,820	1988

Standards and Guidelines

WILDERNESS

MA-6a-01 **Management within the Wild river corridor will conform with prescriptions and management area direction in MA 1.**

RECREATION MANAGEMENT

MA-6a-02 **The area shall be made available for maximum use for a range of river-related activities that are consistent with maintaining area conditions and providing Wild river experiences. This management prescription will provide a physical setting for Semiprimitive Nonmotorized recreation.**

MA-6a-03 **Recreation use including, but not limited to, hiking, fishing, hunting, and boating is encouraged in Wild river areas to the extent consistent with the protection of the river environment and Wilderness management standards. Public use and access may be regulated and distributed where necessary to protect and enhance Wild river values.**

MA-6a-04 **River use levels should be managed to maintain the recreation experience quality; establish regulations when the need warrants; and in cooperation with the Oregon State Marine Board, limit size, number, and type of boats.**

MA-6a-05 **Motorized use shall be prohibited in the Wild river area, except for search and rescue and other emergency situations.**

FOREST TRAIL SYSTEM

MA-6a-06 **Trail corridor activities and management practices shall provide at least a physical setting for semiprimitive nonmotorized ROS class opportunities.** (See *Forest-wide Standards and Guidelines for Forest Trail System.*)

SCENIC RESOURCES

MA-6a-07 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation.**

SOIL AND WATER QUALITY

MA-6a-08 **Water quality shall be maintained or improved to meet federal criteria or federally approved state standards.** (See *Forest-wide Standards and Guidelines for Soil and Water Quality.*)

TIMBER MANAGEMENT

MA-6a-09 **No programmed harvest shall be scheduled.**

MA-6a-10 **Cutting of trees shall not be permitted except where needed to promote a primitive recreation experience (such as clearing for trails and for visitor safety) or to protect the environment (such as control of fire). Where feasible, timber outside the corridor boundary, but within the visual corridors should be managed and harvested with special consideration for visual quality.**

MA-6a-11 **Vegetation management shall be to maintain or restore natural appearing timber stands throughout the area.**

FIRE MANAGEMENT

MA-6a-12 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Wild river values.**

MA-6a-13 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

MA-6a-14 **Agricultural use shall be restricted to a limited amount of domestic livestock grazing and hay production to the extent currently practiced. Row crops shall be prohibited.**

MA-6a-15 **All water supply dams and major diversions shall be prohibited.**

MA-6a-16 **No flood control dams, levees, or other works shall be allowed in the channel or river corridor. The natural appearance and essentially primitive character of the river area shall be maintained.**

MA-6a-17 **New transmission lines, gas lines, water lines, etc. should be excluded. Where no reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way.**

MA-6a-18 **Existing patterns of land use and ownership shall be maintained provided they remain consistent with the purposes of the Wild and Scenic Rivers Act of 1968.** A full range of land use control measures such as zoning, easements, and fee acquisition will be employed where necessary to protect river values, provide reasonable public access, and maintain the existing river character.

MA-6a-19 **Commercial grazing of livestock shall not be permitted on National Forest land within the area.**

MA-6a-20 **Development of hydroelectric power facilities shall not be allowed.**

MINERALS AND ENERGY

MA-6a-21 **Rights and obligations pertaining to valid existing claims shall be honored, consistent with existing and future regulations. Appropriate steps shall be taken to obtain withdrawal of the area from entry for locatable minerals. Rights and obligations pertaining to valid existing mineral leases (including geothermal) and permits for salable minerals shall be honored; but all appropriate steps shall be taken to seek early termination and to prevent reissuance of such leases and permits in the area. Appropriate steps shall be taken to prevent removal of salable and leasable minerals (including geothermal) from lands in the area not under valid existing permit or lease.**

MA-6a-22 **All mining, leasing, and slable extraction activity on National Forest administered land within the area shall be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution, and visual impairment.**

FACILITIES

MA-6a-23 **No new roads or other provisions for overland motorized travel shall be permitted within a narrow incised river valley or, if the river valley is broad, within 1/4 mile of the riverbank. A few inconspicuous roads leading to the boundary of the river corridor may be permitted.**

MA-6a-24 **Major public use areas, such as campgrounds, interpretive centers, or administrative headquarters shall be located outside Wild river areas.**
Simple comfort and convenience facilities, such as toilets, tables, fireplaces, shelters, and refuse containers may be provided as necessary within the river area These should harmonize with the surroundings. Unobtrusive trail crossings may be allowed on tributaries, but will not normally cross the river.

MA-6a-25 **New structures should not be allowed except in rare instances to achieve management objectives.** Structures and activities associated with fisheries enhancement programs may be allowed. A few minor existing structures may be allowed assuming such structures are not incompatible with the essentially primitive and natural values of the river corridor.

MANAGEMENT PLANNING

MA-6a-26 **State and other agencies should be involved in Forest river planning activities to assure coordination of management actions with state requirements and consistency with the goals of the Interagency Wild and Scenic Rivers Planning Team.**

MANAGEMENT AREA 6b

Emphasis: Wild and Scenic Rivers - Scenic

Management Goals

The Scenic River Management Area will be managed to:

- Maintain or enhance the condition of the high quality scenery and the largely undeveloped character of the shoreline.
- Maintain and improve the quality of water which enters the river.
- Maintain and improve fish and wildlife habitat.
- Provide opportunities for river-oriented recreation which are consistent with the largely undeveloped nature of the segment and dependent on free-flowing conditions.
- Utilize other resources and permit other activities which maintain or enhance the quality of the wildlife habitat, river fisheries, scenic attractions, or recreation values.
- Comply with all standards for Scenic rivers specified in FSH 1909.12, Chapter 8 (1987).

Desired Future Condition

The character of the Scenic segments of the designated rivers within the boundaries of the Willamette National Forest will be maintained. The river environment will be maintained in a natural state while providing for recreation opportunities. Scenic River Management Areas will consist of rivers or river segments that are free of impoundments, with shorelines and watersheds in still largely primitive condition. Shorelines with Scenic designation will be primarily undeveloped, but accessible in places by roads. Recreation values commensurate with a relatively undeveloped river corridor will be enhanced with visitors generally experiencing solitude, tranquility, and a closeness to nature.

Description

This prescription applies to designated WSR classified as Scenic Rivers and serves as interim management for mandated Study Rivers and eligible river segments until their suitability has been determined.

At present, the only designated segment of a Wild and Scenic River on the Willamette National Forest classified as Scenic is the North Fork of the Middle Fork of the Willamette River from the river's intersection with the south section line of Section 36 T19S R5 1/2E of the Willamette Meridian downstream approximately 6.5 miles to Fisher Creek.

Table IV-38. Scenic River Designation

River Name	River Miles	Corridor Acres	Est. Date
North Fork of the Middle Fork Willamette River South boundary Section 36 to Fisher Creek	6 5	1,850	1988

Standards and Guidelines

RECREATION MANAGEMENT

MA-6b-01 **The area shall be made available for maximum use for a range of trail- and river-related activities that are consistent with maintaining area conditions and providing Scenic river experiences. Except for area size, this management prescription will provide a physical setting for Roaded Natural recreation.**

MA-6b-02 **River use levels should be managed to maintain the recreation experience quality.**

MA-6b-03 **River use levels should be managed to maintain the Scenic experience quality; establish regulations when the need warrants; and in cooperation with the Oregon State Marine Board to limit the size, number and type of boats.**

MA-6b-04 **Open campfires should be limited to designated dispersed camp sites.**

MA-6b-05 **The general area and trails shall be closed to off-road vehicle use, except for administrative purposes.**

FOREST TRAIL SYSTEM

MA-6b-06 **Trail corridor activities and management practices shall provide at least a physical setting for Roaded Natural ROS class opportunities.** (See *Forest-wide Standards and Guidelines for Forest Trail System.*)

SCENIC RESOURCES

MA-6b-07 **All design and implementation practices should be modified as necessary to meet the VQO of Retention.**

SOIL AND WATER QUALITY

MA-6b-08 **Soil compaction should not exceed established limits, except as necessary for the development of camp sites, administrative facilities, trail treads, trailheads, and boat launch sites.** (See *Forest-wide Standards and Guidelines for Soil and Water Quality.*)

TIMBER MANAGEMENT

MA-6b-09 **Scheduled even-aged timber harvest shall not exceed 5% of the suitable and available area within the designated river corridor during the first 10 years following plan implementation.** Some variation is permitted if silvicultural systems such as uneven-aged management or individual tree selection are applied.

MA-6b-10 **Unit sizes of even-aged timber harvest shall not exceed 3 acres in size within the designated Scenic river corridor.**

MA-6b-11 **Stumps should be flush cut.**

MA-6b-12 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload remove, hand pile/burn.

MA-6b-13 **Regeneration stock protective devices and pest management devices that blend with the natural surroundings should be used.**

MA-6b-14 **The appearance of an old-growth forest condition within the river corridor should be maintained, particularly along the river and its immediate environment. Overstory trees maintained in the old-growth seral stage should exhibit diameter, bark texture, color, branching habit, height, and crown characteristics typical of each species type and growing site.**

MA-6b-15 **Harvest openings along roads, trailsides, riverbanks, and around dispersed and developed sites should be limited to an average of 5% of the frontage area of these features during the first 10 years following plan implementation.**

MA-6b-16 **A harvest unit should be considered a created opening until the regenerated stand is 10-15 feet in height. In lodgepole pine stands, a created opening exists until the regenerated stand is 4 1/2 feet in height.**

MA-6b-17 **The maximum area disturbed shall not exceed 10% during the first 10 years following implementation of the Forest Plan.**

MA-6b-18 **Hand treatment methods of vegetation control should be used throughout the area.**

DIVERSITY

MA-6b-19 **All harvest units shall retain at least 10 live green trees per acre. These trees should be dominant or co-dominant conifers within the stand.** This will provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the Management Area.

FIRE MANAGEMENT

MA-6b-20 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Scenic river values.**

MA-6b-21 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

A range of agricultural uses is permitted to the extent currently practiced. Row crops are not considered an intrusion on the "largely primitive" nature of Scenic corridors as long as there is not a substantial adverse effect on the natural appearance of the river area.

MA-6b-22 **All water supply dams and major diversions shall be prohibited.**

MA-6b-23 **All flood control dams and levees shall be prohibited.**

MA-6b-24 **New transmission lines, gas lines, water lines, etc. are discouraged. Where no reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way.**

MA-6b-25 **Existing patterns of land use and ownership shall be maintained provided they remain consistent with the purposes of the Wild and Scenic Rivers Act of 1968.** A full range of land use control measures such as zoning, easements, and fee acquisition will be employed where necessary to protect river values, provide reasonable public access, and maintain the existing river character.

MA-6b-26 **Commercial grazing of livestock shall not be permitted on Forest land within the area.**

MA-6b-27 **Development of hydroelectric power facilities shall not be allowed.**

MINERALS AND ENERGY

MA-6b-28 **Rights and obligations pertaining to valid existing claims shall be honored, consistent with existing and future regulations. Appropriate steps shall be taken to obtain withdrawal of the area from entry for locatable minerals. Rights and obligations pertaining to valid existing mineral leases (including geothermal) and permits for salable minerals shall be honored; but all appropriate steps shall be taken to seek early termination and to prevent reissuance of such leases and permits in the area. Appropriate steps shall be taken to prevent removal of salable and leasable minerals (including geothermal) from lands in the area not under valid existing permit or lease.**

MA-6b-29 **All mining, leasing, and salable extraction activity on National Forest administered land within the area shall be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution, and visual impairment.**

FACILITIES

MA-6b-30 **Forest Service Road 19 should be closed to log haul traffic on weekends from mid-April through September.**

MA-6b-31 **All future roads shall be located and designed to remain visually inconspicuous from the river surface and river banks.** Roads may occasionally bridge the river areas; longer stretches of inconspicuous and well-screened roads or screened railroads may be allowed. Consideration will be given to the type of use for which roads are constructed and the type of use that will occur in the river area.

MA-6b-32 **Structures, improvements, and signs shall be provided to enhance user experiences, facilitate use and administration of the area, and protect resources. Larger scale public use facilities, such as moderately sized campgrounds, public information centers, and administrative headquarters shall be allowed if such structures have been designed to take advantage of topographic and vegetative screening and are out of view from the river. New structures that would have a direct and adverse effect on river values shall not be allowed.** Other structures that may be permitted are single family residences, lodges, and compatible commercial services, provided they do not negatively affect the Scenic character of the river.

MA-6b-33 **Developed campgrounds within the area should be adapted to accommodate boating groups, and water-oriented recreation experiences.**

Boat ramps may be provided at periodic intervals as necessary to accomodate the varied needs of river users. Modest and unobtrusive marinas may be allowed.

MANAGEMENT PLANNING

MA-6b-34 **State and other agencies should be involved in Forest river planning activities to assure coordination of management actions with state requirements and consistency with the goals of the Interagency Wild and Scenic Rivers Planning Team.**

MANAGEMENT AREA 6c

Emphasis: Wild and Scenic Rivers - Recreation

Management Goals

The Recreation River Management Area will be managed to:

- Provide opportunities for a wide range of recreation activities which are oriented to the river and enhanced by its free-flowing condition.
- Maintain and improve the quality of water which enters the river.
- Maintain and improve fish and wildlife habitat.
- Maintain or enhance the quality of the scenery, cultural, and ecological values.
- Utilize other resources and permit other activities to the extent that they do not lower the quality of the wildlife habitat, river fisheries, scenic attractions, or recreation values.
- Comply with all standards for Recreation rivers as specified in FSH 1909.12, Chapter 8 (1987).

Desired Future Condition

The character and outstanding recreational value of the Recreation segments of the designated rivers within the boundaries of the Willamette National Forest will be maintained. The Forest will have a system of Recreation River segments with the following characteristics:

- Readily accessible by public roads, other motorized access.
- Visible public roads parallel to the river with habitations and other developments within close proximity.
- Human activities may have modified the scenery.
- High potential for development of recreation occupancy sites as well as boat launching and mooring sites.

This prescription applies to designated WSR classified as Recreation Rivers and serves as interim management for mandated Study Rivers and eligible river segments until their suitability has been determined.

Description

At present, four designated Wild and Scenic River segments on the Forest have been classified as Recreation rivers. These are the McKenzie River from Clear Lake to Carmen Reservoir, Carmen Dam

to Trailbridge Reservoir, Trailbridge Reservoir to Scott Creek; and the North Fork of the Middle Fork of the Willamette River from Fisher Creek to the Forest boundary.

Table IV-39. Recreation River Designations

River Name	River Miles	Acres	Est. Date
McKenzie River			
Clear Lake to Carmen Reservoir	1.8		1988
Carmen Dam to Trailbridge Reservoir	4.3		1988
Trailbridge Reservoir to Scott Creek	6.6	2,091	1988
North Fork of the Middle Fork Willamette River Fisher Creek to near Westfir, OR	27.0	8,160	1988

Standards and Guidelines

RECREATION MANAGEMENT

MA-6c-01 **The area shall be made available for maximum use for a range of trail- and river-related activities that are consistent with maintaining area conditions and providing Recreation river experiences. This management prescription shall provide an ROS physical setting for roaded natural recreation.**

MA-6c-02 **River use levels should be managed to maintain the Recreation experience quality; establish regulations when the need warrants; and in cooperation with the Oregon State Marine Board to limit the size, number and type of boats.**

MA-6c-03 **Open campfires should be limited to designated dispersed camp sites.**

MA-6c-04 **The general area and trails shall be closed to off-road vehicle use, except for administrative purposes.**

FOREST TRAIL SYSTEM

MA-6c-05 **Trail corridor activities and management practices shall provide at least a physical setting for roaded natural ROS class opportunities.** (See *Forest-wide Standards and Guidelines for Forest Trail System.*)

SCENIC RESOURCES

MA-6c-06 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention.**

SOIL AND WATER QUALITY

MA-6c-07 **Soil compaction should not exceed established limits, except as necessary for the development of camp sites, administrative facilities, trail treads, trailheads,**

and boat launch sites. (See Forest-wide Standards and Guidelines for Soil and Water Quality.)

TIMBER MANAGEMENT

MA-6c-08 ***No programmed timber harvest shall be scheduled in the Recreation segments of the McKenzie River.***

MA-6c-09 **Scheduled even-aged timber harvest for the Recreation segment of the North Fork Middle Fork Willamette River shall not exceed 5% during the first 10 years following Plan implementation.**

MA-6c-10 **For all other Recreation segments of designated Study Rivers and eligible rivers, scheduled even-aged timber harvest shall not exceed 7% of the suitable and available area within the river corridor during the first 10 years following plan implementation.** Some variation is permitted if silvicultural systems such as uneven-aged management or individual tree selection are applied.

MA-6c-11 **Even-aged regeneration harvest units shall not exceed 3 acres in size within the Recreation river corridor.** Shape and blend harvest units in a manner that will maintain or enhance the area's scenic quality. Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities and maintenance of understory vegetation in road, trail, and riverside zones, and through transportation planning and design decisions that affect route location, landform alterations, and road structures.

MA-6c-12 **Stumps should be flush cut.**

MA-6c-13 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload remove, hand pile/burn.

MA-6c-14 **Regeneration stock protective devices and pest management devices that blend with the natural surroundings should be used.**

MA-6c-15 **The appearance of an old-growth forest condition should be maintained throughout the corridor, particularly along the river and its immediate environment. Overstory trees maintained in the old-growth seral stage should exhibit diameter, bark texture, color, branching habit, height, and crown characteristics typical of each species type and growing site.**

MA-6c-16 **Created harvest openings along roads, trailsides, riverbanks, and around dispersed and developed sites of the Recreation segment of the North Fork Middle Fork Willamette River shall be limited to an average of 5% of the frontage area of these features during the first 10 years following plan implementation, and 7% of the frontage area of all other designated Study and eligible rivers.**

MA-6c-17 **A harvest unit shall be considered a created opening until the regenerated stand is 10-15 feet in height.** The height selected will consider tree species, unit shape and size, topography, and the location of the user in relation to the created opening.

MA-6c-18 **The maximum area disturbed shall not exceed 14% for Study and eligible rivers and 10% for North Fork Middle Fork Willamette River during the first 10 years following implementation of the Forest Plan.**

MA-6c-19 **Hand treatment methods of vegetation control should be used throughout the area.**

DIVERSITY

MA-6c-20 **All harvest units shall retain at least 10 live green trees per acre. These trees should be dominant or co-dominant conifers within the stand.** This will provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the management area.

FIRE MANAGEMENT

MA-6c-21 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Recreation river values.**

MA-6c-22 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

Lands may be managed for a full range of agricultural uses, to the extent currently practiced.

MA-6c-23 **New structures shall be prohibited.** Existing low dams, diversion works, riprap, and other minor structures are allowed, provided the waterway remains generally natural in appearance.

MA-6c-24 **New transmission lines, gas lines, water lines, etc. should be discouraged. Where no reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way.**

MA-6c-25 **Existing patterns of land use and ownership shall be maintained, provided they remain consistent with the purposes of the Wild and Scenic Rivers Act of 1968.** A full range of land use control measures such as zoning, easements, and fee acquisition will be employed where necessary to protect river values, provide reasonable public access, and maintain the existing river character.

MA-6c-26 **Commercial grazing of livestock shall not be permitted on National Forest land within the area.**

MA-6c-27 **Development of hydroelectric power facilities shall not be allowed.**

MA-6c-28 **New flood control structures shall be prohibited.** Existing flood control works may be maintained.

MINERALS AND ENERGY

MA-6c-29 **Rights and obligations pertaining to valid existing claims shall be honored, consistent with existing and future regulations. Appropriate steps shall be taken to obtain withdrawal of the area from entry for locatable minerals. Rights and obligations pertaining to valid existing mineral leases (including geothermal) and permits for salable minerals shall be honored; but all appropriate steps shall be taken to seek early termination and to prevent reissuance of such leases and permits in the area. Appropriate steps shall be taken to prevent removal of salable and leasable minerals (including geothermal) from lands in the area not under valid existing permit or lease.**

MA-6c-30 **All mining, leasing, and salable extraction activity on National Forest administered land within the area shall be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution, and visual impairment.**

FACILITIES

MA-6c-31 **Future roads shall be located and designed to remain visually inconspicuous from the river surface and river banks.**

MA-6c-32 **Structures, improvements, and signs shall be provided to enhance user experiences, facilitate use and administration of the area, and protect resources. Larger scale public use facilities, such as moderately sized campgrounds, public information centers, and administrative headquarters shall be allowed if such structures have been designed to take advantage of topographic and vegetative screening, and are out of view from the river. New structures that would have a direct and adverse effect on river values shall not be allowed.** Other structures that may be permitted are single family residences, lodges, and compatible commercial services, provided they do not negatively affect the Recreation character of the river

MA-6c-33 **Dimensional and non-native materials may be utilized, but their appearance should be subtle to area users.**

MA-6c-34 **Developed campgrounds within the area should be adapted to accommodate boating groups, and water-oriented recreation experiences.**

Boat ramps may be provided at periodic intervals as necessary to accommodate the varied needs of river users. Modest and unobtrusive marinas may be allowed.

MANAGEMENT PLANNING

MA-6c-35 **State and other agencies should be involved in Forest river planning activities to assure coordination of management actions with state requirements and consistency with the goals of the Interagency Wild and Scenic Rivers Planning Team.**

MANAGEMENT AREA 7

Emphasis: Old-Growth Groves

Management Goals

The goals of this management area are to:

- Preserve representative ecosystems of old-growth forests of the Western Cascades.
- Provide opportunities for the public to enjoy the educational, aesthetic and spiritual values associated with the old-growth timber successional stage.

Desired Future Condition

The desired future condition is a network of outstanding, highly accessible examples of old-growth timber types of the Western Cascades. These groves will preserve the genetic base of native plant and animal communities and add to the structural diversity of the forest landscape. Use of these lands will be restricted to the extent necessary to protect the exceptional ecological values for which they are designated. The physical setting of these groves will provide for semiprimitive nonmotorized recreation experiences. No timber harvest will occur except to remove safety hazards. Access to the area will be provided by roads and trails. Facilities will be concentrated outside of grove boundaries.

Description

This management area consists of representative stands of old growth that are characterized by individual, large, old trees; multi-layered canopies with trees of several age classes and sizes; standing snags and fallen trees in various stages of decomposition, and smaller plants and ground cover.

Note: Old growth stands are protected and preserved in other management areas also such as MA1-Wilderness, MA4-Research Natural Areas, MA5-Special Interest Areas, MA9-Wildlife Habitats, and MA10-Dispersed, Nonmotorized Recreation Areas. This prescription applies to areas designated as Old-growth Timber Groves with the specific management goals stated above.

Standards and Guidelines

PLANNING

MA-7-01 **An Implementation Guide shall be prepared for each designated Old-Growth Grove, describing site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site. Site development plans will be prepared as part of the Implementation Guide, showing the design and location of proposed facilities.

MA-7-12 **The area shall be recommended for withdrawal from entry for locatable minerals.**

MA-7-13 **Removal of salable and leasable minerals shall not be permitted.**

FACILITIES

MA-7-14 **Road development should be consistent with objectives for the grove as stated in the Implementation Guide.** An existing road may serve as trail access when road management objectives require closure. New road development is generally discouraged.

MA-7-15 **Facilities shall be developed commensurate with management objectives established in the Implementation Guide.** Locations of facilities will consider the use of native plants, locating parking areas and trailheads outside of groves, availability of toilets, and interpretive signing needs.

MANAGEMENT AREA 8

Emphasis: Threatened and Endangered Species - Bald Eagle

Management Goals

The goal of this management area is to provide habitat and habitat conditions to meet recovery objectives for the Northern Bald Eagle as stated in the Pacific Bald Eagle Recovery Plan (USDI Fish and Wildlife Service 1986). Site specific management of active territories shall be detailed in Bald Eagle Management Plans.

Desired Future Condition

Bald Eagle Management Areas (BEMAs) will have a natural, undisturbed appearance surrounding nest sites. All allocated bald eagle territories are occupied by reproductive pairs of bald eagles. Management activities have been implemented that enhance habitat suitability. The protection of perch trees and down woody material have added to the structural diversity of the forest stands as physical and biological processes continue in areas removed from timber harvest without undue human intervention. High isolation from the sights and sounds of human activities provides the protection necessary to achieve optimum characteristics for survival and reproduction of Bald Eagles. Protection of active nest sites and enhancement or maintenance of existing habitat conditions within and adjacent to major water bodies results in population increases and the eventual declassification of the species.

Description

Management Area 8 consists of 6 active nest sites and 15 potential nest sites located within 1.1 miles of 11 major water bodies. Existing bald eagle nesting, roosting, and foraging areas will have site specific management plans revised or written to comply with the Working Implementation Plan for Bald Eagle Recovery in Washington and Oregon and the Region 6 Bald Eagle Habitat Guide.

Currently, 1,152 acres within 1 mile of Hills Creek and Lookout Point Reservoir have been allocated for protection of existing nest sites Newly discovered nest sites will require biological evaluation and consultation as directed by PL 93-205, Endangered Species Act.

Standards and Guidelines

RECREATION MANAGEMENT

MA-8-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

MA-8-02 **Developed recreation sites shall be located outside primary nest zones of bald eagle management areas. Planned developed recreation sites should be located away from any primary feeding/roosting area.**

MA-8-03 **Off-road vehicle use shall be prohibited.**

FOREST TRAIL SYSTEM

MA-8-04 **Trails within 660 feet of nest trees should be relocated to at least one quarter mile from nest trees.** Bald eagles are highly susceptible to disturbance in area immediately adjacent to the nest tree.

MA-8-05 **Existing trails which are within 660 feet of nest trees and are not relocated shall be closed to use from January 1 through August 31.**

MA-8-06 **New trails shall be located at least one quarter mile from nest sites.** New trails may be developed commensurate with management objectives established in individual Bald Eagle Management Plans.

SCENIC RESOURCES

MA-8-07 **All design and implementation practices should be modified as necessary to meet the VQO of Retention. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Partial Retention.**

PROPOSED, ENDANGERED, THREATENED AND SENSITIVE SPECIES

MA-8-08 **Existing Bald Eagle Management Plans shall be revised to incorporate latest direction on habitat requirements. Nest sites shall be protected by primary zones of not less than 125 acres.** Primary zone acreages may be larger depending on local physiographic conditions, potential for blowdown, potential disturbance due to roads, logging, or recreation developments, and topographic features.

MA-8-09 **The territory shall be identified for nest sites discovered during the planning period. These additional sites shall be incorporated into MA 8 as site specific Bald Eagle Management Plans are prepared and approved.**

MA-8-10 **Bald Eagle Management Plans shall be revised or prepared within three years of implementation of the Forest Plan. These site specific plans should include long term strategies for maintaining or enhancing the nesting, roosting, perching, and foraging habitat within the territory for bald eagles.** Monitoring will be conducted to identify territories being used by bald eagles including alternate nest trees, roost areas, potential disturbance zones, and perch trees used while hunting.

MA-8-11 **Perch trees used by hunting, feeding, or roosting bald eagles shall be protected.** Generally, these trees will occur within 600 feet of lake and reservoir shorelines. Perch trees should be protected by allocating a 200-600 foot no-harvest buffer along the shorelines used as the primary feeding zone.

MA-8-12 **Habitat enhancement activities shall not occur within one quarter mile of any nest site between January 1 and August 31. Proposed enhancement activities shall be detailed in the Management Plan and shall be coordinated with the appropriate agencies.** Habitat within and around BEMAs may be enhanced through silvicultural manipulation.

TIMBER MANAGEMENT

MA-8-13 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-8-14 **Potential timber harvest activities shall be evaluated as a part of the Bald Eagle Management Plan. The Bald Eagle Management Plan should determine whether extended rotation (200 years or greater) or no-harvest strategies best meets the long term viability needs for Bald Eagle Recovery objectives.**

MA-8-15 **Silvicultural treatments such as timber stand improvement, fertilization, vegetation management, pest management, and tree planting shall not occur within one quarter mile of nest sites between January 1 and August 31.** These activities should be carried out within BEMAs only when planned as habitat enhancement activities.

MA-8-16 **Hazard trees which are felled should be left as down woody material on the forest floor.**

MA-8-17 **Firewood cutting shall not be permitted within BEMAs.**

MA-8-18 **No trees selected for cone collection shall be within 600 feet of nest trees.**

FIRE MANAGEMENT

MA-8-19 **Suppression strategies, practices and activities shall be limited to those which have minimal impacts to bald eagle habitat values.**

MA-8-20 **Restrict air operations over BEMAs between January 1 and August 31 unless the primary nest habitats are threatened by fire.**

MA-8-21 **Fuels treatment shall not occur within a BEMA from January 1 through August 31.**

LANDS

MA-8-22 **No special use permits should be approved.**

MINERALS AND ENERGY

MA-8-23 **The area shall be recommended for withdrawal from entry for locatable minerals.**

MA-8-24 **Removal of salable and leasable minerals shall not be permitted.**

FACILITIES

MA-8-25 **Roads within bald eagle management areas shall be closed between January 1 and August 31. Exceptions to this standard, if needed, shall be detailed in the**

Bald Eagle Management Plan for that particular site. Bald eagles are highly susceptible to disturbance within this time period.

MA-8-26 **Road construction within a BEMA shall be permitted only to support bald eagle habitat enhancement activities.**

MA-8-27 **Road maintenance within BEMAs shall not occur between January 1 and August 31.**

MA-8-28 **Facility development shall be excluded within BEMAs.**

MANAGEMENT AREA 9a

Emphasis: Northern Spotted Owl Habitat Area

Management Goals

The goals of this management area are to:

- Protect mature and old-growth habitat for all dependent flora and fauna by providing habitat networks for the northern spotted owl, an ecological indicator species.
- Provide designated no-harvest sites which will ensure continued interaction of northern spotted owl individuals and populations within the Forest as well as between adjacent Forests and landownerships.

Desired Future Condition

The desired future condition is a well-distributed network of high quality habitat throughout the forest landscape Although individual mature and old-growth stands may last many decades, forest conditions are not static; individual areas will not remain as suitable habitat forever. Future plans will likely examine opportunities to enhance habitat in these areas, manage them in an uneven-aged condition, or substitute areas and gradually rotate the designated areas.

Description

This prescription protects habitat networks for species used as ecological indicators for mature/old-growth habitat. Habitat areas have been delineated whenever distribution of suitable habitat exceeds dispersal requirements

Standards and Guidelines

RECREATION MANAGEMENT

MA-9a-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

MA-9a-02 **Biological evaluations shall be prepared assessing the compatibility of developed sites within SOHAs on a case-by-case basis.**

MA-9a-03 **Developed sites may be compatible with SOHAs but the developed area (campground, picnic site, parking lot, etc.) shall not count toward allocated SOHA acres.**

MA-9a-04 **Motorized recreation activities shall be discouraged within SOHAs.** Many SOHAs have highways or collector roads passing through them. Recreation activities associated

with the use of these roads will be allowed, however roads not needed to access trailheads may be closed

FOREST TRAIL SYSTEM

MA-9a-05 **New trails shall be located so as to minimize disturbance to known spotted owl nest trees or Natal Areas.** Existing trails are compatible within SOHAs. Natal areas are comprised of approximately 80 acres of habitat within a 660 foot radius of a nest tree, pair roost site, or roost sites of fledged juvenile spotted owls.

MA-9a-06 **Trail maintenance or construction involving nonmotorized equipment shall be restricted within the Natal Areas for verified breeding pairs. Work using nonmotorized equipment outside the Natal Area should not be restricted.** Trails will not be closed to public use. Trail maintenance of limited duration and disturbance may be allowed based on site specific circumstances. Restricted activity periods and distances for motorized and nonmotorized equipment are listed in the *Forest-wide Standards for Proposed, Threatened, Endangered and Sensitive Species.*

SCENIC RESOURCES

MA-9a-07 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Retention.**

WILDLIFE MANAGEMENT

MA-9a-08 **Spotted owl habitat shall be managed in accordance with direction specified in the *Supplement to the Environmental Impact Statement (EIS) for an Amendment to the Pacific Northwest Regional Guide* (USDA 1988).**

MA-9a-09 **The Forest shall assist the Regional Office in meeting the terms of the 1988 Interagency Agreement on spotted owl.** The four agencies (USDA Forest Service, USDI Fish and Wildlife Service, Bureau of Land Management (BLM), and National Park Service) have agreed to cooperate in an effort to maintain population viability for spotted owls.

MA-9a-10 **A Biological Evaluation shall be prepared on all activities that affect spotted owls or their designated habitats (SOHAs).**

MA-9a-11 **Site specific analysis shall be used to evaluate compatibility of small projects designed for other resource values.** For example, small (1-3 acre) openings may be desirable for maintaining vistas or critical forage openings for elk and deer management.

MA-9a-12 **Small inclusions of habitat other than mature or old growth may be included within a specific SOHA, but these acres shall not be counted as part of the minimum acreage allocation per area.**

MA-9a-13 **Adjustments to MA boundaries shall not reduce the total acres of suitable habitat within each designated area.**

MA-9a-14 **If an area becomes unsuitable as mature or old-growth habitat through fire or other natural catastrophe, it shall be replaced with another nearby suitable area. If no suitable habitat is available for replacing lost habitat, the SOHA and its allocated acres shall be retained as part of the Forest SOHA network and allowed to recover.** Enhancement activities may involve the use of silvicultural techniques for increasing tree size and habitat structure.

MA-9a-15 **The exchange process, including disposition of the replaced area and impacts to adjacent SOHAs, shall be disclosed in the appropriate NEPA document.**

TIMBER MANAGEMENT

MA-9a-16 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-9a-17 **Windthrow and felled hazard trees should be left as coarse woody material on the forest floor.** Although minimum amounts of dead and down material have been identified, there are no upper limits to the amount of down material which contribute to habitat for species dependent on old-growth forest habitat. This material contributes significant habitat for the spotted owl prey base.

FIRE MANAGEMENT

MA-9a-18 **Suppression strategies, practices and activities shall be limited to those which have minimal impacts to spotted owl habitat values.**

MA-9a-19 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

MA-9a-20 **No special use permits should be approved.**

MINERALS AND ENERGY

MA-9a-21 **The area shall be recommended for withdrawal from entry for locatable minerals.**

MA-9a-22 **Removal of salable and leasable minerals shall not be permitted.**

FACILITIES: TRANSPORTATION

MA-9a-23 **Roads not needed to meet resource management objectives of adjacent lands shall be closed.**

MA-9a-24 **New road construction should not occur within SOHAs.** However, construction through a SOHA may be evaluated for site-specific projects where other resource objectives are being met.

MA-9a-25 **If new roads are constructed in SOHAs, additional acres shall be delineated as replacement acres for the affected area.** The intent is to maintain an equivalent acreage of interior forest habitat.

RANGE MANAGEMENT

MA-9a-26 **Domestic livestock grazing shall not be permitted.**

MANAGEMENT AREA 9b

Emphasis: Pileated Woodpecker Habitat Area

Management Goals

The goals of this management area are to:

- Protect mature and old-growth habitat for all dependent flora and fauna by providing habitat networks for the pileated woodpecker, an ecological indicator species.
- Provide a combination of managed sites and designated no-harvest sites which will ensure continued interaction of pileated woodpecker individuals and populations within the Forest as well as between adjacent Forests and landownerships.

Desired Future Condition

The desired future condition is a well-distributed network of high quality habitat throughout the forest landscape. Although individual mature and old-growth stands may last many decades, forest conditions are not static; individual areas will not remain as suitable habitat forever Future plans will likely examine opportunities to enhance habitat in these areas, manage them in an uneven-aged condition, or substitute areas and gradually rotate the designated areas

Description

This prescription protects habitat networks for species used as ecological indicators for mature/old-growth habitat. In particular, 300 acre core areas have been set aside that meet the criteria for high quality pileated woodpecker habitat. Additional high quality habitat is identified with each core area. Habitat areas have been delineated wherever distribution of suitable habitat exceeds dispersal requirements.

Note: Management Areas 11d, 11e,and 11f are managed on extended rotations (150-200 years) and will provide additional habitat for those wildlife species inhabiting mature and old-growth forest. Where sites designated as part of the management requirement network of pileated woodpecker habitat areas (PWHA) overlap with these MAs, they will be managed to provide the habitat requirements for mature/old-growth dependent species

Standards and Guidelines

RECREATION MANAGEMENT

MA-9b-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

MA-9b-02 **Biological Evaluations should be used to assess the compatibility of developed sites within PWHAs on a case-by-case basis.**

MA-9b-03 **Developed sites may be compatible with PWHAs but the developed area (i.e., campground, picnic site, parking lot) shall not count toward allocated PWHA acres.**

MA-9b-04 **Motorized recreation activities shall be discouraged within PWHAs.**

MA-9b-05 **The general area shall be closed to off-road vehicle use.**

FOREST TRAIL SYSTEM

MA-9b-06 **New trails shall be located so as to minimize disturbance to known spotted owl nest trees or natal areas.** Existing trails are compatible within PWHAs. Many PWHAs contain spotted owl nest sites or natal areas. Where this occurs, protection of the natal area needs to be given high priority.

SCENIC RESOURCES

MA-9b-07 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Retention.**

WILDLIFE MANAGEMENT

MA-9b-08 **Fish and wildlife habitats shall be managed to maintain viable populations of existing native and desirable nonnative vertebrate species in the planning area (36 CFR 219.19).**

MA-9b-09 **PWHAs shall occur at least once every 12,000 to 13,000 acres, and should not be located more than 5 miles apart measured edge to edge.**

MA-9b-10 **Each PWHA shall be linked with at least three other habitat areas or areas providing adequate quantity and quality of habitat in no-harvest allocations within 5 miles.**

MA-9b-11 **PWHAs shall have a minimum of 300 acres of mature and old-growth coniferous forest and contain numerous snags (>25" DBH and >60' tall) to provide high quality nesting habitat. At least 160 acres of each core nesting area shall be contiguous.**

MA-9b-12 **In addition, the 300 acre core areas shall be adjacent to coniferous stands having greater than 70% canopy closure, and numerous snags >14" DBH and >60' tall, to provide high quality foraging habitat. The total area of nesting and foraging habitat should exceed 600 acres within a 1 mile radius.**

MA-9b-13 **Noncontiguous stands of nesting habitat should be larger than 60 acres. Isolated nesting habitat should maintain connectivity within the PWHA by using forage habitat.** Stands meeting nesting requirements may be substituted for forage habitat if adequate acres of mid-seral stages are unavailable. Shelterwoods may be used as forage habitat and retained as future replacement nesting habitat.

TIMBER MANAGEMENT

MA-9b-14 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity (See *Forest-wide Standards for Changed Environmental Conditions*)

MA-9b-15 **Timber harvest within managed PWHAs in MA 11 should be scheduled to maintain at least 300 contiguous acres of suitable nesting habitat.** Woodpecker habitat within MA 11d, 11e, and 11f, is managed for timber harvest on 150-200 year rotations.

MA-9b-16 **Within managed PWHAs, documented nesting use by pileated woodpeckers should occur in the replacement stands before the core areas are scheduled for harvest.**

MA-9b-17 **Where individual trees have been determined through site specific analysis to be a hazard, they may be felled.** Generally this will occur only along arterial roads, within developed recreation sites, or near roads with trailhead access.

MA-9b-18 **Windthrow and felled hazard trees should be left as coarse woody material on the forest floor.** This material contributes significant habitat for many species represented by this ecological indicator.

FIRE MANAGEMENT

MA-9b-19 **Suppression strategies, practices and activities shall be limited to those which have minimal effects to PWHA values.**

MA-9b-20 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

MA-9b-21 **No special use permits should be approved within this management area.**

MINERALS AND ENERGY

MA-9b-22 **Lands within this management area shall be recommended for withdrawal from geothermal and mineral entry.**

FACILITIES: TRANSPORTATION

MA-9b-23 **Roads not needed to meet resource management objectives of adjacent lands shall be closed.**

MA-9b-24 **New road construction should not occur within PWHAs.** However, construction through a PWHA may be evaluated for site-specific projects where other resource objectives are being met.

MA-9b-25 **If new roads are constructed in PWHAs, additional acres shall be delineated as replacement acres for the affected area.**

MANAGEMENT AREA 9c

Emphasis: Marten Habitat Area

Management Goals

The goals of this management area are to.

- Protect mature and old-growth habitat for all dependent flora and fauna by providing habitat networks for the marten, an ecological indicator species
- Provide a combination of managed sites and designated no-harvest sites which will ensure continued interaction of marten individuals and populations within the Forest as well as between adjacent Forests and landownerships

Desired Future Condition

The desired future condition is a well-distributed network of high quality habitat throughout the forest landscape. Although individual mature and old-growth stands may last many decades, forest conditions are not static, individual areas will not remain as suitable habitat forever Future plans will likely examine opportunities to enhance habitat in these areas, manage them in an uneven-aged condition, or substitute areas and gradually rotate the designated areas.

DESCRIPTION

This management area prescription protects and manages a habitat network for species used as ecological indicators for mature/old-growth habitat. In particular, 160 acre core areas have been set aside that meet the criteria for high quality marten habitat. Additional high quality habitat is identified with each core area. Habitat areas have been delineated wherever distribution of suitable habitat exceeds dispersal requirements.

Note: Management Areas 11d, 11e, and 11f are managed on extended rotations (150-200 years) and will provide additional habitat for those wildlife species inhabiting mature and old-growth forest. Where sites designated as part of the management requirement network of marten habitat areas (MHA) overlap with these management areas, they will be managed to meet the habitat requirements for mature/old-growth dependent species

Standards and Guidelines

RECREATION MANAGEMENT

MA-9c-01 Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.

MA-9c-02 **Biological Evaluations should be used to assess the compatibility of developed sites within MHAs on a case-by-case basis where habitat areas are occupied by spotted owls or other species listed on the R-6 Sensitive Species List.**

MA-9c-03 **Developed sites may be compatible with MHAs but the developed area (e.g., campground, picnic site, parking lot) shall not count toward allocated MHA acres.**

MA-9c-04 **Motorized recreation activities shall be discouraged within MHAs.**

MA-9c-05 **The general area shall be closed to off-road vehicle use.**

FOREST TRAIL SYSTEM

MA-9c-06 **New trails shall be located so as to minimize disturbance to known spotted owl nest trees or natal areas.** Existing trails are compatible within MHAs. Many MHAs contain spotted owl nest sites and natal areas Protection and security of these areas needs to be given high priority.

SCENIC RESOURCES

MA-9c-07 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Retention.**

WILDLIFE MANAGEMENT

MA-9c-08 **Fish and wildlife habitats shall be managed to maintain viable populations of existing native and desirable non-native vertebrate species in the planning area (36 CFR 219.19).**

MA-9c-09 **MHAs shall be maintained in a Forest-wide network. One MHA shall be located per 3,000 to 5,000 acre area.**

MA-9c-10 **A maximum distance of 3 miles shall separate MHAs or other no harvest areas that meet the marten habitat criteria for size.**

MA-9c-11 **Each MHA shall also be linked with at least three other areas of equivalent size or larger, all of which contain mature or old growth coniferous forest habitat.**

MA-9c-12 **The habitat width for MHAs shall exceed 400 yards.** Blocks of habitat are preferred over strips. Exceptions may be used if no other suitable habitat exists in larger patch sizes.

MA-9c-13 **Corridors connecting individual MHAs should be maintained. These corridors should be comprised of habitat suitable for travel and foraging, but may include mature and old-growth forests allocated for riparian, visuals, or other resource objectives.**

MA-9c-14 **MHAs shall have a minimum of 160 contiguous acres of mature and old-growth coniferous forest to provide high quality denning habitat.**

MA-9c-15 **In addition, the 160 acre core areas shall be adjacent to coniferous stands having greater than 50% crown closure, numerous large logs, and snags to provide high quality foraging and dispersal habitat. The total area identified as denning, foraging and dispersal habitat should exceed 500 contiguous acres within a 1 mile radius home range.**

TIMBER MANAGEMENT

MA-9c-16 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-9c-17 **Timber harvests within the managed MHAs in MA 11 should be scheduled to maintain at least 160 contiguous acres of mature trees.** Some marten habitat within MA 11d, 11e, and 11f is managed for timber harvest on 150-200 year rotations.

MA-9c-18 **Where individual trees have been determined to be a hazard, by a site specific analysis, they may be felled.**

MA-9c-19 **Windthrow and felled hazard trees should be left as coarse woody material on the forest floor.** This material contributes significant habitat for the spotted owl and marten prey base, and martens use down logs extensively for dens and travel.

FIRE MANAGEMENT

MA-9c-20 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on MHA values.**

MA-9c-21 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

MA-9c-22 **No special use permits should be approved.**

MINERALS AND ENERGY

MA-9c-23 **Lands within this management area shall be recommended for withdrawal from mineral entry.**

FACILITIES: TRANSPORTATION

MA-9c-24 **Roads not needed to meet resource management objectives of adjacent lands shall be closed.**

MA-9c-25 **New road construction should not occur within MHAs.** However, construction through a MHA may be evaluated for site-specific projects where other resource objectives are being met.

MA-9c-26 **If new roads are constructed in MHAs, additional acres shall be delineated as replacement acres for the affected area.**

RANGE MANAGEMENT

MA-9c-27 **Domestic livestock grazing shall not be permitted.**

MANAGEMENT AREA 9d

Emphasis: Special Habitat Areas

Management Goal

The goal of this management area is to protect or enhance unique wildlife habitats and botanical sites which are important components of healthy, biologically diverse ecosystems.

Desired Future Condition

The desired future condition is a well-distributed network of high quality habitat throughout the forest landscape. Special wildlife or botanical areas will continue to provide unique characteristics and diversity to the forest landscape. Natural physical and biological processes will prevail without human intervention. Plant and animal life inhabiting these unique systems will continue to flourish. Little human-caused degradation is expected to occur over the next several decades.

Description

Management Area 9d includes special or unique habitats for wildlife and botanical resources such as dry meadows, cliffs, caves, talus, mineral springs, mineral licks, wet meadows, marshes, and bogs. Riparian management area prescriptions (MA 15) will apply to special wildlife habitats and botanical areas that overlap with riparian areas.

Standards and Guidelines

RECREATION MANAGEMENT

MA-9d-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

MA-9d-02 **Existing developed and dispersed sites should be compatible with the overall objectives for the area.** Recreation use may be regulated where it degrades sensitive plant communities or limits the use of the area by wildlife.

MA-9d-03 **Future developed and dispersed sites shall be designed to minimize effects to the area and to minimize disturbance to wildlife and botanical resources.**

FOREST TRAIL SYSTEM

MA-9d-04 **Trails shall be designed, constructed, and maintained in a manner that is compatible with habitat objectives and wildlife use of the area.**

SCENIC RESOURCES

MA-9d-05 **All design and implementation practices should be modified as necessary to meet the VQO of Retention.**

WILDLIFE MANAGEMENT

MA-9d-06 **Habitat inventories shall be conducted to establish habitat conditions or area boundaries.**

MA-9d-07 **Habitats of native wildlife and plants shall be maintained. Boundaries should be selected that are self-buffering.** Generally, buffers greater than three tree lengths in width will provide adequate protection.

TIMBER MANAGEMENT

MA-9d-08 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-9d-09 **Vegetative treatments, including commercial harvests, should be permitted if necessary to meet established wildlife objectives.** Sustained timber production is not a management area objective.

MA-9d-10 **Previously disturbed sites should be managed to meet special wildlife and plant habitat objectives.**

FIRE MANAGEMENT

MA-9d-11 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on special habitat values.**

MA-9d-12 **Fires should be suppressed at the lowest acreage practicable.**

MA-9d-13 **Any fuels treatment shall protect wildlife and unique plant species and habitats.**

LANDS

MA-9d-14 **Special use permits should be granted only if use is compatible with protection and enhancement objectives.**

MINERALS AND ENERGY

MA-9d-15 **Area shall be recommended for withdrawal from mineral entry.**

FACILITIES: TRANSPORTATION

MA-9d-16 **Road construction should not occur within the boundaries of the area. Existing roads may not be compatible with the area objectives and should be evaluated for access management needs.**

MA-9d-17 **Road closures and access management should be used where necessary to prevent disturbance to wildlife and plants and their habitats.**

RANGE MANAGEMENT

MA-9d-18 **Grazing by domestic livestock should be permitted only to enhance habitat values.**

MANAGEMENT AREA 10a

Emphasis: Dispersed Recreation
Roaded Natural Use with Timber Harvest

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a roaded natural experience through the management of user activities and natural resource settings.
- Provide users the opportunity to experience a high degree of interaction with the natural environment using both motorized and nonmotorized forms of recreation, where the challenge and risk opportunities associated with more primitive types of recreation are not important.
- Provide for wood fiber production, watershed protection, scenic quality, and maintenance of wildlife habitats.

Desired Future Condition

The desired condition is an area which provides a wide range of recreation opportunities where visitors have about equal probability of experiencing affiliation with other user groups as isolation from the sights and sounds of humans. The setting of this management area is characterized by natural appearing environments where resource modification and utilization are evident, but their form, line and contrast harmonize with the natural environment. Activities associated with this area are both motorized and nonmotorized in nature. Specific activities are centered around consumptive and nonconsumptive use of land and water areas including hiking, fishing, hunting, horseback riding, ORV use, canoeing, nature study, camping, boating, mountain biking and snowmobiling. Timber harvest in this management area will occur at a rate of 10% of the suitable and available acres during the first ten years following Forest Plan implementation. Access to and within the area will be provided by trails and roads. Except as necessary to protect fragile resources, facilities will be limited to trail shelters or to meet sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape

Description

This prescription applies to areas identified as providing roaded natural recreation experiences with timber harvest

Standards and Guidelines

PLANNING

MA-10a-01 **An Implementation Guide shall be prepared for each dispersed recreation area, describing the site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site. Site development plans will be prepared as part of the Implementation Guide, showing the design and location of proposed facilities

RECREATION MANAGEMENT

MA-10a-02 **This management area shall be available for maximum use for a range of activities that provide Roaded Natural ROS class experiences.**

MA-10a-03 **Group sizes, with any combination of people and livestock, should not exceed 25.** Larger groups may be accommodated by permit.

MA-10a-04 **Access by motorized vehicles shall be limited to snowmobiles, trail bikes, and ORVs not greater than 42 inches in width.** The general area is open to off-road vehicles and mountain bikes.

FOREST TRAIL SYSTEM

New trails may be developed commensurate with management objectives established in the Implementation Guide.

SCENIC RESOURCES

MA-10a-05 **Area management practices should result in a condition that ranges between the Partial Retention and Modification VQO. Physical changes and improvements in the area should meet the Partial Retention VQO. The rate at which changes occur within the area should at least meet the Modification VQO.**

TIMBER MANAGEMENT

MA-10a-06 **Scheduled even-aged timber harvest should not exceed 10% of the suitable and available acres during the first 10 years following Forest Plan implementation.** Some variation in harvest rate is permitted in consideration of uneven-aged silvicultural systems, differences in rotation length due to site conditions or species-dependent growth rates, and operational feasibility of harvest treatments.

MA-10a-07 **Maximum size for even-aged regeneration harvest units should be 10 acres. Roadside frontage zones in the major travel corridors should have a maximum unit size of 3 acres.** The preferred unit sizes are 5-8 acres in the general area and 2-3 acres in the roadside frontage zone

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities

and maintenance of understory vegetation in road frontage zones and transportation planning and design decisions that affect route location, landform alterations, and road structures.

MA-10a-08 **Created openings along travel corridors should not exceed 300 lineal feet/mile per side of the road within the management area.**

MA-10a-09 **Stumps should be flush cut.**

MA-10a-10 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload/remove, hand pile/burn.

MA-10a-11 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-10a-12 **Vegetation control in roadside frontage zones should employ hand treatment methods.**

MA-10a-13 **Seven percent of the acres available and suited for harvest in the management area should be maintained in a mature or older size/age class condition at all times.**

MA-10a-14 **A harvest unit should be considered a created opening until the regenerated stand is 10 to 15 feet in height. In lodgepole pine stands, a created opening exists until the regenerated stand is 4 1/2 feet in height.**

MA-10a-15 **The maximum area in created openings should not exceed 20% of the acres available and suited for timber harvest in this management area.** This will balance out any previous harvest which exceeds the specified harvest rate/decade.

FIRE MANAGEMENT

MA-10a-16 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Roaded Natural recreation values.**

LANDS

MA-10a-17 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-10a-18 **Utility corridors shall not be located in this management area.**

MINERALS AND ENERGY

MA-10a-19 **Exploration and development access requirements, as well as operating plans, should include measures to protect or enhance effectiveness of the area to provide for roaded natural experience.**

MA-10a-20 **Salable mineral spoils shall be excluded from this management area.**

Leases for oil, gas, or other leasable minerals may be granted following approval of the appropriate NEPA document.

FACILITIES

MA-10a-21 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and nonnative materials may be used but should remain subtle to area users.

MA-10a-22 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.** (See *Forest-wide Standards and Guidelines for Soil, Water, and Air Quality*)

MANAGEMENT AREA 10b

Emphasis: Dispersed Recreation
Semiprimitive Motorized Use with Timber Harvest

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a Semiprimitive Motorized experience through the management of user activities and natural resource settings.
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through activities involving the application of outdoor skills in an environment that offers some challenge and risk.
- Provide for wood fiber production, watershed protection, scenic quality, and maintenance of wildlife habitats.

Desired Future Condition

The desired condition is an area which provides for a wide range of recreation opportunities where visitors can experience a moderate degree of isolation from the sights and sounds of human activity. The setting of this management area will be characterized by an environment where the natural landscape may have been subtly modified but where alterations will not draw the attention of most users. *Recreational use will vary by season but will generally remain light and user interaction will be infrequent.* Activities associated with this area are both motorized and nonmotorized in nature. Specific activities are centered around consumptive and non-consumptive use of land and water areas including hiking, fishing, hunting, horseback riding, mountain biking, ORV use, canoeing, nature study, camping, and snowmobiling. Timber harvest in this management area will occur at a rate of 7% of the suitable and available acres during the first 10 years following Forest Plan implementation. Access to and within the area will be provided by trails and roads. Except as necessary to protect fragile resources, facilities will be limited to trail shelters or to meet sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape. The area will be managed to minimize the presence of on-site controls and use restrictions

Description

This prescription applies to areas identified as providing Semiprimitive Motorized recreation opportunities with timber harvest.

Standards and Guidelines

PLANNING

MA-10b-01 **An Implementation Guide shall be prepared for each Semiprimitive Motorized area describing the site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site. Site development plans will be prepared as part of the Implementation Guide, showing the design and location of proposed facilities.

RECREATION MANAGEMENT

MA-10b-02 **This management area shall be available for maximum use for a range of activities that provide Semiprimitive Motorized experiences.**

MA-10b-03 **Group sizes, with any combination of people and livestock, should not exceed 25.** Larger groups may be accommodated by permit.

MA-10b-04 **Access by motorized vehicles shall be limited to snowmobiles, trail bikes, and ORVs not greater than 42 inches in width.** The general area is open to off-road vehicles and mountain bikes.

SCENIC RESOURCES

MA-10b-05 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention.**

TIMBER MANAGEMENT

MA-10b-06 **Scheduled even-aged timber harvest should not exceed 7% of the suitable and available acres during the first 10 years following Forest Plan implementation.** Some variation in harvest rate is permitted in consideration of uneven-aged silvicultural systems, differences in rotation length due to site conditions or species-dependent growth rates, and operational feasibility of harvest treatments.

MA-10b-07 **Maximum size for even-aged regeneration harvest units should be 8 acres. Roadside frontage zones in the major travel corridors should have a maximum unit size of 3 acres.** The preferred unit sizes are 5-8 acres in the general area and 2-3 acres in the roadside frontage zone

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities and maintenance of understory vegetation in road frontage zones and transportation planning and design decisions that affect route location, landform alterations, and road structures.

MA-10b-08 **Created openings in major travel corridors should not exceed 300 lineal feet/mile per side of the road within the management area.**

MA-10b-09 **Stumps should be flush cut.**

MA-10b-10 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload/remove, hand pile/burn.

MA-10b-11 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-10b-12 **Vegetation control in roadside frontage zones should employ hand treatment methods.**

MA-10b-13 **Seven percent of the acres available and suited for harvest in the management area should be maintained in a mature or older size/age class condition at all times.**

MA-10b-14 **A harvest unit should be considered a created opening until the regenerated stand is 10 to 15 feet in height. In lodgepole pine stands, a created opening exists until the regenerated stand is 4 1/2 feet in height.**

MA-10b-15 **The maximum area in created openings should not exceed 14% of the acres available and suited for timber harvest in this management area.** This will balance out any previous harvest which exceeds the specified harvest rate/decade.

DIVERSITY

MA-10b-16 **All harvest units should retain at least 10 live, green trees per acre. These trees should be dominant or co-dominant conifers within the stand.** The objective will be to provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the Management Area.

FIRE MANAGEMENT

MA-10b-17 **Suppression strategies, practices and activities shall be limited to those which have minimal effects to Semiprimitive Motorized values.**

LANDS

MA-10b-18 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-10b-19 **Location of utility corridors should be avoided in this management area.**

MINERALS AND ENERGY

MA-10b-20 **Exploration and development access requirements, as well as operating plans, should include measures to protect or enhance effectiveness of the area to provide for Semiprimitive Motorized recreation.**

MA-10b-21 **Salable mineral spoils shall be excluded from this management area.**

Leases for oil, gas, or other leasable minerals may be granted following approval of the appropriate NEPA document.

FACILITIES

MA-10b-22 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and non-native materials may be used, but visual impacts should appear subtle to area users.

MA-10b-23 **Road development should include measures to protect or enhance effectiveness of the area to provide for Semiprimitive Motorized recreation.**

New trails may be developed commensurate with management objectives established in the Implementation Guide

MA-10b-24 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.** (See *Forest-wide S&Gs for Soil and Water Quality*).

MANAGEMENT AREA 10c

Emphasis: Dispersed Recreation
Semiprimitive Motorized Use, No Timber Harvest

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a Semiprimitive Motorized experience through the management of user activities and natural resource settings.
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through activities involving the application of outdoor skills in an environment that offers some challenge and risk.
- Provide for the conservation of unique geographic, topographic, biological, and ecological processes, as well as significant scenic, wildlife, recreation, and watershed values.

Desired Future Condition

The desired condition is an area which provides for a wide range of recreational opportunities where visitors can experience a high degree of isolation from the sights and sounds of human activity. The setting of this management area will be characterized by an environment where the natural landscape may have been subtly modified but where alterations will not draw the attention of most users. Recreational use will vary by season but will generally remain light and user interaction will be infrequent. Activities associated with this area are both motorized and nonmotorized in nature. Specific activities are centered around nonconsumptive use of land and water areas including hiking, fishing, hunting, horseback riding, ORV use, canoeing, nature study, camping, mountain biking and snowmobiling. There will be moderate evidence of other users, but the concentration of use will remain low. Human activities will not interfere with natural processes involving the development of vegetation communities or the interactions of wildlife with its habitat. No programmed timber harvest will occur. Access will be limited to trails, existing roads outside the management area boundary and roads to existing, developed sites Except as necessary to protect fragile resources, facilities will be limited to trail shelters or to meet sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape. The area will be managed to minimize the presence of on-site controls and use restrictions Site modification will be minimal and not draw the attention of area users.

Description

This prescription applies to areas identified as providing Semiprimitive Motorized recreation opportunities without timber harvest.

Standards And Guidelines

RECREATION MANAGEMENT

MA-10c-01 **This management area shall be available for maximum use for a range of activities that provide Semiprimitive Motorized experiences.**

MA-10c-02 **Group sizes, with any combination of people and livestock, should not exceed 25.** Larger groups may be accommodated by permit.

MA-10c-03 **Access by motorized vehicles shall be limited to snowmobiles, trail bikes, and ORVs not greater than 42 inches in width.** The general area is open to off-road vehicles and mountain bikes.

SCENIC RESOURCES

MA-10c-04 **All design and implementation practices should be modified as necessary to meet the VQO of Retention. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Partial Retention.**

TIMBER MANAGEMENT

MA-10c-05 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions*)

FIRE MANAGEMENT

MA-10c-06 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Semiprimitive Motorized recreation values.**

LANDS

MA-10c-07 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-10c-08 **Utility corridors should not be located in this management area.**

MINERALS AND ENERGY

MA-10c-09 **Exploration and development access requirements, as well as operating plans, should include measures to protect or enhance effectiveness of the area to provide for Semiprimitive Motorized recreation.**

MA-10c-10 **Salable mineral spoils shall be excluded from this management area.**

Leases for oil, gas, or other leasable minerals may be granted following approval of the appropriate NEPA document.

FACILITIES

MA-10c-11 **Roads serving developed sites shall remain open.** All other existing roads are closed to motorized use and access, except off-road vehicles.

MA-10c-12 **No new roads shall be developed.** Off-road vehicle, mountain bike and cross-country ski trails may be developed.

MA-10c-13 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and nonnative materials may be used, but visual impacts should appear subtle to area users

MA-10c-14 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.** (See *Forest-wide S&Gs for Soil and Water Quality*).

MANAGEMENT AREA 10d

Emphasis: Dispersed Recreation
Semiprimitive Nonmotorized Use, 5% Timber Harvest

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a Semiprimitive Nonmotorized experience through the management of user activities and natural resource settings.
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through activities involving the application of outdoor skills in an environment that offers some challenge and risk
- Provide for the conservation of unique geographic, topographic, biological, and ecological processes.
- Provide for wood fiber production, watershed protection, scenic quality, and maintenance of wildlife habitats.

Desired Future Condition

The desired condition is an area which provides for a wide range of recreation opportunities where visitors can experience a high degree of isolation from the sights and sounds of human activity. The setting of this management area will be characterized by the natural landscape which may have been subtly modified but where alterations would not draw the attention of most users. Recreational use will vary by season but will generally remain light and user interaction will be infrequent. Activities associated with this area are exclusively nonmotorized in nature Specific activities are centered around non-consumptive use of land and water areas including hiking, camping, mountain climbing, nature study, mountain biking, fishing and hunting The area will also be managed to provide habitat for a wide range of plant and animal species Human activities will not interfere with natural processes involving the development of vegetation communities or the interactions of wildlife with its habitat. Timber harvest in this management area will occur at a rate of 5% of the suitable and available acres during the first 10 years following plan implementation. Access within and through the area will be limited to trails. Except as necessary to protect fragile resources, facilities will be limited to trail shelters or to meet sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape. The area will be managed to minimize the presence of on-site controls and use restrictions.

Description

This prescription applies to areas identified as providing Semiprimitive Nonmotorized recreation opportunities with programmed timber harvest.

Standards and Guidelines

PLANNING

MA-10d-01 **An Implementation Guide shall be prepared for each Semiprimitive Nonmotorized recreation area, describing the site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site. Site development plans will be prepared as part of the Implementation Guide, showing the design and location of proposed facilities.

RECREATION MANAGEMENT

MA-10d-02 **This management area shall be available for maximum use for a range of activities that provide Semiprimitive Nonmotorized ROS class experiences.**

MA-10d-03 **Group sizes, with any combination of people and livestock, should not exceed 25.** Larger groups may be accommodated by permit.

MA-10d-04 **Recreation stock should be held overnight outside the foreground viewing areas of lakes, streams, camp areas, and trails.**

MA-10d-05 **The general area shall be closed to off-road vehicles.** *Mountain bike use is* restricted to established trails and roads.

SCENIC RESOURCES

MA-10d-06 **All design and implementation practices should be modified as necessary to meet the VQO of Retention.**

TIMBER MANAGEMENT

MA-10d-07 **Scheduled even-aged timber harvest should not exceed 5% of the suitable and available area within the viewshed during the first 10 years following plan implementation.** Some variation is permitted when site specific conditions warrant different rotation lengths or silvicultural systems

MA-10d-08 **Maximum unit size for regeneration harvest should be 5 acres. Roadside zones in the major travel corridors should have a maximum unit size of 2 acres.** The preferred unit sizes are 3-5 acres in the general foreground.

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities *and maintenance of understory vegetation in roadside frontage zones, and transportation* planning and design decisions that affect route location, landform alterations, and road *structures.*

MA-10d-09 **Stumps should be flush cut.**

MA-10d-10 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload remove, hand pile/burn

MA-10d-11 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-10d-12 **Vegetation control in the roadside zones should employ hand methods of control.**

MA-10d-13 **Created openings in major travel corridors should not exceed 300 lineal feet/mile per side of the road within the management area.**

MA-10d-14 **Ten percent of the area should be maintained in an old-growth size/age class condition at all times.** Overstory trees maintained in the old-growth seral stage should exhibit diameter, bark texture, color, branching habit, height, and crown characteristics typical of each species type and growing site Other structural components of old growth may or may not be present

MA-10d-15 **A harvest unit should be considered a created opening until the regenerated stand is 10 to 15 feet in height. In lodgepole pine stands, a created opening exists until the regenerated stand is 4 1/2 feet in height.**

MA-10d-16 **The maximum area in created openings within a viewshed should not exceed 10 percent of the acres available and suited for timber harvest in the management area.** This will balance any previous harvest which exceeds the specified harvest rate/decade.

DIVERSITY

MA-10d-17 **All harvest units should retain at least 10 live, green trees per acre. These trees should be dominant/co-dominant conifers within the stand.** The objective will be to provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the management area.

FIRE MANAGEMENT

MA-10d-18 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Semiprimitive Nonmotorized recreation values.**

LANDS

MA-10d-19 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-10d-20 **Location of utility corridors shall be excluded in this management area.**

MINERALS AND ENERGY

MA-10d-21 **Exploration and development access requirements, as well as operating plans, should include measures to protect or enhance effectiveness of the area to provide for Semiprimitive Nonmotorized recreation.**

MA-10d-22 **Salable mineral spoils shall be excluded from this management area.**

Leases for oil, gas, or other leasable minerals may be granted following approval of the appropriate NEPA document.

FACILITIES

MA-10d-23 **Existing roads shall be closed to motorized use and access.** (See *Forest-wide S&Gs for Facilities, Road Closures.*)

MA-10d-24 **No new roads shall be developed.** New trails may be developed commensurate with management objectives established in individual Implementation Guides.

MA-10d-25 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and nonnative materials may be used, but visual impacts should appear subtle to area users.

MA-10d-26 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.** (See *Forest-wide S&Gs for Soil and Water Quality*).

MANAGEMENT AREA 10e

Emphasis: Dispersed Recreation
Semiprimitive Nonmotorized Use, No Timber Harvest

Management Goals

The goals of this management area are to:

- Provide a full spectrum of recreation opportunities meeting the criteria for a Semiprimitive Nonmotorized experience through the management of user activities and natural resource settings.
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through activities involving the application of outdoor skills in an environment that offers some challenge and risk.
- Provide for the conservation of unique geographic, topographic, biological, and ecological processes, as well as significant scenic, wildlife, recreation, and watershed values.

Desired Future Condition

The desired condition is an area which provides for a wide range of recreation opportunities where visitors can experience a high degree of isolation from the sights and sounds of human activity. The setting of this management area will be characterized by an environment where the natural landscape may have been subtly modified but where alterations would not draw the attention of most users. Recreational use will vary by season but will generally remain light and user interaction will be infrequent. Activities associated with this area are exclusively nonmotorized in nature. Specific activities are centered around nonconsumptive use of land and water areas including hiking, camping, mountain climbing, nature study, mountain biking, fishing and hunting. The area will also be managed to provide habitat for a wide range of plant and animal species. Human activities will not interfere with natural processes involving the development of vegetation communities or the interactions of wildlife with its habitat. Programmed timber harvest is not permitted within this management area Access within and through the area will be limited to trails and existing roads Except as necessary to protect fragile resources, facilities will be limited to trail shelters or to meet sanitary or safety needs. All will be simple in design and constructed with materials that blend with features of the natural landscape. The area will be managed to minimize the presence of on-site controls and use restrictions.

Description

This prescription applies to areas identified as providing Semiprimitive Nonmotorized recreation opportunities with no programmed timber harvest.

Standards and Guidelines

PLANNING

MA-10e-01 **An Implementation Guide shall be prepared for each Semiprimitive Nonmotorized recreation area describing site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site. Site development plans will be prepared as part of the Implementation Guide, *showing the design and location of proposed facilities.*

RECREATION MANAGEMENT

MA-10e-02 **This management area shall be available for maximum use for a range of activities that provide Semiprimitive Nonmotorized ROS class experiences.**

MA-10e-03 ***Group sizes, with any combination of people and livestock, should not exceed 25.*** Larger groups may be accommodated by permit.

MA-10e-04 **Recreation stock should be held overnight outside the foreground viewing areas of lakes, streams, camp areas, and trails.**

MA-10e-05 **The general area shall be closed to off-road vehicles.** Mountain bike use is *restricted to established trails and roads.*

SCENIC RESOURCES

MA-10e-06 **All design and implementation practices should be modified as necessary to meet the VQO of Preservation. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed *in a manner that seeks to achieve a VQO of Retention.***

TIMBER MANAGEMENT

MA-10e-07 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity (See *Forest-wide Standards for Changed Environmental Conditions.*)

FIRE MANAGEMENT

MA-10e-08 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on Semiprimitive Nonmotorized recreation values.**

LANDS

MA-10e-09 **Requests for special use permits shall be considered and may be issued for compatible uses.**

MA-10e-10 **Location of utility corridors shall be excluded in this management area.**

MINERALS AND ENERGY

MA-10e-11 **Exploration and development access requirements, as well as operating plans, should include measures to protect or enhance effectiveness of the area to provide for Semiprimitive Nonmotorized recreation.**

MA-10e-12 **Salable mineral spoils shall be excluded from this management area.**

Leases for oil, gas, or other leasable minerals may be granted following approval of the appropriate NEPA document

FACILITIES

MA-10e-13 **Existing roads shall be closed to motorized use and access.** (See *Forest-wide S&Gs for Facilities, Road Closures*)

MA-10e-14 **No new roads shall be developed.** New trails may be developed commensurate with management objectives established in individual Implementation Guides.

MA-10e-15 **Structures and improvements shall be provided to facilitate use, protect resource values, and aid administration.** These may include trail shelters, toilets, bridges, and culverts Dimensional and nonnative materials may be used, but visual effects should appear subtle to area users.

MA-10e-16 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.** (See *Forest-wide S&Gs for Soil and Water Quality*).

MANAGEMENT AREA 10f

Emphasis: Lakeside Areas - Wildlife Habitat and Recreation

Management Goals

The goals of this management area are to:

- Provide Roaded Natural recreation experiences through the management of user activities and natural resource settings.
- Maintain the diversity of wildlife habitats that are provided in the lakeside areas.

Desired Future Condition

The desired condition is a series of natural appearing settings around small nonwilderness lakes providing fish and wildlife habitat as well as recreation and angling opportunities. Recreational use will vary by season, with the highest concentration occurring in the summer months. Visitors will experience a moderate degree of isolation from the sights and sounds of human activity. Activities are limited to nonmotorized in areas that are currently undeveloped and nonconsumptive use of land and water areas including hiking, camping, nature study, and fishing. In areas where access and facilities do not currently exist, additional development will maintain or enhance the quality and diversity of wildlife habitat. In areas with existing access and other facilities, additional development such as trails, sanitation facilities, or interpretive signing, may be provided to enhance the recreation experience while protecting key wildlife values. Programmed timber harvest is not permitted within this management area. Access within and through the area will be limited to trails and existing roads. Structures will be simple in design and constructed with materials that blend with features of the natural landscape The area will be managed to minimize the presence of on-site controls and use restrictions.

Description

This prescription applies to the areas adjacent to small, nonwilderness lakes. The area within approximately 600 feet of the waterline is defined as a riparian area and the prescription for this area is found in Management Area 15 To the extent MA 10f direction is consistent with the direction of Management Area 15, the goals and objectives for this management area will be considered within the identified riparian area.

A list of fish-bearing lakes is included in Appendix E. The list describes the current level of access referred to in following S&Gs.

Standards and Guidelines

PLANNING

MA-10f-01 **An Implementation Guide shall be prepared for each identified nonwilderness lake, describing the site-specific management objectives, enhancement programs, and other acceptable uses and activities.** The extent of development within any area will be based on an analysis of the resource conditions and protection needs of the site If appropriate, site development plans will be prepared as part of the Implementation Guide, showing the design and location of proposed facilities.

RECREATION MANAGEMENT

MA-10f-02 **This management area shall provide for at least a ROS class of Roaded Natural ROS (except for size) or Semiprimitive Nonmotorized where size and adjacent land uses are compatible.**

MA-10f-03 **Group sizes, with any combination of people and livestock, should not exceed 12.** Larger groups may be accommodated by permit.

MA-10f-04 **Recreation stock should be held overnight outside the foreground viewing areas of lakes, streams, camp areas, and trails.**

MA-10f-05 **The general area shall be closed to off-road vehicles.** Mountain bike use is restricted to established trails and roads.

SCENIC RESOURCES

MA-10f-06 **All design and implementation practices should be modified as necessary to meet the VQO of Retention. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Partial Retention.**

WILDLIFE

MA-10f-07 **The habitat for primary cavity excavators shall be managed at 100% of the potential population level.** Individual trees may be felled where necessary for public safety. Scattered, felled trees will be left on site.

TIMBER MANAGEMENT

MA-10f-08 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions.*)

FIRE MANAGEMENT

MA-10f-09 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on wildlife and fish habitat and ROS class of the area.**

MA-10f-10 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

MA-10f-11 **Special use permits should only be issued for compatible uses.**

MA-10f-12 **Location of utility corridors shall be excluded in this management area.**

MINERALS AND ENERGY

MA-10f-13 **This area shall be recommended for withdrawal from geothermal and mineral entry.**

FACILITIES

MA-10f-14 **Additional trails should be provided only to lakes with existing, developed access.** New trails may be developed commensurate with management objectives established in individual Implementation Guides.

MA-10f-15 **Existing trails should be maintained at levels commensurate with experienced use.** Trail improvements will be designed to encourage users to remain on the existing trail and not to develop new routes.

MA-10f-16 **Existing roads shall be evaluated for compatibility with management area objectives and resource impacts. Access should be restricted if the evaluation *indicates problems such as overuse or adverse environmental effects.***

MA-10f-17 **No new roads shall be developed.**

MA-10f-18 **Structures and improvements should be provided to facilitate use, protect resource values and aid administration.** These may include trail shelters, toilets, bridges, and culverts. Dimensional and nonnative materials may be used, but visual impacts should appear subtle to area users.

MA-10f-19 **Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.**

MANAGEMENT AREA 11a

Emphasis: Scenic - Modification Middleground

Management Goal

The goal of this management area is to create and maintain desired visual characteristics of the forest landscape through time and space. Visually sensitive landscapes will be managed for a modest level of scenic quality This area will also be managed for other resource goals including timber production, recreation opportunities, watershed protection, and maintenance of wildlife habitats.

Desired Future Condition

These scenic areas will be managed to retain the natural features of the forest landscape Management activities will be conducted at a scale such that their visual characteristics are compatible with the natural surroundings. Although management activities may visually dominate the natural surroundings, alterations will borrow from established form, line, color, and texture elements of the original landscape. Unnatural features such as structures, roads, slash, and other developments will remain visually subordinate to the proposed composition.

Description

This prescription applies to Forest lands that are middle ground zones of visually sensitive landscapes viewed from major cross-Forest highways and travel routes, recreation use areas, and rivers. These are the most common public vistas. The scenic quality of these areas affects the recreational experience of those viewing it.

Standards and Guidelines

RECREATION MANAGEMENT

MA-11a-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Modified.**

SCENIC RESOURCES

MA-11a-02 **All design and implementation practices should be modified as necessary to meet the VQO of Modification.**

MA-11a-03 **Viewsheds should be studied to assess the existing visual condition of the area, and to determine the degree of future effect that may be permitted or the need for rehabilitation or enhancement under the Modification objective.**

TIMBER MANAGEMENT

MA-11a-04 **Scheduled even-aged timber harvest should not exceed 12% of the suitable and available land within this management area during the first 10 years following plan implementation.** Some variation is permitted when site specific conditions warrant different rotation lengths or silvicultural systems.

MA-11a-05 **Maximum size for even-aged regeneration harvest units should be 30 acres.** Unit sizes of 15-30 acres are preferred.

MA-11a-06 Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities, as well as transportation planning and design decisions that affect route location and structures.

MA-11a-07 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-11a-08 **A harvest unit shall be considered disturbed until the regenerated stand is 4.5 feet in height.**

MA-11a-09 **The maximum area in a disturbed condition should not exceed 24% of the acres available and suited for timber harvest in this management area.** This will balance any previous harvest which exceeds the specified harvest rate per decade.

MANAGEMENT AREA 11b

Emphasis: Scenic - Modification Foreground

Management Goal

The goal of this management area is to create and maintain desired visual characteristics of the forest landscape through time and space. Visually sensitive landscapes will be managed for a modest level of scenic quality. This area will also be managed for other resource goals including timber production, recreation opportunities, watershed protection, and maintenance of wildlife habitats.

Desired Future Condition

These scenic areas will be managed to retain the natural features of the forest landscape. Management activities will be conducted at a scale such that their visual characteristics are compatible with the natural surroundings. Although management activities may visually dominate the natural surroundings, alterations will borrow from established form, line, color, and texture elements of the original landscape. Structures, roads, slash, and other developments will remain visually subordinate to the proposed composition.

Description

This prescription applies to Forest lands that are foreground zones of moderately sensitive landscapes viewed from minor Forest travel routes and recreation use areas. These foreground zones are public vistas of moderate importance. The scenic quality of these areas may affect the recreational experience of those viewing it.

Standards and Guidelines

RECREATION MANAGEMENT

MA-11b-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Modified.**

SCENIC RESOURCES

MA-11b-02 **All design and implementation practices should be modified as necessary to meet or exceed the VQO of Modification.**

MA-11b-03 **Viewsheds should be studied to assess the existing visual condition of the area, and to determine the degree of future effect that may be permitted or the need for rehabilitation or enhancement under the Modification objective.**

TIMBER MANAGEMENT

MA-11b-04 **Scheduled even-aged timber harvest should not exceed 10% of the suitable and available land within the management area during the first 10 years following plan implementation.** Some variation is permitted when site specific conditions warrant different rotation lengths or silvicultural systems.

MA-11b-05 **Maximum size of even-aged regeneration harvest units should be 15 acres. Roadside frontage zones along collector and arterial roads should have a maximum unit size of 5 acres.** Unit sizes of 8-15 acres are preferred. In roadside frontage zones unit sizes of 3-5 acres are preferred.

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities, as well as *transportation planning and design decisions that affect route location and* road structures.

MA-11b-06 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-11b-07 **Created openings should not exceed 500 lineal feet per mile per side of a road.**

MA-11b-08 **Stumps should be flush cut.**

MA-11b-09 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload removal, hand pile/burn.

MA-11b-10 **Vegetation control in roadside frontage zones should employ hand treatment methods.**

MA-11b-11 **A harvest unit shall be considered disturbed until the regenerated stand is 8-10 feet in height. In lodgepole pine stands, a disturbed condition exists until the regenerated stand is 4.5 feet in height.**

MA-11b-12 **The maximum area in a disturbed condition should not exceed 20% of the acres available and suited for timber harvest in this management area.** This will balance any previous harvest which exceeds the specified harvest rate per decade.

MANAGEMENT AREA 11c

Empahsis: Scenic - Partial Retention Middleground

Management Goal

The goal of this management area is to create and maintain desired visual characteristics of the forest landscape through time and space Visually sensitive landscapes will be managed for a moderate level of scenic quality. This area will also be managed for other resource goals including timber production, recreation opportunities, watershed protection, and maintenance of wildlife habitats.

Desired Future Condition

These scenic areas will be managed to maintain a near natural setting However, forest management activities will be noticeable in the middle and background zones as viewed from major travel routes and recreation sites. Resource treatments will be conducted in such a way that they are visually subordinate to the characteristic landscape Alterations will remain subordinate by repeating the form, line, color and texture elements which are characteristic of the landscape Visual contrast will be minimized through shape, edge effect, scale, and distribution of resource treatments.

Description

This prescription applies to Forest lands that are middle ground zones of visually sensitive landscapes viewed from major cross-Forest highways and travel routes, recreation use areas, and rivers. These are some of the most common public vistas The scenic quality of these areas may affect the recreational experience of those viewing it

Standards and Guidelines

RECREATION MANAGEMENT

MA-11c-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

SCENIC RESOURCES

MA-11c-02 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention.**

MA-11c-03 **Viewsheds should be studied to assess the existing visual condition of the area, and to determine the degree of future effect that may be permitted or the need for rehabilitation or enhancement under the Partial Retention objective.**

TIMBER MANAGEMENT

MA-11c-04 **Scheduled even-aged timber harvest should not exceed 10% of the suitable and available lands within the management area during the first 10 years following Forest Plan implementation.** Some variation is permitted when site specific conditions warrant different rotation lengths or silvicultural systems.

MA-11c-05 **Maximum size of even-aged regeneration harvest units should be 15 acres.** Unit sizes of 10-15 acres are preferred.

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities, as well as transportation planning and design decisions that affect route location and road structure.

MA-11c-06 **Regeneration stock protection devices and pest management devices should blend with the natural surroundings.**

MA-11c-07 **A harvest unit should be considered disturbed until the regenerated stand is 15-20 feet in height. In lodgepole pine stands, a disturbed condition exists until the regenerated stand is 4.5 feet in height.**

MA-11c-08 **The maximum area in a disturbed condition should not exceed 20% of the acres available and suited for timber harvest in this management area.** This standard is designed to balance any previous harvest which exceeds the specified harvest rate per decade.

MANAGEMENT AREA 11d

Emphasis: Scenic - Partial Retention Foreground

Management Goal

The goal of this management area is to create and maintain desired visual characteristics of the forest landscape through time and space. Visually sensitive landscapes will be managed for a moderate level of scenic quality. This area will also be managed for other resource goals including maintenance of wildlife habitats, recreation opportunities, watershed protection, and timber production.

Desired Future Condition

These scenic areas will be managed to maintain a near natural setting. Although management activities will be noticeable, they will remain subordinate when viewed in foreground zones along major travel routes and recreation sites Resource treatments will be conducted in such a way that they are visually subordinate to the characteristic landscape. Alterations will remain subordinate by repeating form, line, color and texture elements which are characteristic of the landscape. Visual contrast will be minimized through the shape, edge effect, scale, and distribution of resource treatments.

Description

This prescription applies to Forest lands that are foreground zones of visually sensitive landscapes viewed from major cross-Forest highways and travel routes, recreation use areas, and rivers. These are the most common public vistas The scenic quality of these areas may affect the recreational experience of those viewing it.

Standards and Guidelines

RECREATION MANAGEMENT

MA-11d-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

SCENIC RESOURCES

MA-11d-02 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention.**

MA-11d-03 **Viewsheds should be studied to assess the existing visual condition of the area, and to determine the degree of future effect that may be permitted or the need for rehabilitation or enhancement under the Partial Retention objective.**

WILDLIFE MANAGEMENT

MA-11d-04 **Management activities shall consider the habitat requirements of ecological indicators for mature and old-growth forests.** Landscape patterns which provide adequate amounts and quality of suitable habitat within the management area will maintain or enhance the habitat capability for wildlife species associated with mature and old-growth forest ecosystems.

MA-11d-05 **Timber harvest within managed PWHAs in MA 11 should be scheduled to maintain at least 300 contiguous acres of suitable nesting habitat. Refer to MA 9b for additional direction.**

MA-11d-06 **Timber harvests within the managed MHAs in MA 11 should be scheduled to maintain at least 160 contiguous acres of denning habitat. Refer to MA 9c for additional direction.**

TIMBER MANAGEMENT

MA-11d-07 **Scheduled even-aged timber harvest should not exceed 7% of the suitable and available land within the management area during the first 10 years following Forest Plan implementation.** Some variation is permitted if silvicultural systems such as uneven-aged management or individual tree selection are applied.

MA-11d-08 **Maximum size of even-aged regeneration harvest units should be 8 acres. Roadside frontage zones in the major travel corridors should have a maximum unit size of 3 acres.** The preferred unit sizes are 5-8 acres in the general foreground and 2-3 acres in the roadside frontage zone.

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities and maintenance of understory vegetation in road frontage zones and transportation planning and design decisions that affect route location, landform alterations, and road structures.

MA-11d-09 **Created openings in major travel corridors should not exceed 300 lineal feet/mile per side of the road.**

MA-11d-10 **Stumps should be flush cut.**

MA-11d-11 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload/remove, hand pile/burn.

MA-11d-12 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-11d-13 **Vegetation control in roadside frontage zones should employ hand control methods.**

MA-11d-14 **Seven percent of the area should be maintained in an old-growth size/age class condition at all times. Overstory trees maintained in the old-growth seral stage should exhibit diameter, bark texture, color, branching habit, height, and crown characteristics typical of each species type and growing site.** Other structural components of old-growth may or may not be present.

MA-11d-15 **A harvest unit shall be considered disturbed until the regenerated stand is 10-15 feet in height. In lodgepole pine stands, a disturbed condition exists until the regenerated stand is 4.5 feet in height.**

MA-11d-16 **The maximum area in a disturbed condition should not exceed 14% of the acres available and suited for timber harvest in this management area.** This will balance any previous harvest which exceeds the specified harvest rate per decade.

DIVERSITY

MA-11d-17 **All harvest units should retain at least 10 live, green trees per acre. These trees should be dominant or co-dominant conifers within the stand.** The objective is to provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the management area.

MANAGEMENT AREA 11e

Emphasis: Scenic - Retention Middleground

Management Goal

The goal of this management area is to create and maintain desired visual characteristics of the forest landscape through time and space. Visually sensitive landscapes will be managed for a high level of scenic quality. This area may be managed for other resource goals including maintenance of wildlife habitats, recreation opportunities, watershed protection, and timber production.

Desired Future Condition

The Forest's visually sensitive travel corridors will be managed to maintain a natural or near natural setting. Multiple use activities will be conducted in such a way that they are completely subordinate to the character of the natural landscape and not evident to the casual Forest visitor. Unusual landscape features with distinctive variety in form, line, color and texture will be retained and perpetuated. Important individual landscape elements will be retained to meet forest user expectations. These elements include: large trees, distinctive bark, spring and fall color, shrubs and ground cover, and a variety of tree species having age class diversity.

Landscapes are dynamic and even those areas of high aesthetic value may require some management activity to retain their valued character. Manipulations to forest vegetation, geologic formations and soil layers may be employed to accomplish this. These manipulations will repeat the form, line, color, and texture elements which are commonly found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, and pattern will not be evident to the casual observer. The desired forest character will be maintained in an attractive sequential arrangement through time and space.

Description

This prescription applies to Forest lands that are middleground zones of visually sensitive landscapes viewed from major cross-Forest highways and travel routes, recreation use areas, and rivers. These are the most common public vistas. The scenic quality of these areas may affect the recreational experience of those viewing it.

Standards and Guidelines

RECREATION MANAGEMENT

MA-11e-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

SCENIC RESOURCES

MA-11e-02 **All design and implementation practices should be modified as necessary to meet the VQO of Retention.**

MA-11e-03 **Viewsheds should be studied to assess the existing visual condition of the area, and to determine the degree of future effect that may be permitted or the need for rehabilitation or enhancement under the Retention objective.**

WILDLIFE MANAGEMENT

MA-11e-04 **Management activities shall consider the habitat requirements of ecological indicators for mature and old-growth forests.** Landscape patterns which provide adequate amounts and quality of suitable habitat within the management area will maintain or enhance the habitat capability for wildlife species associated with mature and old-growth forest ecosystems.

MA-11e-05 **Timber harvest within managed PWHAs in MA 11 should be scheduled to maintain at least 300 contiguous acres of suitable nesting habitat. Refer to MA 9b for additional direction.**

MA-11e-06 **Timber harvests within the managed MHAs in MA 11 should be scheduled to maintain at least 160 contiguous acres of denning habitat. Refer to MA 9c for additional direction.**

TIMBER MANAGEMENT

MA-11e-07 **Scheduled even-aged timber harvest should not exceed 7% of the suitable and available land within the management area during the first 10 years following Forest Plan implementation.** Some variation is permitted if silvicultural systems such as uneven-aged management or individual tree selection are applied.

MA-11e-08 **Maximum size of even-aged regeneration harvest units should be 10 acres for oblique views and 3 acres for direct frontal views. Under special conditions, complete removal of vegetative cover over a whole landform is acceptable provided the size of the treatment area is in scale with the characteristic landscape.** Unit sizes of 5-10 acres for oblique views and 1-3 acres for frontal views are preferred.

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities, as well as transportation planning and design decisions that affect route location, landform alterations, and road structures.

MA-11e-09 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-11e-10 **A harvest unit shall be considered disturbed until the regenerated stand is 15-20 feet in height. In lodgepole pine stands, a disturbed condition exists until the regenerated stand is 4.5 feet in height.**

MA-11e-11 **The maximum area in a disturbed condition should not exceed 14% of the acres available and suited for timber harvest in this management area.** *This* will balance any previous harvest which exceeds the specified harvest rate per decade.

DIVERSITY

MA-11e-12 **All harvest units should retain at least 10 live, green trees per acre. These trees should be dominant or co-dominant conifers within the stand.** The objective is to provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the management area.

MANAGEMENT AREA 11f

Emphasis: Scenic - Retention Foreground

Management Goal

The goal of this management area is to create and maintain desired visual characteristics of the forest landscape through time and space. Visually sensitive landscapes will be managed for a high visual quality. This area may be managed for other resource goals including maintenance of wildlife habitats, recreation opportunities, watershed protection, and timber production.

Desired Future Condition

The Forest's visually sensitive travel corridors will be managed to maintain a natural or near natural setting. Activities will be conducted in such a way that they are completely subordinate to the character of the natural landscape and not evident to the casual Forest visitor. Unusual landscape features with distinctive variety in form, line, color and texture will be retained and perpetuated. Important individual landscape elements will be retained to meet forest user expectations. These elements include: large trees, distinctive bark, spring and fall color, shrubs and ground cover, and a variety of tree species having age class diversity.

Landscapes are dynamic and even those areas of high aesthetic value may require some management activity to retain their valued character. Manipulations to forest vegetation, geologic formations and soil layers may be employed to accomplish this. These manipulations will repeat the form, line, color, and texture elements which are commonly found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, and pattern will not be evident to the casual observer. The desired forest character will be maintained in an attractive sequential arrangement through time and space.

Description

This prescription applies to Forest lands that are foreground zones of visually sensitive landscapes viewed from major cross-Forest highways and travel routes, recreation use areas, and rivers. These are the most common public vistas. The scenic quality of these areas may affect the recreational experience of those viewing it.

Standards and Guidelines

RECREATION MANAGEMENT

MA-11f-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

SCENIC RESOURCES

MA-11f-02 **All design and implementation practices should be modified as necessary to meet the VQO of Retention.**

MA-11f-03 **Viewsheds should be studied to assess the existing visual condition of the area, and to determine the degree of future effect that may be permitted or the need for rehabilitation or enhancement under the Retention objective.**

WILDLIFE MANAGEMENT

MA-11f-04 **Management activities shall consider the habitat requirements of ecological indicators for mature and old growth forests.** Landscape patterns which provide adequate amounts and quality of suitable habitat within the management area will maintain or enhance the habitat capability for wildlife species associated with mature and old growth forest ecosystems.

MA-11f-05 **Timber harvest within managed PWHAs in MA 11 should be scheduled to maintain at least 300 contiguous acres of suitable nesting habitat. Refer to MA 9b for additional direction.**

MA-11f-06 **Timber harvests within the managed MHAs in MA 11 should be scheduled to maintain at least 160 contiguous acres of denning habitat. Refer to MA 9c for additional direction.**

TIMBER MANAGEMENT

MA-11f-07 **Scheduled even-aged timber harvest should not exceed 5% of the suitable and available land within the management area during the first 10 years following Forest Plan implementation.** Some variation is permitted if silvicultural systems such as uneven-aged management or individual tree selection are applied.

MA-11f-08 **Maximum unit size for even-aged regeneration harvest should be 5 acres. Roadside zones in the major travel corridors should have a maximum unit size of 2 acres.**

Minimize contrast in form, line, color, and texture with the characteristic landscape through manipulation of edge, shape, scale, and distribution of treatment activities and maintenance of understory vegetation in roadside frontage zones, and transportation planning and design decisions that affect route location, landform alterations, and road structures.

MA-11f-09 **Stumps should be flush cut.**

MA-11f-10 **Visible landings should be reshaped to blend with the landscape and ground cover should be established.**

Preferred slash disposal methods include chip/disperse, chip/remove, truckload remove, hand pile/burn.

MA-11f-11 **Regeneration stock protective devices and pest management devices should blend with the natural surroundings.**

MA-11f-12 **Vegetation control should employ hand-treatment methods in roadside zones.**

MA-11f-13 **Created openings in major travel corridors should not exceed 300 lineal feet/mile per side of the road.**

MA-11f-14 **Ten percent of the area should be maintained in an old-growth size/age class condition at all times. Overstory trees maintained in the old-growth seral stage should exhibit diameter, bark texture, color, branching habit, height, and crown characteristics typical of each species type and growing site.** Other structural components of old growth may or may not be present.

MA-11f-15 **A harvest unit shall be considered disturbed until the regenerated stand is 10-15 feet in height. In lodgepole pine stands, a disturbed condition exists until the regenerated stand is 4.5 feet in height.**

MA-11f-16 **The maximum area in a disturbed condition should not exceed 10% of the acres available and suited for timber harvest in the management area.** This will balance any previous harvest which exceeds the specified harvest rate per decade

DIVERSITY

MA-11f-17 **All harvest units should retain at least 10 live, green trees per acre. These trees should be dominant or co-dominant conifers within the stand.** The objective is to provide significant amounts of remnant vegetative structure from the harvested stand to maintain the dispersal and connective corridor values within the management area.

MANAGEMENT AREA 12a

Emphasis: Developed Recreation Sites

Management Goals

The primary goals of this management area are to:

- Provide a safe, healthful, aesthetic, nonurban atmosphere for the pursuit of natural resource based recreation.
- Provide facilities and improvements, consistent with resource protection needs and anticipated user demand, where opportunities for meaningful recreation experiences exist.

Desired Future Condition

The desired future condition is a variety of forest settings providing a range of recreation opportunities dependent on developed facilities. Development will include campgrounds, picnic areas, visitor centers, scenic overlooks, boat ramps, swimming areas, parking lots, and access roads. Facilities will be subordinate to the focal attraction and will appear as natural, simple, and unobtrusive as possible. Use and occupancy will be regulated to protect natural resources and to ensure safe, enjoyable recreation experiences. Future development will be based on user demand patterns and specific site suitability. Improvements will be designed to complement existing area developments and to expand the Forest's capacity to accommodate additional use.

Description

This prescription applies to existing developed recreation sites and proposed development areas listed in the Resource Summary section of Chapter IV.

Standards and Guidelines

OPERATION AND MAINTENANCE

MA-12a-01 **An operation and maintenance plan shall be prepared and updated annually for all sites.**

MA-12a-02 **Each site shall be inspected annually and all known safety hazards should be eliminated to the extent practicable.**

MA-12a-03 **Personnel who perform operation and maintenance (O&M) functions should be familiar with O&M service levels of O&M plans. Cleaning should be performed regularly to ensure that sites are clean and sanitary, free of litter, and neat in appearance.** (See *USDA Handbook Cleaning Recreation Sites.*)

MA-12a-04 **Site improvements should be maintained to their design standards with priority given to health and safety related items.**

MA-12a-05 **Potable water sources shall be operated and maintained in accord with FSM 7420 and federal, state, and local regulations.** Water supply systems will be closed if testing indicates a hazard to human health.

MA-12a-06 **Vaults, septic tanks, and waste-water systems shall be inspected at regular intervals to ensure proper operation. Any system deemed dysfunctional or threatening to human health, wildlife, or water sources shall be closed or repaired.**

MA-12a-07 **Garbage disposal should be accomplished at intervals sufficient to minimize odors, prevent pollution of water supplies, and avoid attracting disease spreading insects and rodents.**

RECREATION MANAGEMENT

MA-12a-08 **The physical setting for this management area shall meet the criteria for several ROS classes ranging from Roaded Natural to Semiprimitive Nonmotorized depending on the location and the degree of development.**

MA-12a-09 **The general area shall be closed to off-road vehicle use.**

MA-12a-10 **Occupancy and use shall be regulated to the extent necessary to protect the resources, and to ensure safe, enjoyable recreation experiences for the maximum number of visitors at the experience level for which the sites were designed.** Regulations contained in 36 CFR 261 will be utilized as necessary to ensure full public enjoyment of recreation sites.

MA-12a-11 **Fees shall be collected for those sites that meet LWCFA fee site designation criteria.** Clearly notify the public of the conditions of occupancy and use of recreation sites.

MA-12a-12 **Periodic patrols and site supervision should be provided where appropriate.** Volunteer hosts may be used in some situations.

SCENIC RESOURCES

MA-12a-13 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention.**

SOIL, WATER AND AIR QUALITY

MA-12a-14 **Soil compaction should not exceed established limits except as necessary to accommodate development or rehabilitation of sites.** (See *Forest-wide Standards and Guidelines for Soil and Water Quality*).

MA-12a-15 **Rehabilitation shall conform to the approved site plan.**

TIMBER MANAGEMENT

MA-12a-16 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-12a-17 **Vegetation removal shall be limited to the protection of area values, health and safety, and the preparation of the site for rehabilitation or future development.**

FIRE MANAGEMENT

MA-12a-18 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on developed recreation values.**

MA-12a-19 **Fires should be suppressed at the lowest acreage practicable.**

LANDS

MA-12a-20 **Developed sites should not be available for other uses provided by special permit.** Exceptions may be made for short-term uses such as weddings, reunions, and special services related to the administration, operation, and maintenance of sites.

MINERALS AND ENERGY

MA-12a-21 **Sites not previously withdrawn shall be recommended for withdrawal from mineral entry.**

MA-12a-22 **Removal of common variety minerals shall be prohibited.**

MA-12a-23 **Applications for leasable minerals shall be recommended for denial.**

FACILITIES

MA-12a-24 **New trails and roads may be developed and shall be commensurate with management objectives established in the site plan.**

MANAGEMENT AREA 12b

Emphasis: Developed Recreation - Special Use Sites

Management Goals

The primary goals of this management area are to:

- Provide a safe, healthful, aesthetic, nonurban atmosphere for the pursuit of natural resource based recreation consistent with resource protection needs and anticipated user demand.
- Where opportunities for meaningful recreation experiences exist, provide facilities and services according to the terms of individual special use agreements with private individuals or organizations.

Desired Future Condition

The desired future condition is a variety of developed recreation facilities provided by private concessionaires within a forested setting Developed recreation opportunities will center around winter sports sites, summer homes, organization camps, resorts, and lodges New facilities will be subordinate to the focal attraction and will appear natural, simple, and unobtrusive as possible. Some existing developments, such as ski areas or resorts, may appear dominant in the natural landscape when viewed from certain locations. Use and occupancy will be regulated according to the terms of the special use agreement to protect natural resources and to ensure safe, enjoyable recreation experiences Future development will be based on user demand patterns and specific site suitability. Improvements will be designed to complement existing area developments and to expand the Forest's capacity to accommodate additional use.

Description

This prescription applies to existing and proposed developed recreation sites managed under special use permit.

Standards and Guidelines

ADMINISTRATION AND PLANNING

MA-12b-01 **A comprehensive and detailed site plan shall be developed prior to site improvement in accord with requirements specified in FSM 2337.**

MA-12b-02 **Site plans shall show the specific location and design of all facilities and shall provide for the appropiate utilization of the site, control of traffic, public safety, sanitation, site protection, fire safety, grading, landscape planting, and use distribution.**

MA-12b-03 **All plans and specifications for site development and operations authorized by a special use permit shall conform to building code requirements of the Forest Service, State and local governments.**

MA-12b-04 **Privately financed developments shall be administered to ensure that the terms of the special use permit are being satisfied.** In particular ensure that the character of the site is protected, public health and safety are safeguarded, and public services are being provided satisfactorily and at reasonable rates.

MA-12b-05 **Forest Service owned developments operated by concessionaires shall be inspected regularly to ensure that improvements are being maintained adequately and used according to the terms of the special use permit.**

RECREATION MANAGEMENT

MA-12b-06 **The physical setting for this management area shall meet the criteria for several ROS classes ranging from Roaded Natural to Semiprimitive Nonmotorized depending on the location and the degree of development.**

MA-12b-07 **The general area shall be closed to off-road vehicle use.**

SCENIC RESOURCES

MA-12b-08 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention.**

SOIL, WATER AND AIR QUALITY

MA-12b-09 **Soil compaction should not exceed established limits except as necessary to accommodate development of sites.** (See *Forest-wide Standards and Guidelines for Soil and Water Quality.*)

TIMBER MANAGEMENT

MA-12b-10 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses or for public safety may be permitted. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-12b-11 **Harvest activities shall be limited to the protection of area values, health and safety, and to achieve the objectives of the permit.**

FIRE MANAGEMENT

MA-12b-12 **Suppression strategies, practices and activities shall be limited to those which have minimal effects on recreation values.**

MA-12b-13 **Fires should be suppressed at the lowest acreage practicable.**

MINERALS AND ENERGY

MA-12b-14 **Sites not previously withdrawn shall be recommended for withdrawal from mineral entry.**

MA-12b-15 **Removal of common variety minerals shall be prohibited.**

MA-12b-16 **Applications for leasable minerals shall be recommended for denial.**

FACILITIES

MA-12b-17 **New trails and roads may be developed and shall be commensurate with management objectives established in the site plan.**

MA-12b-18 **New structures should be designed to protect resource values such as soil, water quality, vegetation and scenic quality.**

MANAGEMENT AREA 13a

Emphasis: Special Use Permit Areas

Management Goals

The primary goals of this management area are to:

- Provide safe and efficient sites for permitted facilities and improvements to promote the public welfare in an environmentally sound manner.
- Maximize consistency of permitted uses with surrounding land uses.

Desired Future Condition

The desired future condition is a pattern of special uses established to provide services in the public interest in a manner that reflects environmental sensitivity to other resource values. Examples of such special uses include railroad and State highway rights-of-way, communication towers, and power transmission lines. These general types of uses are recognized as fulfilling special needs for public convenience. Due to the nature of these uses and the geographic and topographic nature of the Forest, occupancy of Forest land is necessary for the uses to be effective. The granting of these uses and the conditions under which they allowed take into account the environmental requirements not only of the specific site, but of the goals governing other management areas which might be affected by the operation of the special uses. Valid, existing rights are honored. As opportunities arise to modify the terms and conditions of the existing permits, each special use is analyzed for its environmental effects and appropriate modifications are made. As valid, existing permits expire, or as new ones are proposed, first effort is made to utilize existing sites in ways compatible with previous uses. New types of uses or uses proposed for new sites are examined with strong sensitivity to use and site suitability.

Description

This prescription applies to existing developed special use sites and proposed development areas listed in the Resource Summary section of Chapter IV.

Standards and Guidelines

ISSUANCE

MA-13a-01 **Existing permits shall be reviewed and revised as soon as practicable to conform with this Forest Plan, subject to valid, existing rights.** This may include renewals or assignments of existing permits where the activity is not considered issuance of a new permit.

MA-13a-02 **Upon application for new permits or the expiration of existing ones, permits shall not be issued or reissued until appropriate site specific analysis is**

conducted. This analysis will consider the nature of the proposed use and its effects on other resource values, as well as the practicability of location at the existing site and lands adjacent to them. This analysis may consider the continuing utility of the proposed use to the public welfare, such the effects of changes in technology.

OPERATION AND MAINTENANCE

MA-13a-03 **An operation and maintenance plan shall be prepared and updated according to the terms of existing permits for all sites. If no terms apply, then the operation and maintenance plan shall be prepared and updated annually.**

MA-13a-04 **Each site shall be inspected and all known safety hazards should be eliminated to the extent practicable according to the terms of existing permits for all sites. If no terms apply, then these activities shall occur annually.**

SCENIC RESOURCES

MA-13a-05 **The VQO for each site should consider the visual sensitivity of adjacent management areas.**

TIMBER MANAGEMENT

MA-13a-06 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses or public safety may be permitted after appropriate site specific analysis. (See *Forest-wide Standards for Changed Environmental Conditions.*)

MA-13a-07 **Vegetation removal shall be limited to supporting the functional requirements of the special use, protection of area values, health and safety, and the preparation of the site for rehabilitation or future development.**

LANDS

MA-13a-08 **Developed sites should not be available for other uses incompatible with valid existing rights provided by special permit.** Exceptions may be made for emergency uses which are normally included as permit conditions.

MANAGEMENT AREA 13b

Emphasis: Administrative Use Sites

Management Goals

The primary goals of this management area are to:

- Provide safe, adequate administrative facilities from which to accomplish land and resource management and protection objectives.
- Locate and design administrative facilities in a manner consistent with public needs and to the extent feasible compatible with management area allocations of the occupied site.

Desired Future Condition

The desired future condition is a variety of administrative facilities which promote the efficient and effective accomplishment of land and resource management and protection objectives, including appropriate public access. Administrative facilities are designed and located to be functionally efficient and effective for accomplishing the purposes for which established. To the extent practicable, facilities are constructed consistent with the standards established by local building codes and accessible by the physically challenged; but primitive location or function may at times preclude this (e.g. lookouts). Design and location consider the extent to which public use may reasonably be anticipated. Administrative facilities are as compatible as possible with the management area allocations of the occupied site.

Description

This prescription applies to administrative sites such as Ranger District compounds with associated warehouses and service buildings, lookouts, guard stations, and seed orchards.

Standards and Guidelines

DESIGN AND LOCATION

MA-13b-01 **Design and siting considerations shall include: the proposed purpose of the administrative facility; extent and nature of anticipated public use of the facility; access by the physically challenged; cost efficiency; remodeling or renovating existing sites; local building code requirements; fire safety considerations such as maintenance of green strips and installation of fire resistant roofs; and the goals of the management area that will be adjacent to the facility once the facility is sited.** Generally, the more physically remote and the more specialized the purpose of the facility, the less need there is for the full range of amenities and service.

OPERATION AND MAINTENANCE

MA-13b-02 **An operation and maintenance plan shall be prepared and updated annually for all sites.**

MA-13b-03 **Each site shall be inspected annually and all known safety hazards should be eliminated to the extent practical.**

MA-13b-04 **Personnel who perform operation and maintenance (O&M) functions should be familiar with O&M service levels of O&M plans. Cleaning should be performed regularly to ensure that sites are clean and sanitary, free of litter, and neat in appearance.**

MA-13b-05 **Site improvements should be maintained to their design standards with priority given to health and safety-related items.**

MA-13b-06 **Potable water sources shall be operated and maintained in accord with FSM 7420 and Federal, State, and local regulations if provided at the facility.** Water supply systems will be closed if testing indicates a hazard to human health.

MA-13b-07 **Vaults, septic tanks, and waste-water systems shall be inspected at regular intervals to ensure proper operation. Any system deemed dysfunctional or threatening to human health, wildlife, or water sources shall be closed or repaired.**

MA-13b-08 **Garbage disposal should be accomplished at intervals sufficient to minimize odors, prevent pollution of water supplies, and avoid attracting disease spreading insects and rodents.**

SCENIC RESOURCES

MA-13b-09 **All design and implementation practices should meet the VQO of the management area hosting the administrative facility to the extent practicable.** Specific sites may require a higher VQO to meet specific site objectives or to be compatible with adjacent allocations.

TIMBER MANAGEMENT

MA-13b-10 **No programmed harvest shall be scheduled.** Unregulated harvest for the purpose of public safety may be permitted after appropriate site specific analysis. (See *Forest-wide Standards for Changed Environmental Conditions*.)

MA-13b-11 **Vegetation removal shall be limited to the protection of area values, health and safety, and the preparation of the site for rehabilitation or future development.**

FIRE MANAGEMENT

MA-13b-12 **Suppression strategies, practices, and activities shall take into account public and firefighter safety, the relative value of the structure and its likely contents, and the objectives of the adjacent management area.**

MINERALS AND ENERGY

MA-13b-13 **Sites not previously withdrawn shall be recommended for withdrawal from mineral entry.**

MA-13b-14 **Removal of common variety minerals shall be prohibited.**

MA-13b-15 **Applications for leasable minerals shall be recommended for denial.**

MANAGEMENT AREA 14a

Emphasis: General Forest

Management Goal

The primary goal is to produce an optimum and sustainable yield of timber based on the growth potential of the land that is compatible with multiple use objectives and meets environmental requirements for soil, water, air and wildlife habitat quality In addition this area can provide many opportunities for public use and enjoyment.

Desired Future Condition

The landscape will be a patchwork of age classes and species of trees. On lands suitable for timber production, timber will be available for sale on a nondeclining even-flow basis. There will be an orderly transition from the naturally occurring mature forest to a regulated forest with a balance of acres in each age group up to approximately 80 years old. This transition will take place over several decades as plantations progress through the various ages with new plantations created through the orderly harvesting of a portion of the mature stands in each decade. Most of the existing plantations are 1-30 years old; the progression to a regulated forest will proceed over the next 50-60 years, or longer.

Young stands will be managed to maintain vigor and growth using stand treatments such as reforestation with genetically selected stock, fertilization, precommercial and commercial thinning, and protection from insects, disease and damage. Stands of various conifer species will predominate depending on growing sites; although the natural variety of hardwoods, shrubs and forbs will continue to be components of the ecosystem with fluctuations occurring as stands progress through the seral stages. Managed stands will generally consist of a well-stocked understory with a scattered mix of large snags and green replacement trees. Large woody debris will be left on the ground to provide habitat and maintain long-term soil productivity. After about 60 years these large trees will be gone and replacement snags will come from within the stands. The overall appearance will become more uniform towards the end of the rotation.

The developed road system will provide the access necessary to harvest timber, transport the logs, and tend stands of growing trees. New construction and reconstruction will be planned at the lowest practicable mileage and standard required to provide for efficient transportation of goods, safety of users, and the least effect on resource values. Maintenance of these roads will be based on these same considerations. Some of this road system will be in a low-maintenance state with no vehicle traffic planned to protect watershed conditions, provide for wildlife needs, and control costs.

Description

This Management Area consists of forested lands, physically suited for growing commercial tree crops and production of multiple uses such as timber, wildlife habitats, water quality, soil productivity, recreation, Forest access, and cultural sites.

Standards and Guidelines

RECREATION MANAGEMENT

MA-14a-01 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Modified.**

SCENIC RESOURCES

MA-14a-02 **All design and implementation practices should be modified as necessary to meet or exceed the VQO of Maximum Modification.**

TIMBER MANAGEMENT

Direction for silvicultural treatment is outlined in the *Forest-wide Standards and Guidelines for Timber Management.* In addition, the following standards and guidelines apply to suitable lands within this management area.

Several management prescriptions are applicable to Management Area 14. Each prescription represents a specific set of practices or treatments which are responsive to individual site capabilities and stand conditions They are described in narrative form and graphically in the matrix that follows:

MA-14a-03 **T-1 *Minimum* Investment** - These prescriptions apply to existing, immature,unmanaged stands that are beyond the age or condition where precommercial thinning is appropriate:

- ***T-1a*** This prescription is intended for use where cultural treatments cannot be accomplished economically or with existing technology. No cultural treatments are planned before final harvest.
- ***T-1b*** These stands are accessible for, and will be commercially thinned, but have no other planned treatments before final harvest.
- ***T-1c*** These stands will be fertilized and commercially thinned before final harvest.

MA-14a-04 **T-2 Moderate Investment** - These prescriptions are intended for use where only precommercial thinning and final harvest are planned. Commercial thinning cannot be accomplished economically or with existing technology. Illustrations of where this prescription will apply are: areas far enough removed from roads that they cannot be commercially thinned by small cable systems necessary for small log handling; areas where other resource values preclude commercial entry; and remote units originally logged by aerial systems. There is an opportunity to use fertilizer on soil types that show a good response.

- ***T-2a*** Fertilization is not an option due to a stand composition less than 60% Douglas fir.
- ***T-2b*** These sites will be fertilized.

MA-14a-05 **T-3 Full Stocking Level Control:** This prescription applies to stands with less than 60% Douglas fir where fertilizer will not be applied. This intensity is planned to maximize timber production without fertilizer. The area must be accessible for precommercial and commercial thinning as well as other cultural work.

MA-14a-06 **T-4 High Investment:** This prescription is intended to obtain the optimum timber production possible on an individual acre. Every available applicable treatment should be used to increase timber production without violating established standards for other resources or legal requirements. This management prescription applies to stands with a composition of greater than 60% Douglas fir

Table IV-40 Treatments By Timber Intensity

Prescription Matrix							
Cultural Treatment	**T1-a[2]**	**T1-b[2]**	**T1-c[2]**	**T2-a**	**T2-b**	**T3**	**T4**
Regeneration[1]				X	X	X	X
Pest Management (Survival)	X	X	X	X	X	X	X
Pest Management(Growth)				X	X	X	X
Site Prep Maximum Stocking				X	X	X	X
Precommercial Thinning				X	X	X	X
Fertilization			X		X		X
Commercial Thinning		X	X			X	X

[1]Natural regeneration is an option
[2]Existing natural stands.

REGENERATION

MA-14a-07 **Planting with genetically-selected stock should be the preferred method in order to meet the 5-year regeneration period requirement.** Natural regeneration *may be considered A variety of cultural practices will be used to ensure establishment,* considering cost and effectiveness Desirable stocking level is 250-415 trees per acre at 5 years.

PEST MANAGEMENT

MA-14a-08 **All legally available methods may be used, considering cost and effectiveness.** The use of traps, EPA registered pesticides, and animal repellents to protect plantations against pocket gophers, mountain beavers, porcupines, and deer may occur. If insect epidemics threaten, biological as well as chemical control methods may be used.

MA-14a-09 **All plantations that need release from competing vegetation should be evaluated for treatment (See *Pacific Northwest Region's EIS for Managing Competing and Unwanted Vegetation* (USDA, 1988). The full array of available**

vegetation control methods shall be considered, and the method that will accomplish the job with the least chance of environmental damage and at a reasonable cost should be favored. Some of the control methods now available are: hand cutting, hand cutting and burning, hand pulling and grubbing, use of livestock, application of mulch around trees, aerial application of EPA approved herbicides, hand application of herbicides, and hand cutting and treatment with herbicides.

SITE PREPARATION

MA-14a-10 **A variety of treatments consistent with the *Pacific Northwest Region's EIS for Managing Competing and Unwanted Vegetation* (USDA, 1988) shall be considered to ensure attainment of desired stocking levels, considering cost and effectiveness.**

PRECOMMERCIAL THINNING

MA-14a-11 **Precommercial stocking level control should be planned where needed to 300 trees per acre in shade intolerant species and 400 trees per acre in mixed stands of shade tolerant species.**

FERTILIZATION

MA-14a-12 **All stands consisting of 60% or more Douglas fir shall be fertilized.** The preferred application time is between precommercial thinning and the first commercial entry. Older stands may be fertilized if there is a period of at least 5 years before the next commercial entry. The recommended application is 200 lbs. of nitrogen per acre.

COMMERCIAL THINNING

MA-14a-13 **Commercial stocking level control, based on DBH and basal area, should begin when economically feasible.** The first entry could be delayed until the control average stand diameter is about 12 inches without serious consequences. It is recommended that a 20-year interval be planned between thinnings. Generally, scheduling will be predicated on two commercial thinnings in the DF-H and DF-TF strata. One thinning could be planned for the TF and MH-LP strata, however, site conditions and economic feasibility should dictate the commercial thinning entries. The scheduling of commercial thinnings and the stocking levels specified will be based upon site specific data obtained by appropriate stand examination procedures.

NOTE - Other cultural treatments such as pruning may be prescribed based on cost and effectiveness.

MANAGEMENT AREA 14b

Emphasis: General Forest With Deferred Timber Harvest

Management Goal

The primary goal is to produce an optimum and sustainable yield of timber based on the growth potential of the land that is compatible with multiple use objectives and environmental requirements for soil, water, air, and wildlife habitat quality.

Desired Future Condition

The landscape will be a patchwork of age classes and species of trees. On lands suitable for timber production, timber will be available for sale on a nondeclining even-flow basis. There will be an orderly transition from the naturally occurring mature forest to a regulated forest with a balance of acres in each age group up to approximately 80 years old. This transition will take place over several decades as plantations progress through the various ages with new plantations created through the orderly harvesting of a portion of the mature stands in each decade. Most of the existing plantations are 1-30 years old; the progression to a regulated forest will proceed over the next 50-60 years, or longer.

Young stands will be managed to maintain vigor and growth using stand treatments such as reforestation with genetically selected stock, fertilization, precommercial and commercial thinning, and protection from insects, disease and damage. Stands of various conifer species will predominate depending on growing sites; although the natural variety of hardwoods, shrubs and forbs will continue to be components of the ecosystems with fluctuations occurring as stands progress through the seral stages. Managed stands will generally consist of a well-stocked understory with a scattered mix of large snags and green replacement trees. Large woody debris will be left on the ground to provide habitat and maintain long-term soil productivity. After about 60 years these large trees will be gone and replacement snags will come from within the stands. The overall appearance will become more uniform towards the end of the rotation.

The developed road system will provide the access necessary to harvest timber, transport the logs, and tend stands of growing trees. New construction and reconstruction will be planned at the lowest practicable mileage and standard required to provide for efficient transportation of goods, safety of users, and the least effect on resource values. Maintenance of these roads will be based on these same considerations. Some of this road system will be in a low-maintenance state with no vehicle traffic planned, to protect watershed conditions, provide for wildlife needs, and control costs.

Description

This Management Area consists of stands that are not biologically mature such as seedling, saplings and poletimber. It is land physically suited for growing commercial crops of trees and is managed for multiple uses such as timber, wildlife habitats, water quality, soil productivity, recreation, Forest access, and cultural sites.

Standards and Guidelines

RECREATION MANAGEMENT

MA-14b-01 **An ROS setting of Roaded Modified should be provided within the boundaries of this Management Area.**

SCENIC RESOURCES

MA-14b-02 **Management activities should be designed to meet or exceed a VQO of Maximum Modification.**

TIMBER MANAGEMENT

MA-14b-03 **No programmed harvest shall be scheduled during the planning period.** Unregulated harvest for the purpose of salvaging mortality from catastrophic losses may be permitted with an environmental analysis and appropriate documentation. Scattered, endemic tree mortality is frequently needed to meet S&Gs for wildlife trees and biological diversity. (See *Forest-wide Standards for Changed Environmental Conditions*.)

MA-14b-04 **The decision to initiate timber harvest after the first 10 year period will be documented in the appropriate NEPA document.**

MA-14b-05 **Timber management practices used after the decision to initiate timber harvests shall be the same as those listed for MA 14a.**

MANAGEMENT AREA 15

Emphasis: Rivers, Streams, Wetlands, Lakes and Adjacent Riparian Areas

Management Goal

The primary goal in this management area is to maintain the role and function of rivers, streams, wetlands and lakes in the landscape ecology. A significant part of this goal is to manage the vegetation in the adjacent riparian areas for:

- Protection and rehabilitation of the aquatic and terrestrial riparian habitat;
- Maintenance and improvement of water quality while minimizing risks of downstream flooding;
- Management of riparian areas as corridors to provide dispersal habitat for plant and animal species by maintaining connectivity among mature and old growth stands of trees;
- Management and inventory of riparian areas for sensitive, threatened and endangered plant and animal species;
- Management of riparian areas for recreation and scenic use compatible with riparian dependent species;
- Monitoring the impacts of upland management activities on the health and function of the riparian ecosystem.

Desired Future Condition

This management area will provide a continuous and diverse habitat for riparian dependent species and high quality water by protecting and mapping wetlands and floodplains. The water bodies and associated riparian areas will contribute to the diversity and dispersion of fish, wildlife and plants within each subdrainage and also at the larger watershed level. This management area will also provide opportunities for public use and enjoyment through both dispersed and developed recreation management. The recreation uses will be managed to avoid or mitigate adverse effects on riparian dependent resources

Stream channels will provide diverse, stable habitat for aquatic species as well as maintaining or enhancing water quality. Vegetation on adjacent lands will be managed to provide diverse stands of conifer and hardwood vegetation which provide habitat for riparian dependent species. The amount of large woody debris, both down and standing will be maintained at or above current levels. In areas where this material has been depleted as a result of past harvesting, the amount will increase either through rehabilitation projects, as a result of natural mortality of trees, or both. Along larger rivers and streams, optimal thermal cover for big game will be provided.

Description

This management area includes the bed, banks, and water column of rivers, streams, wetlands and lakes as well as the adjacent land areas. A riparian area is the adjacent land where vegetation and

microclimate are influenced by the stream or lake and the associated high water table. It includes the adjacent land which directly influences the shading and input of large and small organic material to the streams.

In addition, this area generally includes ponds, bogs, wet meadows and other areas identified in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* and in the *Classification of Wetlands and Deepwater Habitats of the United States.*

Additional description of the resource values, objectives and operational considerations for this management area are found in the Willamette National Forest *Riparian Management Field Guide.*

Standards and Guidelines

RIPARIAN MANAGEMENT

MA-15-01 **The width of the riparian management area shall be identified by an on-site reconnaissance of topographic and biotic features and shall be based on the watershed objectives for fish and wildlife habitats, water quality, and recreation.**

MA-15-02 **This management area shall include the 100-year floodplain within 400 feet from the edge of the active channel. Any portion of the 100-year floodplain extending beyond 400 feet should not be included in this management area, but shall be managed in accordance with Executive Order 11988.**

MA-15-03 **Widths that should be considered when determining the management area boundaries are shown below. Exceptions to this range should be documented in project records or environmental assessments.** Wider areas may be designated to allow protection of riparian stands from wind, to use logical topographic, biological or road boundaries. Narrower areas are anticipated only in exceptional situations.

Perennial Streams	**Horizontal Width**
Class I	150 to 400 feet
Class II	100 to 200 feet
Class III - Stable	50 to 100 feet
Class III - Potentially highly unstable & moderately stable	75 to 125 feet
Intermittent Streams	
Class IV - Moderately stable	25 to 50 feet
Class IV - Potentially highly unstable	25 to 100 feet
Lakes	600 feet
Reservoirs	NA
Small Wetlands	150 to 600 feet

MA-15-04 **This management area does not include areas adjacent to reservoirs. Management of areas adjacent to reservoirs should follow direction of Forest-wide S&G for water quality and other resources and management area S&G as allocated.**

MA-15-05 **The following process shall be used when projects or management activities have the potential to create long term, short term, or cumulative adverse effects to the values of the rivers, streams, wetlands,lakes and adjacent riparian areas:**

1. Locate the management area using the following criteria;

- **Within the 100 year floodplain (less than 400 feet from active channel);**
- **Occupied by water tolerant vegetation;**
- **Having vegetation potentially capable of shading or contributing organic small matter to the water body;**
- **Having vegetation that contributes significantly to bank stability.**
- **Incorporate natural irregularities of topography and consider recreation and wildlife use patterns.**
- **Required to provide large woody material to the water body.**

2. Identify the beneficial uses, values and objectives for the area. (See *Appendix E, Watershed*) **Wetland and riparian area values and objectives should be established on a subdrainage area or larger, and should address connectivity of riparian habitat and the influence on downstream effects.**

3. Identify the effects of proposed actions on the following:

- **Public health, safety, and welfare, including water supply, quality, recharge, and discharge; pollution; flood and storm hazards; and sediment and erosion;**

- **Maintenance of the natural systems, including conservation and long term productivity of existing flora and fauna, species and habitat diversity and stability, hydrological utility, fish, wildlife, timber;**

- **Other uses of wetlands in the public interest, including recreational, scientific, and cultural uses.** (See *EO 11990*)

4. Assess necessary actions to preserve the beneficial values, and to reduce or mitigate loss of wetlands by giving preferential consideration to riparian dependent resources when conflicts occur among land uses. (See *FSM 2526.03*)

5. Develop a riparian prescription that documents the objectives and actions to be implemented (including contract clauses and language as appropriate) in the riparian management area.

6. Monitor location and effects, and track results through appropriate databases.

Management practices shall be designed to prevent detrimental changes in water temperature or chemical composition, blockage of water courses, or

sedimentation within riparian areas which seriously and adversely affect water conditions or fish habitat. (36 CFR 219.27(e)).

WATER QUALITY

MA-15-06 **Vegetation will be managed to provide water temperatures which protect beneficial uses, as described in Oregon Administrative Rules 340-41-422.**

MA-15-07 ***All project proposals in the Salmon Creek and Marion Creek watersheds shall* include an objective to improve water quality.** A major part of this objective will be to maintain (Marion Creek) or reduce (Salmon Creek) maximum summer water temperatures that are 70 degrees F or less by 1995, and 67 degrees F by 2000. These watersheds are the water source for State of Oregon fish hatcheries.

MA-15-08 **At least 75% of the existing shade should be maintained.**

MA-15-09 **Activities with potential effects on Class III and IV streams shall be scheduled and designed to maintain or improve water quality in downstream Class I and II waters.**

MA-15-10 **Projects shall be designed using BMPs to meet Oregon State Water Quality Standards.** Refer to *General Water Quality Best Management Practices, Pacific Northwest Region, 1988* and *Appendix E, Watershed* for further information on BMPs.

MA-15-11 **Streambanks and channel stability shall be protected, rehabilitated or enhanced to meet the water quality and aquatic habitat objectives.**

MA-15-12 **Management in riparian areas shall provide for a continued input of large woody debris at rates similar to those in areas without past timber removal.** Large wood will reduce the movement of debris torrents through channels and provide channel stability. Channel stability will also be maintained through measures listed in *Forest-wide Standards and Guidelines for Water Quality.*

MA-15-13 **The value and functioning of floodplains shall be protected, rehabilitated or enhanced.** Floodplains are valuable for reducing stream velocity and temporarily storing water during high flow events

WILDLIFE and FISH MANAGEMENT

MA-15-14 **Project activities within or adjacent to riparian areas shall protect, rehabilitate, or enhance streams to provide high quality habitat for a diversity of native aquatic species.** Management indicator species for riparian areas are resident and anadromous salmonids

Stable, diverse habitat for salmonids can be achieved with the following:

- Large wood: Diameter and length of woody pieces may vary according to the stream width and gradient; pieces larger than 25 inches in diameter are generally preferred. Large wood in the stream will provide a variety of habitat and nutrient characteristics.

- Pools: A primary pool every 5 to 7 channel widths in streams with less than a 2% gradient and every 3 to 5 channel widths in streams with a 2 to 8% gradient provides rearing habitat during summer low flows

- Substrate. A well sorted variety of gravels, cobbles and boulders, with less than 20% of spawning gravels in fines (<1.0mm), and less than 25% embeddedness of cobbles in riffle areas provide salmonid and invertebrate spawning and rearing habitat.

- Floodplains· Stable, vegetated floodplains provide areas of slow water and refuge habitat during high flow events.

- Food source: Year-round input of leaf, needle, and insect material from a variety species provide a variety of food sources for salmonids and invertebrates.

MA-15-15 **Habitat rehabilitation or enhancement projects should be identified and evaluated in areas adversely affected by past events. Project proposals should consider long-term maintenance needs and should be monitored for effectiveness.**

MA-15-16 **Habitat for riparian dependent terrestrial species shall be protected, rehabilitated, or enhanced.** Factors to consider include microclimate, vegetation, and downed woody material

MA-15-17 **Where designed to provide connectivity and dispersion, greater than 10 live, overstory trees per acre and 15 down trees per acre greater than 24 inches DBH should be maintained.** This also provide down woody debris cover for small mammals, amphibians and reptiles.

MA-15-18 **Habitat potential for cavity excavator species should be at least 80% of the potential population habitat in riparian areas.** (See *Forest-wide Wildlife Standards and Guidelines*)

RECREATION MANAGEMENT

MA-15-19 **Area management practices should result in a physical setting that meets or exceeds the ROS class of Roaded Natural.**

MA-15-20 **Developed recreation and dispersed recreation sites should be compatible with riparian dependent resource objectives.**

MA-15-21 **Projects to reduce safety hazards from dead, defective or hazardous trees in riparian areas should be evaluated to ensure adverse effects to riparian dependent resources are recognized and mitigated.** This includes trees currently in river or stream channels and standing dead trees adjacent to trails or other recreation facilities.

MA-15-22 **Water withdrawn from streams or lakes for recreation facilities shall have no adverse effects on riparian dependent resources.**

SCENIC RESOURCES

MA-15-23 **All design and implementation practices should be modified as necessary to meet the VQO of Partial Retention. In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a VQO of Modification.**

TIMBER MANAGEMENT

MA-15-24 **No programmed harvest shall be scheduled.**

MA-15-25 **Salvage harvests should occur only when existing conditions are detrimental to riparian condition and riparian dependent resources.** (See *Forest-wide Standard and Guideline, Changed Environmental Conditions.*)

MA-15-26 **A riparian prescription shall determine if trees need to be felled to maintain or enhance riparian objectives, if trees may be felled to facilitate activities in adjacent management areas, and if felled trees should be removed from the area.** *Riparian objectives are commonly met if yarding corridors through the area are* spaced at least 200 feet apart.

MA-15-27 **Streambanks shall be protected by directional felling and suspending logs above streambanks adjacent to live water during yarding, and by using appropriate road design techniques where roads might impact streambanks.** On streambanks adjacent to dry stream channels, logs will be fully suspended and directionally felled where practicable. Where it is not practicable, streambanks will be stabilized following yarding activities, and prior to stream flows in the channels.

MA-15-28 **Silvicultural prescriptions for existing regenerated stands within riparian areas shall be designed to achieve riparian objectives.**

MA-15-29 **Silvicultural prescriptions should be developed for riparian areas affected by past harvest activities or catastrophic events to reestablish stands that provide a mixture of hardwood and conifer species similar to undisturbed sites.**

MA-15-30 **Application of fertilizer to the riparian area, and to live water should occur only when prescribed to meet riparian terrestrial or aquatic objectives.**

FIRE MANAGEMENT

MA-15-31 **Suppression strategies, practices and activities shall have minimal effects on objectives for water quality, aquatic and terrestial wildlife and plant species, recreation, and visual resources.**

MA-15-32 **Fuel treatment prescriptions should protect streamside vegetation and maintain the vegetation and woody debris necessary for channel stability.**

MINERALS AND ENERGY

MA-15-33 **Mineral management shall be compatible with riparian resource management goals. Aquifers and downstream resources shall be protected as well as the immediate riparian resource.**

LANDS

MA-15-34 **On lands considered for exchange a floodplain and wetland determination and assessment of impacts, with public notice shall be made. Acquisition of wetlands that may be of significant wildlife, fisheries or recreation values shall be encouraged.**

MA-15-35 **Special use applications should show compatibility with management area objectives before approval.**

FACILITIES

MA-15-36 **New roads should be planned to minimize effects on riparian areas. Projects should be evaluated as to which location will most likely meet riparian objectives.** Locating roads outside of riparian areas is preferred when possible.

MA-15-37 **Where stream crossings are necessary for access, a crossing location should be selected which will best meet riparian objectives.**

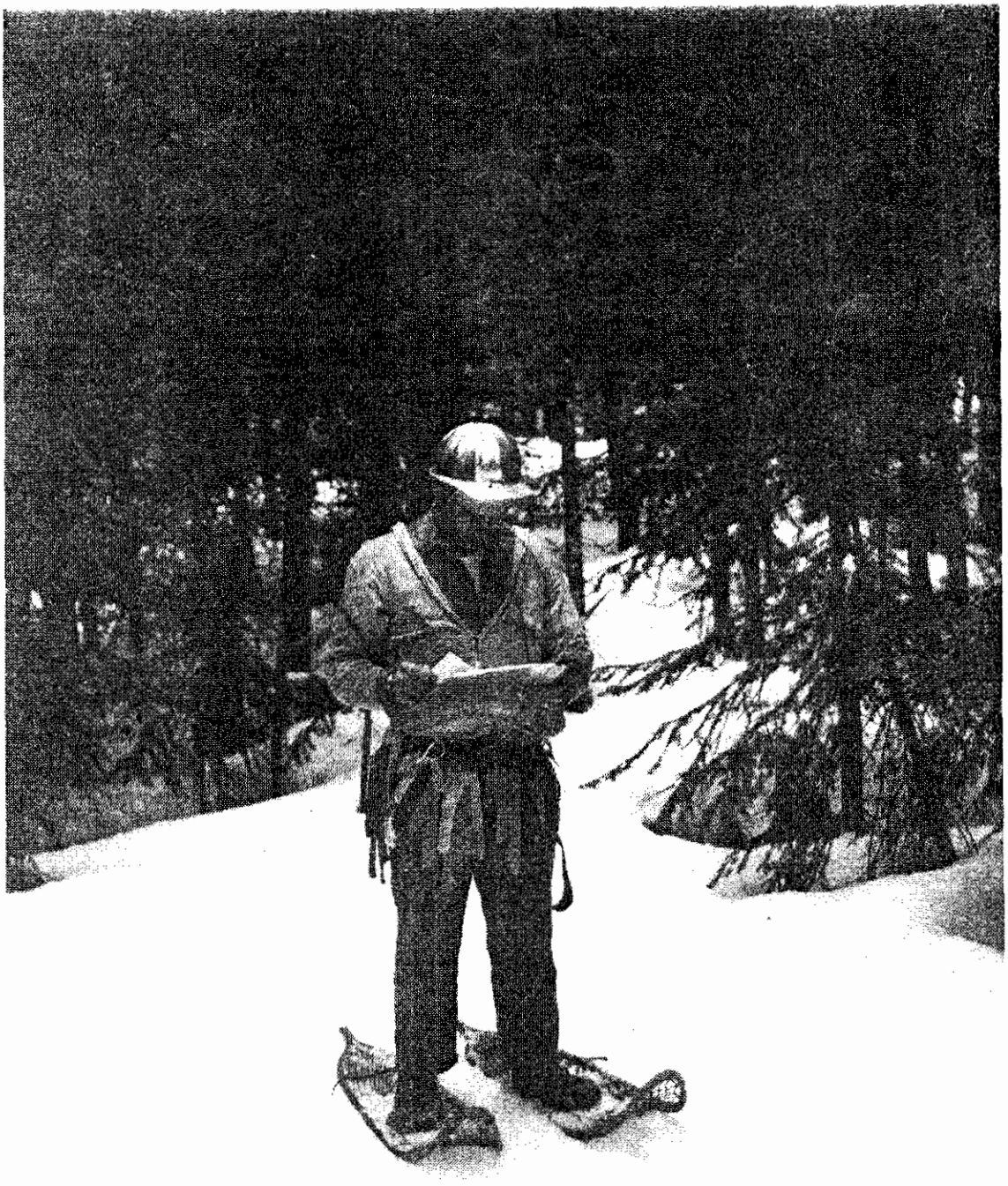
MA-15-38 **Construction and reconstruction of crossings or habitat improvements projects on fish bearing streams should allow for passage of both adult and juvenile fish during appropriate times of the year.**

MA-15-39 **Deposits of sediment (silts and clays) in detrimental amounts shall be prevented during road construction and maintenance activities, and during periods of road closures.** Road surface maintenance will use materials and methods designed to minimize sediment and deleterious chemicals.

MA-15-40 **Temporary roads constructed to facilitate rehabilitation and enhancement projects shall be compatible with riparian objectives, and should be closed following project completion.**

RANGE MANAGEMENT

MA-15-41 **Domestic livestock grazing should not be permitted.**



Stand condition survey - rust resistant pine development program.

CHAPTER V

Implementation and Monitoring

V. IMPLEMENTATION AND MONITORING

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CHAPTER V

IMPLEMENTATION AND MONITORING

Implementation of the Forest Plan requires moving from an existing management program to a new management program 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 Willamette National Forest into the future. 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, 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

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.

Implementing Forest Plans under the National Forest Management Act (NFMA) involves **two decision levels.** The **first level** is associated with approving, amending or revising the Forest Plan. The decisions made at this level are to provide direction for all resource management programs, practices, uses, and protection measures. These decisions involve full compliance with both NFMA and NEPA. Final decisions made in the Forest Plan are:

1. Forest-wide goals and objectives.
2. Forest-wide desired future condition.
3 Forest-wide standards and guidelines.
4. Management area goals and standards.
5. Management area desired future condition.
6. Management area standards and guidelines.

7 Monitoring plan and evaluation process.

8. Incorporation of extant plans or projects (see Appendices A and B)

9 Identification (location) of lands considered suitable and selected for timber harvesting.

10. Establishment of the Forest-wide allowable sale quantity.

The emphasis of the Forest Plan decisions are not on site specific projects or site specific resource outputs. Nor does the Forest Plan identify the cumulative effects and connected actions of individual projects. The Forest Plan and accompanying Environmental Impact Statement (EIS) do not contain sufficient detail to determine which activities will be undertaken in a site specific location Before these decisions can be made, further analysis will be necessary.

The **second level** of decisions is associated with the approval of site specific projects and activities necessary to achieve the goals, objectives and desired future conditions in the Forest Plan. This level also involves full compliance with NFMA and NEPA. Figure V-1 displays the relationship of project plans to the Forest Plan, NEPA compliance, and the relationship of intermediate analysis and evaluation to these two decision levels.

Project Scheduling

Appendices C and D list proposed resource schedules, including a proposed timber sale schedule. These multiyear activity schedules will be updated each year. 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 these schedules provide a pool of possible activities from which implementation schedules will be developed in conjunction with funding approvals. 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.

The basic objective of project development and scheduling is to ensure activities are carried out in accordance with the direction specified in the Plan. This is achieved through an integrated resource management approach, assuring interdisciplinary teamwork and public involvement throughout the process

Usually, some amount of intermediate analysis will be needed between the Forest Plan level and project level decisions This may be necessary to interpret the Forest Plan direction to a smaller area, to fully integrate all resources, to evaluate cumulative effects and connected actions, and to establish implementation schedules. Intermediate analysis will provide information for use throughout the implementation process, but it will not be a decision-making step.

Guidance for implementing the Plan can be found in the document "Steps of the Journey, Forest Plan Implementation Strategy" (USDA Forest Service, Pacific Northwest Region, April 1990). This document describes a process for moving from Forest Plan direction to spatial disaggregation of this direction, to developing an integrated resource analysis, scheduling and budgeting, environmental analysis, NEPA decision, project design, project execution, and monitoring and evaluation. Figure V-2 is an excerpt from "Steps of the Journey" which shows the flow of activities to implement the Forest Plan.

Figure V-1. Forest Plan Implementation

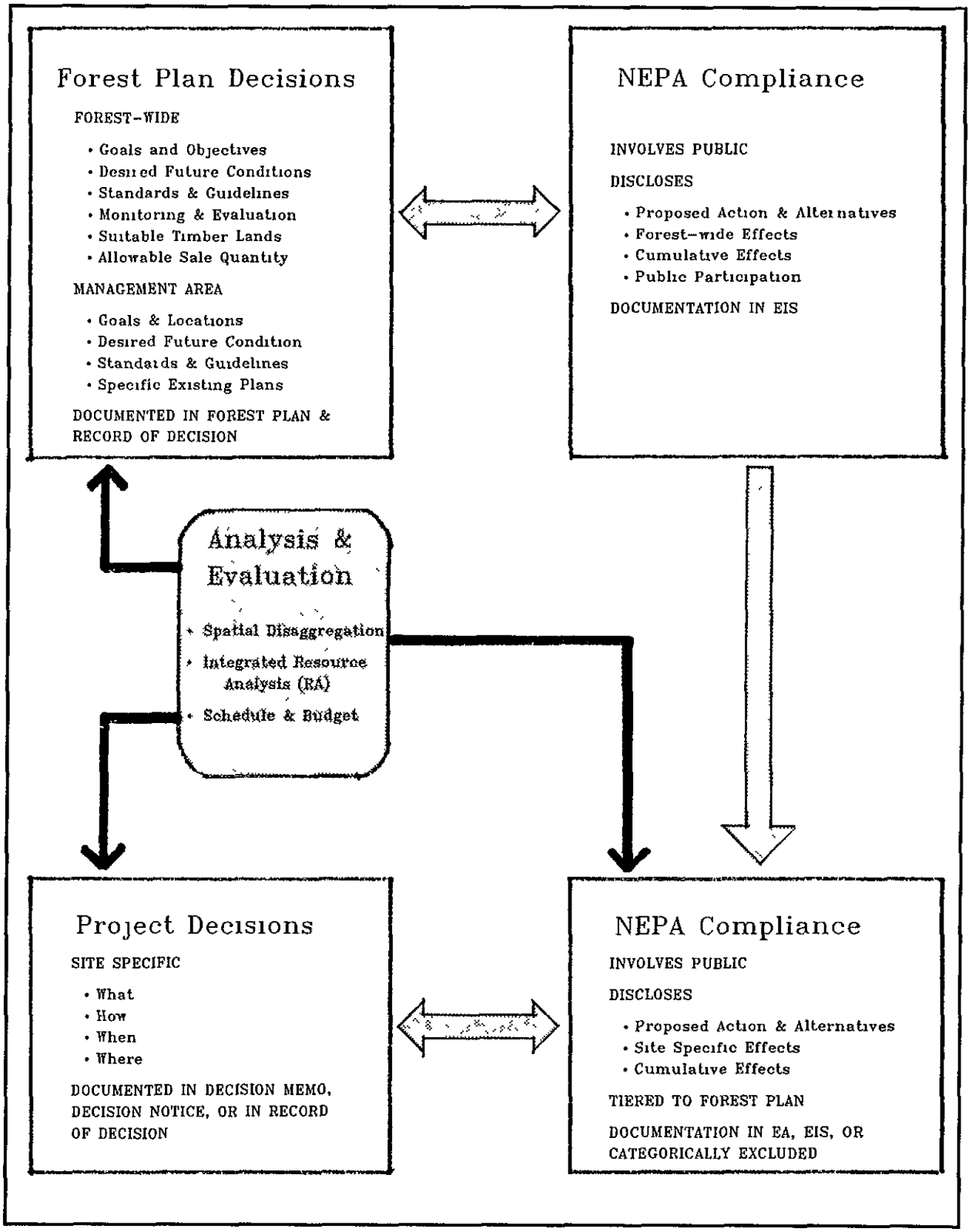
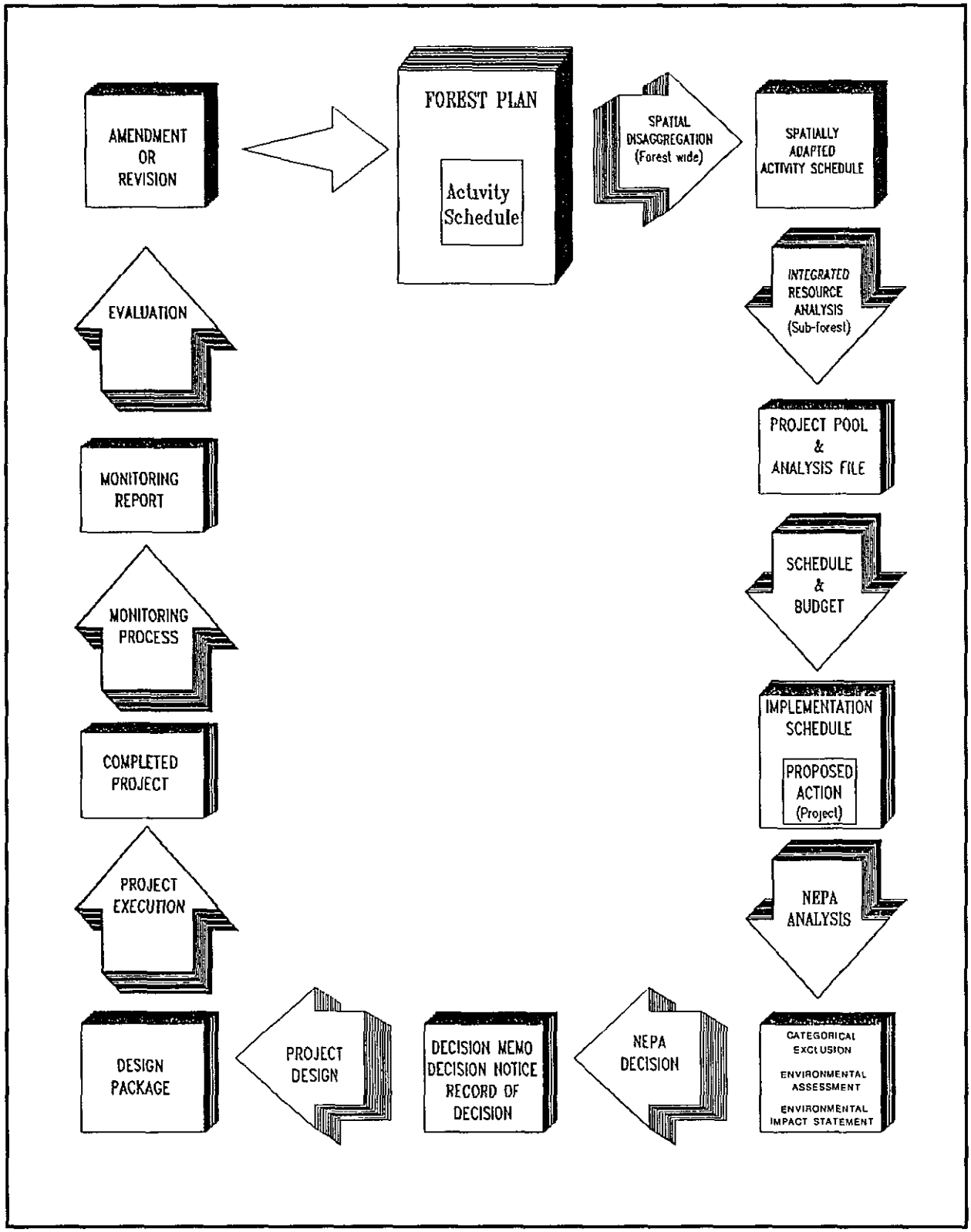


Figure V-2. Flow Chart of Forest Plan Implementation



Consistency With Other Instruments

This Forest Plan serves as the land management plan for the Willamette National Forest. This Forest Plan replaces the 1977 Willamette Multiple Use Land Management and Timber Plan. The Oregon Cascade Recreation Area (OCRA) Management Plan has been updated for release with this Forest Plan and is included in Appendix B.

All outstanding permits, contracts, cooperative agreements and other instruments for occupancy and use of lands included in the Willamette Forest Plan will be brought into agreement with this Forest Plan, subject to the valid existing rights of the parties involved. This will be done as soon as practicable, and generally within three years of the date of this Plan Subsequent administrative activities affecting such lands, including budget proposals, will be based on the Forest Plan.

Budget Proposals

Management activities scheduled in this Plan are associated with a multiyear 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. Activities will be compared with Forest Plan direction and the actual effects resulting from these activities will be compared to the predicted effects. Where activities are congruent with direction, and effects are congruent with expectations, the determination will be documented and implementation will continue. Where activities and effects are not congruent with direction and 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 Forest Plan issues, concerns, and opportunities (ICO). For each ICO there are one or more monitoring questions which will be answered at specific time intervals. Tables V-M1 to V-M41 list these monitoring questions by resource.

Costs, outputs, and environmental effects will be measured 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 cannot 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. For long term monitoring projects, it will be important to develop sample procedures that will be valid over a long enough period of time to gather consistent data that will be useful to determine cause and effect relationships.

Monitoring activities will be coordinated with other Federal and State agencies, the Regional Office, and adjacent Forests to develop monitoring and sample designs that are the most effective at the least cost.

Three types of monitoring will be used:

> **Implementation** monitoring is to determine if plans, prescriptions, projects, and activities are implemented as designed and are in compliance with the Forest Plan objectives, standards and guidelines. The question being asked is, **"Did we do what we said we going to do in the Forest Plan?"**

Effectiveness monitoring is to determine if plans, prescriptions, projects, and activities are effective in meeting Management direction, objectives, standards and guidelines. The question being asked is **"Did the practice or activity do what we wanted it to do?"**

Validation monitoring is validation of the assumptions used in Forest Plan development and analysis. Some examples include wildlife habitat relationships, relationships between timber harvest and water quality, and timber growth and yield. This will normally be coordinated with or conducted by research, but there are some on-forest validation efforts identified. The question being asked is **"Are the basic assumptions about cause-effect relationships accurate?** And, if not, is there some better way to meet our goals and objectives?"

Figure V-3 displays the relationship of the three levels of monitoring. Note that effectiveness and validation monitoring are only triggered if there is a significant issue, concern or opportunity to address.

The funding estimated to accomplish the Forest Monitoring Plan shown in Tables V-M1 to V-M41 is incorporated into Appendix F, "Budget Needed to Implement the Forest Plan." Monitoring needs will be incorporated into the multiyear budget proposal process (see the section "Budget Proposals" discussed earlier in this chapter). The Forest Monitoring Plan will be evaluated and amended or revised as needed to make the intensity of monitoring commensurate with the risks, costs, and values involved in meeting plan objectives.

The Monitoring Plan contains the following elements which are included in Tables V-M1 to V-M41. See Table V-1 for an index to the monitoring tables.

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 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

Measured Action/Effect

Specific statement of what will be examined.

Methods

The process by which the examination will be done.

Unit of Measure

The unit of measure applicable.

Estimated Reliability

The level of validity and exactness of 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.

Report Period

The minimal time interval for reporting.

Management Responsibility

Person who has responsibility for compilation of information at the Forest level. Actual data collection may be the responsibility of Forest Staff or District Rangers.

Threshold of Variability

Threshold that triggers further investigation to determine the proper course of action

Figure V-3. Evaluation of Monitoring Results for Forest Plan Implementation

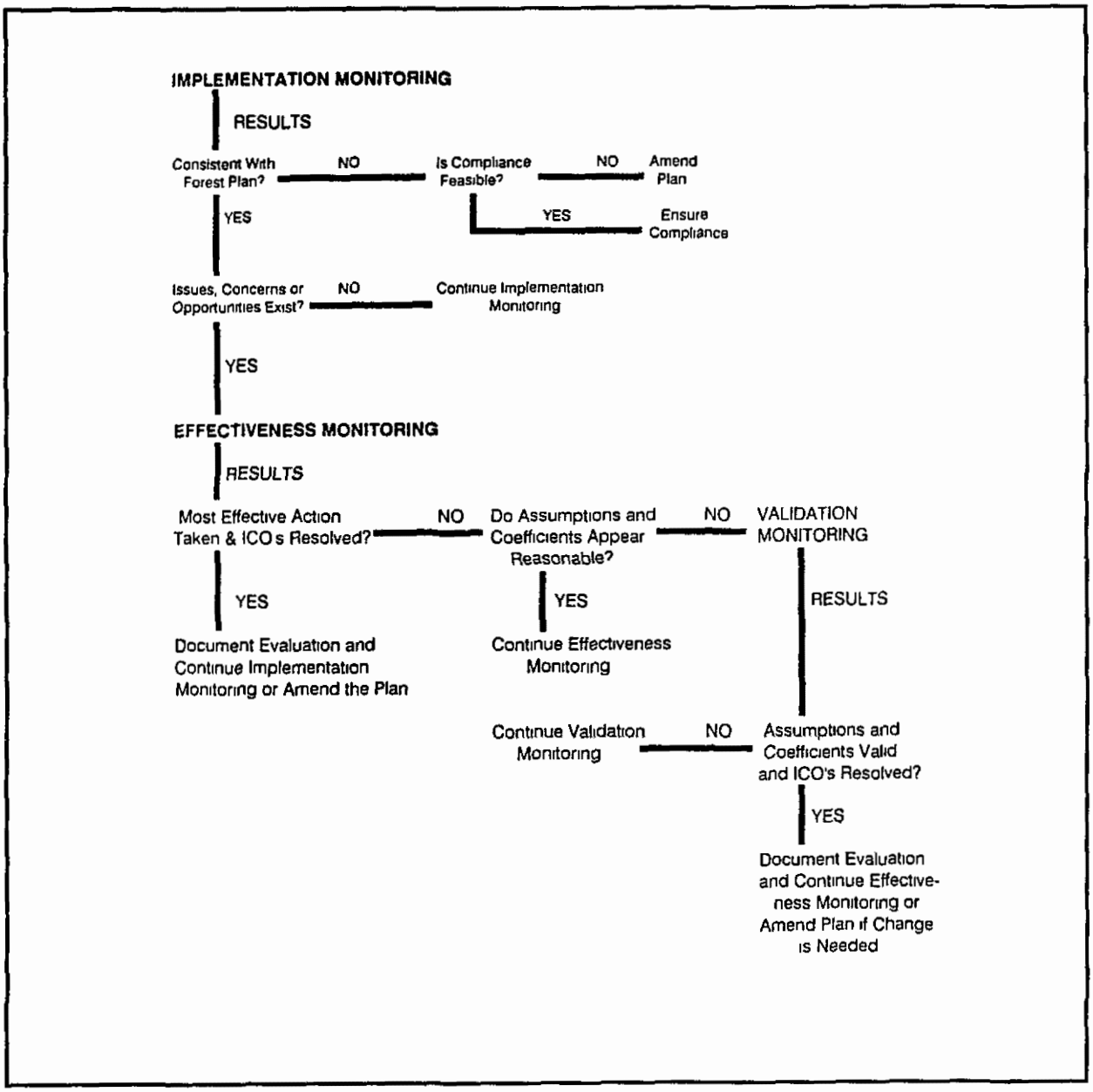


Table V-1. *Index to the Monitoring Tables*

TABLE	MONITORING ITEM	PAGE
V-M01	Standards and Guidelines	V-11
V-M02	Cultural Resources	V-12
V-M03	Wilderness	V-13
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Table V-M01 Monitoring Questions - Standards and Guidelines

QUESTION: Are Forest Plan standards and guidelines (Forest-wide and for each Management Area) being incorporated into project level planning and decisions?

Discussion - The Forest Plan standards and guidelines provide direction for project level planning that is intended to result in an overall desired condition of resources over time. They should be used so that all resources and issues are considered in an interdisciplinary process. They provide the limits within which project analysis should normally occur. Long term, cumulative deviations from this direction will result in different resource conditions than those projected in the Forest Plan.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
1 1 Are Forest Plan S&G's being adequately followed in project level planning?	Application of S&G's in project planning and execution.	An interdisciplinary team review the planning process documents and execution for one or two large projects per District per year.	Deviations from specific S&G's	Moderate	Annually	Annually	Planning Staff	Any single deviation that may effect the implementation decision, or cumulative project deviations of 2 or more
1 2 Are the Forest Plan S&G's as applied in project execution resulting in, or making reasonable progress towards, the overall, cumulative resource conditions that were envisioned in the Forest Plan?	Resource Conditions as compared to the desired future condition.	Field review of several sites; summarize resource monitoring from the previous 5 years	Deviations from desired results	Moderate	5 Years	5 Years	Planning Staff	Any significant deviations from desired results

Table V-M02 Monitoring Questions - Cultural Resources

QUESTION: Are cultural resources (CR) being managed and protected according to the Plan's Standards and Guidelines?

Discussion - A variety of federal laws and regulations require the protection by management of significant cultural resource values (prehistoric and historic site) and full consideration of modern ethnic concerns in their management, particularly those of American Indian Tribes. Monitoring provides information to determine whether the Forest is complying with this legislation at 3 levels: (1) project, (2) resource, and (3) public interest/involvement

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
2 1 Are cultural resource sites being "condition" checked and maintained on a regular basis?	Damages to significant sites	Field Inspections	Change in site conditions	High	Annually	Annually	Recreation Staff	5% or more of sites show significant condition change from previous year.
2.2 Are significant (National Register eligible) historic buildings being maintained, stabilized, and repaired according to historic preservation standards?	Condition of all significant structures	Field inspection	National Register of Historic Places guidelines	High	2 years	2 years	Recreation Staff	Significant condition change noted.
2 3 Are public groups, including American Indians, actively involved in cultural resource management and planning?	Opportunities provided for involvement in cultural resource management activities	Sample review of project planning documents to determine the extent of public contacts	Variety of contacts with historical societies and Indian tribes	Moderate	2 years	2 Years	Recreation Staff	Failure of at least 20% of documents to identify involvement of historical societies and American Indian tribes.
2.4 Are the cumulative effects of Forest project activities in cultural resources being tracked and studied?	Condition of sites after project activity	Sample comparison of site conditions in relation to the management prescription and measures	Site conditions	High	3 years	3 Years	Recreation Staff	10% of sites in degraded condition in relation to protection intent stated in EA's and management plan.

Table V-M03 Monitoring Questions - Wilderness

QUESTION: Is Wilderness being managed to provide for a wide range of permitted uses while maintaining wilderness character and natural processes?

Discussion - Wilderness management features naturalness, opportunities for solitude, challenge, and inspiration. It accommodates a wide range of uses such as recreation, scenic, scientific, educational, conservation, and historical as well as other nonconforming uses permitted by the Wilderness Act. Also see Table V-M35-Air Quality for reference to air quality monitoring in Wilderness Class I areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
3 1 Are Wilderness Resource Spectrum (WRS) class settings consistent with the standards and guidelines for Wilderness management?	Conditions of physical, social, and managerial settings of each WRS class.	Limits of acceptable change (LAC) assessments. Annual field observation of heavy use areas and travel routes during peak season of use. Sample field observation at other times	Acres not meeting established standards by WRS class.	High	Annual	2 years	Recreation Staff	When LAC are exceeded, Forest Plan standards are not being met or a downward trend in conditions is observed by WRS class
3 2 Are Wilderness use levels within the limits established for management plans for each WRS class	Use levels of specific areas by WRS class?	Use permit, visitor registration, Recreation Information Management (RIM) use reports, annual field observation during peak season of use	RVDs PAOTs	High	Annual	2 years	Recreation Staff	When actual use levels exceed capacity established for WRS classes by Wilderness, or a downward trend in Wilderness quality is determined

Table V-M04 Monitoring Questions - Wild and Scenic Rivers

QUESTION: Are the outstandingly remarkable river values of all eligible, study and designated Wild and Scenic Rivers being maintained or enhanced as required?

Discussion - Federal law mandates the protection of outstandingly remarkable values of eligible, study, and designated Wild and Scenic Rivers at the river class for which they qualify.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
4 1 Are the outstandingly remarkable river values of designated, study, and potential Wild and Scenic Rivers being protected consistent with the Wild and Scenic Rivers Act?	Effects of activities on outstandingly remarkable river values of designated, study, and potential Wild and Scenic Rivers	Review of selected projects involving the potential effects on outstandingly remarkable river values for designated, study and potential Wild and Scenic Rivers.	Qualitative assessment of effects on outstandingly remarkable river values	High	Annual	3 years	Recreation Staff	When activities would effect eligibility or lower actual or potential classification of the river segment
4.2 Have management plans been written for designated Wild and Scenic Rivers?	Completion of management plans	Review of management plans for designated rivers.	Management Plans	High	Annual	Annual	Recreation Staff	Management Plans not completed
4.3 Have there been any changes in the designation status of eligible and study rivers?	Changes to status	Review of decisions changing status	Status changes of each eligible and study river	High	Annual	Annual	Recreation Staff	Any change in status

Table V-M05 Monitoring Questions - Recreation: Roadless Areas and Other Unroaded Lands

QUESTION: Are Roadless Areas and other unroaded lands being managed as provided for in the Forest Plan?

Discussion - Roadless Areas and unroaded lands are the source areas for potential wilderness and semi-primitive recreation experiences and therefore are of significant interest to many public groups. Some of these areas are also reservoirs of standing old growth timber and varied wildlife habitats.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
5 1 Are the acreages and number of inventoried Roadless Areas consistent with Forest Plan direction and projections?	Acres remaining in roadless condition (greater than or equal to 5000 acres and any size if contiguous to an established wilderness).	Review of project documentation for timber harvest, road construction, or other land disturbing activities.	Roadless acres by area	High	Annually	2 Years	Recreation Staff	When inventoried roadless area is less than 5000 acres in size.
5.2 Are the acreages and numbers of other unroaded areas consistent with Forest Plan direction and projections?	Acres remaining in an unroaded condition (greater than or equal to 2000 acres)	Review of project documentation for timber harvest, road construction, or other land disturbing activities	Roadless acres by area	High	Annually	2 Years	Recreation Staff	When planned actions would result in an area less than 2000 acres in size.

Table V-M06 Monitoring Questions - Recreation: Recreation Opportunity Spectrum (ROS) Settings

QUESTION: Are physical/environmental, social, and managerial conditions for dispersed ROS settings being maintained?

Discussion - A broad spectrum of dispersed recreation opportunity settings are provided in response to projected public demand. It is essential to determine that these settings are planned, maintained, and managed in a condition to satisfy this demand.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
6.1 Are activities used for the removal of resource products or the actions taken to accommodate or control human use in ROS class settings being conducted in accord with management standards and guidelines?	Deviation from ROS class standards.	Review of proposed project development and management actions, and field review of project effects by management area.	ROS class setting indicators.	High	Annually	Every 3 years.	Recreation Staff	Failure to meet standards and guidelines for physical, social, or managerial ROS class setting indicators

Table V-M07 Monitoring Questions - Recreation: Visitor Use

QUESTION: Are estimated use levels for dispersed ROS settings and developed recreation settings being realized?

Discussion - The allocation of capital and resources to provide for future use of recreation opportunities depends on accurate information/data regarding public use trends activities and preferences.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
7.1 Are projected rates of increase in recreation visitor day use for dispersed Recreation Opportunity Spectrum (ROS) areas, trails, and developed recreation settings being realized?	Amount of reported or actual use by activity by dispersed and developed ROS settings, including trends.	Recreation Information Management (RIM) use reports and other valid sample methods	RVD's	Moderate	Annually	3 years	Recreation Staff	For dispersed settings: when reported or actual use exceeds capacity or averages below 30% of practical capacity over a 3 year period for individual semiprimitive areas For individual developed sites when reported or actual use exceeds 60% of theoretical capacity or averages less than 10% of practical capacity over a 3 year period.

Table V-M08 Monitoring Questions - Scenic 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 managed.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
8.1 Are the effects of individual landscape alterations consistent in design and implementation with the scenic quality standards for each management area?	Visual effects of projects which alter the landscape	Sample of· (1) Computer simulations of proposed projects. (2) Review of project EAs. (3) Field review of completed project.	VQO criteria.	High	Annual	3,6, & 9 years.	Recreation Staff	When any alteration fails to meet VQO of a management area.
8 2 Are the cumulative effects of all management activities that might physically alter the landscape consistent with the VQOs in the Forest Plan?	Cumulative effects to the visual resource over time	Field observation. Analysis of viewshed conditions. Photo control points	Summary viewshed ratings for VQO objectives.	High	Every 3 years.	3,6, & 9 yrs	Recreation Staff	When planned or actual rates of harvest exceed standards and guidelines When alterations fail to meet VQO of a management area.

Table V-M09 Monitoring Questions - Recreation: Special Interest Areas

QUESTION: Are the natural, cultural, and historic attributes and conditions of designated special areas being managed to assure their protection and proper human use?

Discussion - Many special areas (Special Interest Areas (SIA's), Old Growth Groves (OGG's), Oregon Cascades Recreation Area (OCRA), and Hardesty Mt. Ecological Area) are designated for protection, but also provide for human use and enjoyment of their special qualities They are, however, vulnerable to the affects of over use, unauthorized activities, and the influences of adjacent management.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
9 1 Are actions used to accommodate and manage human use of SIAs, OGGs and the OCRA employed in a manner to maintain and protect the special attributes of these designated areas, as specified by management area standards and guidelines and specific management guides?	Deviations from Recreation Opportunity Spectrum (ROS) class standards or Limits of Acceptable Change (LAC) standards	Review of proposed management actions, field review of project effects and resource conditions by individual area.	ROS setting indicators or limits of acceptable change	High	20% of designated areas annually	Every 3 years	Recreation staff	Failure to meet standards and guidelines for ROS class indicators or LAC.

Table V-M10 Monitoring Questions - Recreation: Trails

QUESTION: Are trails and trail corridors being maintained and managed for a variety of uses and experiences consistent with public demand?

Discussion - Protection and maintenance of trail facilities and trail environments is a major concern with the public

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
10.1 Are project management activities consistent with standards and guidelines for trail management classes?	Deviation from trail management class and trail maintenance class standards.	Review of proposed project plans Field reviews of project effects	Miles of trail management class and maintenance class indicators.	High	Annually	Annually	Recreation Staff	When management activities are inconsistent with trail management class and or maintenance, reconstruction or construction standards and guidelines
10 2 Is trail construction and reconstruction being accomplished as scheduled in the Forest Plan?	Miles of trail	Review trail construction accomplishment reports.	Miles	High	Annually	Annually	Recreation Staff	25% downfall in predicted construction or reconstruction

Table V-M11 Monitoring Questions - Recreation: Developed

QUESTION: Are developed recreation sites providing the variety of use opportunity designed to meet user's needs, interests, and equipment; and being maintained to a level expected and accepted by those using developed facilities?

Discussion - Developed recreation sites should be designed to meet customer expectations of National Forest campgrounds, meet their technological needs, and interests. These sites should also be well maintained with facilities at or above standard condition, including the site protection and natural resources. A variety of development levels should be distributed throughout the Forest to meet customer interests, ROS experiences, and continue to provide a range of activities.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
11.1 Are the developed recreation sites provided by the Forest maintained to standards acceptable and expected by the recreating public?	Recreation visitor comments	On-site questionnaires for visitor's use.	Facility condition, number of public comments	Moderate	Daily, summarize monthly	Annually	Recreation Staff	10% of the facilities in a site deviate from public preference by one maintenance class
	Vandalism of facilities	Incident reports of vandalism	Number of vandalism incidents.	Low	With each incident	Annually	Administrative Officer	Where vandalism exceeds average rates of occurrence and costs of repair
11 2 Are developed sites being used in a manner consistent with the site design purpose?	Type of recreation use matches site design and setting.	Visual observations by FS personnel and random surveys by site.	Amount of use in each site by design type	Moderate	Seasonally	Annually	Recreation Staff	Site is being used more than 30% of the time for unintended purposes
11 3 Are the range of sites provided and distributed throughout the Forest consistent with customer's preference and use trends?	Degree of overuse in some areas and underuse in other geographic areas	User surveys, visual observations, marketing surveys	Site use figures	Moderate	Annually	Annually	Recreation Staff	20% of the sites are over used and/or 40% of the sites are underused

Table V-M12 Monitoring Questions - Recreation: Off-Road Vehicle Use

QUESTION: Are ORV opportunities providing a quality experience to the customers, ensuring their safety, and the safety of the general public? Are conflicts being minimized between users, with wildlife (and their habitats), and is resource damage being minimized - in areas that are suitable for each appropriate ORV use?

Discussion - ORV areas should provide opportunities for the ORV enthusiast which are safe for all users and nonusers, and do not harass wildlife or degrade wildlife habitat or other natural resource environs.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
12 1 Are quality ORV opportunities provided in areas which are suitable for ORV use and the needs, skills, and interests of users?	Use of provided areas.	Survey use groups, visitor counts.	ORV-RVD's	Moderate	Monthly	Annually	Recreation Staff	30% of the ORV developed sites or areas are used less than 40% of the time
12.2 Are the ORV opportunities provided effective in minimizing conflicts between user groups and safe for users and the general public?	Conflicts between users	Accident/incident reports	Number and type of accidents	Moderate	Monthly	Annually	Administrative Officer	3 accidents/quarter per ORV area.
		Survey user groups.	Number and type of complaints	Moderate	Quarterly	Annually	Recreation Staff	More than 10 complaints annually.
12.3 Are the ORV opportunities provided in locations which minimize degradation of soil, water, and vegetation resource damage?	Soil, water and vegetation changes.	Photo points, vegetation mapping, soil and water surveys.	Ground cover disturbance, and soil and water quality measures.	Low	Annually	Annually	Recreation Staff	Deviations from Forest wide S&G's for soil, water, vegetation distribution.

Table V-M13 Monitoring Questions - Fish Populations

QUESTION: Are predictions of maintaining or improving Management Indicator Species and Threatened Species of fish valid?

Discussion - The FEIS predicts that outputs of winter steelhead and spring chinook will increase during the next decade as a result of riparian management practices and stream rehabilitation projects. Oregon Chub and Bull Trout populations will be maintained or increased.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
13.1 Are winter steelhead and chinook smolt numbers increasing in proportion to the number of adults as a result of land management activities?	Changes in smolt production and survival	Cooperative effort with ODFW to determine total changes in smolt numbers by smolt trapping and other means.	Number of smolt/adult	Moderate	Annually	Annually	Wildlife Staff	Decrease of trends in ratio of smolt to adult escapement
13 2 Are existing and potential Chub habitat areas being maintained or improved?	Changes in Chub habitat area and quality	Cooperative effort with ODFW, OSU, and the USFWS to determine changes in habitat.	Acres of habitat	Moderate	Annually	3 years	Wildlife Staff	Decrease in area or quality of habitat.
13 3 Are existing populations of Oregon Chub being maintained or improved?	Changes in numbers of Chubs	Cooperative effort with ODFW, OSU, and the USFWS to determine changes in populations.	Number of Chub	Moderate	Annually	3 years	Wildlife Staff	Decrease in number of Chub.

Table V-M13 (Continued). Monitoring Questions - Fish Populations

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
13 4 Are existing and potential Bull Trout habitat areas being maintained or improved?	Changes in Bull Trout habitat	Cooperative effort with ODFW, OSU, and the USFWS to determine changes in habitat	Acres of habitat	Moderate	Annually	3 years	Wildlife Staff	Decrease in occupied habitat
13 5 Are existing populations of Bull Trout stable or increasing?	Changes in population levels of the life history stage using that habitat	Cooperative effort with ODFW, OSU, and the USFWS to determine population abundance by life history stage	Number of Bull Trout by life history stage	Moderate	Annually	3 years	Wildlife Staff	Decreasing abundance of second year or older life history stages

Table V-M14 Monitoring Questions - Riparian Aquatic Habitat & Streambank Stability

QUESTION: Are Standards and Guidelines for Water Quality and Riparian Areas effective in maintaining or enhancing stream conditions and aquatic habitat?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving stream condition and aquatic habitat, including habitat for Management Indicator Species, resident and anadromous salmonids The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality (including cumulative effects) and riparian areas (Management Area 15) in maintaining stable, diverse habitat.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
14 1 Are S&G's effective in maintaining and enhancing aquatic habitat and streambank stability?	Existing and future inputs of Large Woody Material; Volume and area of primary pools, Substrate suitable for spawning; Streambank stability; Fish populations; Macroinvertebrates.	Extensive surveys of fish bearing streams Intensive survey of representative reaches in sample subdrainages, repeating surveys 3 times in 10 years. Sample approximately 20 miles/year Use Rapid Bioassessment Method for macroinvertebrates	Large Woody Material, pool volume and area, % of substrate in fines or embedded, % of streambank stable, fish populations, biotic indices	Low	Annually	Annually	Wildlife staff	Decreasing trends in large woody material, pool volume, increasing trends in % fines in substrate, % of streambanks in unstable condition. Also, decreasing trends in resident fish population numbers

Table V-M15 Monitoring Questions - Wildlife: Bald Eagle

QUESTION: Are bald eagle recovery objectives being met on the Forest?

Discussion - The bald eagle is a threatened species Recovery objectives and management considerations are required under the *Pacific States Bald Eagle Recovery Plan*. Further guidelines have been developed in the *Working Implementation Plan for Bald Eagle Recovery in Washington and Oregon*. The Forest has existing and potential bald eagle territories within the Willamette Basin Recovery zone. These territories require protection and special management consideration.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
15 1 Are all 24 known and potential nest sites protected in accordance with the Forest Plan?	Acres managed or protected for bald eagles	Field survey	Acres/site	High	Survey every 3rd year	Annual	Wildlife Staff	Any site not protected
15 2 Have bald eagle management plans been prepared for all occupied territories, all newly discovered nest sites, and potential sites that have become occupied?	Management Plans	Document review	Plans completed	High	Within 3 years of plan implementation, or within 2 years of discovery.	Annual, or within 2 years of discovery.	Wildlife Staff	Any active nest or site not having a plan within 3 years of plan implementation or 2 years of discovery.
15.3 Have S&Gs been applied to all activities that might affect habitat in Management Area (MA) 8?	S&G compliance	Review of projects in MA 8.	Deviations from S&G compliance.	High	Annual	Annual	Wildlife Staff	Any project with deviations from S&G's adversely effecting habitat in MA 8
15.4 Are bald eagle numbers and habitat being maintained or increased on the Forest?	Population numbers in suitable habitat in MA 8	Population surveys and habitat condition surveys in MA 8	Eagles and acres	Moderate	Annual	Annual	Wildlife Staff	5% decline in population or loss of 5% nesting sites

Table V-M16 Monitoring Questions - Wildlife: TE&S Plants

QUESTION: Have populations of all threatened, endangered, and sensitive (TE&S) plants been inventoried, and are these plant populations being maintained at viable levels?

Discussion - No forest-wide inventory of TE&S plant species has been completed. No known federally listed T&E plants occur on the Forest, however numerous sensitive species do occur and require special consideration and/or protection.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
16.1 Are sensitive plant inventories being completed to determine the status/presence of populations in wilderness areas and other areas removed from timber harvest?	Inventoried acres	Data base review and report	Acres	Moderate	Annual	Annual	Wildlife Staff	Less than 20% of the no harvest acres are inventoried within 5 years of Plan implementation
16 2 Have sensitive plant inventories been conducted for all ground disturbing activities?	Projects with potential adverse effects on Region 6 Sensitive Species.	Project review	Number of project plans with adequate Biological Evaluations (BE)	High	Annual	Annual	Wildlife Staff	Any projects reviewed not having a Biological Evaluation.
16 3 Has the Forest established a "Monitoring Watch List" identifying plant species that are rare, unusual, or of special concern?	Monitoring watch list established	Review data base	Watch list published	Moderate	Annual	Annual	Wildlife Staff	A "no" answer to monitoring question
16.4 Have protective measures implemented as part of project activities been effective in maintaining the integrity of sensitive plant populations?	Plant population retained and productive	Field survey to Regional Standards	Sites maintained	Moderate	Every other year beginning with the second year of implementation	Every 2 years	Wildlife Staff	5% loss of protected populations

Table V-M16 (Continued). Monitoring Questions - Wildlife: TE&S Plants

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
16.5 Have species management plans been prepared to guide management activities to protect sensitive plant populations?	Species management Plan evaluation	Document review	Plans prepared	High	Every other year beginning with the 5th year of implementation	5 Years	Wildlife Staff	Any sensitive species with no management plan.

Table V-M17 Monitoring Questions - Wildlife: Northern Spotted Owls

QUESTION: Is the population and habitat of Northern Spotted Owls on the Forest being maintained at the level predicted in the FEIS?

Discussion - The FEIS for spotted owls estimated the long-term capability of the Forest to be 227 pairs. Of these, 60 pairs are in SOHAs, 55 pairs are in reserved lands, and 112 pairs will occur on lands suited and available for timber harvest. To date 219 pair activity areas (HAc) have been identified with 60 pairs in SOHAs, 15 pairs on reserved lands, and 144 pairs in lands available for timber harvest The Northern Spotted Owl is listed as a sensitive species in the *Regional Forester's Sensitive Species List, Threatened in the State of Oregon*, and is being considered for listing as a threatened species by the USFWS. Spotted owls are an ecological indicator for mature and old growth forest habitats. Monitoring of habitat conditions and spotted owl populations is needed because of the potential decline in habitat and species numbers.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
17 1 Are SOHAs being maintained in the correct number, size, distribution, and quality of habitat to meet S&Gs?	Habitat composition, size, and suitability.	Field surveys of all SOHAs within 3 years of plan implementation (est 20/year)	SOHA, acres of suitable habitat	High	Annual	Annual	Wildlife Staff	Greater than 5% of acres allocated per SOHA are unsuitable
17 2 Is the Forest maintaining the number of pairs of spotted owls within reserved lands and general Forest as predicted?	Pairs of spotted owls (HACs)	Banding, field survey	Pairs	Moderate	25% of HACs outside SOHAs annually	Annual	Wildlife Staff	A "no" answer to this monitoring question
17.3 Are the number of spotted owl pairs in the Forest SOHA network increasing or maintaining?	Population trend	Field survey of owl pairs	# owl pairs	High	Annual	Annual	Wildlife Staff	5% decline in pair occupancy from current condition within any 3-year period
17.4 Are SOHAs with verified pairs producing young at least once every 3 years?	Reproductive pairs	Field survey of nest success	# pairs with young	High	Annual	Annual	Wildlife Staff	5% decline in nesting success

Table V-M18 Monitoring Questions - Wildlife: Peregrine Falcon

QUESTION: Are the objectives for peregrine falcon recovery being met on the Forest?

Discussion - Peregrine falcons are an Endangered species in the Pacific Northwest. Recovery objectives require the establishment and maintenance of two pairs of peregrine falcons in the Cascades breeding management unit Twelve potential nest sites have been inventoried on the Forest. There has been no attempt to reintroduce pairs.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
18.1 Has all suitable nesting habitat been validated on the Forest?	Habitat suitability	Field surveys and ODFW & USFWS survey data	# Sites validated	Moderate	Once within 3 years of Plan implementation	3 years after Plan implementation	Wildlife Staff	Any sites not validated
18 2 Have the identified potential nest sites been surveyed for falcon activity or nesting?	Falcon Activity	Field Survey	Sites with falcons	Moderate	Annually	Annual	Wildlife Staff	10% of site not surveyed.
18 3 Have management plans been prepared for each nest site?	Site plan	Review	Plans	High	Within 1 year of nest site discovery	2 years after site discovery	Wildlife Staff	Noncompliance with required preparation of management plan
18.4 Have Peregrine Falcons begun to use these sites and maintain a stable population?	Site use	Field surveys of ODFW & USFWS survey data	# Falcons per site	High	3 Years	3 Years	Wildlife Staff	Any loss of occupancy of a site

Table V-M19 Monitoring Questions - Wildlife: Primary Cavity Excavators

QUESTION: Is adequate amount, quality, and distribution of snag habitat being maintained to ensure viable populations of cavity nesting species?

Discussion - Primary cavity excavators are those bird species that excavate nest and roost cavities. Numerous species of birds and mammals are dependent on these cavities for nesting and denning and are referred to as secondary cavity users. On the Forest, ten species of primary cavity excavators are used to represent the habitat requirements for all species dependent on snag habitat.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
19.1 Are the number, sizes, species, and distribution of wildlife trees prescribed in the EAs and prescriptions being left on harvest units?	Snags and distribution	Sample field survey	# units meeting prescription	High	Annual	Annual	Wildlife Staff	10% of harvest units not meeting EA prescription
19.2 Are wildlife trees retained on harvest units being used by primary excavator and secondary cavity nesting species? Are populations of primary excavators at the predicted levels?	PCE use of snags for nesting and foraging	Sample field survey of managed stands retaining snags	# snags with PCE activity	High	Every other year beginning with the 3rd year of implementation	2 Years	Wildlife Staff	10% of trees being retained not used by PCE
19 3 Are the existing snags and replacement trees standing and remaining suitable for the predicted length of time?	Decay classes of snags and number of replacements available	Sample field survey of managed stands retaining snags	# snags/acre in Class I-III, number of replacements available per acre	High	3 years	3 years	Wildlife Staff	20% of units without prescribed number of snags and replacement trees

Table V-M20 Monitoring Questions - Wildlife: Marten & Pileated Woodpeckers

QUESTION: Is there an adequate amount, quality, and distribution of mature or old-growth forests to maintain viable populations of species dependent on this successional stage of forest habitat?

Discussion - Marten and pileated woodpeckers have been selected as ecological indicator species As ecological indicator species, marten and pileated woodpeckers represent numerous wildlife species that are dependent on the vegetation attributes of older forests including large trees, snags, down logs, and closed forest canopies.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
20.1 Have marten and pileated habitat areas been provided in patterns maintaining three directional links to other habitat areas or mature/old-growth habitats (160 acres for marten and 300 acres for pileated woodpeckers) at maximum distances of 3 miles for marten habitat areas and 5 miles for pileated habitat areas?	Habitat distribution	District map sample analysis	Distance	High	Once within 2 year of implementation, then every 5 years	2 years after implementation, then every 5 years	Wildlife Staff	10% of areas do not meet distribution
20 2 Does the habitat mapped for PWHAs and MHAs meet the definitions for mature/old-growth habitat?	Habitat quality	Field sample	Acres	Moderate	Once within 5 years, first sample within 2 years	5 year	Wildlife staff	10% of acres sampled unsuitable
20.3 Are projects being implemented meeting the intent of the standards and guidelines for maintaining habitat conditions and security needed for dispersal, foraging, and reproduction?	S&G compliance	Project review sample	Number of projects meeting S&G's	High	Every other year	2 Years	Wildlife Staff	5% of projects not meeting S&G intent

Table V-M20 (Continued). Monitoring Questions - Wildlife: Marten & Pileated Woodpeckers

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
20.4 Are habitat areas occupied by martens and/or pileated woodpeckers? Are habitat areas providing habitat conditions that allow the species to reproduce successfully?	Habitat area occupancy & reproduction by marten and pileated woodpeckers	Field survey	# habitat areas occupied by reproductive pairs	Moderate	50% of habitat areas every 3rd year, 1st sample within 2 years of implementation	Every year of sampling	Wildlife Staff	10% of habitat areas not occupied by indicator species

Table V-M21 Monitoring Questions - Wildlife: Deer & Elk

QUESTION: Are habitat effectiveness values for cover quality, forage quality, open road density, and size and spacing of food cover being increased or maintained as established for each emphasis level?

Discussion - Roosevelt elk and blacktailed deer are important game species on the Forest. Habitat effectiveness for elk is assumed to provide similar habitat quality for deer. Potential population indexes for deer and elk are used to assess relative habitat conditions and objectives with low, moderate, and high emphasis management areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
21 1 Are projects being implemented to achieve the habitat effectiveness values as predicted in the Forest Plan?	Habitat improvement projects implemented	Field check 25% of projects with habitat improvement projects proposed	Projects implemented	High	Every other year starting with the 3rd year of implementation	Each year sampled	Wildlife Staff	5% of prescribed projects not implemented within 2 years of timber sale completion
21.2 Are habitat improvements (road closures, forage enhancement, and unit distribution) increasing the use of management areas by deer and elk?	Increased elk and deer use	Comparison of elk use of improved vs unimproved areas	Deer and elk use	Moderate	Every other year starting with the 5th year of implementation	5th, 7th, & 9th year	Wildlife Staff	10% of emphasis areas without predicted response
21 3 Are deer and elk population densities maintained at the index values estimated for the three levels of management emphasis?	Population estimate	Winter post hunting counts within high, moderate, and low areas (with ODFW)	# deer & # elk	Low	3rd, 5th, & 7th year	4th, 6th, & 8th year	Wildlife Staff	±20% of potential population index for sample area

Table V-M22 Monitoring Questions - Timber Suitability

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
22 1 Are lands identified as not suitable for timber production still unsuitable and those identified as suitable for timber production still suitable?	Changes in the classification of suited/available land base	Identify changes in suitable land by re-evaluating suitability (TRI/GIS computer information systems)	Acres	High	5 years	5 years	Timber Staff	5% change in suited land base
22 2 Have cumulative changes to allocations caused changes to total suitable acres?	Changes in mapping	Correct base to reflect changes in acres of stream buffers, vegetation leave areas, etc , identified during project planning to meet Standards and Guidelines	Acres	High	Ongoing	2 years	Timber Staff	5% change in suited land base

Table V-M23 Monitoring Questions - Timber Program

QUESTION: Is the timber sale program quantity/quality 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 meet the demand for wood products while avoiding adverse impacts to fish and wildlife habitat and other important Forest resources.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
23 1 Is the number of acres of programmed timber sold similar to the predicted amount?	Number of regeneration acres, or equivalent, sold	Measure with computer information systems (STARS, TSA, and TRACS). Tracked on TRI/GIS	Acres	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount annually, 5% for the decade.
	Number of commercial thinning acres sold.	Measure with computer information systems (STARS, TSA, and TRACS) Tracked on TRI/GIS	Acres	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount annually, 5% for the decade.
23.2 Is the volume of programmed timber sold similar to the predicted amount?	Volume sold	Measure with computer information systems (STARS, TSA, and TRACS).	MMBF/MMCF	High	Annual	Annual	Timber Staff	Deviation of 10% from predicted amount annually, 2% for the decade.
23 3 Is the number of acres of programmed timber sold by working group, distributed as planned?	Distribution by working group	Measure with computer information systems (STARS). Track by TRI/GIS.	Acres	High	Annual	Annual	Timber Staff	Deviation of 15% from predicted amount.

Table V-M23 (Continued). Monitoring Questions - Timber Program

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
23.4 What is the actual rate of harvest on the less than full yield allocations (e g , 5, 7, 10, 12% per decade allocations)?	Regeneration acres or equivalent, sold within less than full yield allocations	Measure with computer information systems (STARS) Track with TRI/GIS	Acres	High	Annual	5 years	Timber Staff	Deviation of 25% in any category at five-year reporting periods
23.5 Is uphill falling being implemented as directed in Standards and Guidelines?	Use of uphill falling standard.	Sample one sale per District per year for compliance.	MMCF	Moderate	Annual	5 years	Timber Staff	Any project not meeting S&G's for uphill falling.
23.6 Are the effects of uphill falling similar to predictions?	Increased recovery of net volume	Sample one sale per district per year to establish predicted versus actual breakage	MMCF	Moderate	Annual	5 Years	Timber Staff	Less than a 2% increase in net volume

Table V-M24 Monitoring Questions - Silvicultural Practices

QUESTION: Are silvicultural practices outlined in 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
24.1 Is stocking being established and maintained at recommended levels and timeframes?	Acres regenerated within 5 years	Annual reforestation survival report and computer information systems (TRACS). Tracked on TRI/GIS.	Acres adequately stocked within 5 years	High	Annual	Annual	Timber Staff	5% annual deviation
24 2 Are managed stands being maintained at the prescribed stocking levels?	Acres precommercially thinned	Computer information systems (TRACS) Tracked through TRI/GIS.	Acre	High	Annual	Annual	Timber Staff	Deviation of 10% from projected acres
	Change in the amount of unstocked acres in managed stands	Acres of unstocked areas identified through stocking surveys.	Acres	High	5 years	5 years	Timber Staff	20% deviation from predicted unstocked acres.
24 3 Is growth response to intensive management practices similar to predicted amounts?	Growth and yield of managed stands.	Managed stand plots (in conjunction with the Regional Office)	Cubic foot growth per acre, stand BA	Moderate	2 years	10 years	Timber Staff	Deviation of 10% from projected growth.
24 4 Is release being completed according to silvicultural prescriptions?	Prescribed release accomplished	Computer information systems (TRACS) Tracked through TRI/GIS	Acres	High	Annual	2 year	Timber Staff	Deviation of 10% of cumulative years needs

Table V-M24 (Continued) Monitoring Questions - Silvicultural Practices

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
24.5 Is fertilization being accomplished as predicted?	Acres fertilized	Computer information systems (TRACS). Tracked through TRI/GIS	Acres	High	Annual	2 year	Timber Staff	Deviation of 10% of cumulative years needs
24 6 Is genetically improved planting stock utilized as planned?	Acres of actual usage.	Computer information systems (TRACS)	Acres	High	Annual	2 year	Timber Staff	Deviation of 10% of cumulative year planned
24.7 Are created openings within established maximum size limits and are the size limits meeting objectives?	Size of created openings Number and nature of requests for variance review.	Review requests to Regional Office for variance	Acres	Moderate	Annual	5 year	Timber Staff	10% of created openings require Regional Office review for opening size variance.
24.8 Are destructive insects and disease organisms below potentially damaging levels?	Extent of outbreaks and infestations	Regional aerial surveys to District reporting.	Acres by pathogen	Moderate	Ongoing	Annual	Timber Staff	5% of total suited acres above endemic levels.

Table V-M25 Monitoring Questions - Water Quality: Turbidity

QUESTION: Are Standards and Guidelines for Water Quality effective in providing water which meets Water Quality Standards for turbidity?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality (including Best Management Practices) to minimize increases in turbidity.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
25 1 Are S & Gs effective in meeting State Water Quality Standards for turbidity?	Increases in Turbidity (Nephelometric Turbidity Units - NTU's) in relation to flows.	Collect data on turbidity and flow in sample subdrainage tributaries and mainstem streams. Several subdrainages will have 2 sample sites for above/below comparisons Assess as described in *A budget analysis of turbidity and streamflow data.*	Turbidity /flow ratios	Low	Turbidity Flow data will be collected with increasing frequency during high flows between October and March.	Data reports annually; analysis reports every 3 years.	Soil & Water Staff	Turbidity/flow ratio indicates increases in turbidity

Table V-M26 Monitoring Questions - Water Quality: Temperature

QUESTION: Are Standards and Guidelines for water quality effective in providing water which meets Water Quality Standards for temperature?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality, (including Best Management Practices) to minimize increases in temperature.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
26.1 Are Standards and Guidelines effective in meeting State Water Quality Standards for temperature?	Increases in Temperature.	Collect Temperature data in sample subdrainages and watersheds Several subdrainages will have 2 sample sites for above/below comparisons.	Temperature	Moderate	Annually, between July 15 and October 15	Data reports annually, analysis reports every 3 years.	Soil & Water Staff	Increasing temperature trends, temperatures in excess of State numerical standards

Table V-M27 Monitoring Questions - Water Quality: Peak Flows

QUESTION: Are timber harvest schedules effective in minimizing detrimental increases in peak flows?

Discussion - Peak flows may increase due to openings created in the transient snow zone. The potential damage from increased peak flows are assumed to be mitigated through S&G's for water quality cumulative effects.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
27.1 Are increases in peak flows occurring in subdrainages?	Increases in peak runoff during rain-on-snow storms.	Monitor flow, snow depth, temperature in sample subdrainages. Comparisons of before and after management activities, and between subdrainages	Cubic feet/ sec	Low	Annually	Data reports annually, analysis reports every 3 years.	Soil & Water Staff	Significant increase in flows during rain-on-snow events.
27.2 If increases in peak flows occur, are they having detrimental effects on stream condition?	Changes in channel characteristics	See "Effectiveness (Riparian Aquatic Habitat & Streambank Stability)," Table V-M14						

Table V-M28 Monitoring Questions - Riparian Terrestrial Habitat

QUESTION: Are Riparian S&Gs effective in meeting Forest Goals for terrestrial riparian resources?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals for riparian areas. These goals are to provide 1) 100% of potential populations of primary cavity excavators, 2) optimal thermal cover for deer and elk, 3) input of Large Woody Material to the stream, 4) full floodplain functioning, 5) dispersal of interior species across the landscape, 6) habitat for riparian dependent plant and wildlife species. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Riparian Areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
28.1 Are Riparian Areas providing for quality and diversity of Riparian plant and wildlife habitat?	Are Riparian Areas providing for, 1) 100% of potential populations of primary cavity excavators? 2) Optimal cover for deer and elk? 3) Input of Large Woody Material to streams, 4) Full floodplain functioning, 5) Corridors for dispersal of interior species? 6.) Riparian dependent plant and wildlife species?	Field sample riparian areas affected by project work before and after projects Evaluate percent of watershed connected by riparian corridors by examining project planning records Sample inventory of riparian dependent species	1) Number of snags 2 & 3) Width of riparian areas 4) Percent of floodplains included in riparian areas 5) Percent of watershed connected. 6) Numbers and types of riparian dependent species	Low	Annually	1.) Annually, 2) Every 5 years, 3. & 4) Annually, 5) Every 5 years.	Soil & Water Staff.	1) A decrease of riparian areas with less than 100% snag levels 2) A decrease of riparian areas in winter range of High or Medium Emphasis Areas not used for optimum cover 3) A decrease in input of Large Woody Material below averages shown in Riparian Field Guide 4) A decrease in floodplain functioning 5.) An increase in riparian fragmentation within a 5 year period

Table V-M29 Monitoring Questions - Hydrologic Recovery

QUESTION: Are the modeling tools of the Cumulative Effects Standards and Guidelines valid?

Discussion - FORPLAN estimates of outputs included a constraint to model the "Recommended ARP" that may be used as a project level BMP. The modelling tool is "Midpoint ARP" The differences between Recommended ARP and Midpoint ARP may cause an overestimation or underestimation of acres which can be harvested.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
29.1 Are Midpoint ARPs a valid representation of the Recommended ARPs?	Difference in acres programmed to be available for harvest at the project level, and the planning level.	Review project planning records to determine the number of acres in a subdrainage being harvested, and whether they are limited by Recommended ARP Compare these acres with those modelled in the FORPLAN sidemodel, Spatial Disaggregation Process (SDP) Coordinate this review with Soil & Water Implementation review.	Acres	Low	Annually.	Data reports annually; analysis reports every 3 years..	Soil & Water Staff.	5% increase or decrease in the number of acres shown as available in SDP.

Table V-M30 Monitoring Questions - Water Quality: Lakes

QUESTION: Are Standards and Guidelines for Water Quality and Riparian Areas effective in maintaining or enhancing water quality and riparian conditions of lakes?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality and riparian conditions of lakes. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality and Riparian Areas.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
30 1 Are S & G's effective in maintaining the chemical, biological, and physical characteristics in lakes surrounded by areas of timber management and/or intensive recreational use?	Increases in non-point pollution	Sample lakes on the Forest, establishing permanent monitoring points within the lakeside management influence zones	Specific to parameter being measured.	Low	Annually	Annually	Soil & Water Staff	Decreasing trend in quality

Table V-M31 Monitoring Questions - Wetlands

QUESTION: Are Standards and Guidelines for riparian areas and water quality effective in maintaining beneficial values of small wetlands?

Discussion - Small wetlands provide unique habitats and clean water. The Clean Water Act mandates mitigation of wetland loss. This mitigation will occur through implementation of the Standards and Guidelines.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
31.1 Are management practices maintaining aquatic invertebrates, vegetation, and water quality in representative small wetlands?	Changes in biotic communities, water characteristics, wetland functions and values	A sample of small wetlands near areas of management activities, as described in *"Guidelines for assessing the biotic communities of freshwater wetlands" (Brooks & Hughes 1986)*	Specific to parameter being measured.	Low	As in methods	Data report annually. Analysis report every 3 years	Soil & Water Staff	Decreasing trends of functions and values near areas of management activities

Table V-M32 Monitoring Questions - Water Quality: Mass Movement

QUESTION: Are Standards and Guidelines for Water Quality effective in managing Mass Movements to meet Forest Goals?

Discussion - The Standards and Guidelines provide direction to enable the Forest to meet the goals of maintaining or improving water quality, including using practices to ensure that mass movement does not decrease water quality. The Forest's ability to meet the goals depends on the effectiveness of S&Gs for Water Quality (including Best Management Practices) to manage mass movements.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
32 1 Are Standards and Guidelines effective in managing mass movement within Forest Goals?	Increases in mass movement due to management practices	Critical sites of potential highly unstable landtypes where road building and timber harvest have occurred will be monitored across the Forest These will be selected to represent a range of conditions and practices Methods used will be specific to the site.	Number of projects	High	Annually	Annually	Engineering Staff (Geotechnical)	Decrease in success of attaining desired condition for potentially unstable areas.

Table V-M33 Monitoring Questions - Soil Productivity: Mass Movement

QUESTION: Are the FEIS predictions of mass movement valid?

Discussion - Predicted outputs of sediment in the FEIS were based largely on interpretation of aerial photographs. Additional verification of the rates of mass movement is needed to validate the predicted risk of environmental effects.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
33.1 Are the rates, magnitudes, and/or intensities of mass movement from both managed and unmanaged lands consistent with the historic levels and assumptions?	Mass movement of soils	Aerial photo interpretation and ground verification of movement following storm events with a 10 year return frequency. Additional information on mass movements will be aquired through Road Damage Assessments.	Cubic yards / acre	Fair	Annually	Data reports annually; analysis reports every 3 years.	Soil, Water, Fish & Wildlife Staff	When average rates are determined to be 50% above or below those predicted in the FEIS

Table V-M34 Monitoring Questions - Soil Productivity

QUESTION: Are Standards and Guidelines for Soil Productivity effective in maintaining soil condition and conditions for nutrient cycling?

Discussion - The Standards and Guidelines provide direction which enables the Forest to meet the goals of maintaining or improving soil productivity. The Forest's ability to meet the goals depends on the effectiveness of S&Gs.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
34.1 Are S & Gs effective in meeting Forest Goals for soil condition, erosion, and nutrient cycling?	Detrimental soil conditions	Utilize a representative sample of the Forest with methods described in FSM 2520 R6 Supplement-50. Additional acres will be assessed based on visual estimates accomplished and documented during project monitoring.	Percent of area, large woody debris, duff retention, compaction	Moderate	Annually	Annually	Soil & Water Staff	More than 20% of soil in areas surveyed in detrimental conditions

Table V-M35 Monitoring Questions - Air Quality

QUESTION: Are management activities that affect air quality in compliance with state and federal air quality regulations?

Discussion - Activities on the Forest lands must meet State Implementation Plan requirements for visibility, particulate emissions, and prescribed burning instructions issued daily by the Oregon State Forester. The visibility protection plan requires that any prescribed burning conducted on forest land between July 4 and Labor Day meet specific criteria. A large part of the Willamette valley and the city of Bend have been declared "Designated Areas." The objective of the Oregon Smoke Management Plan is to prevent smoke resulting from forest burning from being carried to or accumulate in Designated Areas or other areas sensitive to smoke.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
35.1 Were there deviations from state smoke management plan requirements for fuel consumption within a zone?	Compliance with daily smoke management instructions for allowable fuel consumption	Measured fuel loading data and fuel consumption modeling	Tons per acre and consumption	Moderate	Daily when prescribed burning	Annually	Fire Staff	When deviations occur without prior approval
35.2 Did any reportable intrusions occur in designated or smoke-sensitive area?	Intrusions into designated areas	Evaluation of reports of intrusions into designated or smoke-sensitive areas	Number of intrusions	Moderate	When reports are received	Annually	Fire Staff	When 4 or more intrusions occur annually.
35.3 Were visibility standards for Wilderness Class I areas exceeded during the July 4 to Labor Day period as a result of management activities?	Approved activities conducted within parameters of smoke management instructions and visibility protection guidelines	Visual monitoring by fixed and aerial methods.	Presence of smoke.	Low	Each prescribed burn project conducted during the summer period	Annually	Fire Staff	When or if burning activities were planned regularly that cannot be accomplished due to air quality restrictions, or if intrusions occurred

Table V-M36 Monitoring Questions - Fire Protection

QUESTION: Are fire protection objectives as outlined by standards and guidelines being achieved?

Discussion - Desired result is to provide fire protection capability.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
36.1 Are the acres burned by wildfire within the levels considered in the Plan?	Number and size of wildfires	Reports and surveys.	Acres	High	As fires occur	Annually	Fire Staff	When actual acres burned over a 3 to 5 year period is more than 50% of expected acres burned per decade.

Table V-M37 Monitoring Questions - Fuels

QUESTION: Are fuel treatment guidelines as outlined by standards and guidelines being implemented as planned?

Discussion - Maintenance of acceptable level of fire hazard and prompt regeneration of harvest areas, while meeting standards for fuel loading and long-term site productivity, are objectives of the Plan.

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
37.1 Were fuel loading/ distribution standards met on affected activity areas?	Adequacy of fuel loading and distribution.	Physical inventory or photo series comparison	Tons per acre for small size classes, pieces per acre for large wood.	High	Following completion of harvest for each project area.	Annually	Fire Staff	More than 10% of harvested areas exceed fuel loading and distribution standard.

Table V-M38 Monitoring Questions - Transportation

QUESTION: Is the transportation system meeting the planned resource objectives?

Discussion - Roads are designed and maintained to minimum standards required for 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
38 1 Are planned projects and program targets being accomplished?	Project output	Accomplishment Reports (ROADS database)	Miles	High	Annual	Annually and as needed	Engineering Staff	Accomplishments deviate more than 10% from Forest Plan targets over 3 years
38 2 Are system roads meeting Plan objectives?	Roads open to passenger cars, roads suitable for high clearance vehicles, roads closed to vehicles, and Road Standards	Roads accomplishment report (existing reports). Review Road Management Objectives.	Miles	High	Annual	Annually	Engineering Staff	Road system miles or standards deviates from Plan more than 10% over 3 years
38 3 Are system roads meeting Plan objectives?	Roads removed from system, closed, and have vegetative cover reestablished	Project review, annual report	Miles	Moderate	Annual	Annually	Engineering Staff	10% of roads not removed that are determined not to be needed on system or less than 10 miles in 3 years identified for removal

Table V-M38 (Continued) Monitoring Questions - Transportation

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
38 4 Are treatments of temporary roads meeting Plan objectives?	Temporary roads closed and revegetated.	Project reviews Annual report	Miles	Moderate	Annual	Annually	Timber Staff	Temporary roads not closed and revegetated deviate from Forest Plan timeframes more than 10%.
38 5 What traffic volumes and characteristics are using the transportation system?	Number of vehicles by traffic type	Field traffic surveillance.	Average daily traffic/peak traffic volumes (number of vehicles by traffic type).	Moderate	Varies by site.	Annual	Engineering Staff	Mix of traffic and/or volumes deviate more than 10% from historical levels.

Table V-M39 Monitoring Questions - Research Natural Areas

QUESTION: Are Research Natural Areas being protected and inventoried for use as ecological reference points?

Discussion - RNAs are established as preserves and sources for data. They are valuable for research and long-range monitoring of the status of minor components of ecosystems Monitoring on RNAs serves two purposes: (1) to protect the value of the RNA as an ecological preserve and (2) to provide baseline data for monitoring the Forest's resources as well as for research and education

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
39.1 Is management preventing or minimizing disturbance to the RNA?	Vegetation and habitat conditions	Map and inventory vegetation and habitat factors.	Species composition, vegetation structure, spatial distribution	Moderate	Annually	2 years	Planning Staff	Changes in vegetation greater than natural variability
39 2 Are more (or less) RNA's needed to serve as an ecological reference point for the Forest and scientific community?	Baseline data	Review data base	Data set for each RNA.	Moderate	Annual	2 years	Planning Staff	Unfilled need for baseline vegetation inventory and mapping

Table V-M40 Monitoring Questions - Biological Diversity

QUESTION: Is biological diversity being maintained or enhanced on the Forest?

Discussion - Maintenance of biological diversity is required by NFMA (219.26, 219 3, and others).

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
40.1 Is an ecologically sound distribution of plant association groups and seral stages being maintained?	Spatial distribution and acres by plant association groups and seral stage	Calculate acres of plant association group by seral stage.	Acres	Moderate	Annually	Annually	Planning Staff	Decline of any plant association and seral stage group to less than 10% of historical acres.
		Map distribution of plant association group by seral stage.	Forest-wide pattern	Moderate	Annually	Annually	Planning Staff	Disappearance of any plant and seral group from a subdrainage.

Table V-M40 (Continued). Monitoring Questions - Biological Diversity

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
40 2 Is a Forest-wide network of ecologically significant old-growth stands being maintained?	Loss of corridor connection Loss of the most ecologically significant stands of old growth.	Map network. Calculate ecological significance. Map and measure loss of connection and loss of the most significant stands. percent of acres per sub-basin and Forest-wide.	Acres and percent area of old growth stands and connectors by significance rank Map of network	Moderate	Annually	Annually	Planning Staff	More than 10% of the harvest occurs in the top 20% of ecologically significant old growth. More than 10% of the top 20% of the ecologically significant stands are not connected to old growth network. Ecologically significant ranking for the top 25% of ecologically significant old growth stands is declining
40 3 Are old-growth stands evaluated for ecological significance prior to project design?	Ranking/evaluation of ecological significance Forest-wide	Calculate stand ecological significance using landscape and within-stand criteria Map Forest-wide, verify in the field as necessary	NA	Moderate	Annually	Annually	Planning Staff	A Forest-wide ecological significance ranking does not exist

Table V-M40 (Continued). Monitoring Questions - Biological Diversity

Evaluation Question	Measured Action/Effect	Methods	Unit of Measure	Estimated Reliability	Information Collection Frequency	Report Period	Management Responsibility	Threshold of Variability
40 4 Is with-in stand diversity meeting standards and guidelines for live green trees, snags, and down logs?	If harvested units comply with standards and guidelines	Verify levels of snags, green trees and logs in all units post-harvest	Numbers per acre and distribution	High	Annually	Annually	Planning Staff	More than 10% of units do not comply
40.5 Are unique or special wildlife or plant habitats being maintained?	Natural species diversity	Statistically sound samples comparing baseline and post-activity for a portion of effected areas.	Natural species composition and dominance.	Moderate	Annually	Annually	Planning Staff	More than 10% of effected areas suffer significant diversity losses.

Table V-M41 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
41.1 Have there been changes in the local population?	Changes in local population	Review reports from U S. Census, State publications, County and local agency reports	Thousands of persons	High	Annually	Annually	Planning Staff	+/- 15% change in 3 years
41 2 Have there been changes in local employment patterns?	Changes in local employment pattern	Review reports from U S Census, State publications, County and local agency reports	Thousands of persons by industry of occupation	High	Annually	Annually	Planning Staff	+/- 15% change in 3 years
41.3 Do the 3-year average annual payments to each county meet projections?	Payments to counties	Review Forest records	Dollars	High	Annually	Annually	Planning Staff	Deviations from projections exceed 10% over 3-year average
41 4 Do the average annual receipts and product prices conform to predictions?	Annual receipts	Review revenue reports	Dollars	High	Annual	Annually	Planning Staff	Deviations from expected values exceed 10% over 3 years

Table V-M41 (Continued). 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
41 5 Do the average measures of local employment and income rates meet projections?	Local employment and income rates	Review State Employment/Income Statistics	Percent unemployment and income rates	High	5 years	Annually	Planning Staff	Deviations from projections exceed 20% over 5 years
41.6 Do total costs by resource activity and major program costs conform with predictions?	Total costs	Review budget reports	Dollars	High	Annual	Annually	Planning Staff	Deviations from expected values exceed 10% over 3 years.
41 7 Has there been a significant change in public attitudes, beliefs or values, or in National or Regional direction?	Emerging Issues	Interaction with our public Review new direction.	Degree of issue intensity	High	Continuous	Annually	Planning Staff	Identification of emerging issues; passage of new laws or direction
41.8 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%

Evaluation

When the answer to a Monitoring Evaluation Question exceeds the threshold of variability, 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-4: Decision Flow Diagram for the Evaluation of the Forest Plan.

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:

1. Summary of the responses to each monitoring question which is to be answered in the current year.

2. Situations where further evaluation is needed, and describes the action which will be taken.

3 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 Summary of the findings of evaluations which were completed during the year, and the actions which were taken in response to these findings.

5 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. Table V-2 displays reasons for amendment, examples of what could trigger a nonsignificant versus a significant amendment, and reasons for revision.

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 not be feasible 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 subdrainage 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-4. Decision Flow Diagram for the Evaluation of the Forest Plan

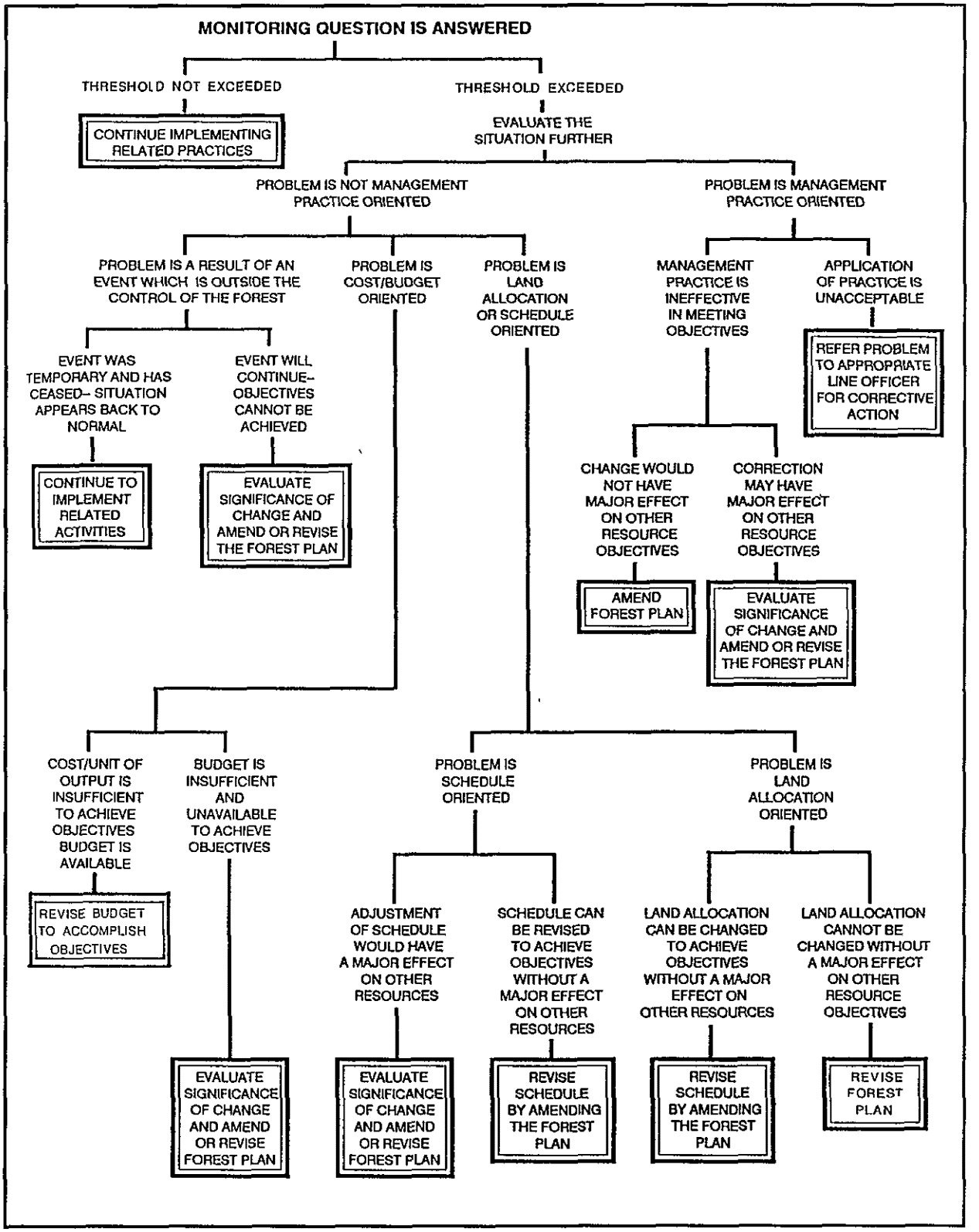
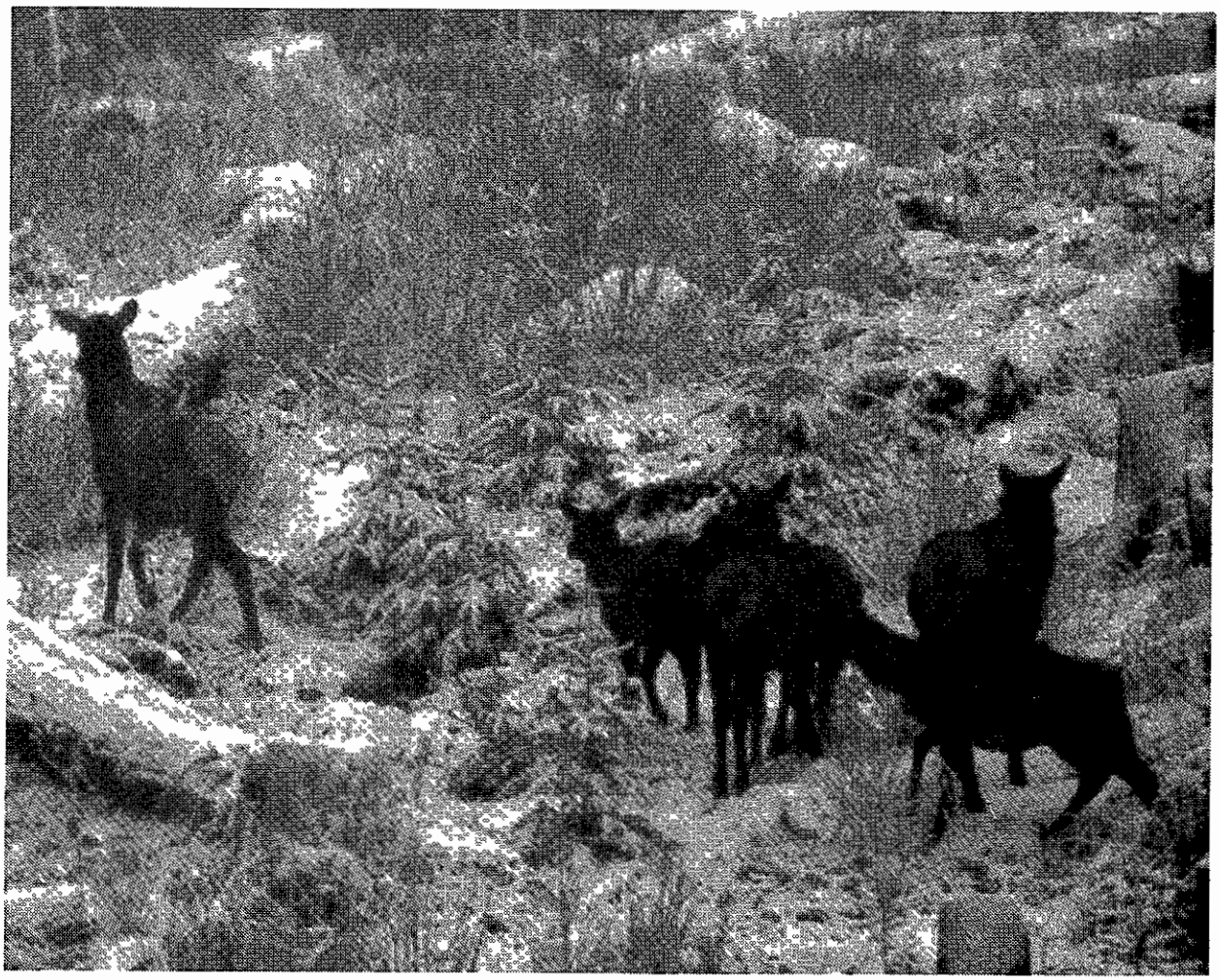


Table V-2. Examples of Needs to Amend or Revise the Forest Plan

Item	Possible Reasons
Reasons for Amendment	1. Recommendations of the interdisciplinary team based on findings that emerge from monitoring and evaluating implementation of the Forest Plan (36 CFR 219 12(k); Forest Service Manual 1922 6). 2. Decisions by the Forest Supervisor that existing or proposed permits, contracts, cooperative agreements, and other instruments authorizing occupancy and use should be considered for approval *but are not consistent with the Forest Plan (36 CFR 219.10(e)).* 3. Changes in proposed implementation schedules necessary to reflect differences between funding levels contemplated in the Plan and funds actually appropriated. 4. Changes necessitated by resolution of administrative appeals. 5. Changes to correct planning errors found during Plan implementation. 6. Changes necessitated by changed physical, social, or economic conditions
Nonsignificant Amendments	1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management. 2. Adjustments of management area boundaries or management prescriptions resulting from further site-specific analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management 3 Occasions when a decision is made to proceed with consideration of a project or activity that is not consistent with the Plan and the change is minor. 4 Minor changes in standards and guidelines. 5. Short-term fluctuations in an implementation schedule or changes in planned annual output(s).
Significant Amendments	1. Changes that have an important effect on the entire Plan or affect land and resources throughout a large portion of the planning area such as large, Forest-wide increases or decreases in resource demands. 2 Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (36 CFR 219.10(e)). This category would include changes in implementation schedules created by sustained differences between proposed budgets and actual appropriations.
Reasons for Revision	1. Five year review identifies resource conditions or demands of the public have changed significantly from those projected. 2. Plan has not been revised for 15 years. 3. At any time, the Forest Supervisor determines that resource conditions or public demands have changed significantly. 4. Changes in laws or RPA policies, goals, or objectives have a significant effect on programs.



Roosevelt Elk - Salt Creek area.

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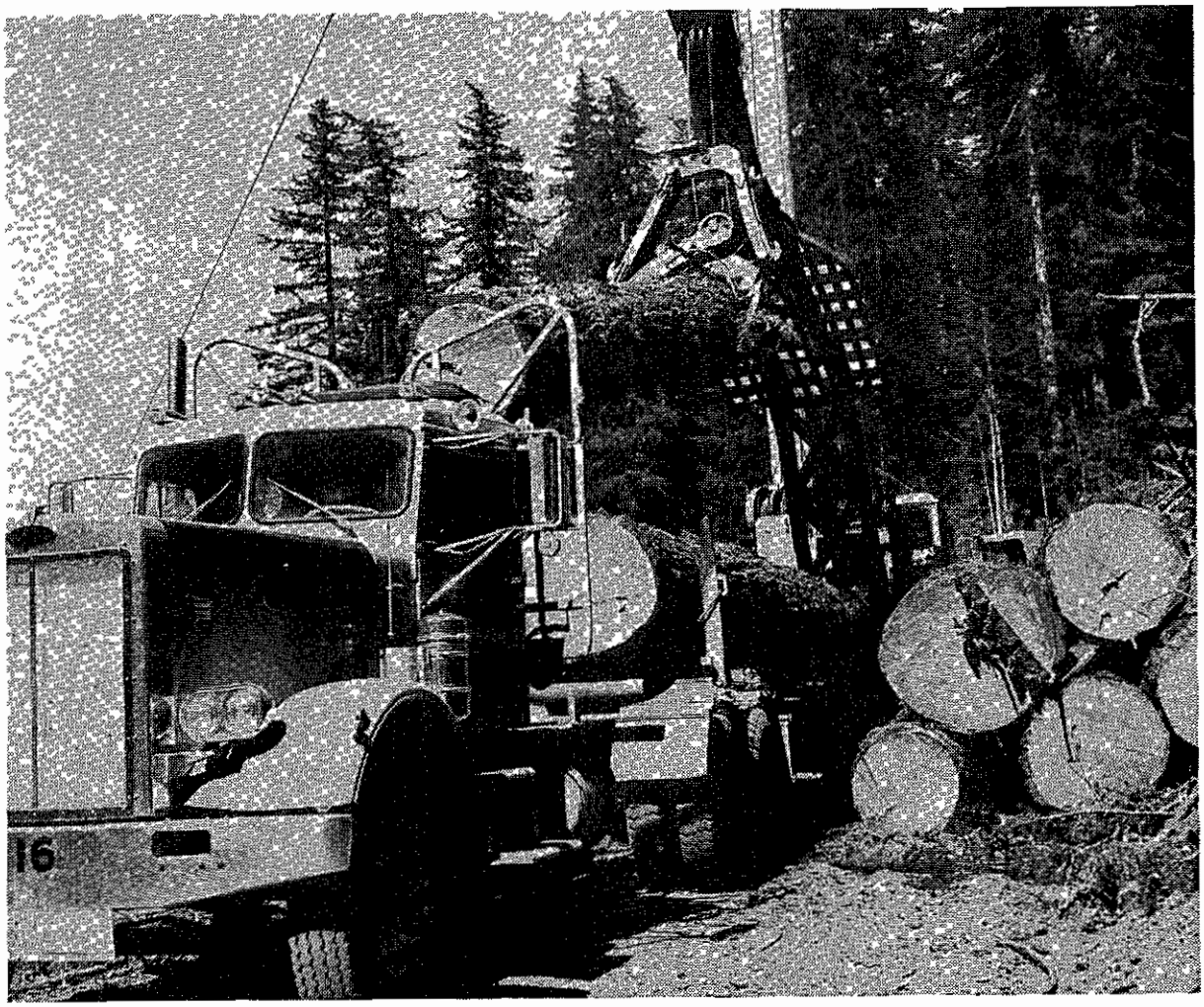
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Log truck at Blue River Ranger District sale.

GLOSSARY

GLOSSARY

Many of the definitions in this glossary are referenced to the following sources. The sources are identified by a number in parentheses following the definition. This number corresponds to the list below. Some other terms will be referenced to Forest Service Manuals (FSM), Forest Service Handbooks (FSH), or other sources which are too numerous to list Finally, many other definitions are not referenced, but are those in general use on the Forest.

SOURCE LIST

(1) 36 CFR 219 National Forest Management Act Regulations.
(2) Regional Guide for the Pacific Northwest Region, 1984.
(3) SAF Dictionary of Forestry Terms, 1971.
(4) The Random House College Dictionary, Revised Edition, 1975.
(5) Webster's New International Dictionary, 1957.
(6) Wildland Planning Glossary, 1976.
(7) Webster's Third New International Dictionary, 1981.
(8) Wildlife Habitats in Managed Forests, The Blue Mountains of Oregon and Washington, 1979.
(9) A Glossary of Terms Used in Range Management.
(10) Forest Service Manual or Forest Service Handbook

A

Abnormally heavy storms - Storms with a 10- to 100-year return period That is, a 10-year storm occurs on the average of once every 10 years, a 20-year storm occurs on the average of once every 20 years, and so forth.

Access - Usually refers to a road or trail route over which a public agency claims a right-of-way for public use; a way of approach. (4)

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 equivalent - When applied to habitat improvement or improvement structures, this term reflects overall habitat benefits derived It reflects the zone of influence of the habitat improvement for the target species For example, a single water development for upland game birds occupies very little space but has an acre equivalent of 160 because it serves 160 acres of bird habitat. A single water structure for big game has a value of 640 because it has a larger zone of influence for the more mobile big-game animals.

Acre-foot - A measure of water or sediment volume, equal to the amount which would cover an area of one acre to a depth of one foot (i.e., 43,560 cubic feet or 325,851 gallons). (6)

Activity - An action, measure 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. (2)

Activity fuels - Fuels generated or altered by a management activity. (10)

Administrative unit - An area under the administration of one line officer, such as a District Ranger, Forest Supervisor, or Regional Forester. (6)

Age class - An interval, usually 10 to 20 years, into which the age ranges of vegetation are divided for classification or use. (3)

Age group distribution - Age class distribution; the location and/or proportionate representation of different age classes in a forest. (3)

Aggregate Recovery Percent - Measure of the vegetative condition related to its ability to intercept rain, snow, and wind.

Airshed - A geographic area that, because of topography, meteorology, and climate, shares the same air. (2)

Allocation - See *Land use allocation* or *Resource allocation.*

Allotment - See *Range allotment.*

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." (6) (1)

All terrain vehicle (ATV) - A vehicle characterized by its ability to negotiate most kinds of terrain, by virtue of traction devices such as wide tracks, large, low-pressure rubber tires and/or four-wheel drive.

Alternative - One of several policies, plans, or projects proposed for decision making. (2) (10)

Amenity - An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. The terms "amenity values" or "amenity resources" are typically used in land management planning to describe those resources for which monetary values are not or cannot be established (such as clean air and water, 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 in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives, and (2) economic and social impacts (FSM 1905) Tracts of land with relatively homogeneous characteristics in terms of the outputs and effects that are being analyzed in the FORPLAN model.

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. (1)

Animal Unit Month (AUM) - The amount of forage required by one mature (1,000 lb.) cow or its equivalent for one month (based upon average forage consumption of 26 lbs. dry matter per day) (6)

Anomalies - A deviation from the common rule, type, or form An incongruity or inconsistency. (4)

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 plant and animal communities they support.

Aquifer - A geological formation or structure that contains water in sufficient quantity to supply needs for water development. (6)

Artifact - An object made or modified by humans. (4)

Assigned values - Monetary values given to nonmarket resources, based on estimates from comparable market transactions. For example, the benefits of dispersed recreation are given assigned monetary values for their production.

Available forest land - Land which has not been legislatively or administratively withdrawn by the Secretary of Agriculture or Forest Service Chief from timber production

Average Daily Traffic (ADT) - The average 24-hour volume of traffic, being the total volume of traffic during a stated period divided by the number of days in that period. (6)

B

Background - In visual management terminology, refers to the visible terrain beyond the foreground and middleground where individual trees are not visible, but are blended into the total fabric of the stand. Also a portion of a view beyond three to five miles from the observer, and as far as the eye can detect objects. (6)

Bald Eagle Management Areas (BEMAs) - Areas managed for the protection of the threatened and endangered bald eagle BEMAs provide nesting and roosting habitat for the bird on each plot.

Basal area - The area of the cross-section of a tree stem near the base, generally at breast height and inclusive of bark. (3)

Base sale schedule - A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity. (This definition expresses the principle of nondeclining flow.) (1)

Basic resource - One of the principal resources; a resource upon which the production of other resources is dependent; e.g., the production of vegetation is dependent upon basic resources such as soils and water.

Benefit (Value) - Inclusive terms used to quantify the results of a proposed activity, project or program expressed in monetary of nonmonetary terms. (10) Also:

1. *Direct benefit.* A primary benefit that responds to specified objectives of the policy, program, project, or expenditure. (10)

2. *Induced benefit.* A primary benefit that is incidental to the objectives of the policy, program, project, or expenditure. (10)

3. *Primary benefit.* A benefit accruing to resource owners from a primary output and that may be direct or induced or may be a residual asset. Primary benefits are components of net public benefits. (10)

4. *Secondary benefit.* A benefit accruing to parties other than the resource owners, including effects on local, Regional, and national economies and on consumers of outputs. Secondary benefits are not necessarily included in net public benefits. (10)

Benefit/Cost ratio - A measure of economic efficiency computed by dividing total discounted primary benefits by total discounted economic costs. (10)

Best Management Practices - A practice or combination of practices that is determined by a State (or designated areawide 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 - Large mammals hunted for sport. On the National Forest these include animals such as deer, elk, antelope, and bear. (8)

Big game summer range - A range, usually at higher elevation, used by deer and elk during the summer. Summer ranges are usually much more extensive than winter ranges. (8)

Big game winter range - A range, usually at lower elevation, used by migratory deer and elk during the winter months; usually more clearly defined and smaller than summer ranges. (8)

Biological control - A method to control insect populations or tree diseases through the use of applied technology. Also used in noxious plant control. (3)

Biological diversity - Terms used in the Forest Plan to provide goals and direction for evaluating the significance of old growth stands, minimizing fragmentation of existing old growth forests, and maintaining many of the structural components of unmanaged stands in managed stands.

Biological evaluation - A specific process required as part of an environmental assessment that evaluates the potential effects of a proposed project on Proposed, Endangered, Threatened, and Sensitive species and their habitats.(10)

Biological Growth Potential - The average net growth attainable in a fully stocked natural forest stand (1)

Biological potential - The maximum production of a selected organism that can be attained under optimum management. (8)

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 (BF) - The amount of wood equivalent to a piece of wood one foot by one foot by one inch thick (3)

Board foot/cubic foot conversion ratio - Both board foot and cubic foot volumes can be determined for timber stands. The number of board feet per cubic foot of volume varies with tree species, diameter, height, and form factors. A specific factor by species is applied to the cubic foot FORPLAN outputs to give board foot estimates.

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.

Browse - Twigs, leaves, and young shoots of trees and shrubs on which animals feed; in particular, those shrubs which are used by big game animals for food. (6)

Brush - A growth of shrubs or small trees usually of a type undesirable to livestock or timber management.

Bureau of Land Management (BLM) - An agency within the Department of the Interior, with land management responsibility for the Public Domain lands.

Buyback and Defaulted Timber Sales - In 1984, the Federal Timber 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 - Refers to methods used to skid or pull logs to a central landing or collection area by a cable connected to a remote power source. (6)

Canopy - The more-or-less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth. (3)

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. (1)

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. (10)

Capital formation - As used in IMPLAN is defined as the value of purchases from sectors both inside and outside the Region used by individuals, governments, and industries in the area as investment (land, plant, and equipment used in production processes). (10)

Capital investment - Activities that create or improve capital assets to obtain benefits occurring during several planning periods. (10)

Carrying capacity - 1) The number of organisms of a given species and quality that can survive in, without causing deterioration of, a given ecosystem through the least favorable environmental conditions that occur within a stated interval of time. 2) In recreation, refers to the number of people that can occupy an area for a given social and experience goal 3) In range, refers to the maximum stocking rate possible on a given range without causing deterioration to vegetation or related resources. (3)

Cavity - The hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals. (2)

Channel or Stream Scour - Erosion of the channel bottom caused by high flows of water, loss of channel stability, or debris torrents.

Characteristic landscape - In reference to the USDA Forest Service visual management system; the overall impression created by a landscape's unique combination of visual features (land, vegetation, water, structures), as seen in terms of form, line, color and texture; synonymous with "visual landscape character." (6)

Chargeable Volume - All timber volume included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity, based on regional utilization standards. (10)

Clearcutting - The cutting method that describes the silviculture system in which the old crop is cleared over a considerable area at one time. Regeneration then occurs from (a) natural seeding from

adjacent stands, (b) seed contained in the slash or logging debris, (c) advance growth, or (d) planting or direct seeding An even-aged forest usually results. (3)

Climatic regimes - A generalized climatic classification which applies to a specific land area; generally that area can be expected to experience that kind of climate in any given year.

Climax - The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition. (6)

Climax Species - Those species that dominate a climax stand in either numbers per unit area or biomass.

Closure - An administrative order restricting either location, timing, or type of use in a specific area.

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. (1)

Coho Smolt - Young coho salmon which are ready to migrate to the sea

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. See also "Tentatively Suitable Forest Land."

Commercial thinning - Any type of tree thinning that produces merchantable material at least equal in value to the direct costs of harvesting. (3)

Commodities - A transportable resource with commercial value; all resource products that are articles of commerce. (6)

Common varieties - Nonmineralized sand, gravel, stone, etc. (See *Mineral materials*)

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. (10)

Compaction - The packing together of soil particles by forces exerted at the soil surface, resulting in increased soil density.

Composite - In reference to planning for special areas under the Land and Water Conservation Act of 1965, an area identified as having unique recreation and/or fish and wildlife values

Composite Plan - A documented analysis which, at one time was required to justify the use of Land and Water Conservation Funds for acquisition of private lands within a designated composite.

Condition class - 1) Timber: a grouping of timber strata into size-age-stocking classes for Forest planning. 2) Range: one of a series of arbitrary categories used to classify range conditions, usually expressed as excellent, good, fair, or poor. (9)

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.

Constraint - In FORPLAN, a limit (either ceiling or floor) which may be placed on the level of inputs to or outputs from a forest.

Consumptive use - A use of resources that permanantly reduces the supply, such as mining. (See also *Nonconsumptive use.*) (6)

Conversion period - The duration of a change from one silvicultural system to another or from one tree species to another. (3)

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. (1)

Costs -

1. *Direct cost.* A cost that directly contributes to the production of the primary outputs of an activity, project, or program. (10)

2. *Economic cost.* Total fixed and variable costs for inputs, including costs incurred by other public parties and, if appropriate, opportunity costs and cost savings. (10)

3. *Fixed cost.* A cost that is commited for the time horizon of planning or the decision being considered. Fixed costs include fixed ownership requirements, fixed protection, short-term maintenance, and long-term planning and inventory costs. (10)

4. *Investment cost.* A cost of creating or enhancing capital assets, including costs of administrative or common-use transport facilities and resource management investments. (10)

5. *Joint cost.* A cost contributing to the production of more than one type of output. (10)

6. *Non-Forest Service cost.* A cost of investment and operating activities paid by cooperators or other non-Forest Service agencies which are part of Forest Service management programs, or which contribute to the outputs included in the analysis. (10)

7. *Opportunity cost.* The value of a resource's foregone net benefits in its most economically efficient alternative use. (10)

8. *Unit cost or cost per unit.* Total cost of production divided by the number of units produced. (10)

9 *Variable cost.* A cost that varies with the level of controlled outputs in the time horizon covered by the planning period or decisions being considered (10)

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. (FSM 1905)

Cost effective - Achieving specified outputs or objectives under given conditions for the least cost. (6)

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 costly manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and internal rate-of-return may be appropriate (1)

Cost sensitivity analysis - A type of analysis done to estimate how a particular problem's solution would change if the costs were increased or decreased

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)

Cover/forage ratio - The mixture of cover and forage areas on a unit of land, expressed as a ratio.

Created opening - An opening in the Forest created by the silvicultural practices of. final removal harvest of shelterwood; clearcutting; seed tree cutting; or group selection cutting. (2)

Crown height - In a standing tree, the vertical distance from ground level to the base of the crown, measured either to the lowest live branch whorl, or to the lowest live branch (excluding shoots arising spontaneously from buds on the stem of a woody plant), or to a point halfway between. (3)

Cubic foot (CF) - The amount of timber equivalent to a piece of wood one foot by one foot by one foot (3)

Culmination of mean annual increment (CMAI) - The age at which average annual growth is greatest for a stand of trees. Mean annual increment is expressed in cubic feet measure, and is based upon expected growth according to the management intensities and utilization standards assumed in accordance with 36 CFR 219.16(a)(2)(i) and (ii). Culmination of mean annual increment includes regeneration harvest yields and any additional yields from planned intermediate harvests. (10)

Cultural resource - The remains of sites, structures, or objects used by humans in the past--historic or prehistoric. (2)

Cumulative effects or impacts - Cumulative effect or impact is 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 nonfederal) 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 - these regulations use effects and impacts synonymously.)

Cutting cycle - The planned lapse of time between successive cuttings in a stand. (6)

D

Data - Any recorded measurements, facts, evidence, or observations reduced to written, graphical, tabular, or computer form. The term implies reliability, and therefore provides an explanation of source, type, precision and accuracy. (6)

Debris Slide - A shallow landslide of soil, rock, and organic material that occurs on steep slopes.

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.

Decadent (stands) - Decaying; deteriorating. (4)

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.

Deer winter range - See *Big game winter range.*

De facto outputs - Resource outputs produced from lands not necessarily being managed or allocated for the specific production of these outputs. De facto resource outputs are most commonly recreation and wildlife opportunities. For example, an area may not be allocated to emphasize recreation management and, in fact, may be scheduled for timber harvest in a later decade. However, the area can usually continue to provide recreation opportunities until it is entered for harvesting.

De facto supply - In dispersed recreation, those acres that are available for timber harvests but not entered.

Deferred rotation - Deferred grazing; deferred utilization; withholding livestock from a range to allow the forage to reach a certain stage of growth, stocking, and vigor for those species that govern utilization. (3)

Demand - The amount of an output that users are willing to take at a specified price, time period, and condition of sale. (10)

Demand Analysis - A study of the factors affecting the schedule of demand for an output, including the price-quantity relationship, if applicable. (10)

Department of Energy (DOE) - A department of the Executive branch of the Federal Government which oversees national matters involving the development and use of energy.

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. (10)

Dependent communities - Communities whose social, economic, or political life would change in important respects if market or nonmarket outputs from the National Forests were substantially decreased.

Designated Area (Air Quality) - Those areas delineated in the Oregon and Washington Smoke Management Plans as principal population centers of air quality concern.

Design standard - Approved design and construction specifications used mainly for recreation facilities and roads--includes specified materials, colors, dimensions, etc.

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. Examples of developed recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings (2)

Developed recreation site - Relatively small, distinctly defined areas where facilities are provided for concentrated public use; e.g., campgrounds, picnic areas, swimming areas, and downhill ski areas (6)

Diameter at breast height (d.b.h.) - The diameter of a tree measured 4 feet 6 inches above the ground. (6)

Discount rate - An interest rate that represents the cost or time value of money in determining the present value of future costs and benefits. A "real" discount rate is one adjusted to exclude the effects of inflation. (6) (10)

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 time, usually the present, for comparison. (6) FSM 1905

Dispersal - Used to describe the movement of species from one area to another.

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-country skiing, and recreation in primitive environments. (2)

Distance zone - One of three categories used in the Visual Management System to divide a view into near and far components. The three categories are: (1) foreground, (2) middleground, and (3) background

Diversity - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. (2) (1)

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. (6)

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 (4)

E

Early forest succession - The early stage or condition of a plant community that occurs during its development from bare ground to climax. (6)

Economic efficiency - The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit-cost ratios and rates-of-return may sometimes be appropriate. (10)

Economic growth - Increased economic output in real terms over time. (6)

Economic impacts -

1. *Direct economic impact.* Effects caused directly by forest product harvest or processing or by forest uses. (10)

2. *Indirect economic impact.* Effects that occur when supporting industries sell goods or services to directly affected industries. (10)

3 *Induced economic impact.* Effects that occur when employees or owners of directly or indirectly affected industries spend their income within the economy. (10)

Ecosystem - An interacting system of organisms considered together with their environment; for example, marsh, watershed, and lake ecosystems (2)

Edge - An area where plant communities meet or where successional stages or vegetation conditions within the plant communities come together. (2)

Effects - Environmental changes resulting from 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 FEIS 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 healthy effects, 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, 2)

Electronic sites - Areas designated for the operation of equipment which transmits and receives radio signals (excluding television aerials and antennas) for individual pickup of programming, and passive reflectors.

Employment - Labor input into a production process, measured in the number of person-years or jobs. A person-year is 2,000 working hours by one person working year long or by several persons working seasonally. (10)

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. (6)

Ending Inventory Constraint - 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.

Environmental Analysis - A comprehensive evaluation of alternative actions and their predictable short- and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions. (2)

Environmental Assessment - The concise public document required by the regulations for implementing the procedural requirements of the National Environmental Policy Act (40 CFR 1508.9, 2)

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. (6)

Environmental Protection Agency (EPA) - An agency of the Executive Branch of the Federal Government which has the responsibility for environmental matters of national concern

Ephemeral draw - A drainage way which conveys surface water for short periods of time in direct response to snowmelt or rainfall runoff

Erosion - (1) The wearing away of the land surface by running water, wind, ice, or other geologic agents, including such processes as gravitation creep; or (2) detachment and movement of soil or rock fragments by water, wind, ice, or gravity. The following terms are used to describe different types of erosion:

> Accelerated Erosion - Erosion which is much more rapid than natural erosion, with the increase in erosion rate resulting primarily from the influence of human activities, or, in some cases, of other events that expose mineral soil surfaces, such as wildfire.

Gully erosion - The erosion process whereby water accumulates in narrow channels, and over short periods, removes the soil from this narrow area to considerable depths, ranging from 4 inches to as much as 75 to 100 feet.

Rill erosion - An erosion process in which numerous small channels less than 4 inches deep and 6 inches wide are formed.

Sheet erosion - The removal of a fairly uniform layer of soil from the land surface by runoff water.

Estuary - A semiclosed 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.

Eutrophic - Of habitats, particularly soils and water, that are rich or adequate in nutrients (3)

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. (1)

Even-aged stands - Stands in which all trees are of about the same age. (A spread of 10 to 20 years is generally considered one age class.) Cutting methods producing even-aged stands are clearcut, shelterwood, or seed tree systems.

Exchange reserved - Lands which have been added to the National Forest System by exchange under the General Exchange Act for reserved/proclaimed National Forest System Lands.

Existing visual condition (EVC) - An inventory of existing visual impacts as seen from sensitive travel corridors or use areas; measures visual changes to the landscape caused by natural or human activities.

Exports - As used in IMPLAN are defined as outputs or products produced but not consumed or used in production of other outputs in the impact area. Includes both exports to other areas of the U.S. and international exports. (10)

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.

Extirpation - Eradication; extermination. (5)

F

Fault - A ground surface fracture or fracture zone along which there has been a displacement of one side with respect to the other. (6)

Fault scarp - An abrupt change in surface elevation resulting from earthquake activity. Fault scarps may vary from as little as a few inches to two or three thousand feet.

Fawn rearing habitat - Areas used regularly by female deer for fawn raising; optimum fawning habitat includes low shrubs or small trees under an overstory of about 50% closure, usually located on slopes of less than 15 percent where vegetation is succulent and plentiful in June, and water is available within 183 meters. (8)

Feral - Non-native species, or their progeny, which were once domesticated but have since escaped from captivity and are now living free. (6)

Final cut - See *Final removal harvest.*

Final Environmental Impact Statement - 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. (6)

Final removal harvest - The removal of the last seed bearers or shelter trees after regeneration is established under a shelterwood system. (6)

Fire management - All activities required for protection of resources from fire and for the use of fire to meet land management goals and objectives. (6)

Fisheries habitats - Streams, lakes, and reservoirs that support fish populations.

Flood plain - The lowland and relatively flat area adjoining inland waters, including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year. (2)

Forage - All browse and nonwoody plants that are available to livestock or game animals and used for grazing or harvested for feeding. (6)

Forb - Any herb other than grass. (7)

Foreground - A term used in visual management to describe the portions of a view between the observer and up to 1/4 to 1/2 mile distant. (6)

Forest and Rangeland Renewable Resources Planning Act of 1974 - An Act of Congress requiring the preparation of a program for the management of the National Forests' renewable resources, and the preparation of land and resource management plans for units of the National Forest System. It also requires a continuing inventory of all National Forest System lands and renewable resources. (6)

Forest land - Land at least 10 percent occupied by forest trees or formerly having had such tree cover and not currently developed for nonforest use. Lands developed for nonforest use include areas for crops, improved pasture, residential, or administrative areas, improved roads of any width, and adjoining road clearings and powerline clearings of any width (1) (10)

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-Range Environmental Study (FRES) levels - Various range management intensities developed to reflect the degree of range utilization. FRES levels measure the amount of native forage available to livestock for consumption under these different intensities. Developed in a Forest Service report entitled "The Nation's Range Resources -- A Forest-Range Environmental Study," Forest Resources Report No. 19.

Forest Service Handbook (FSH) - For Forest Service use, directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity. (10)

Forest Service Manual (FSM) - A system of manuals which provides direction for Forest Service activities.

Forest system roads - Roads that are part of the Forest development transportation system, which includes all existing and planned roads as well as other special and terminal facilities designated as Forest development transportation facilities. (See arterial roads, collector roads, and local roads.)

Forest Type - A classification of forest land based upon the tree species presently forming a plurality of basal area stocking in live trees.

Formally dedicated area - An area of the Forest set aside for a specific use by virtue of a formal ceremony or congressional designation.

FORPLAN - A linear programming system used for developing and analyzing forest planning activities. (10)

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 break - A zone in which fuel quantity has been reduced or altered to provide a position for suppression forces to make a stand against wildfire. Fuel breaks are designated or constructed before the outbreak of a fire Fuel breaks may consist of one or a combination of the following: natural barriers, constructed fuel breaks, constructed barriers. (6)

Fuel management - The practice of planning and executing the treatment or control of living or dead vegetative material in accordance with fire management direction. (10)

Fuel treatment - The rearrangement or disposal of natural or activity fuels (generated by management activity, such as slash left from logging) to reduce fire hazard. Fuels are defined as both living and dead vegetative materials consumable by fire.

Fuels - Combustible wildland vegetative materials. While usually applied to above ground living and dead surface vegetation, this definition also includes roots and organic soils such as peat. (10)

Full-service management - Management of developed recreation sites to furnish the full range of amenities and maintenance for the public enjoyment. Management objectives are based on site capacity, site protection needs, seasonal demands for public use, and desired levels of service to enhance visitor's experience and convenience and provide optimum maintenance.

Furbearing species - See *Game species.*

G

Game species - Any species of wildlife or fish for which seasons and bag limits have been prescribed and which are normally harvested by hunters, trappers, and fishermen under state or federal laws, codes, and regulations. (6)

Genetic seedlings - Tree seedlings from a genetically superior seed source. The seeds are collected from trees displaying exceptional form and raised in nurseries before outplanting. The seedlings usually have faster growth rates than naturally regenerated seedlings.

Geomorphology - The science that deals with land and submarine relief features of the earth's surface and seeks a genetic interpretation of them, using the principles of physiography in its descriptive aspects and dynamic and structural geology in its explanatory phases. (6)

Geothermal - Of or pertaining to the internal heat of the earth. (4)

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. (2) (1)

Goods -

1. *Nonmarket good.* An output that is not normally exchanged for money in a market. Usually no market has evolved because ownership of the good is not clear, exclusive use is not possible under current laws, or it is not possible to consistently define good. (10)

2. *Public good.* An output for which it is impractical to impose a charge, either because it must be supplied to all if it is supplied to one or because the costs of collection and control exceed likely revenue. (10)

Goods and services - The various outputs, including on-site uses, produced from forest and rangeland resources. (2,1)

Grass/forb - An early forest successional stage where grasses and forbs are the dominant vegetation.

Group selection cutting - See *Uneven-aged silvicultural systems.*

Growing season - That part of the year when temperature and moisture are favorable for vegetation growth.

Guideline - An indication or outline of policy or conduct; i.e., any issuance that assists in determining the course of direction to be taken in any planned action to accomplish a specific objective. (2)

Guzzler - A device for collecting and storing precipitation for use by wildlife or livestock. Consists of an impenetrable water collection area, a storage facility, and a trough from which animals may drink. (9)

H

Habitat - The place where a plant or animal naturally or normally lives or grows. (2)

Habitat Activity Center - An area, approximately 80 acres, in size surrounding spotted owl nest or pair roost sites.

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 diversity - The distribution and abundance of different plant and animal communities and species within a specific area.

Hardwood - A broad-leaved flowering tree.

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

Harvest dispersion (factor) - The dispersion of cutting units over the land base in order to meet clearcut size limitations, or other resource constraints. An example of a harvest dispersion constraint is: no more than 25 percent of an analysis area may be harvested in one decade.

Headwaters - The upper tributaries of a river. (4)

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 - Vegetation that will hide 90 percent of an adult deer or elk from the view of a human at a distance of 200 feet or less. The distance at which the animal is essentially hidden is called a "sight distance."

High-site timbered lands - A relative measure of resource productivity.

Historic site - Site associated with the history, tradition, or cultural heritage of national, state, or local interest, and of enough significance to merit preservation or restoration. (6)

Hydrology - The scientific study of the properties distribution and effects of water in the atmosphere, on the earth's surface, and in soil and rocks.

I

ID Team - See *Interdisciplinary team.*

Impacts - See *Effects.*

IMPLAN - A computer-based system used by the Forest Service for constructing nonsurvey input/output models to measure economic input. The system includes a data base for all counties in the U.S. and a set of computer programs to retrieve data and perform the computational tasks for input/output analysis. (10)

Imports - As used in IMPLAN are defined as purchases of products for use in production of other products and for final consumption from outside the impact area. Includes both imports from other areas of the U S. and international imports Competitive imports are the same as local domestic products which are not produced in quantities sufficient to meet local demands or which obtain a share of the local market formerly supplied by local producers. Noncompetitive imports are products not produced locally. (10)

Improved genetic stock - Group of plants (trees) that have been improved genetically (4).

Income - Employee compensation, profits, rents, and other payments to households. (10)

Indicator species - See *Management indicator species.*

Indirect outputs - Outputs caused by an action, but which are later in time or farther removed in distance, although still reasonably foreseeable. (See *Effects.*)

Individual (single) tree selection - See *Uneven-aged silvicultural systems.*

Induced outputs - Outputs in the private sector induced by the direct outputs produced on the Forest. (6)

Influence zone - See *Zone of influence.*

Input/output analysis - A quantitative study of the interdependence of a group of activities, based on the relationship between inputs and outputs of the activities. The basic tool of analysis is an input-output model for a given period that shows simultaneously for each economic sector the value of inputs and outputs, as well as the value of transactions within each economic sector It has especially been applied to estimate the effects of changes in Forest output levels on local economic activity. (3)

Instream flows - A prescribed level (or levels) of streamflow, usually expressed as a stipulation in a permit authorizing a dam or water diversion, for the purpose of meeting National Forest System management objectives.

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 population on various resource values, alternative regulation tactics and strategies, and benefit/cost estimates of those alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host 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 (2) (1)

Integrated resource management - A management strategy which emphasizes no resource element to the exclusion or violation of the minimum legal standards of others. (FSM 1905)

Intensive grazing management - Grazing management that controls distribution of cattle and duration of use on the range, usually by fences, so parts of the range are rested during the growing season. (See also *Quality extensive management*; *Quality intensive management*.)

Intensive management (intensive forest management) - A high investment level of timber management that includes use of precommercial thinnings, commercial thinnings, genetically improved stock, and control of competing vegetation. (2)

Interdisciplinary Team (ID Team) - A group of individuals with different training 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 the problem. (6)

Intermediate cutting - Any removal of trees from a stand between the time of its formation and the regeneration cut. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage. (6)

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.

Interpretive services - Visitor information services designed to present educational and recreational values to Forest visitors to enhance their understanding, appreciation, and enjoyment of the Forest.

Intertie - A link between two points, objects, or concepts. (5)

Inventory data and information collection - The process of obtaining, storing, and using current inventory data appropriate for planning and managing the Forest. (6)

Irretrievable - Applies to losses of production, harvest, or commitment 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 sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible. (10)

Irreversible - Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options. (10)

Issue - A point, matter, or question of public discussion or interest to be addressed or decided through the planning process. (See also *Public issue*.) (2)

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.

Land class - The topographic relief of a unit of land Land classes are separated by slope.

Land exchange - The conveyance of nonfederal land and/or interests in exchange for National Forest System land or interests in land.

Landform - An area of that is defined by its particular combination of bedrock and soils, erosion processes and climatic influences.

Landing - Any place where round timber is assembled for further transport, commonly with a change of method. (3)

Land management - The intentional process of planning, organizing, programming, coordinating, directing, and controlling land use actions. (6)

Landownership pattern - The National Forest System resource land base, in relation to other land ownerships within given boundaries (2)

Landscape management - The art and science of planning and administering the use of Forest lands in such ways that the visual effects maintain or upgrade human psychological welfare. The planning and design of the visual aspects of multiple-use land management

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. (1)

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. (1)

Lands Suitable for Timber Production - Includes all lands not classified as either Not Suited or Not Appropriate for Timber Production.

Landtype - A portion of the Forest mapped in the 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 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.

Land use allocation - The commitment of a given area of land or a resource to one or more specific uses--for example, to campgrounds or wilderness. (6)

Leasable minerals - Coal, gas, oil, phosphate, sodium, potassium, oil shale, sulphur, geothermal steam. Also includes other minerals on acquired National Forest Lands. (6)

Least-cost analysis - Determination of the least cost means of attaining specified results. (10)

Level IV Law Enforcement Officer - A Forest Service employee who has graduated from the Federal Law Enforcement Academy and holds a law enforcement commission signed by the Regional Forester. District Level IV officers generally perform other duties as well as law enforcement.

Lifestyle - The characteristic way people live, indicated by consumption patterns, work, leisure, and other activities. (10)

Linear programming - A mathematical method used to determine the cost-effective allocation of limited resources between competing demands when both the objective (e.g., profit or cost) and the restrictions on its attainment are expressible as a system of linear equalities or inequalities. (6)

Locatable minerals - Those hardrock minerals which can be obtained by filing a claim on Public Domain or National Forest System lands reserved from the Public Domain. In general, the locatable minerals are those hardrock minerals which are mined and processed for the recovery of metals, but may also include certain nonmetallic minerals and uncommon varieties of mineral materials. (6)

Logging residues - See *Slash*.

Long-term sustained yield timber capacity (LTSY) - 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. (1)

M

Management Area - An area with similar management objectives and a common management prescription. (1) (10)

Management concern - An issue, problem, or condition which influences the range of management practices identified by the Forest Service in the planning process. (1)

Management direction - A statement of multiple use and other goals and objectives, and the associated management prescriptions, and standards and guidelines for attaining them. (1)

Management emphasis - That portion of a management scheme which receives the most stress or is of the greatest significance or importance. It may be the resources being produced, or it may be the way in which they are produced.

Management indicator species - A species selected 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. (8)

Management Information Handbook (MIH) Codes - An accounting system that labels each Forest activity or budget item with a code to identify that activity in a consistent manner. Normally used for budgeting purposes.

Management intensity - The management practices or combination of management practices and associated costs to obtain different levels of goods and services (1). In FORPLAN management prescriptions, a set of activities designed to accomplish a particular management emphasis (see also *Management prescriptions*).

Management practice - A specific activity, measure, course of action, or treatment. (1)

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 (1). In FORPLAN, the combination of a management emphasis and associated management intensities with a variety of timing choices for implementation. (2)

Management Requirement (MR) - Minimum standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, soil and water diversity, to be met in accomplishing National Forest System goals and objectives. (1)

Marginal timber component - Timber on which the income just equals or could just equal the costs of production under a given form of management. (3)

Market - The processes of exchanging a good or service for money or other goods or services according to a customary procedure. A market may occur in a specific place or throughout an area by individual transactions. (10)

Market area - The area from which a market draws or to which it distributes its goods or services and for which the same general price structure and price influences prevail (10)

Market value - The unit price of an output normally exchanged in a market after at least one stage of production Market value is expressed in terms of prices as evidenced by market transactions. (10)

Mass movement - A general term for any of the variety of processes by which large masses of earth material are moved downslope by gravitational forces - either slowly or quickly. (6)

Mature timber - Trees that have attained full development, particularly height, and are in full seed production. (3)

Maximum modification - See *Visual quality objective.*

Mean annual increment of growth - The total volume of a tree or stand of trees up to a given age divided by that age. (2)

Mesotrophic - Habitats, particularly soil and water, of moderate nutrient capacity. (3)

Middleground - 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. (6)

Mineral entry - The filing of a mining claim upon public domain or related land to obtain the right to any minerals it may contain. (6)

Mineral entry withdrawal - The exclusion of mining locations and mineral development work on areas required for administrative sites by the Forest Service and other areas highly valued by the public. (6)

Mineral materials - Deposits such as sand, stone, gravel, and clay. (6)

Mineral soil - Weathered rock materials usually containing less than 20 percent organic matter. (6)

Minimum level management - FORPLAN term designating lands that will not be actively managed for timber or forage production. Often, these are lands that have high costs and low benefits associated with their management.

Minimum streamflows - A specified level of flow through a channel that must be maintained by the users of streams for biological, physical, or other purposes.

Mining claim - A portion of the public lands which a miner, for mining purposes, takes and holds in accordance with mining laws. (6)

Mitigation - *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)

Mitigation measures - Actions to avoid, minimize, reduce, eliminate, or rectify adverse impacts of management practices.

Model - A representation of reality used to describe, analyze, or understand a particular concept. A "model" may be a relatively simple qualitative description of a system or organization, or a highly abstract set of mathematical equations. (6)

Modification - See *Visual quality objective.*

Monitoring and evaluation - The periodic evaluation of Forest Plan management practices on a sample basis to determine how well objectives have been met.

Mortality - In wildlife management, the loss in a population from any cause, including hunter kill, poaching, predation, accident, and disease. In forestry, trees in a stand that die of natural causes. (8)

Mountain pine beetle - A tiny black insect, ranging in size from 1/8 to 3/4 inch, that bores its way into a tree's cambium and cuts off its supply of nutrients, thus killing the tree.

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 and 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. (1)

Multiplier - A ratio of a measure of total change in income or employment to the direct income or employment change The measure to total change may be direct plus indirect change (Type I Multipliers); or direct, indirect, and induced change (Type II Multipliers); or direct, indirect, and interactive increased induced demands based on population increase (Type III Multipliers). (10)

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. (10)

N

National Direction - Statements of missions, goals, and objectives that guide Forest Service planning. (FSM 1905)

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." (1)

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 that development.

National Forest Systems (NFS) - All National Forest lands reserved or withdrawn from the public domain of the United States, all National Forest lands acquired through purchase, exchange, donation, or other means, the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 U.S C. 1010-1012), and other lands, waters, or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system. (16 U.S.C. 1608)

National Recreation Trails (NRT) - Trails designated by the Secretary of the Interior or the Secretary of Agriculture as part of the National system of trails authorized by the National Trails System Act. National Recreation Trails provide a variety of outdoor recreation uses. (6)

National Register of Historic Places - A listing (maintained by the U.S. National Park Service) of areas which have been designated as being of historical significance. The Register includes places of local and state significance as well as those of value to the Nation. (6)

National Wilderness Preservation System - All lands covered by the Wilderness Act and subsequent Wilderness designations, regardless of the governmental department having jurisdiction.

Natural barrier - A natural feature that restricts livestock or wildlife movements, such as a dense stand of trees or a cliff.

Natural regeneration - Reforestation of a site by natural seeding from the surrounding trees. Natural regeneration may or may not be preceded by site preparation.

New Perspectives in Forestry or New Forestry - A variety of forest management activities blending protection of ecosystems with the sustainable production of various natural resource products. It is characterized by emphasis on regional ecosystems of interconnected habitats and varied, often intensively managed, land uses; protecting and restoring key habitats, genetic variation, and ecosystem sustainability; and management of vegetation to retain diversity and structure.

Net Cash Flow - The difference between the annual receipts of an alternative and costs required to implement that alternative.

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. (1)

Net Receipts - Receipts minus costs.

Net returns to the Treasury, Net cash flow - The difference between the total dollar receipts projected for an alternative and the total budget required to implement the alternative.

Nitrogen-Fixing (Nitrogen Fixation) - Conversion of free nitrogen by plants such as red alder into combined forms useful in nutrient cycles and other functions in the biosphere.

No Action Alternative (Alt. A) - This alternative is the "No Action" alternative required by the National Environmental Policy Act. It analyzes the effects of continuing management under existing direction in approved management plans. This alternative includes management requirements directed by the National Forest Management Act of 1976.

No Change Alternative (Alt. NC) - This alternative would continue management of the Forest as defined by existing direction in the Forest's Multiple Use Land Management and Timber Management Plan. This alternative does not include all management requirements and would not meet the intent of the National Forest Management Act of 1976.

Nominal value - A monetary value relative to time that does not account for the effects of inflation.

Nonchargeable volume - All volume not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity. (FSH 2409.13)

Noncommodity outputs - Resource outputs that are not normally bought and sold, or cannot be bought and sold, such as air quality or scenic beauty.

Nonconsumptive use - That use of a resource that does not reduce the supply. For example, nonconsumptive use of water includes hydroelectric power generation, boating, swimming, and fishing. (2)

Nondeclining flow - Where the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity. (1)

Nonforest land - Lands that never have had or that are incapable of having 10 percent or more of the area occupied by forest trees; or lands previously having such cover and currently developed for nonforest use. (6)

Nongame species - Animal species which are not hunted, fished, or trapped.

Nonmarket value - The unit price of a nonmarket output normally not exchanged in a market at any stage before consumption; it is thus necessary to impute nonmarket value from other economic information. (10)

Nonmarket valued outputs - Assessed value of a goods or service which is not traded in the market place and has no market value. Because it is not bought and sold, some measure other than price must be used in establishing the value. (6)

Nonpoint source pollution - Pollution whose source is general rather than specific in location. It is widely used in reference to agricultural and related pollutants-- for example, production of sediments by logging operations, agricultural pesticide applications, or automobile exhaust pollution. (6)

Nonpriced outputs - Nonpriced outputs are those for which there is no available market transaction evidence and no reasonable basis for estimating a dollar value. Subjective nondollar values are given to nonpriced outputs.

No Surface Occupancy - A clause used in mineral leases to prevent activities in sensitive areas. Sometimes results in closure of an area and sometimes has little impact if directional drilling can tap resources underlying restricted area.

Noxious weeds - Undesirable plant species that are unwholesome to the range or to animals. (6)

O

Objective - A concise, time-specific statement of measurable planned results that respond to pre-established 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. (1)

Off-road vehicle (ORV) - Vehicles such as motorcycles, all-terrain vehicles, four-wheel drive vehicles, and snowmobiles. (2)

Old-growth deficit - A forest without the excess volume of mature/overmature old-growth trees that could be used to offset reductions in programmed harvest volume resulting from allocation changes.

Old-growth habitat - Habitat for certain wildlife that is characterized by overmature coniferous forest stands with large snags and decaying logs.

Old-growth stand (old growth) - Any stand of trees 10 acres or greater generally containing the following characteristics: 1) contain mature and overmature trees in the overstory and are well into the mature growth stage; 2) will usually contain a multilayered canopy and trees of several age classes; 3) standing dead trees and down material are present; and 4) evidences of man's activities may be present, but do not significantly alter the other characteristics and would be a subordinate factor in a description of such a stand. (2)

Oligotrophic - Lakes characterized by a low accumulation of dissolved nutrient salts, supporting only sparse plant and animal life, and having a high oxygen content, owing to the low organic content. (4)

Open to entry - With respect to minerals management, lands available to occupy under the mining laws.

Operational costs - Those costs associated with administering and maintaining National Forest facilities and resource programs.

Operational Plan - A document approved by the Forest Supervisor which specifies at the project level, implementation of the management direction established in the Forest Plan. (6)

Opportunity - A proposal that is considered in developing alternative activities, projects or programs where an option exists to invest profitably to improve or maintain a present condition.

Optimal Cover - Habitat for deer and elk which has tree overstory and understory, shrub and herbaceous layers; the overstory canopy generally exceeding 70% crown closure and dominant trees generally exceed 21 inches d.b.h.; provides snow intercept, thermal cover, and forage.

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: X06-Softwood Sawtimber Production MBF; X80-Increased Water Yield - Acre Feet; W01-Primitive Recreation Use RVDs. (FSM 1905)

Output, Market - A good, service, or on-site use that can be purchased at a price. (FSM 1905)

Output, Nonmarket - A good, service, or on-site use not normally exchanged in a market (FSM 1905)

Overbid - To bid more than the appraised value. (4)

Overgrazing - Continued overuse (year after year) creating a deteriorated range.

Overgrazed Range - A range that has deteriorated and may still be deteriorating from its productive potential due to overgrazing.

Overmature timber - The stage at which a tree declines in vigor and soundness, for example, past the period of rapid height growth. (2)

Overstory - That portion of the trees, in a Forest or in a stand of more than one story, forming the upper or uppermost canopy. (3)

Overuse (overutilization) - Utilizing an excessive amount of the current year's growth which, if continued, will result in overgrazing and range deterioration.

Overwood removal - A harvest method that removes the overstory of a two-story stand and leaves the smaller understory for further treatment (thinning or harvesting)

P

Partial Cut - Covers a variety of silvicultural practices where a portion of the stand is removed and a portion is left

Partial retention - See *Visual quality objective.*

Particulates - Small particles suspended in the air and generally considered pollutants. (See *Total Suspended Particulates.*) (5)

Perennial stream - A stream that flows year round.

Permittee - Any person or business formally allowed to graze livestock on the land of another person or business (e.g.; on state or federal land). (3)

Personal use - Normally used to describe the type of permit issued for removal of wood products (firewood, post, poles, and Christmas trees) from National Forest land when the product is for home use and not to be resold for profit

Persons-at-one-time (PAOT) - A recreation capacity measurement term indicating the number of people who can use a facility or area at one time. (2)

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.

Phenology - The science dealing with the influence of climate on the recurrence of such annual phenomena of animal and plant life as bird migrations, budding, etc. (4)

Physiographic province - A Region having a particular pattern of relief features or land forms that differs significantly from that of adjacent Regions. (6)

Planned ignition - A fire started deliberately, and controlled to accomplish a resource management objective.

Planning area - The area of the National Forest System covered by a Regional guide or forest plan. (1)

Planning criteria - Criteria prepared to guide the planning process. Criteria applied to collection and use of inventory data and information, analysis of the management situation, and the design, formulation, and evaluation of alternatives. (1)

Planning horizon - The overall time period considered in the planning process. It spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions (1) In this FEIS and Forest Plan, the planning horizon is considered to be 15 decades.

Planning period - One decade. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits. (1)

Planning records - The body of information documenting the decisions and activities which result from the process of developing a Forest Plan, revision, or significant amendment.

Plan of Operations - A document required from any person proposing to conduct mineral-related activities which utilize earth moving equipment and which will cause disturbance to surface resources or involve the cutting of trees. (36 CFR 228.4)

Pole/sapling - A Forest successional stage in which trees between five and nine inches in diameter are the dominant vegetation. (See also *Size class.*)

Pole timber - Trees of at least five inches in diameter at breast height, but smaller than the minimum utilization standard for sawtimber. (See also *Size class.*)

Policy - A guiding principle upon which is based a specific decision or set of decisions. (FSM 1905)

Potential yield - Terminology from the Plan relating to the No Change alternative. 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 acre per year or more) while considering the interrelationship with other forest resources and uses. Intensive forestry includes planting only with genetic stock, precommercial thinning, commercial thinning and release. Programmable net salvage volume and volume from marginally economical lands are also included.

Practices - Those management activities that are proposed or expected to occur.

Precommercial thinning - The practice of removing some of the trees less than marketable size from a stand so that the remaining trees will grow faster. (2)

Prehistoric site - An area which contains important evidence and remains of the life and activities of early societies which did not record their history.

Preparatory cut - The removal of trees near the end of a rotation, which permanently opens the canopy and enables the crowns of seed bearers to enlarge, to improve conditions for seed production and natural regeneration. Typically done in the shelterwood system. (3)

Prescribed fire - A wildland fire burning under specified conditions which will accomplish certain planned objectives The fire may result from either planned or unplanned ignitions. Proposals for use of unplanned ignitions for this purpose must be approved by the Regional Forester. (2)

Prescription - A written direction for harvest activities and regeneration methods.

Present net value (PNV) - The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area. (1)

Preservation - A visual quality objective that allows only for ecological changes. (2)

Price - The unit value of an output expressed in dollars. (10)

Price elasticity - A measure of the sensitivity of the quantity of a good or service exchanged to changes in price. (10)

Priced outputs - Priced outputs are those that are or can be exchanged in the market place The dollar values for these outputs fall into two categories: market or nonmarket (assigned values).

Price-quantity Relationship - A schedule of prices that would prevail in a market for various quantities of the output exchanged (10)

Price trend analysis - An analysis done to estimate how a particular FORPLAN solution would change if predicted price trends were increased or decreased.

Primary cavity excavators - Wildlife species that excavate cavities in snags.

Primitive recreation - Those types of recreational activities associated with unroaded land -- e.g., hiking, backpacking, cross-country travel. (6)

Proclaimed land - Lands reserved from the Public Domain for National Forest purposes by presidential proclamation. (See also *Reserved Land*)

Program - Sets of activities or projects with specific objectives, defined in terms of specific results and responsibilities for accomplishments. (10)

Program Budget - A plan that allocates annual funds, work force ceilings, and targets among agencies. (10)

Program Budget Level - A single, comprehensive integrated program responsive to the Chief's direction that specifies a level of production attainable from a given investment of dollars and other resources Each budget level represents a complete, full, and independent package within the criteria and constraints identified. (10)

Programmatic Memorandum of Agreement - An agreement between the USDA Forest Service, Pacific Northwest Region, the Oregon State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation on the management of two types of cultural resource sites found on the Forest: Depression-era administrative structures and prehistoric lithic scatters.

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.

Project - An organized effort to achieve an objective identified by location, timing, activities, outputs, effects, and time period and responsibilities for executions. (10)

Project Design - The process of developing specific information necessary to describe the location, timing, activities, outputs, effects, accountability, and control of a project.

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, plan, and decisions, and (2) encouraging public understanding about and participation in the planning processes which lead to final decision making. (10)

Public issue - A subject or question of widespread public interest relating to management of the National Forest System. (1)

Public participation - Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning. (2)

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.

Q

Quark - Smallest subatomic particle known to man.

R

Range allotment - An area designated for use of a prescribed number and kind of livestock under one management plan. (6)

Range Environmental Assessment (REA) - An environmental assessment to determine the condition of the range with regard to suitability for grazing, vegetative cover types, potential vegetative communities, condition of vegetation, soil stability, and forage production and utilization.

Rangeland - Land on which the climax vegetation (potential natural plant community) is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing and browsing It includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain forb and shrub communities. It also includes areas seeded to native or adapted introduced species that are managed like native vegetation.

Range management - The art and science of planning and directing range utilization so as to secure sustained maximum production of livestock, milk, and/or cut forage, consistent with other uses and conserving natural resources. (3)

Raptors - Predatory birds, such as falcons, hawks, eagles, or owls.

Rate of return - The financial yield per unit cost determined as the rate of interest at which total discounted benefits equal total discounted costs. (Internal rate of return is a similar measure appropriate to the benefits and costs that affect private firms or individuals.) (10)

Real dollar value - A monetary value that compensates for the effects of inflation. (1)

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.

Receipt shares - 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. (1)

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 alternative have been adopted, and if not, why not. (40 CFR 1505.2)

Recreation capacity - The number of people that can take advantage of the recreation opportunity at any one time without substantially diminishing the quality of the experience or the biophysical resources. (2)

Recreation Information Management (RIM) - A computer-oriented system for the organization and management of information concerning recreation use, occupancy, and management of National Forest lands

Recreation opportunity - The availability of choices for users to participate in the recreational activities they prefer within the settings they prefer.

Recreation Opportunity Spectrum (ROS) - A framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into seven classes: Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Modified, Roaded Natural, Rural, Urban.

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.

Recreation Visitor Day (RVD) - A measure of recreation use, in which one RVD equals twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons. (2)

Recreational river - See *Wild and Scenic river.*

Reduced service management - Management of developed recreation facilities below optimum maintenance standards.

Reforestation - The natural or artificial restocking of an area with forest trees. (2)

Regeneration - The renewal of a tree crop, whether by natural or artificial means. Also, the young crop itself, which is commonly referred to as reproduction. (2)

Region - An area covered by a Regional guide. See FSM 1221.3 for organizational definitions. (10)

Regional Forester - The Forest Service official responsible for administering a single Region.

Regional Guide - The guide developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended It guides all natural resource management activities, and establishes management standards and guidelines for the National Forest System lands within a given Region. It also disaggregates the assigned Regional RPA objectives to the Forests within that Region.

Regulations - Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which covers management of the Forest Service. (2)

Rehabilitation - Action taken to restore, protect, or enhance site productivity, water quality, or other resource values over a period of time.

Release - Freeing trees from competition for light, water, and nutrients by removing or reducing the vegetation growth that is overtopping or closely surrounding them

Removal cut (final cut) - The removal of the last seed bearers or shelter trees after regeneration is established under a shelterwood method (6)

Renewable Resources - Resources that are possible to use indefinitely, when the use rate does not exceed the ability to renew the supply.

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 (RNA) - 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 U S.D.A. Forest Service usage, Research Natural Areas are areas designated to ensure representative samples of as many of the major naturally-occurring plant communities as possible. (6)

Reserved lands - Lands reserved from the public domain for National Forest purposes, and lands which are added to the National Forest System by exchange for reserved National Forest lands. (See *Proclaimed Land*)

Residual stand - The trees remaining standing after some activity such as selection cutting (2)

Resource - Anything which is beneficial or useful - be it animal, vegetable, mineral, a location, a labor force, a view, an experience, etc. Resources, in the context of land use planning, thus vary from such commodities as timber and minerals to such amenities as scenery, scenic view points, or recreation opportunities. (6)

Resource allocation - The action of apportioning the supply of a resource to specific uses or to particular persons or organizations. (6)

Resource Allocation Model (RAM) - A mathematical model using linear programming which will allocate land to different management prescriptions and schedule implementation of those prescriptions simultaneously. The purpose of the model is to find a schedule and allocation that meets the goals of the Forest and optimizes some objective function, such as "minimize costs."

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.

Resource Planning Act (RPA) - The Forest and Rangeland Renewable Resources Planning Act of 1974. Also refers to the National Assessment and Recommended Program developed to fulfill the requirements of the act. (2)

Responsible Line Officer - The Forest Service employee who has the authority to select and/or carry out a specific planning action. (1)

Rest rotation - An intensive system of range management whereby grazing is deferred on various parts of the range during succeeding years, allowing the deferred part complete rest for one year. (6)

Retention - See *Visual quality objective.*

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.

Right-of-way (R/W) - An accurately located strip of land with defined width, point of beginning, and point of ending; the area within which the user has authority to conduct operations approved or granted by the landowner in an authorizing document, such as a permit, easement, lease, license, or Memorandum of Understanding. (6)

Riparian - Pertaining to areas of land directly influenced by water or influencing water. Riparian areas usually have visible vegetative or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas. (3)

Riparian Area and Riparian Ecosystem - - Geographically delineated areas, with distinctive resource values and characteristics, that are comprised of aquatic and riparian ecosystems. 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.

Road - A general term denoting a way for purposes of travel by vehicles greater than 40 inches in width.

1. *Forest Arterial Road.* Provides services to large land areas and usually connects with public highways or other forest arterial roads to form an integrated network of primary travel routes. The location and standard are often determined by a demand for maximum mobility and travel efficiency rather than specific resource management service. It is usually developed and operated for long-term land and resource management purposes and constant service. (10)

2. *Forest Collector Road.* Serves smaller land areas than a forest arterial road and is usually connected to a forest arterial or public highway. Collects traffic from forest local roads and/or terminal facilities. The location and standard are influenced by both long-term multiresource service needs as well as travel efficiency. May be operated for either constant or intermittent service, depending on land use and resource management objectives for the area served by the facility. (10)

3. *Forest Local Road.* Connects terminal facilities with forest collector or forest arterial roads or public highways. The location and standard are usually controlled by specific resource activity requirements rather than travel efficiency needs. (10)

Roaded modified (RM) - A classification of the Recreation Opportunity Spectrum that characterizes a predominately altered environment, allowing for noticeable to strongly-evident management activity.

Roaded natural (RN) - A classification of the Recreation Opportunity Spectrum that characterizes a predominately natural environment with evidence of moderate permanent alterations and resource utilization. Evidence of the sights and sounds of people is moderate, but in harmony with the natural environment. Opportunities exist for both social interaction and moderate isolation from the sights and sounds of people. (2)

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.

Roadless Area Review and Evaluation II (RARE II) - The national inventory of roadless and undeveloped areas within the National Forest and Grasslands. This refers to the second such assessment, which was documented in the Final Environmental Impact Statement of the Roadless Area Review and Evaluation. (2)

Rotation - Planned number of years between the formation of a generation of trees and its final harvest at a specified stage of maturity. Appropriate for even-aged management only. (6)

Roundwood products - Logs, bolts, or other round sections cut from trees.

Rural - A Recreation Opportunity Spectrum classification for areas characterized by a substantially modified natural environment. Sights and sounds of people are evident Renewable resource modification and utilization practices enhance specific recreation activities or provide soil and vegetative cover protection.

S

Sale preparation costs - Costs associated with preparing a timber harvest on Forest Service lands for sale to the public; usually include all administrative costs for developing sale layout, writing an Environmental Assessment and selling the timber sale.

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. (1) For planning purposes, the sale schedule and the allowable sale quantity are synonymous for all periods or decades over the planning horizon. (1)

Salvage cuttings - Intermediate cuttings made to remove trees that are dead or in imminent danger of being killed by injurious agents. (10)

Sanitation cuttings - Intermediate cuttings made to remove dead, damaged, or susceptible trees to prevent the spread of pests or pathogens. (10)

Sanitation-salvage treatment - See Salvage cutting; Sanitation cutting.

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.

Scarified - Land in which the topsoil has been broken up or loosened in preparation for regenerating by direct seeding or natural seedfall. Also refers to ripping or loosening road surfaces to a specified depth for obliteration or "putting a road to bed." (3)

Scenic areas - Places of outstanding or matchless beauty which require special management to preserve these qualities. They may be established under 36 CFR 294.1 whenever lands possessing outstanding or unique natural beauty warrant this classification. (6)

Scenic River Areas - See *Wild and Scenic river.*

Scheduled timber harvests - Volumes and acres programmed for harvest which are within the allowable sale quantity. This does not include salvage and sanitation harvesting.

Scoping process - A part of the National Environmental Policy Act (NEPA) process; early and open activities used to determine the scope and significance of the issues, and the range of actions, alternatives, and impacts to be considered in an Environmental Impact Statement. (40 CFR 1501.7)

Second growth - Forest growth that has become established following some interference, such as cutting, serious fire, or insect attack, with the previous Forest crop. (6)

Sediment - Earth material transported, suspended, or deposited by water. (6)

Seed tree cutting - Removal in one cut of the mature timber from an area, except for a small number of seed bearers left singly or in small groups. (3)

Seedlings and saplings - Live trees less than five inches in diameter at breast height. (See also *Size class.*) (3)

Selection cutting - The annual or periodic removal of trees (particularly mature trees), individually or in small groups, from an uneven-aged forest, to realize the yield and establish a new crop of irregular constitution. (3)

Semiprimitive motorized (SPM) - A classification of the Recreation Opportunity Spectrum, characterized by a predominantly unmodified natural environment in a location that provides good to moderate isolation from sights and sounds of people, except for those facilities/travel routes sufficient to support motorized recreational travel opportunities which present at least moderate challenge, risk, and a high degree of skill testing. (2)

Semiprimitive nonmotorized (SPNM) - A classification of the Recreation Opportunity Spectrum,characterized by a predominately unmodified natural environment of a size and location that provides a good to moderate opportunity for isolation from sights and sounds of people. The area is large enough to permit overnight foot travel within the area, and presents opportunity for interaction with the natural environment with moderate challenge, risk, and use of a high degree of outdoor skills. (2)

Sensitive species - Plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification or 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 placement on Federal or State lists. (2)

Sensitivity analysis - A determination of the effects of varying the level of one or more factors, while holding the other factors constant. (6) (10)

Sensitivity level - A measure of people's concern for the scenic quality of the National Forests. Three sensitivity levels are employed, each identifying a different level of user concern for the visual environment.

Level 1 - Highest sensitivity
Level 2 - Average sensitivity
Level 3 - Lowest sensitivity (2)

Sequential Upper and Lower Bounds - A FORPLAN term referring to the constraint that sets upper and lower limits by which harvest levels can increase or decrease from decade to decade This constraint constitutes a departure from nondeclining flow and allows the harvest to rise or fall by decade according to the bounds that are set. (See *Constraint.*)

Seral - A biotic community which is a developmental, transitory stage in an ecologic succession (6)

Shelterwood - The cutting method that describes the silvicultural system in which, in order to provide a source of seed and/or protection for regeneration, the old crop (the shelterwood) is removed in two or more successive shelterwood cuttings. The first cutting is ordinarily the seed cutting, though it may be preceded by a preparatory cutting, and the last is the final cutting. Any intervening cutting is termed removal cutting. An even-aged stand results. (3)

Silvicultural examination - The process used to gather the detailed in-place field data needed to determine management opportunities and direction for the timber resource within a small subdivision of a Forest area, such as a stand.

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 fellings that remove the mature crop and provide for regeneration and according to the type of forest thereby produced (3) (1)

Silviculture - The art and science of controlling the establishment, composition, and growth of forests. (2)

Single-tree selection - See *Individual (single) tree selection.*

Site index - A numerical evaluation of the quality of land for plant productivity, (6) . .based on the height of dominant trees in a stand at an arbitrarily chosen age (3)

Site preparation - 1) An activity (such as prescribed burning, disking, and tilling) performed on a reforestation area, before introduction of reforestation, to ensure adequate survival and growth of the future crop; **or** 2) manipulation of the vegetation or soil of an area 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 - Production capability of specific areas of land.

Size class - For the purposes of Forest planning, size class refers to the intervals of tree stem diameter used for classification of timber in the Forest Plan data base.

seedling/sapling = less than five-inch diameter
pole/sapling or pole timber = five-inch to nine-inch diameter
sawtimber = greater than nine-inch diameter

Skidding - A general term for hauling loads by sliding, not on wheels, as developed originally from stump to roadside, deck, skidway, or other landing. (3)

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 tree felling and tending, and/or accumulating there as a result of storm, fire, girdling or poisoning. It includes unutilized logs, uprooted stumps, broken or uprooted stems, the heavier branchwood, etc. (3)

Small game - Birds and small mammals normally hunted or trapped. (2)

Snag - A standing dead tree.

Socioeconomic - Pertaining to, or signifying the combination or interaction of social and economic factors. (2)

Softwoods - Coniferous trees, usually evergreen, having needles or scalelike leaves.

Soil - The portion of the earth's surface consisting of disintegrated rock and humus. (7)

Soil productivity - The capacity of a soil to produce a specific crop such as fiber or forage under defined levels of management. Productivity is generally dependent on available soil moisture and nutrients, and length of growing season.

Soil resource inventory - See *Soil surveys*.

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, grasses, and trees; their behavior under use or treatment for plant production or for other purposes; and their productivity under different management systems. (6)

Soil texture - The relative proportions of the various soil separates in a soil, described by the classes of soil texture. Twelve basic soil texture classes are recognized, such as "loam." The textural classes may be modified by the addition of suitable adjectives when coarse fragments are present in substantial amounts; for example, "stony loam."

Special Interest Areas - Areas managed to make recreation opportunities available for the understanding of the earth and its geological, historical, archeological, botanical, and memorial features. (6)

Special Use Permit - A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land for some special purpose.

Special Wildlife Habitat - A habitat which is unique and has a special function not provided by plant communities or successional stages; includes riparian zones, wetlands, cliffs, caves, talus, and meadows.

Spotted Owl Habitat Area - A specific area of mature or old growth forest land, generally referred to as a SOHA, that has been allocated for the protection of one or more pairs of spotted owls.

Stand (tree stand, timber stand) - An aggregation of trees or other vegetation occupying a specific area and sufficiently uniform in species composition, age arrangement, and condition as to be distinguishable from the forest or other vegetation or land cover on adjoining areas. (2)

Stand diversity - Any attribute that makes one timber stand biologically or physically different from other stands. This difference can be measured by, but not limited to: different age classes; species; densities; or non-tree floristic composition.

Stand examination surveys - Procedures to collect data on Forest stands.

Standard - A statement which describes a condition when a job is done properly. Standards show how well something should be done, rather than what should be done. (6)

Standards and Guidelines - Principles specifying conditions or levels of environmental quality to be achieved.

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.

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 anadromous fish or significant sports 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 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. (10)

Streamflow - The flow of water, generally with its suspended load, down a well-defined water course. (6)

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.

Stumpage (stumpage value) - *The value of timber as it stands uncut, in terms of an amount per* unit of volume. (6)

Subdrainage - Areas used for planning and analysis. Usually based on drainage boundaries and averaging 2000 to 4000 acres.

Substantive comment - A comment that provides factual information, professional opinion, or informed judgment germane to the action being proposed. (10)

Successional stage - A stage or recognizable condition of a plant community that occurs during its development from bare ground to climax; for example, coniferous forests typically progress through six recognized stages: grass-forb; shrub-seedling; pole-sapling timber; young timber; mature timber; old-growth timber. (2)

Suitability - The appropriateness of applying certain resource management practices to a particular area of land, as determined by 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. (1) (2) (FSM 1905)

Suitable Forest land - Land to be managed for timber production on a regulated basis.

Super pits - Quarry sites that initially contain at least 100,000 cubic yards of better-than-average quality road-surfacing material, usually basalt or andesite.

Supply - The amount of an output that producers are willing to provide at the specified price, time period, and condition of sale.

Supply Schedule (Curve) - A schedule of amounts of an output that producers are willing to provide at a range of prices, at a given point in time and condition of sale. (See Price-Quantity Relationship.)

Suppression - The process of extinguishing or confining fire. (2)

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. (1) (6)

T

Technology change - A change in the relationship between inputs and outputs in a production process resulting from the implementation of new technology, or a new application of existing technology. (10)

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 it is possible to restock adequately within five years after final harvest; and (d) adequate information is available to project responses to timber management activities. See also "Commercial Forest Land."

Territory - The area which an animal defends, usually during breeding season, against intruders of its own species

Thermal cover - Cover used by animals to ameliorate effects of weather

Thinning - A felling made in an immature stand primarily to maintain or accelerate diameter increment and also to improve the average form of the remaining trees without permanently breaking the canopy. An intermediate cutting. (3)

Threatened and Endangered (T&E) species - See *Threatened*; see *Endangered*.

Threatened species - Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. (See also Endangered species.) (2)

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 1508 28)

Timber classification - Forest land is classified under each of the land management alternatives according to how it relates to the management of the timber resource. The following are definitions of timber classifications used for this purpose.

1. *Nonforest*--Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

2. *Forest*--Land at least 10-percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

3. *Suitable*--Commercial forest land identified as appropriate for timber production in the forest planning process.

4. *Unsuitable*--Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness) or identified as not appropriate for timber production in the forest planning process

Timber harvest schedule - See *Sale schedule.*

Timber Management Resource Plan (TM Plan) - A functional resource plan 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 considered implications to other resources on the Forest.

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 purposes of Forest planning, the term "timber production" does not include production of fuelwood or harvest of unsuitable lands. (1) (2)

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 (TSI) - Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving the growing condition of the remaining trees. (2)

Topography - The configuration of a surface including its relief, elevation, and the position of its natural and human-created features. (6)

Total Suspended Particulates (TSP) - Any finely divided material (solid or liquid) that is airborne with an aerodynamic diameter smaller than a few hundred micrometers.

Tractor logging - Any logging method which uses a tractor as the motive power for transporting logs from the stumps to a collecting point--whether by dragging or carrying the logs. (3)

Tradeoff - The combination of benefits and costs which are gained and lost in switching between alternative courses of action. Trade-offs include only those portions of benefits and costs which are not common to all alternative courses of action under consideration. (6)

Transitory range - Land that is suitable for grazing use of a nonenduring nature over a period of time; often found in the openings created by timber harvesting activities. For example, on particularly disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage. (6)

Travel Corridor - A route followed by animals along a belt or band of suitable cover or habitat.

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 (JTUs).

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. (6)

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. (1)

Uneven-aged silviculture systems - The combination of actions that result in the creation of forests or stands of trees, in which trees of several or many ages grow together. Cutting methods that develop and maintain uneven-aged stands are individual tree and group selecting cutting methods:

> Individual tree selection cutting - The removal of selected trees of all size classes on an individual basis.
>
> Group selection cutting - The removal of all trees in groups for regeneration purposes. The size of the group will be small enough in area that all subsequent regeneration will be influenced by the surrounding uncut stand Cuts are generally .25 - 2.0 acres in size.

Unplanned ignition - A fire started at random by either natural or human causes, or a deliberate incendiary fire.

Unsatisfactory Range Condition - Allotment does not meet criteria for satisfactory condition. (See Satisfactory Range condition)

Utility corridor - A strip of land, up to approximately 600 feet in width, designated for the transportation of people, energy, commodities, and communications by: railroad, state highway, electrical power transmission (66 KV and above), and/or oil, gas, and coal slurry pipelines 10 inches in diameter and larger; and telecommunication cable and electronic sites for interstate use. (1)

Utilization standards - Standards guiding the projection of timber yields and the use and removal of timber. The standards are described in terms of minimum diameter at breast height, minimum length, and percent soundness of the wood, as appropriate. (1)

V

Variety Classes - Variety Classes are obtained by classifying the landscape into different degrees of variety. This determines those landscapes which are most important and those which are of lesser value from the standpoint of scenic quality.

The classification is based on the premise that all landscapes have some value, but those with the most variety or diversity have the greatest potential for high scenic value.

There are three variety classes which identify the scenic quality of the natural landscape:

Class A - Distinctive
Class B - Common
Class C - Minimal

Vegetative management - Activities designed primarily to promote the health of the crop forest cover for multiple-use purposes.

Vertebrate - An animal having a spinal column.

Vertical relief - A contour variation of the land surface perpendicular in relation to the surrounding land. (3) (4)

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. (FSM 1905)

Viewshed - Portion of the Forest that is seen from a major travel route, or high use location.

Visual absorption capacity (VAC) - The physical capability of the land to support management activities without significantly affecting its visual character. Rated as high, moderate, and low.

HIGH (H) - High visual capability to absorb change.
MODERATE (M) - Moderate visual capability to absorb change.
LOW (L) - Low visual capability to absorb change.

Visual quality objective (VQO) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape.

Preservation (P) - Ecological changes only.

Retention (R) - Management activities should not be evident to the casual Forest visitor.

Partial Retention (PR) - Management activities remain visually subordinate to the characteristic landscape.

Modification (M) - Management activities 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.

Maximum Modification (MM) - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

Enhancement - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists. (2)

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. (2)

W

Water rights - Rights to divert and use water or to use it in place.

Water yield - The measured output of the Forest's streams. (6)

Watershed - The entire land area that contributes water to a drainage system or stream. Also used to describe 33 watersheds used for Forest level planning and analysis, averaging 55,000 acres. (6)

Waterside Management Unit (WMU) - See *Streamside Management Unit.* Identical to SMU, except applies to standing water, i e., lakes, ponds, reservoirs, etc., rather than streams

Westside - Refers to the geographical area west of the summit of the Cascade Range in Oregon and Washington.

Wetlands - Areas that are inundated by surface or ground water often enough to support, and usually do support, primarily plants and animals that require saturated or seasonally saturated soil conditions for growth and reproduction. (E.O. 11990)

Wild and Scenic river - 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

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. Recreational 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. (2) (6)

Wilderness - Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation. Wildernesses 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 a primitive and unconfined type of recreation; 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. (2)

Wildlife and Fish User Day - Twelve visitor hours which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

Wildfire - Any wildland fire that is not a prescribed fire. (See also *Prescribed fire.*) (2)

Winter Range - An area used by deer and elk during the winter months; ususally at lower elevation and/or on south and west exposures.

Withdrawal - A legislative or administrative order removing specific land areas from availability for certain uses.

Wood fiber production - The growing, tending, harvesting, and regeneration of harvestable trees.

Woody Material - Organic materials necessary for stream channel stability and maintenance of watershed condition. It includes large logs and root wads.

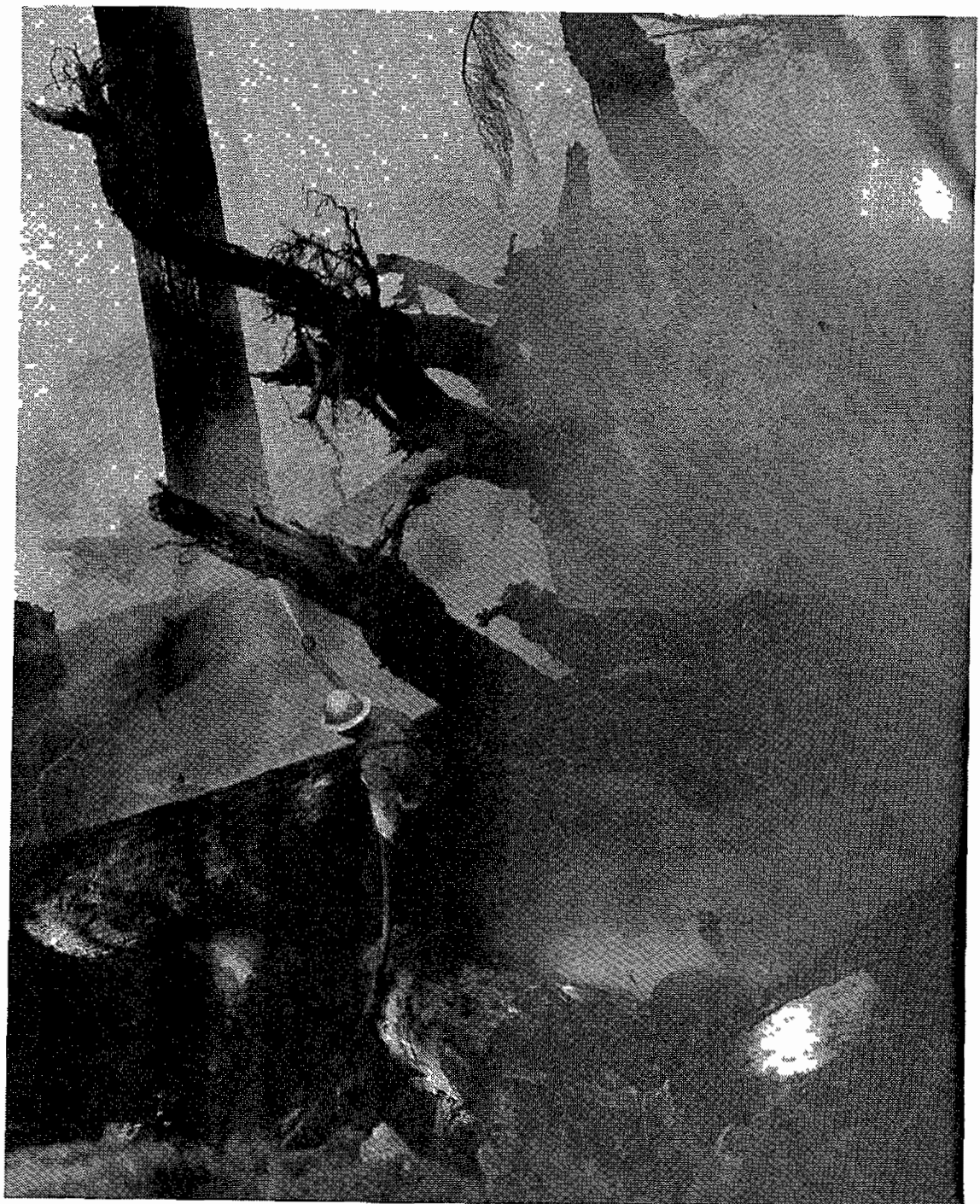
X, Y, Z

Xeric - A dry soil moisture regime. Some moisture is present but does not occur at optimum levels for plant growth. Irrigation or summer fallow is often necessary for crop production. (3)

Yarding - Hauling timber from the stump to a collection point. (2)

Yield tables - Tables that estimate the level of outputs that would result from implementing a particular activity. Usually referred to in conjunction with FORPLAN input or output. Yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.

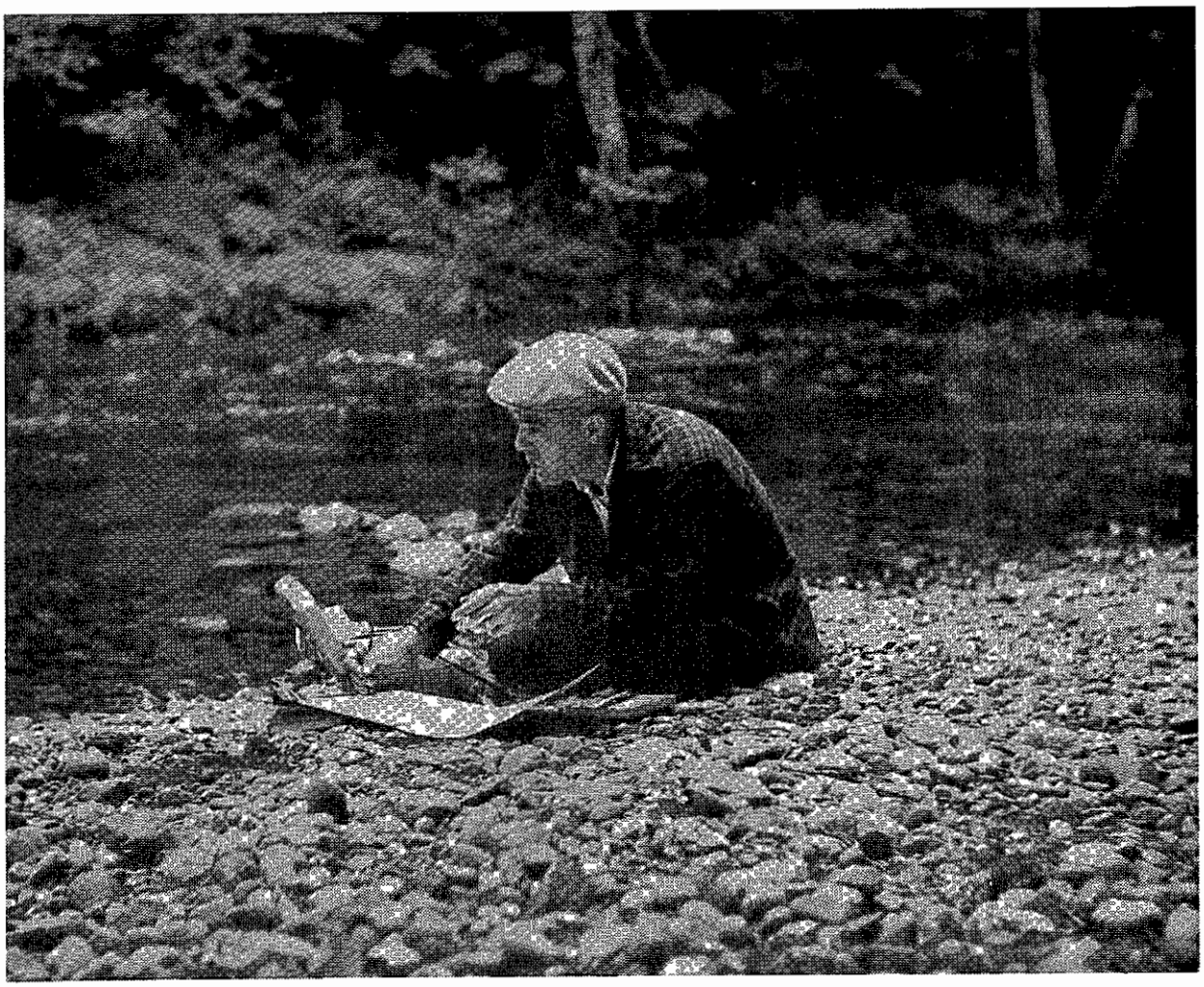
Zone of influence - The geographic area whose social, economic and/or environmental condition is significantly affected by changes in Forest resource production or management.



Firefighting near Indian Ridge, Blue River Ranger District

APPENDICES

APPENDIX A: Wilderness Management A-1
APPENDIX B: Oregon Cascades Recreation Area B-1
APPENDIX C: Timber Sale Schedule C-1
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Artist working at Longbow Camp

APPENDIX A

Wilderness Management Plans

APPENDIX A

WILDERNESS MANAGEMENT

INTRODUCTION

This introductory section is intended as supplemental information concerning the philosophical basis of Wilderness management. Specific direction for Wilderness management can be found in the Forest-wide Standards and Guidelines, Management Area prescriptions, and individual Wilderness Management Plans The Oregon Wilderness Act of 1984 (Public Law 98-328) required that Wilderness Management Plans be developed for several new Wilderness additions and existing Wildernesses in coordination with adjacent National Forests These Wilderness Management Plans are located in this Appendix

Management decisions should be based on all four components of Wilderness policy (Appendix A, Forest-wide Standards and Guidelines, Management Area prescriptions, individual Wilderness Plans) as well as Congressional and state legislation.

Eight Wildernesses currently exist on the Forest. They include: Bull of the Woods, Mt. Jefferson, Middle Santiam, Menagerie, Mt. Washington, Three Sisters, Waldo Lake, and Diamond Peak

Wilderness is valued for the opportunities it provides for recreational use; preservation of wildlife habitat (particularly for species which require isolation from human disturbance or ecosystems which have not been modified by human use), plant and animal diversity, unique geologic features, watersheds, and cultural resources. The goal of Wilderness management is to balance the needs for unmodified natural environments with recreational, scientific, biological, and educational values A management emphasis on conservation and restraint is applied to Wilderness areas to assure that nonconforming uses have minimal impacts on the ecosystem as specified in the Wilderness Act and other legislation.

In carrying out this goal, a nondegradation management policy shall be followed. The nondegradation policy recognizes an appropriate diversity of natural and social settings, but requires that Wilderness shall be maintained in an essentially wild condition and specifies that management shall seek to improve conditions in situations where Wilderness values have been impaired. In addition, the wildest areas of Wilderness shall not be changed to a lesser standard of naturalness to disperse and accommodate more use.

A range of natural and social settings exist in Wilderness from the most pristine to those obviously impacted by human use and presence. In recognition of this variability, each Wilderness may include one or more of the 4 Wilderness Resource Spectrum (WRS) Classes: Transition (Management Area 1a), Semiprimitive (Management Area 1b), Primitive (Management Area 1c), and Pristine (Management Area 1d).

Commercial Use of Wilderness

The 1964 Wilderness Act specifies that within Wilderness "there shall be no commercial enterprise..." (Sec 4.c.). The Act, however, offers a qualification (Sec. 4.d.6.) stating "Commercial services may be

performed...to the extent necessary for activities which are proper for realizing the recreational or other Wilderness purposes of the area." In keeping with this direction from the Act, limited commercial outfitter guide services are acceptable in Wilderness. As with any recreational use of Wilderness, outfitter guided use must meet all standards and guidelines in this plan.

Primary considerations for accepting outfitter guide services in Wilderness include impacts of guided activities on the resource, levels of usage, and the need to provide services to visitors who would not otherwise experience the Wilderness. Efforts are also made to manage commercial outfitter guide use so that such business is economical and provides high quality public service.

Review of outfitter guide special use permit activities shows that 1988 levels of summer outfitter guide use meet existing needs. Therefore, a base or reference level of summer outfitter guide use in Wilderness has been established at the 1988 levels.

All applications for special use permits for outfitter guides in Wilderness will be evaluated for approval or denial. Permits in addition to the 1988 level or increases in service days over 1988 levels will be considered if existing permittees sell or discontinue business or where LAC data and other resource considerations show that such use is appropriate.

Fire Management in Wilderness

Fire regimes have had a profound effect on natural systems in Wilderness. Human efforts to exclude fire from Wilderness may have resulted in significant trends in plant and animal communities of some areas. Similarly, anthropogenic fire may have interfered with natural ecosystem dynamics.

The goal of fire management in Wilderness is to allow fire to play its natural role in the ecosystem. However, before this can be achieved the natural role of fire in each Wilderness must be understood. Toward this end, analysis shall be conducted to determine the historic significance and implications of fire in each Wilderness Fire management plans will be developed based on this analysis and included within Wilderness management plans When fire management plans are completed and if a naturally-ignited fire remains within prescription, it may be allowed to burn.

If the decision is made to control or suppress a fire, total fire suppression actions may not be necessary. Partial implementation may be considered in order to meet Wilderness management objectives. Actions may include surveillance, confinement, containment, or complete suppression depending on fire location and burning conditions.

Limits of Acceptable Change System

Forest Service researchers have been working on a process for establishing acceptable levels of Wilderness use called the Limits of Acceptable Change (LAC) System. This concept recognizes that change is a natural part of wild ecosystems Rather than focus on elimination of all effects or changes to Wilderness caused by human use, the LAC System asks the question, "How much change is acceptable?" The LAC System also recognizes that much of the impact of Wilderness use is not necessarily the result of too much use, but of the kind of use, user behavior, and the timing and distribution of use.

Implementation of the LAC System began with establishment of the Wilderness Resource Spectrum (WRS) Classes and their standards and guidelines. During the next planning period the LAC process will continue with the development of implementation and monitoring plans for each Wilderness. The Mt. Jefferson, Three Sisters, and Mt. Washington Wildernesses are top priorities for these plans, but all Wildernesses will eventually be included.

The LAC implementation and monitoring plans will be developed utilizing the following process.

1. Inventory of existing conditions in each Wilderness.
2. Comparison of existing conditions to the standards and guidelines for each WRS Class.
3. Development of a range of management strategies to remain within standards and to restore areas which are not within standards
4. Evaluation and selection of a preferred strategy.
5. Development of implementation and monitoring plans for the preferred strategy.
6. Public involvement will occur throughout the process.

BULL OF THE WOODS WILDERNESS MANAGEMENT

Recreation Capacity

Situation

The current use patterns of the Willamette NF section of the Bull of the Woods Wilderness show most use occurring along trails following the ridges from Beachie Saddle past Silver King Mountain to Whetstone Mountain and down to Gold Creek. At some time in the future, these routes in the Wilderness may receive use in excess of capacity as evidenced by:

- Increasing resource damage such as soil compaction, trampled vegetation, loss of groundcover, destruction of snags and live vegetation, and declining water quality.
- Declining opportunities for solitude, challenge, and primitive recreation in specific areas.
- Effects of recreational use causes impacts which do not meet existing or proposed standards

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) is contained in the Forest Plan, Chapter IV, *Management Direction.*

Capacity Range for the Bull of the Woods

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness. Such numbers are preliminary estimates and correlated to the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-1 are maximum for the WRS Classes and are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-1.

Table A-1. Capacity Range for the Bull of the Woods Wilderness By WRS Classes

Forest	Pristine	Primitive	Semiprimitive	Transition	Total
Willamette					
Acres	6,314	1,152	0	0	7,466
PAOT	1-5	5-35	0	0	6-40
Mt Hood					
Acres	0	23,422	1,581	1,382	26,385
PAOT	0	60-130	75-95	67-71	202-296
Totals					
Acres	6,314	45,707	1,581	1,382	33,851
PAOT	1-5	65-165	75-95	67-71	208-336

[1]EAt available by WRS Class

Corrective Action

Monitor use along main access routes for impacts to the Wilderness setting. If use exceeds capacities established for the WRS Classes or the effects of use exceed established standards corrective actions will be taken. First stage corrective actions will focus on user education in towns, at entrance portals, and at any site where restoration needs are specifically identified.

Transportation (Trails)

Situation

Maintenance of the trail system is shared by the Mt. Hood National Forest and the Forest along some routes in the Wilderness. The road along Battle Ax Creek is blocked by gates and currently being left to revegetate naturally.

Objective

Provide and maintain a trail system within Forest Plan standards that will serve management needs for protecting resources and distributing visitor use. Eliminate duplication of maintenance and minimize maintenance costs.

Management Direction

Maintain trails within Wilderness trail standards provided in the Forest Plan, Chapter IV, *Management Direction*. Maintenance levels 1 or 2 are appropriate. Any historic higher level maintenance will be reduced to these levels so as not to attract overuse along these routes. Trail signs, including those at Wilderness portals, will be replaced as needed to conform with Wilderness standards.

Complete the rehabilitation of the old road up Battle Ax Creek and manage as Battle Ax Creek Trail # 3339. Complete a permanent closure of the road, provide needed drainage, and reestablish vegetation to meet Wilderness standards.

Potential locations for trailhead parking will be evaluated as to suitability and need. Construct additional parking areas along with any future road reconstruction projects planned for Road 2209.

Cultural Resources

Situation

Cultural resource sites have been identified within the Wilderness. Prehistoric sites have been identified along the ridges near Whetstone Mountain Historic mining sites have been located along the Wilderness boundary. Specific mining sites have not been identified within the Wilderness at this time. Mining era remnants such as tunnels, tailings, or structures are located adjacent to the Wilderness along the slopes above Gold Creek, Battle Ax Creek, and the Little North Santiam River. The Jawbone Flats area of the Little North Santiam Mining District has been determined to be eligible for nomination to the National Register of Historic Places

Objective

Manage cultural resources in accordance with Wilderness and cultural resource management objectives.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.

Inventory, evaluate, and protect known sites (as necessary) consistent with Forest Plan standards and guidelines.

Minerals

Situation

Claims have been filed for mineral locations within the Wilderness, primarily along Gold Creek, Battle Ax Creek, Little North Santiam River, and Whetstone Mountain.

Objective

Administer any mining and recovery activities within the Wilderness in accordance with mining laws and regulations and Forest Plan standards.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

A Notice of Intention to Operate or a Plan of Operations must be filed by the claimant in accordance with regulations. A validity determination will be scheduled when the Notice of Intention or Plan of Operations is filed.

Fire

Situation

The incidence of fire within the Wilderness has been low. Fuels within the area vary from low to moderate rate of spread and moderate to high resistance to control. Natural fire barriers are limited to rocky ridgetops. The location, shape, and size of the Wilderness creates a high potential for fire spreading to resources outside the Wilderness. Due to these considerations, lightning fire suppression activities will occur in this Wilderness when resources outside of the Wilderness are threatened.

Objective

Suppress all wildfires within the Wilderness in accordance with direction in FSM 2320 and 5130.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Suppress all fires according to suppression plans for the district.

MT. JEFFERSON WILDERNESS MANAGEMENT

Occupancy

Situation

There are no nonconforming facilities within the Wilderness.

Recreation Capacity

Situation

Specific areas in the Wilderness are receiving levels of recreation use which inhibit natural processes or adversely affect Wilderness values. Some sites have resource and social impacts which do not meet standards as evidenced by:

- Increasing resource damage such as soil compaction, trampling of vegetation, loss of ground cover, cutting of green vegetation, declining water quality, and snag removal. This is especially severe in subalpine ecosystems that are slow to recover.
- Opportunities for solitude, challenge, and primitive recreation are declining in specific areas.
- Recreation in some areas exceeds carrying capacity estimates and the effects of recreational use is causing impacts which do not meet existing or proposed standards

"Areas of Particular Concern" include:

Canyon Creek Meadows	Lower Berley Lake	Shirley Lake
Rockpile Lake	Jorn Lake	Blue Lake
Jefferson Park	Bowerman Lake	Long Lake
Red Butte	Pamelia Lake	Hunts Cove
Dixie Lakes	Marion Lake	Ann Lake
Lake of the Woods	Mowich Lake	Jenny Lake
Eight Lakes Basin	Duffy Lake	Prill Lake
Santiam Lake	Square Lake	Swallow Lake
Wasco Lake	Crown Lake	Cabot Lake
Turpentine Lake	Carl Lake	Ruby Lake

Areas may be periodically added or deleted from this list depending on the findings of monitoring and management.

Objective

Manage use within Forest Plan standards, and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) is contained in the Forest Plan, Chapter IV, *Management Direction.*

Some interior portions of the Wilderness have been included in the Semiprimitive WRS Class as an interim measure. The long-term objective is to manage interior portions of Wilderness within the Primitive or Pristine WRS Classes. Management of interior Semiprimitive WRS Classes calls for bringing these areas within standards for the Primitive WRS Class as soon as possible

Capacity Range for the Mt. Jefferson Wilderness

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness Such numbers are preliminary estimates and are correlated to the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-2 are maximum for the WRS Classes. The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-2.

Table A-2. Mt. Jefferson Wilderness Capacity Range By WRS Classes

Forest	Pristine	Primitive	Semiprimitive	Transition	Total
Deschutes					
Acres	26,933	3,840	1,961	0	32,734
PAOT	12-25	55-77	49-74	0	116-176
Willamette					
Acres	55,501	9,335	7,337	192	72,565
PAOT	27-41	134-207	172-227	14-16	347-491
Mt. Hood					
Acres	0	4,984	0	0	3,793
PAOT	0	61-83	0	0	61-83
Totals					
Acres	82,434	18,159	9,298	2,350	109,092
PAOT	39-66	250-367	221-301	14-16	524-750

Corrective Action

An LAC implementation and monitoring plan as specified at the beginning of this Appendix will be prepared and implementation begun within one year of publishing the final Forest Plan.

Transportation (Trails)

Situation

Resource damage is occurring from utilization of some improperly designed and located trails and trailheads.

Objective

Provide and maintain a trail system within Forest Plan standards that meets management needs for protecting resources, distributing visitor use, eliminate duplication of routes, and minimize maintenance costs.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

"Areas of Particular Concern" include the relocation and reconstruction of the following trails:

Pacific Crest Trail (PCT)
Santiam Lodge Trail
Santiam Lake Trail

Bowerman Trail
South Breitenbush Trail
Swallow Lake Trail
Bear Valley Trail
Canyon Creek Meadows (Glacier) Trail
Two Springs Trail
Brush Creek Trail
Round Lake Trail
Old Summit Trail

Commercial Operations

Situation

Recreation use exceeds capacity in many areas and many areas currently exceed the standards established in the Forest Plan.

Objective

Reduce or eliminate the adverse effects on the Wilderness caused by recreation use.

Management Direction

Commercial use will be managed in accordance with standards contained in the Forest Plan, Chapter IV, *Management Direction*. In the Mt. Jefferson Wilderness, commercial use will be held at current levels (1988) until recreation impacts can be brought within standards. In addition, if commercial use currently exists in the areas listed above in "Areas of Particular Concern", such use will be reduced Table A-3 lists the maximum amount of commercial use (in service days) that will be accepted at this time. A service day is a day or any portion of a day that a client of a commercial operator is on the National Forest.

Table A-3. Commercial Use In Service Days

	Forest		
Type of Commercial Use	Deschutes	Willamette	Total
Animal Packers	400	260	660
Educational	2,700	1,218	3,918
Total	3,100	1,478	4,578

MIDDLE SANTIAM WILDERNESS MANAGEMENT

Occupancy

Situation

There are facilities within the Wilderness that may be nonconforming with the Wilderness concept:

Old Lookout building remnants - Chimney Peak
Shelter - north of Donaca Lake

Objective

Remove existing improvements, structures, and facilities not essential to the protection of the Wilderness resource and not of historic significance.

Management Direction

Refer to direction regarding cultural resources in Wilderness in the Forest Plan, Chapter IV, *Management Direction*. Conduct cultural resource evaluations on all structures which might be of historic significance. Prepare a management plan for historically significant structures. This plan will determine whether or not a structure should be removed, allowed to deteriorate in place, or maintained. The plan should also determine the best management for recreational use where such use is an issue.

Due to their hazard to safety, cultural resource management plans for lookout remnants will specifically consider the option of documenting historically significant features followed by removal of the structures.

Remove all known structures and facilities that are not historically significant and are not essential to protection and management of Wilderness.

No new cabins, structures, or occupancies will be permitted to be established.

Recreation Capacity

Situation

The current use patterns of this Wilderness show most use occurring along Trails 3387 and 3382 which lead to Donaca Lake as the major destination. Use along this travel route is day hiking and overnight camping. This area of the Wilderness may be receiving use in excess of capacity as evidenced by:

- Increasing resource damage such as soil compaction, trampling of vegetation, loss of ground cover, cutting of green vegetation, declining water quality, and snag removal
- Declining opportunities for solitude, challenge, and primitive recreation in specific areas.
- Recreation in some areas exceeds carrying capacity estimates and the effects of recreational use is causing impacts which do not meet existing or proposed standards.

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific directions for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) are contained in the Forest Plan, Chapter IV, *Management Direction.*

Capacity Range for the Middle Santiam Wilderness

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness Such numbers are preliminary estimates and are correlated to the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-4 are maximum for the WRS Classes The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-4.

Table A-4. Middle Santiam Wilderness Capacity Range By WRS Classes

	Pristine	Primitive	Semiprimitive	Transition	Total
Acres	7,188	256	1,109	0	8,553
PAOT	2-5	7-8	26-68	0	35-81

Corrective Action

Monitor the use along the main trails leading to Donaca Lake and around the perimeter of the lakeshore for impacts to the Wilderness setting. If use exceeds the capacities established for the WRS Class or the standards established in the Wilderness section of the Forest Plan, corrective actions will be taken. First stage corrective actions will focus on user education in town and at entrance portals. Second stage corrective actions for potential site restrictions and any site restoration specifically identified during monitoring may also need to be initiated.

Transportation (Trails)

Situation

Trails 3387 and 3382 are the main access routes within the Wilderness to Donaca Lake Use focuses on the travel corridor along Trail 3382 to Donaca Lake, Chimney Peak, and McQuade Creek Shelter which is outside the Wilderness boundary. Maintenance currently is at Level 3. Trail 3401, south and

west of Knob Rock, was reopened prior to Wilderness designation and is maintained at Level 1. An opportunity has been identified for constructing a new trail along the Middle Santiam River.

Objective

Provide and maintain a trail system within Forest Plan standards that will serve management needs for protecting resources and distributing visitor use. Eliminate duplication of routes and minimize maintenance costs.

Management Direction

Maintain trails to meet Wilderness trail standards and guidelines in the Forest Plan, Chapter IV, *Management Direction*. Maintenance levels 1 or 2 are appropriate. Any historic higher level maintenance will be reduced to these levels so as not to attract overuse along these routes. Trail signs, including those at Wilderness portals, will be replaced as needed to conform with Wilderness standards. In compliance with regional policy on nondegradation of Wilderness resources, construct no trails in areas not already trailed. Repair and replacement of existing trails is acceptable.

Scientific and Educational Programs

Situation

Part of the area was designated as the Middle Santiam Research Natural Area prior to its establishment as Wilderness.

Objective

Scientific studies, research, and educational programs are appropriate within the Wilderness as long as they do not degrade Wilderness values Only those studies and programs that absolutely require a Wilderness environment will be permitted.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.

Evaluate and permit, where appropriate, proposals for scientific studies and educational programs.

Fire

Situation

The incidence of fire within the Wilderness has been low. The location, size, and shape of the Wilderness creates a high potential for fire spreading to areas outside the Wilderness. Due to these considerations, lightning fire suppression activities will occur in this Wilderness when resources outside of the Wilderness are threatened.

Objective

Suppress all wildfires within the Wilderness in accordance with direction in FSM 2320 and 5130.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Suppress all fires in accordance with district suppression plans.

MENAGERIE WILDERNESS MANAGEMENT

Occupancy

Situation

Nonconforming facilities within the Wilderness are:

Old Lookout building and stairs - Rooster Rock

Objective

Remove existing improvements, structures, and facilities not essential to the protection of the Wilderness resource or not of historic significance.

Management Direction

Refer to direction regarding cultural resources in Wilderness in the Forest Plan, Chapter IV, *Management Direction.* Conduct cultural resource evaluations on all structures which might be of historic significance. Prepare a management plan for historically significant structures. This plan will determine whether or not a structure should be removed, allowed to deteriorate in place, or maintained. The plan should also determine the best management for recreational use where such use is an issue.

Remove all structures and facilities that are not historically significant and are not essential to protection and management of Wilderness.

No new cabins, structures, or occupancies will be permitted

Recreation Capacity

Situation

The current use patterns of this Wilderness show most access occurring along Trail 3405 from Trout Creek Campground and Trail 3399 from Fernview Campground. This use is primarily day hiking. Access for climbing occurs primarily from roads on the northern edge of the Wilderness, down along the ridges to the rock spires. At some time in the future, these access routes to the Wilderness may receive use in excess of capacity as evidenced by:

- Increasing resource damage such as soil compaction, trampling of vegetation, loss of groundcover, cutting of green vegetation, and snag removal.
- Declining opportunities for solitude, challenge, and primitive recreation in specific areas
- Recreation in some areas exceeds carrying capacity estimates and the effects of recreational use is causing impacts which do not meet existing or proposed standards.

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) is contained in the Forest Plan, Chapter IV, *Management Direction*.

Capacity Range for the Menagerie Wilderness

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness. Such numbers are preliminary estimates and are correlated to the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-5 are maximum for the WRS Classes. The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-5.

Table A-5. Menagerie Wilderness Capacity Range By WRS Classes

	Pristine	Primitive	Semiprimitive	Transition	Total
Acres	4,352	0	597	0	4,949
PAOT	1-3	0	8-37	0	9-40

Corrective Action

Monitor the use along main access routes for impacts to the Wilderness character. If use exceeds the capacities established for the WRS Classes or the standards established in the Wilderness section of the Forest Plan, corrective actions will be taken. First stage corrective actions will focus on user education in towns, at entrance portals, and any site where the need for restoration is specifically identified.

Transportation (Trails)

Situation

Trails 3405 and 3399 are the main access routes within the Wilderness for day users A user-created trail system exists along the rock spires for rock climber access.

Objective

Provide and maintain a trail system within standards in the Forest Plan which will serve management needs for protecting resources and distributing visitor use. Eliminate duplication of routes and minimize maintenance costs.

Management Direction

Maintain these trails to meet Wilderness trail objectives as defined in the Forest Plan, Chapter IV, *Management Direction*. Maintenance levels 1 or 2 are appropriate. Any historic higher level maintenance will be reduced to these levels so as not to attract overuse along these routes. Trail signs, including those at Wilderness portals, will be replaced as needed to conform with Wilderness standards.

Monitor resource impacts along the informal climber trail between Road 2027850 and Rooster Rock and other rock spires in the area. No trail construction is planned for the Wilderness during this planning period. Future construction of a trail down to Rooster Rock may at some point become necessary during this planning period for resource protection

Commercial Operations

Situation

No commercial use permits are currently issued for use within the Wilderness Any future requests for outfitter guides will be evaluated.

Objective

Evaluate the potential effects on the Wilderness setting prior to issuance of commercial use permits within the Wilderness

Management Direction

Commercial use will be managed in accordance with the direction contained in the Forest Plan, Chapter IV, *Management Direction*. In addition, commercial uses must be managed within the capacity of the Wilderness Resource Spectrum Classes as defined in Table A-5.

Fire

Situation

The incidence of fire within the Wilderness has been low. The location, shape, and size of the Wilderness creates a high potential for fire spreading to resources outside the Wilderness. Due to these considerations,

lightning fire suppression activities will occur in this Wilderness when resources outside of the Wilderness are threatened.

Objective

Suppress all wildfires within the Wilderness in accordance with direction in FSM 2320 and 5130.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Suppress all fires in accordance with the suppression plans for the district.

MT. WASHINGTON WILDERNESS MANAGEMENT

Occupancy

Situation

There are no nonconforming facilities within the Wilderness.

Recreation Capacity

Situation

Specific areas in the Wilderness apparently are receiving use in excess of capacity as evidenced by:

- Increasing resource damage such as soil compaction, trampling of vegetation, loss of groundcover, cutting of green vegetation, declining water quality, and snag removal. This is especially severe in subalpine ecosystems which are slow to recover.
- Opportunities for solitude, challenge, and primitive recreation are declining in specific areas.
- "Areas of Particular Concern" include:

  Benson Lake
  Tenas Lake
  Hand Lake
  Patjens Lakes
  George Lake

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation

Management Direction

Specific direction for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) is contained in the Forest Plan, Chapter IV, *Management Direction.*

Capacity for the Mt.Washington Wilderness

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness Such numbers are preliminary estimates and correlated with the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-6 are maximum for the WRS Classes. The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-6.

Table A-6 Mt. Washington Wilderness Capacity Range BY WRS Class

Forest	Pristine	Primitive	Semiprimitive	Transition	Total
Deschutes					
Acres	12,868	280	415	0	13,563
PAOT	1-10	8-9	17-33	0	26-52
Willamette					
Acres	36,992	2,560	1,514	0	40,996
PAOT	27-28	76-79	92-94	0	195-201
Totals					
Acres	49,860	2,840	1,929	0	54,559
PAOT	28-38	84-88	109-127	0	221-253

Corrective Action

LAC implementation and monitoring plans will be developed as specified at the beginning of this appendix within one year of the Record of Decision for the Forest Plan.

Transportation (Trails)

Situation

Excessive numbers of visitors are being drawn into Wilderness areas by (1) trails being constructed and maintained to higher than necessary standards, and (2) trails routed directly to attractive sites and areas

Excessive maintenance widths in flatter areas of some trails are causing trail systems to grow to excessive widths.

Objective

Manage recreation use within standards of the Forest Plan and to preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.

Modify existing trail maintenance and construction standards in order to achieve WRS Class objectives. Modifications can address clearing widths, "step-over" logs, alignment, maximum grade, bridge needs, and drainage.

Develop and implement a Trail Relocation and Reconstruction Plan that emphasizes correction of poor alignment and is designed to distribute use. Maintenance and preservation of the established WRS Class mapping will be the basis for decisions regarding trail locations and routing. Trails to be included are Benson (from Benson Lake to Scott Mountain) - 3502 and Pacific Crest National Scenic Trail (PCNST) 2000.

Range

Situation

No commercial grazing takes place in the Wilderness.

Objective

Maintain the Wilderness free from commercial grazing.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.

Issue no commercial grazing permits.

Commercial Operations

Situation

Recreation use exceeds capacity in many areas, and many areas currently exceed the standards established in the Forest Plan.

Objective

Reduce or eliminate the adverse effects on the Wilderness caused by recreation use.

Management Direction

Commercial use will be managed in accordance with standards contained in the Forest Plan, Chapter IV, *Management Direction*. Specifically in the Mt. Washington Wilderness, commercial use will be held

at current levels (1988) until recreation impacts in this Wilderness can be brought within standards. In addition, if commercial use currently exists in the areas listed above in "Areas of Particular Concern" such use will be reduced. Table A-7 lists the maximum amount of commercial use in service days that will be accepted at this time. A service day is a day or any portion of a day that a client of a commercial operator is on the National Forest

Table A-7. Commercial Use In Service Days

	Forest		
Type of Commercial Use	Deschutes	Willamette	Total
Animal Packers	216	108	324
Educational	642	128	770
Total	858	236	1,094

THREE SISTERS WILDERNESS MANAGEMENT

Occupancy

Situation

Nonconforming facilities within the Wilderness are:

Trail Shelters

Buck Meadows
James Creek
Mink Lake
Cliff Lake

Lookouts

Olallie
Rebel Rock

Guard Station

Olallie

Cabins

Muskrat Lake
Unnamed, undiscovered, or other miscellaneous cabins and structures.

Occasionally, construction of illegal makeshift cabins and shelters occurs within the Wilderness.

Objective

Remove existing improvements, structures, and facilities which are not of historic significance and are not essential to the protection of the Wilderness resource.

Management Direction

Refer to direction regarding cultural resources in Wilderness in the Forest Plan, Chapter IV, *Management Direction*. Conduct cultural resource evaluations on all structures which might be of historic significance. Prepare a management plan for historically significant structures. This plan will determine whether or not a structure should be removed, allowed to deteriorate in place, or maintained. The plan should also determine the best management for recreational use where such use is an issue.

Remove all structures and facilities that are not historically significant and are not essential to protection and management of Wilderness.

No new cabins, structures, or occupancies will be permitted.

Recreation Capacity

Situation

Specific areas in the Wilderness are experiencing levels of recreation use which may be inhibiting natural processes or adversely affecting Wilderness values as evidenced by:

- Increasing resource damage such as soil compaction, trampling of vegetation, loss of groundcover, cutting of green vegetation, declining water quality, and snag removal. This is especially severe in the subalpine and alpine areas where recovery is slow.
- Opportunities for solitude, challenge, and primitive recreation are declining in specific areas.
- Recreation in some areas exceeds carrying capacity estimates and the effects of recreational use is causing impacts which do not meet existing or proposed standards.

"Areas of Particular Concern" include:

Areas

Blow Lake
Buck Meadows Shelter
James Creek Shelter
Mink Lake Shelter
Cliff Lake Shelter
Muskrat Lake Cabin
Honey Lakes Area
Green Lakes
Olallie Guard Station
Olallie Lookout
Linton Lake
Proxy Falls
Sisters Mirror Lake Area
Horse Lake
Mesa Lake
Golden Lake
Doris Lake
Erma Bells Basid
North Matheu Lake
South Matheu Lake
Park Meadow
Hinton
Rebel Rock Lookout
Nash Lake
Porky Lake
South Sister Climbing Trail
Camp Lake
Soap Creek Crossing
Lower Linton Meadows
Otter Lake
Chambers Lakes
Moraine Lake

Eileen Lake-Husband Lake-Linton Meadows
Mink Lake and Mink Lake Shelter Area
Sunshine-Obsidian Falls-Arrowhead Lake
French Pete drainage (1st 5 miles from FS Road 19)

Trails

Lower French Pete Trail
Fall Creek Trail
Lakes Trail
Erma Bell Trail
Irish Mountain Trail
Pole Creek Trail (Green Lakes Spur)
Park Meadow
Main climbing routes to the Three Sisters

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for WRS Classes (Pristine, Primitive, Semiprimitive, and Transition) are contained in the Forest Plan, Chapter IV, *Management Direction.*

Some interior portions of the Wilderness have been mapped into the Semiprimitive WRS Class as an interim measure. The long-term objective is to manage interior portions of Wilderness within the Primitive or Pristine WRS Classes Management of interior Semiprimitive WRS Classes will be to bring these areas within standards for the Primitive WRS Class as soon as possible.

Capacity Range for Three Sisters Wilderness Area

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness. Such numbers are

preliminary estimates and correlated to the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-8 are maximum for the WRS Classes. The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-8.

Table A-8. Three Sisters Wilderness Capacity Range By WRS Class

Forest	Pristine	Primitive	Semiprimitive	Transition	Total
Deschutes					
Acres	78,913	5,792	7,460	541	92,706
PAOT	40-55	93-145	239-321	25-40	391-561
Willamette					
Acres	147,880	22,610	17,427	1,429	189,346
PAOT	70-111	234-350	360-432	71-79	735-972
Totals					
Acres	226,793	28,402	24,887	1,970	282,052
PAOT	110-166	327-495	599-753	96-119	1126-1533

Corrective Action

An LAC implementation and monitoring plan as specified at the beginning of this appendix will be prepared and implementation begun within one year of publishing the Record of Decision for the Forest Plan.

Transportation (Trails)

Situation

Excessive numbers of visitors are being drawn into Wilderness areas by (1) trails being constructed and maintained to higher than necessary standards and (2) trails routed directly to attractive sites and areas.

Resource damage is occurring from utilization of some improperly designed and located trails and trailheads.

Objective

Provide and maintain a trail system within Forest Plan standards that will meet management needs for protecting resources and distributing visitor use, eliminate duplication of routes, and minimize maintenance costs.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Modify existing trail maintenance and construction standards in order to achieve WRS Class objectives Modifications can address clearing widths, "step-over" logs, alignment, maximum grade, bridge needs, and drainage

Develop and implement a trail relocation and reconstruction plan that emphasizes correction of poor alignment and is designed to distribute use away from overused areas Some corrective actions may already be in progress. Trails to be included are ·

Trails

Buck Meadows
Starwano
Portions of McBee
Pacific Crest National Scenic Trail (PCNST)
Erma Bell Lakes Trail

Range

Situation

Reports have been received from the public that grazing of recreational stock in the Wilderness is causing degradation of the Wilderness resource and of visitors' experience.

Objective

Minimize the impact of recreational stock grazing upon the Wilderness experience while utilizing the Wilderness range resource according to law and policy.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Advise visitors within the information and education program of (1) areas they can visit within the Wilderness where grazing of recreational stock does not occur, and (2) that no commercial grazing permits are in effect within the Wilderness.

Encourage techniques in allotment management and management of grazing animals that will minimize impacts on the Wilderness environment and the experience of Wilderness visitors.

Commercial

Situation

Recreation use exceeds capacity in many areas, and many areas currently exceed the standards established in the Forest Plan.

Objective

Reduce or eliminate the adverse effects on the Wilderness caused by recreation use.

Management Direction

Commercial use will be managed in accordance with standards contained in the Forest Plan, Chapter IV, *Management Direction*. Specifically in the Three Sisters Wilderness, commercial use will be held at current levels (1988) until recreation impacts in this Wilderness can be brought within standards. In addition, if commercial use currently exists in the areas listed above in "Areas of Particular Concern", such use will be reduced. Table A-9 lists the maximum amount of commercial use in service days that will be accepted at this time. A service day is a day or any portion of a day that a client of a commercial operator is on the National Forest.

Table A-9. Commercial Use In Service Days

	Forest		
Type of Commercial Use	Deschutes	Willamette	Total
Animal Packers	272	260	532
Educational	1,705	1,476	3,181
Total	1,977	1,736	3,713

WALDO LAKE WILDERNESS MANAGEMENT

Occupancy

Situation

Nonconforming facilities within the Wilderness are:

Waldo Mountain Lookout
Black Meadows Cabin
Fuji Mt. Cabin
Unnamed, undiscovered, or other miscellaneous cabins and structures.

Occasionally, construction of illegal makeshift cabins and shelters occurs within the Wilderness.

Objective

Remove existing improvements, structures, and facilities which are not of historic significance and are not essential to the protection of the Wilderness resource.

Management Direction

Refer to direction regarding cultural resources in Wilderness in the Forest Plan, Chapter IV, *Management Direction*. Conduct cultural resource evaluations on all structures which might be of historic significance. Prepare a management plan for historically significant structures. This plan will determine whether or not a structure should be removed, allowed to deteriorate in place, or maintained. The plan should also determine the best management for recreational use where such use is an issue.

Remove all structures and facilities that are not historically significant and are not essential to protection and management of Wilderness.

No new cabins, structures, or occupancies will be permitted.

Recreation Capacity

Situation

Specific areas in the Wilderness apparently are receiving use in excess of capacity as evidenced by:

- Increased resource damage such as soil compaction, trampling of vegetation, loss of groundcover, cutting of green vegetation, declining water quality, and snag removal. This is especially severe in the subalpine areas where recovery is slow.

  Impacted Zones

  Eastern Brook Lake
  Winchester Lake
  Gander Lake
  Wahanna Lake
  Rigdon Lakes
  Kiwa Lake
  Six Lakes
  Torry Lake
  Whig Lake
  Quinn Lakes
  Long Lake
  Swan Lakes
  Salmon Lakes
  Eddeeleo Lakes

- Opportunities for solitude, challenge, and primitive recreation are declining in specific areas:

  Travel Zones

  Whig Lake
  Torrey Lake
  Swan Lake
  Quinn Lakes
  Eddeelleo Lakes

Kiwa Lake
Eastern Brook Lake
Winchester Lake
Gander Lake
Long Lake
Wahanna Lake
Rigdon Lakes

Trails

Winchester Trail
Rigdon Lakes Trail
Black Creek Trail
Six Lakes Trail
Wahanna Trail
Whig & Torry Way Trail
Salmon Lakes Trail

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) is contained in the Forest Plan, Chapter IV, *Management Direction*.

Capacity Range for the Waldo Lake Wilderness

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness. Such numbers are preliminary estimates and are correlated with the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-10 are maximum for the WRS Classes. The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-10.

Table A-10. Waldo Lake Wilderness Capacity Range By WRS Classes

Forest	Pristine	Primitive	Semiprimitive	Transition	Total
Willamette					
Acres	27,025	4,373	5,439	320	37,157
PAOT	13-20	82-135	202-236	33-35	330-426

Corrective Action

Monitor the use along main access routes for impacts to the Wilderness setting. If use exceeds the capacities established for the WRS Class or effects exceed Forest Plan standards, corrective actions will be taken. First stage corrective actions will focus on user education in town, at Wilderness portals, in Wilderness Guard contacts, and at any site where the need for restoration is specifically identified.

Transportation (Trails)

Situation

Excessive numbers of visitors are being drawn into Wilderness areas by trails being constructed and maintained to higher than necessary standards and trails routed directly to attractive sites and areas.

Resource damage is occurring from utilization of the following improperly designed and located trails: Winchester Trail, Rigdon Lakes Trail, Black Creek Trail, Six Lakes Trail, Wahanna Trail, Whig and Torrey Way Trails, and Salmon Lakes trail.

Objective

Provide and maintain a trail system within Forest Plan standards that will meet management needs for protecting resources and distributing visitor use, eliminate duplication of routes, and minimize maintenance costs

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*

Modify existing trail maintenance and construction standards in order to achieve WRS Class objectives. Modifications can address clearing widths, "step-over" logs, alignment, maximum grade, bridge needs, and drainage. Trail signs, including those at Wilderness portals, will be replaced as needed to conform with Wilderness standards. Identify trails with substandard alignment and develop a trail relocation and reconstruction plan that emphasizes correction of poor alignment.

Range

Situation

Historical records indicate that sheep grazing ended in the Waldo Lake area in the 1940s, prior to Wilderness designation.

Objective

Maintain the Wilderness free from commercial grazing.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Issue no commercial grazing permits.

Commercial

Situation

Commercial use may be occurring within the Wilderness which is not under special use permit. Some of this use may be adversely impacting the Wilderness by encouraging excessive numbers of people in the same area at one time, encouraging use by large groups inappropriate to a Wilderness setting, and increasing the likelihood of site damage from overuse and concentrated horse use.

Objective

Reduce or eliminate the adverse effects on the Wilderness caused by recreation use. Bring commercial use into compliance with standards contained in the Wilderness section of the Forest Plan.

Management Direction

Commercial use will be managed in accordance with standards contained in the Forest Plan, Chapter IV, *Management Direction.*

Bring under permit any uncontrolled commercial use in the Wilderness. Limit the use level to be consistent with private use levels and manage within the standards and capacities for the WRS Classes.

Cultural Resources

Situation

Preliminary information indicates that prehistoric and historic cultural resource sites exist within the Wilderness. No documented inventories exist for sites within the Wilderness, but seasonal encampments and lithic sites are known to exist. Early administrative sites are also known to exist.

Objective

Manage cultural resources in accordance with Wilderness and cultural resource standards and management objectives in the Forest Plan.

Management Direction

Refer to Forest Plan, Chapter IV, *Management Direction.*

Inventory, evaluate, and protect sites as necessary and consistent with agency policy.

Fire

Situation

The incidence of fire within the Wilderness has been low. The incidence of human caused fires can be expected to increase with the increase in use. The location, shape, and size of the Wilderness creates a high potential for fire spreading to resources outside the Wilderness. Due to these considerations, lightning fire suppression activities will occur in this Wilderness when resources outside of the Wilderness are threatened.

Objective

Suppress all wildfires within the Wilderness in accordance with direction in FSM 2320 and 5130

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction.*

Suppress all fires in accordance with the suppression plans for the district.

DIAMOND PEAK WILDERNESS MANAGEMENT

Occupancy

Situation

Nonconforming facilities within the Wilderness include:

- Cabin - 300 yards south of Diamond Rockpile Lake.
- Cabin - Approximately in SW1/4, sec. 23, T. 23 S., R. 5-1/2 E.
- Snow pillow site, Soil Conservation Service
- Cabin - near Diamond View Lake

Objective

Remove existing improvements, structures, and facilities not historically significant or essential to the protection of the Wilderness resource.

Management Direction

Refer to direction regarding cultural resources in Wilderness in the Forest Plan, Chapter IV, *Management Direction*. Conduct cultural resource evaluations on all structures which might be of historic significance. Determine historic significance of existing cabins.

Prepare a management plan for historically significant structures. This plan will determine whether or not a structure should be removed, allowed to deteriorate in place, or maintained. The plan should also determine the best management for recreational use where such use is an issue.

Remove all known structures and facilities that are not historically significant and are not essential to protection and management of Wilderness.

Work with the Soil Conservation Service on relocation of their snow pillow to a site outside Wilderness.

No new cabins, structures, or occupancies will be permitted.

Recreation Capacity

Situation

The only area that appears to be utilized over its capacity is Vivian Lake.

Objective

Manage use within Forest Plan standards and at a capacity that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each WRS Class (Pristine, Primitive, Semiprimitive, and Transition) is contained in the Forest Plan, Chapter IV, *Management Direction*.

Capacity Range for the Diamond Peak Wilderness

It is relatively common to use a specific number of recreation users (a recreation capacity) as a measure of the threshold of overuse or as a maximum level of tolerable use in Wilderness. Such numbers are preliminary estimates and correlated to the condition of Wilderness settings and to the maintenance of Wilderness values. Numbers here are to be used as a management aid. Monitoring to determine the relationship between use levels, Forest Plan standards, and Wilderness management objectives will be the primary tool for assessing maximum levels of recreation use in specific areas and the degree to which Wilderness ecosystems are free from human disturbance.

Capacity estimates shown in Table A-11 are maximum for the WRS Classes. The capacities are expressed in terms of persons-at-one-time (PAOT). Monitoring programs will establish actual capacities for specific areas within the Wilderness. Initial maximum capacities will be based on the estimates in Table A-11.

Table A-11. Diamond Peak Wilderness Capacity Range By WRS Classes

Forest	Pristine	Primitive	Semiprimitive	Transition	Total
Deschutes					
Acres	29,002	1,199	2,376	387	32,964
PAOT	15-20	23-37	80-133	21-66	139-256
Willamette					
Acres	4,590	3,476	1,536	171	19,773
PAOT	6-11	72-107	55-76	20-22	153-216
Totals					
Acres	43,592	4,675	3,912	558	52,737
PAOT	21-31	69-144	135-209	41-88	292-472

Trails

Situation

Opportunities exist to distribute and disperse visitor use by making adjustments to the existing trail system

Opportunities exist to improve trail location, ease trail maintenance, and eliminate duplication of trail routes

Objective

Provide and maintain a trail system within Forest Plan standards which will meet management needs for protecting resources and distributing visitor use, eliminate duplication of routes, and minimize maintenance costs.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*

Establish a new junction of Crater Butte Trail No. 44.1 with the Pacific Crest National Scenic Trail (PCNST) in order to eliminate portions of this trail paralleling the Pacific Crest Trail.

The PCNST will be maintained to a Level 3 standard within the Wilderness.

Cultural Resources

Situation

Preliminary information indicates that prehistoric and historic cultural resource sites exist within the Wilderness. No documented inventories exist for sites within the Wilderness, but seasonal encampments and lithic sites are known to exist. Early administrative sites are also known to exist

Objective

Manage cultural resources in accordance with Wilderness and cultural resource standards in the Forest Plan.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.

Inventory, evaluate, and project sites as necessary and consistent with agency policy.

Fire

Situation

The incidence of fire within the Wilderness has been low. The incidence of human caused fires can be expected to increase with the increase in use. The location, shape, and size of the Wilderness creates a high potential for fire spreading to resources outside the Wilderness. Due to these considerations, lightning fire suppression activities will occur in this Wilderness when resources outside of the Wilderness are threatened.

Objective

Suppress all wildfires within the Wilderness in accordance with direction in FSM 2320 and 5130.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.

Suppress all fires in accordance with the suppression plans for the district.

Commercial Operations

Situation

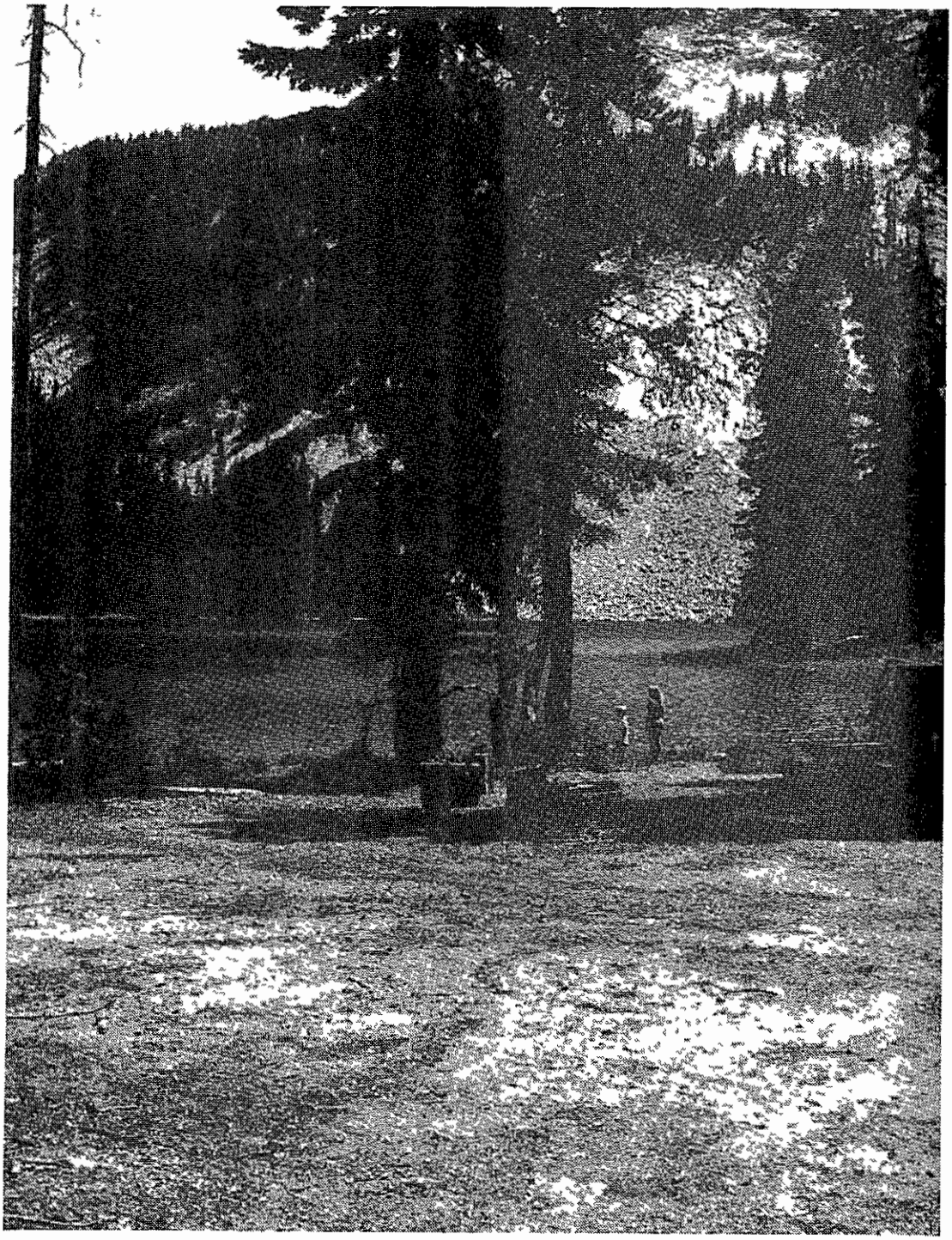
There are no commercial operations in the Diamond Peak Wilderness.

Objective

Manage within standards contained in the Wilderness section of the Forest Plan.

Management Direction

Refer to the Forest Plan, Chapter IV, *Management Direction*.



Indigo Lake, Rigdon Ranger District

APPENDIX B

Oregon Cascades Recreation Area

APPENDIX B

OREGON CASCADES RECREATION AREA MANAGEMENT PLAN

The attached plan represents management direction for the nonwilderness portion of the Oregon Cascades Recreation Area (OCRA). It is the intent of this plan to increase opportunities for both motorized and nonmotorized recreation as well as to facilitate wildlife and other resource enhancement It is anticipated that minor deviations from this plan may be necessary in the future; these decisions should be fully supported by environmental analyses.

INTRODUCTION

The Oregon Cascades Recreation Area (OCRA), which was established as part of the Oregon Wilderness Act of 1984 (Public Law 98-328), extends along the crest of the Cascade Mountain Range from the Diamond Peak Wilderness to within a quarter mile of the northern boundary of Crater Lake National Park. It encompasses 157,000 acres on three National Forests: the Deschutes, Willamette, and Umpqua. It is an area exhibiting rich diversity of landforms and wildlife, and also provides for a variety of recreational experiences

Within the southern portion of the Recreation Area, the Mt. Thielsen Wilderness covers 55,100 acres surrounding Mt Thielsen This 9,182-foot peak, named about 1872 in honor of prominent railroad engineer and builder Hans Thielsen, is often referred to as the "Lightning Rod of the Cascades " The 52,337-acre Diamond Peak Wilderness forms the northern boundary of the recreation area. Dominated by an 8,744-foot volcanic peak, named in 1852 after John Diamond who was searching for an emigrant wagon road through the mountains, this Wilderness includes dozens of lakes formed as the result of glacial action. Nonwilderness lands in the OCRA account for 86,200 acres. The area in total contains a variety of landforms, ranging from mountain desert and lush canyon meadows to high peaks. Headwaters for four rivers are located within the area: the North Umpqua, Klamath, Deschutes, and Willamette. Many lakes, ponds, rivers, and streams offer a rich recreational experience to visitors.

The Oregon Wilderness Act of 1984 lists the OCRA as 157,000 total acres. However, included in that acreage is 55,000 acres for the Mt. Thielsen Wilderness, and 15,700 acres designated as additions to the Diamond Peak Wilderness. These acreages will be managed under direction from the 1964 Wilderness Act. This OCRA Plan, therefore, is directed at the management of the remaining 86,200 acres, which are the nonwilderness portions of the OCRA.

The roadless character of much of the area has long been recognized as providing a variety of resource values including watershed, wildlife habitat, scenery, and recreation. The popular Pacific Crest National Scenic Trail passes through the area, accessed by a number of secondary trails, many of which originate at heavily used and developed recreation complexes such as Diamond, Crescent, and Odell Lakes.

The OCRA is divided into seven zones:

Zone 1 - Summit Lake/Crescent Lake - Deschutes National Forest

Zone 2 - Timpanogas Basin - Willamette National Forest

Zone 3 - Calamut Lake - Umpqua National Forest

Zone 4 - Little Deschutes/Big Marsh - Deschutes National Forest

Zone 5 - North Umpqua - Umpqua National Forest

Zone 6 - Thirsty Point - Umpqua National Forest

Zone 7 - West Thielsen - Umpqua National Forest

The Umpqua National Forest is the lead Forest for planning purposes. The OCRA will be managed as a single unit. Coordination meetings will be periodically scheduled between Forests and Ranger Districts to review management of the area.

OCRA Legislative Summary

The following information was extracted from the Oregon Wilderness Act of 1984 and the Subcommittee Report.

Overall Direction

Act: "The area shall be managed in accordance with plans prepared to:

1. Provide a range of recreation opportunities from primitive to full service developed campgrounds.
2. Provide access for use by the public.
3. ...maintain the natural scenic characteristics ...
4. Provide for use of motorized recreation vehicles."

"In order to conserve, protect, and manage, in a substantially undeveloped condition, certain...lands in Oregon...there is hereby established, the Oregon Cascades Recreation Area."

Report: "The purpose of the...designation is to provide management options which are not permitted or feasible under the Wilderness Act....Generally, the committee expects that the Forest Service will manage the area so as to maintain a near natural state while providing for a wide range of recreation opportunities."

Planning

Act: "Management direction...shall be developed in...Forest Plans.. as in an integrated management plan...."

Report: "IT IS HOPED THAT. planning can be prepared as a part of initial Forest planning."

Timber

Act: "...the Secretary may permit...those limited activities and facilities which he determines necessary for resource protection and management and for visitor safety and comfort, including (1) those necessary to prevent and control wildfire, insects, disease, soil erosion, and other damaging agents including timber harvesting activities necessary to prevent catastrophic mortality from insects, diseases, or fire (2) Salvage of major timber mortality caused by fire, insects, disease, blowdown, or other causes when the scenic characteristics of the Recreation Area are significantly affected, as the health and safety of the public is threatened, versus the overall protection of the forested area inside or outside the Recreation Area might be adversely affected by failure to remove the dead or damaged timber."

Report: "It is the intention of the committee that management activities, including timber harvesting, be allowed in very limited circumstances to prevent the spread of insect, disease, or to reduce the threat of fire. It is the intention of the committee that only a minimum amount of timber be cut in these instances that is necessary to accomplish the specific objective. Management of the timber resource will be planned in the overall...plan for the area."

Motorized Recreation

Act: "Any plan developed by the Secretary ..shall identify and designate specific and appropriate areas and routes for the use of motorized recreation vehicles within the Recreation Area "

Report: ".. the excellent potential and future demand for motorized recreation should be accommodated....the committee hopes that the Secretary will designate certain areas, if appropriate, for snowmobiling use "

Access

Act: "Provide developments or facilities necessary for the public enjoyment and use of the Recreation Area, when such development or facilities do not detract from the purposes of the Recreation Area."

Report: ".. new roads should not be constructed unless ..necessary to accomplish the purposes for which the...area is established. Roads should be managed to maximize scenic and natural characteristics....Road management should be developed to assure that a variety of access is available to the public."

Water, Wildlife, and Recreation

Act: "...provide for those activities necessary to maintain or improve wildlife habitat, water yield and quality, forage production, and dispersed outdoor recreation opportunities "

Grazing

Act: "Provide for livestock grazing, to the extent that such use will not significantly adversely affect the resources of the Recreation Area."

Land Occupancy

Act: "Provide for public service land occupancies, including power transmission lines, provided there is not feasible alternative location and the Secretary finds that it is in the public interest to locate such facilities within the Recreation Area."

Mining

Act: "Subject to valid existing rights, all mining claims located within the Recreation Area shall be subject to such reasonable regulations...to insure that mining activities will...be consistent with the purposes for which the Recreation Area is established Any patent issued after the date of enactment of this Act shall convey title only to the minerals together with the right to use the surface of lands.... Effective January 1, 1989, and subject to valid existing rights, the lands located within the recreation area are hereby withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto."

MANAGEMENT DIRECTION BY ZONE

SUMMIT LAKE/CRESCENT LAKE ZONE - ZONE 1

General Description: This zone is bounded by the Cascade Crest, Diamond Peak Wilderness, the Crescent Lake area, and the Windigo Pass road. Elevations range from 7,664 feet at Cowhorn Mountain to approximately 5,000 feet near Crescent Lake. The bulk of the zone has relatively gentle topography, although steep and rugged near Cowhorn Mountain and along the Cascades. There are numerous small pothole "lakes" and approximately a dozen small lakes of 10 acres or so in size

Summit Lake, on the west edge of the zone, is accessed from the west by a fairly high standard gravel road. The road to Summit Lake from the east side is of considerably lower standard. The boundary of this zone as well as the southern boundary of Diamond Peak Wilderness is 200 feet north of the Summit Lake Road #6010. The small campground at Summit Lake receives about 1,000 visitor days use during the July-October season. Mosquitoes are the most significant deterrent to use of the site.

Use of the zone radiates from the Crescent Lake area. Users include resort customers, day hikers, campers, equestrians, summer home owners, and Boy Scouts from Camp Mukualla. Winter use includes snowmobiles, ATVs, and cross-country skiing

Management Direction

Goal: To feature wildlife, fish, and undeveloped recreation resources.

Recreation Management: The recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum category of Semiprimitive Motorized will be provided (see Glossary).

Use of motorized vehicles will be restricted to designated roads and trails. Over-the-snow vehicles will be allowed when the depth of continuous snow cover is adequate to protect other resources from adverse impacts.

That area in the OCRA classified as Wilderness will be managed in accordance with the Wilderness Act and wilderness management plans.

Visual Resource Management: Management activities will meet Retention Visual Quality Objectives (see Glossary). The visual resources can be enhanced by opening up vistas from roads and trails. Also, opening vistas into the area from lands adjacent to the OCRA should be considered A Visual Quality Objective of Partial Retention may be applied where timber is harvested to meet management objectives for the area.

Wildlife and Fish: Wildlife habitat improvement should be designed to be natural in appearance and should enhance the recreation experience Creating small openings, use of salt, blinds, or interpretive trails are acceptable. Fish stocking and fish habitat improvement are permissible, but must result in natural-appearing end products.

Range: Grazing of domestic livestock may be permitted if necessary to utilize excess forage not needed to meet wildlife objectives. Structural range improvements such as fences and water may be allowed and will be constructed of native materials whenever possible. Livestock will be

managed to minimize conflicts with recreation, wildlife, fish, and natural watershed values. In cases of conflict, range outputs will be secondary to recreation, wildlife, fish, or watershed values.

Timber: There will be no scheduled timber harvest. Timber harvesting will be allowed in catastrophic situations such as fire or insect salvage to prevent the spread of insects and disease to areas managed for other purposes or to meet the management area objectives. Restoration of such an area will be designed to return it to a natural state Timber harvesting can also be used to manipulate vegetation for wildlife habitat improvement or to enhance recreation opportunities. It may also be used as a management tool to protect certain areas from the risk of fire.

Commercial or personal use fuelwood gathering may be permitted when needed to meet the recreation and wildlife objectives.

Watershed: Wildlife and fish habitat will be enhanced where possible through management of hydrologic conditions.

Minerals: Effective January 1, 1989, and subject to valid prior existing rights, the lands located within the OCRA are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto.

Lands: New permits for small devices and structures may be allowed where necessary for resource protection and management or visitor safety and comfort.

Transmission corridors are not compatible with the objectives of the OCRA and normally will not be permitted unless there is no feasible alternative location.

Special use permits may be authorized if they are needed to meet management objectives and do not detract from the values of the Oregon Cascade Recreation Area.

Facilities: Trails and any roads will be designed, constructed, and maintained to the minimum standard needed to achieve objectives and goals of the Recreation Area. A limited number of helispots may be constructed where natural openings are unavailable, if they are needed to meet management needs.

Any sites with facilities will be managed to Development Level 1 (primitive) or 2 (near primitive) standards with most sites at Development Level 1. More highly developed support facilities for the OCRA will be provided through existing and new development on the periphery or in other zones of the OCRA. Development within OCRA will be limited to that necessary to manage use within the area.

Primitive facilities may be provided to protect resources, provide for visitor safety, and distribute use throughout the area. Facilities will be constructed of native materials whenever possible.

Recreation facilities will primarily be primitive toilets, shelters, recreation stock control devices and enclosures, trailheads, vehicle control devices, primitive campsites for motorized vehicles, and minimum directional and safety signing. Existing recreation developments will be maintained.

Fire Management: Normally, low-impact appropriate suppression methods and natural barriers will be used in case of wildfire. Heavy equipment should be avoided unless an Escaped Fire

Situation Analysis indicates that the resource damage from equipment would be more than offset by reducing fire damage.

Prescribed burning may be used to meet recreation and wildlife objectives. Prescribed fire is the preferred fuel treatment. Fuel accumulations resulting from wildlife or recreational enhancement activities may also be treated by other methods if necessary to meet project objectives.

Fuel loadings will consist of natural accumulations except as modified by prescribed burnings

Integrated Pest Management: Monitor pest populations so that threats to adjacent areas can be detected early. If adjacent areas are threatened, suppression techniques favoring biological control should be used if available.

TIMPANOGAS BASIN ZONE - ZONE 2

General Description: The Timpanogas basin portion of the OCRA as described by the Oregon Wilderness Act of 1984 is located about 45 miles southeast of the City of Oakridge. The area forms the headwaters of the Middle Fork of the Willamette River ranging from 5,200 feet to 7,664 feet in elevation, and consisting of 6,270 acres. Most of the area is a true fir-mountain hemlock forest type, dotted with numerous small lakes. The western boundary of this zone is 200 feet from Road #2154

Both dispersed and developed recreation use exist in the basin, consisting of two nonfee campgrounds and 22 miles of developed hiking trails.

Both developed campgrounds, Indigo Lake, and Timpanogas Lake have a use season of June 15 to October 15 with peak use occurring in August and September Timpanogas Lake, a 10-unit campground, is accessed by a high-standard gravel- surface system road. Indigo Lake, 5 units, requires a 1.9 mile walk.

Dispersed recreation is primarily confined to the trail system, designed for both hiker and off-road vehicle users. However, the larger lakes not accessed by the trail system receive a moderate amount of day and overnight use. Most of the use originates from either Timpanogas Lake Campground or the Pacific Crest Trail

Management Direction

The Timpanogas Zone of the Oregon Cascades Recreation Area is divided into four management areas which provide management objectives and management prescriptions They are narrative descriptions which specify practices, and standards/guidelines that provide direction for resource management and plan implementation.

Management Area 2a provides for Semiprimitive Motorized Recreation which includes the existing trail system. Management Area 2b provides for Semiprimitive Nonmotorized Recreation opportunities and involves the remainder of the area, excluding the developed campgrounds. This is all of the nontrailed portion of the Timpanogas Zone. The only motorized use activity is over-the-snow use. Management Area 12a is Indigo Lake Campground at Indigo Lake which is maintained at a less than standard service level. Management Area 12b is Timpanogas Lake Campground at Timpanogas Lake which will be maintained at a standard service level during the recreation season.

Management Area 2a - Trails: This direction applies to trails within Zone 2:

Goal: Provide the opportunity for users to experience a moderate degree of isolation from the sights and sounds of human activity, establish some sense of independence and closeness to nature, and develop a moderate feeling of self-reliance through the application of outdoor skills. These experiences are provided in an environment that offers some challenge and risk to both motorized and nonmotorized use.

Recreation Management: The area shall be made available for maximum use for a range of activities that are consistent with maintaining area conditions and providing Semiprimitive Motorized recreation experiences.

The setting for this class of recreation is characterized by an environment where alterations of the natural landscape are subtle and would not draw the attention of motorized users within the area. In addition, the OCRA is managed to minimize the presence of on-site controls and use restrictions. There is often evidence of other users, but concentration of use is low.

Activities associated with this area are both motorized and nonmotorized in nature. Specific activities are centered around nonconsumptive use of land and water areas including hiking, use of motorcycles and trail bikes, canoeing, rafting, nature study, camping, fishing, hunting, snowmobiling.

Group sizes should not exceed more than 25 persons, or any combination of people and livestock which equals 25. Larger groups may be accommodated by permit.

Campsites: Dispersed camp areas should be located to take advantage of topographic and vegetation screening and placed outside of foreground view (100 feet) from lakes, streams, trails, and key interest features. Campfires: Open campfires may be limited to designated sites.

Visitor contact shall be for the purposes of informing users of area management goals and objectives: Information and educational materials should be provided to prospective users through the media and at administrative headquarters; encourage user behavior that is respectful of area resources; ensure that visitor activities are in compliance with established management standards. Forest officers or resource technicians, on an average, should visit 50 percent of the dispersed sites annually.

Access by motorized vehicles is limited to snowmobiles, trailbikes, and ATVs not greater than 42 inches in width. Area and trail closures or restrictions should be based upon the mandatory and discretionary planning criteria listed in Forest Service Manual 2355.12.

The Forest Service will assist within its capacity and as requested by the County Sheriff in search-and-rescue and evacuation operations.

Visual Resource Management: Area management practices shall be commensurate with the Retention Visual Quality Objective In the event that unregulated harvest is necessary to salvage timber within the area, practices should be employed in a manner that seeks to achieve a Visual Quality Objective of Partial Retention.

Wildlife and Fish: For specific direction refer to Chapter 4 of the Willamette National Forest Land and Resource Management Plan.

Timber: No programmed harvest Unregulated harvest for the purpose of salvaging mortality from catastrophic losses due to insects, disease, fire, or windthrow may be permitted on approval by the Forest Supervisor. For more specific direction, refer to the Willamette National Forest Land and Resource Management Plan, Chapter 4 - Forest-wide Standards and Guidelines.

All available aerial logging systems may be used. Give preference to those systems having the least effect on recreation values. Flush-cut stumps in road and trailside zones. Shape landings and re-establish groundcover.

Watershed: For more specific direction, refer to the Willamette National Forest Land and Resource Management Plan, Chapter 4 - Soil, Water, and Riparian Areas.

Facilities: No new road development is permitted Roads serving developed sites will remain open. All other existing roads are closed to motorized use and access except off-road vehicles.

Structures and improvements shall be provided to facilitate use, protect resource values, and for administration. Trail management should be consistent with the Semiprimitive Motorized ROS Class requirements for construction and maintenance. Reconstruction, relocation, and maintenance of the Pacific Crest National Scenic Trail shall comply with the requirements of the National Trail System Act. Toilet facilities may be provided for the protection of area resources and for the purpose of health and safety. Bridges and culverts may be provided to enhance visitor use, protect resource values, and for user safety. Dimensional and nonnative materials may be utilized but should remain subtle to area users Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities

Future Development: Planned future trail construction includes a trail to tie the Timpanogas Lake Trail to the Windy Pass Trail, thus providing a loop trail of twelve miles that would originate and terminate at Timpanogas Lake Campground. Extension of the Indigo Lake Trail to the Windy Pass South Trail to a point east of Sawtooth Mountain will provide a loop of approximately six miles.

Development of any type will need to consider the Recreation Opportunity Spectrum classification of the area Classification of future trails will include both Semiprimitive Motorized and Semiprimitive Nonmotorized.

Other development proposals include the following:

A series of ATV trails that might be a combination of existing hiking trails or new construction. Any trails will need to take into consideration other resource impacts, compatibility of recreational uses, and compatibility with wildlife. Coordinate trail feasibility with adjacent managing Forests.

Develop cross-country ski trails.

Develop snowmobile activities separate from cross-country ski trails. Tie these activities with the Summit Lake/Crescent Lake/Diamond Lake Snowmobile Route.

Develop the native and introduced fisheries resources.

Encourage mountain bike use on existing trails.

Fire Management: Give preference to appropriate wildfire suppression methods resulting in the smallest practicable area burned and having the least effect on recreation values.

Management Area 2b - Dispersed Areas: This direction applies to areas off trails and roads, and outside of developed recreation sites. The direction is identical to that for trails, with the following exceptions:

Goal: Provide the opportunity for users to experience a high degree of isolation from the sights and sounds of human activity, establish a sense of independence and closeness to nature, and develop some feelings of tranquility and self-reliance. These experiences are provided through the applications of outdoor skills in an environment that offers challenge and risk.

Recreation Management: The setting is characterized by an environment where the natural landscape may have been subtly modified but where alterations would not draw the attention of most users. In addition, the area is managed to minimize the presence of on-site controls and use restrictions. The areas provided for the Semiprimitive Nonmotorized recreation opportunity are moderate in size and may be separated by motorized access corridors. There is moderate evidence of other users, but interaction between users is low.

Recreation activities associated with this area are exclusively nonmotorized and nonmechanical in nature except for permitted over-the- snow use. Specific activities are oriented toward both consumptive and nonconsumptive use of the land and water resources of the area, such as hunting, fishing, hiking, camping, nature study, mountain climbing, cross-country skiing, snowmobiling.

The area shall be made available for maximum use of a range of activities that are consistent with maintaining area conditions and providing Semiprimitive Nonmotorized recreation experiences. Group sizes should not exceed more than 25 persons, or any combination of people and livestock which equals 25. Larger groups may be accommodated by permit.

Campsites: Dispersed camp areas should be located to take advantage of topographic and vegetation screening and placed outside of foreground view (100 feet) from lakes, streams, trails, and key interest features. Open campfires may be limited to designated sites.

Recreation stock should be held overnight outside the foreground areas of lakes, streams, camp areas, and trailsides.

Visitor contact shall be for the purposes of informing users of area management goals and objectives; to provide information and educational material to prospective users through the media and at administrative headquarters; to encourage user behavior that is respectful of area resources; to ensure that visitor activities are in compliance with established management standards. Forest officers or resource technicians may visit an average of 50% of the dispersed sites annually.

The general area is closed to off-road and off-trail vehicles, except for over-the-snow use. Area and trail closures or restrictions should be based upon the mandatory and discretionary planning criteria listed in Forest Service Manual 2355.12.

Facilities: Roads serving developed sites will remain open. All other existing roads are closed to motorized use and access except off-road vehicles

Structures and improvements shall be provided to facilitate use, protect resource values, and for administration. Trail management should be consistent with the Semiprimitive Nonmotorized ROS Class requirements for construction and maintenance Reconstruction, relocation, and maintenance of the Pacific Crest National Scenic Trail shall comply with the requirements of the National Trail System Act. Toilet facilities may be provided for the protection of area resources and for the purpose of health and safety. Bridges and culverts may be provided to enhance visitor use, protect resource values, and for user safety. Dimensional and nonnative materials may be utilized, but should remain subtle to area users. Soil compaction should not exceed established limits, except as necessary for the development of campsites, administrative facilities, trail treads, trailhead facilities, and other recreation-related facilities.

Future Development: Construct a winter shelter at Timpanogas Lake to be the center of a winter dispersed recreation area Activities would include cross-country ski trails and groomed snowmachine trails.

Promote Sawtooth Mountain as a climbing "scramble" area.

Develop the native and introduced fisheries resources.

Management Area 12a - Less-than-Standard Service Level Developed Sites:

Goal: This management area includes areas of land where physical improvements have been provided for a range of developed recreation opportunities These existing developed sites will be maintained at a less-than-standard service level to provide a setting for a variety of recreation activities and experiences including canoeing, picnicking, hiking, skiing, and boating.

Recreation Management: Occupancy and use of recreation sites shall be regulated to the extent necessary to protect the resources and to ensure safe, enjoyable recreation experiences for the maximum number of visitors at the experience level for which the sites were designed. Utilize regulations contained in 36 CFR 261 as necessary to ensure full public enjoyment of recreation sites. Clearly notify the public of the conditions of occupancy of the recreation sites. Ensure that personnel who perform operation and maintenance (O&M) functions are familiar with O&M service levels of O&M plans

A vegetative management prescription and plan of management should be prepared and implemented for each site or group of sites. Each site should be analyzed periodically to determine whether its intended function is being served and if it requires alteration, replacement, closure, or elimination. Provide periodic patrols and site supervision utilizing volunteer hosts where appropriate. Sites at this service level will not be operated on the Land and Water Conservation Fund Act (LWCFA) fee system.

An operation and maintenance plan at the less-than-standard service level shall be prepared and updated annually. Cleaning and policing should be performed regularly to ensure that sites are clean and sanitary, free of litter, and neat in appearance. Each site shall be inspected annually and all known safety hazards should be eliminated to the extent practical. Vaults, septic tanks, and wastewater systems shall be inspected at regular intervals to ensure appropriate operation. Garbage services will not be provided on a regular basis and only for the protection of health

and safety. Maintenance of improvements will be for the protection of capital investments with priority given to health and safety-related items.

A detailed site plan will be developed prior to site rehabilitation. Rehabilitate sites only for the protection of capital investments and resource values. Rehabilitation work shall conform to an approved site plan. Soil compaction should not exceed established limits except as necessary for rehabilitation of sites.

Management Area 12b - Standard Service Level Developed Sites:

Goal: This management area includes areas of land where physical improvements have been provided for a range of developed recreation opportunities. These existing developed sites will be maintained at a standard service level to provide a setting for a variety of recreation activities and experiences, including canoeing, picnicking, hiking, skiing, and boating.

Recreation Management: Occupancy and use of recreation sites shall be regulated to the extent necessary to protect the resources and to ensure safe, enjoyable recreation experiences for the maximum number of visitors at the experience level for which the sites were designed. Utilize regulations contained in 36 CFR 261 as necessary to ensure full public enjoyment of recreation sites. Clearly notify the public of the conditions of occupancy and use of the recreation sites. Ensure that personnel who perform operation and maintenance (O&M) functions are familiar with O&M service levels of O&M plans.

A vegetation management prescription and plan of management should be prepared and implemented for each site or group of sites. Each site should be analyzed periodically to determine whether its intended function is being served and if it requires alteration, replacement, closure, or elimination. Collect fees for those sites that meet LWCFA fee site designation criteria.

An operation and maintenance plan at the standard service level shall be prepared and updated annually. Each site shall be inspected annually and all known safety hazards should be eliminated to the extent practical. Potable water sources shall be operated and maintained in accord with FSM 7420 and Federal, State, and local regulations. Water supply systems will be closed if testing indicates a hazard to human health. Vaults, septic tanks, and waste-water systems shall be inspected at regular intervals to ensure appropriate operation. Garbage disposal will be accomplished at intervals sufficient to minimize odors, prevent pollution of water supplies, and to avoid attracting disease-spreading insects and rodents. Maintain all site improvements to their design standards with priority given to health and safety-related items.

A detailed site plan will be developed prior to site rehabilitation. Rehabilitation work shall conform to an approved site plan. Soil compaction should not exceed established limits except as necessary to accommodate rehabilitation of sites.

Visual Resource Management: Management practices shall be at least commensurate with the Partial Retention Visual Quality Objective for developed sites and areas.

Range: Use of developed sites for commercial livestock grazing is not permitted.

Timber: No programmed timber yield. Salvage activities should be specified in the vegetation management plan for the site.

Minerals: Removal of common variety minerals will not be permitted. Sites not previously withdrawn shall be recommended for withdrawal from mineral entry. Recommend denial of application for leasable minerals.

Lands: Developed sites are not available for other uses provided by special permit. Exceptions may be made for short-term uses such as weddings, reunions, or special services related to the administration, operation, and maintenance of sites.

Fire Management: All fires will be suppressed to minimize size and impacts, using appropriate suppression response.

CALAMUT LAKE ZONE - ZONE 3

General Description: The Calamut Lake Zone is a predominantly flat to gently rolling landform dominated by Calamut, Charline, and Linda Lakes. These lakes are presently stocked by the Oregon Department of Fish and Wildlife. These three lakes are accessed by a single trail beginning at Linda Lake and ending at Calamut Lake, with parking for six to ten cars at the Linda Lake Trailhead. There are Wallowa-style pit toilets at Linda and Calamut Lakes. The Windy Pass Trail passes through the crest of the Calapooya Divide on the north side of the Zone.

The southern edge of this zone is 500 feet north of the Windigo Pass Road #60 and 200 feet east of the Kelsay-Calamut Road #60-700. Road #60-630 is open to Connie Lake and receives some dispersed camping, primarily during hunting season in the fall. All other roads which enter this zone have been blocked with earth berms. Annual recreation use for the zone is less than 500 visits per year and occurs between May and November.

There have been timber harvest activities in the southern part of the zone in past years, but there are presently no active timber sales within this zone and none are planned.

Management Direction

Goal: Emphasize opportunities for Semiprimitive Motorized Recreation.

Recreation Management: ROS direction is Semiprimitive Motorized (SPM). Moderate opportunity for solitude, tranquility, and closeness to nature High degree of self reliance, challenge, and risk in using motorized equipment Predominantly natural-appearing environment Low concentration of users but often evidence of other users on trails. Minimum on-site controls and restrictions present, but subtle.

Motorized use on and off roads and trails may be allowed in designated areas. Trails should be located to meet established objectives and will not necessarily follow existing roads or trails Trail Maintenance Levels 1 through 3 are typical. Trail length and difficulty will vary.

Search and rescue with motorized equipment is allowed. Law enforcement visibility at low level

Visual Resource Management: VQO is Retention All interior trails, roads, waterbodies, and use areas shall be inventoried as Sensitivity Level 1. A VQO of Partial Retention will be applied where timber is harvested to meet management objectives for the area.

Wildlife and Fish: May provide habitat for old growth species. Actions necessary to maintain or improve wildlife habitat are compatible. Installation of structures to provide water for wildlife are encouraged.

Range: Livestock grazing is compatible to the extent that such use will not significantly or adversely affect the resources of the recreation area.

Timber: No scheduled regeneration harvest activities. No scheduled salvage harvest. Harvest is allowed to prevent and control insects, diseases and other damaging agents and to prevent catastrophic mortality from insects, disease, or fire. Salvage of major timber mortality caused by fire, insects, disease, blowdown, or other causes is allowed when the scenic characteristics of the recreation area are significantly affected, or the health and safety of the public are threatened, or the overall protection of the forested area inside or outside the recreation area might be adversely affected by failure to remove the dead or damaged timber. Timber harvest is also allowed to maintain or improve wildlife habitat, water yield and quality, forage production, and dispersed outdoor recreation opportunities

Watershed: Structural improvements shall be compatible with zone goals.

Minerals: Extraction of common variety minerals shall be discouraged, unless needed for construction projects within the area. Effective January 1, 1989, and subject to valid prior existing rights, the lands located within the OCRA are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto.

Lands: Issue special use permits consistent with zone goal. The location of any new utility corridors within the boundaries of this management area will be discouraged When they must be located within the area, lines will be put underground, or cross the area at its narrowest or least impacted portion as determined in the EA process. Land sales, land transfers, and land exchanges will be discouraged pending review through the EA process. Mitigating measures for construction activities will be explored in the EA process.

Facilities: The design and construction of facilities must be consistent with visual and ROS direction. Existing roads will be managed to Maintenance Level 2 (high clearance) or they may be improved to access new recreation facilities. No new roads will be constructed unless needed to access recreation facilities.

Compatible recreation facilities include winter- and summer-use trails, bridges, trailheads, campgrounds, shelters, signs, staging areas for motorized uses, parking areas, play areas, skill trails, toilets, and viewpoints. Compatible facilities to enhance wildlife habitat include guzzlers and other water developments. Design trails for multiple uses including, but not limited to, ATV use, trail biking, mountain bicycling, snowmobiling, hiking, horse riding, nordic skiing, and use by the physically challenged. Emphasize construction and maintenance of trails for motorized use. Emphasize construction of loop trails for day use.

Future Development: Specific projects to be completed are: Development of a staging area in the vicinity of Lake Linda for use by ATVs and motorized trail bikes (a route for motorized access by such vehicles would then be opened to Calamut Lake). Some restrictions would be placed on use of motorized vehicles at Calamut Lake to minimize impacts on associated resource values.

Fire Management: On wildfires, use appropriate suppression methods which minimize impacts to use areas, waterbodies, and travel routes Heavy equipment should be avoided unless an Escaped Fire Situation Analysis indicates that the resource damage from equipment would be more than offset by reducing fire damage. An appropriate suppression response will be utilized on all wildfires. Prescribed burning of natural fuels permitted to the extent needed to meet this goal.

LITTE DESCHUTES - BIG MARSH ZONE - ZONE 4

General Description: This zone includes the headwaters of the Big Marsh Creek Watershed; the expanse of "Big Marsh" itself; the headwaters of Spruce, Rabbit, Basin, Hemlock, and Swamp Creeks; and a reach of the Little Deschutes River immediately downstream from its headwaters on the Deschutes National Forest portion of the Mt. Thielsen Wilderness The north boundary of this zone is 500 feet south of the Windigo Pass Road #60.

Elevations range from nearly 7,500 feet at the summit of Burn Butte to approximately 7,000 feet at the bottom of Big Marsh and 4,960 feet on the Little Deschutes. Topography is generally steep, with mountainous lands bisected by narrow stringer riparian meadowland associated with Big Marsh Creek and the Little Deschutes River. Big Marsh itself is unique because it is a relatively large wet meadow/marsh at fairly high elevation.

Big Marsh Creek was designated in 1988 as a Wild and Scenic River (recreation classification). A management plan for this river will be developed within three years of the date of designation. Any activity within the Wild and Scenic boundaries will include appropriate mitigation to ensure the preservation of the river's special qualities and characteristics. The Deschutes National Forest will be the lead Forest on developing the management plan for this designated river.
Resource values and concerns for the area are wildlife habitat, dispersed recreation (hunting), water quality, and forage production The predominant historical uses of the area include deer and elk hunting and domestic livestock grazing The past use of Big Marsh when in private ownership was as a forage area of domestic livestock and is being continued as the Big Marsh Cattle Allotment. The Little Deschutes and Big Marsh Cattle Grazing Allotments are partially within the OCRA

In recent years, the high mortality of lodgepole pine due to the mountain pine beetle has generated more attention to silvicultural systems implementation in the lodgepole forest. Past timber harvests and timber sales under contract affect this zone.

The zone is lightly roaded, but some system roads do exist. Except for these roads and the minimally developed roads into the upper reaches of Big Marsh Creek and up the Little Deschutes River, most of the area is unroaded. Stream crossing in the form of culverts and bridges are found along existing roads. Bridges on Big Marsh and across the Little Deschutes River facilitate cattle distribution. Barbed wire fences for allotment boundary control and stock distribution are in existence on both cattle allotments in this zone

Existing channels along both sides of Big Marsh carry the bulk of the flow of Big Marsh Creek and from springs on the periphery around the marsh. These channels were constructed over 40 years ago for the purpose of allowing the marsh to dry out earlier in the year to provide more forage for domestic livestock.

Goal: To feature wildlife, fish, and undeveloped recreation resources.

Management Direction

Recreation Management: The recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum category of Semiprimitive Motorized will be provided.

Use of motorized vehicles will be restricted to designated roads and trails. Over-the-snow vehicles will be allowed when the depth of continuous snow cover is adequate to protect other resources from adverse impacts.

Visual Resource Management: Management activities will meet Retention Visual Quality Objectives. The visual resources can be enhanced by opening up vistas from roads and trails. Also, opening vistas into the area from lands adjacent to the OCRA should be considered. A Visual Quality Objective of Partial Retention will be applied where timber is harvested to meet management objectives for the area.

Wildlife and Fish: Wildlife habitat improvement should be designed to be natural in appearance and should enhance the recreation experience. Creating small openings, use of salt, blinds, or interpretive trails are acceptable. Fish stocking and fish habitat improvement are permissible, but must result in natural appearing end products.

Range: Grazing of domestic livestock will gradually be phased out. Structural range improvements such as fences and water may be allowed and will be constructed of native materials whenever possible. Livestock will be managed to minimize conflicts with recreation, wildlife, fish and natural watershed values. In cases of conflict, range outputs will be secondary to recreation, wildlife, fish or watershed values.

Timber: There will be no scheduled timber harvest. Timber harvesting will be allowed in catastrophic situations such as fire or insect salvage to prevent the spread of insects and disease to areas managed for other purposes or to meet the management area objectives. Restoration of such an area will be designed to return it to a natural state. Timber harvesting can also be used to manipulate vegetation for wildlife habitat improvement or to enhance recreation opportunities. It may also be used as a management tool to protect certain areas from the risk of fire.

Commercial or personal use fuelwood gathering may be permitted when needed to meet the recreation and wildlife objectives.

Watershed: The stream flow and the hydrologic setting of Big Marsh Creek and meadow will be managed to feature natural vegetative communities associated with the marsh prior to diversion of Big Marsh Creek. Wildlife and fish habitat will be enhanced where possible through management of hydrologic conditions.

Minerals: Effective January 1, 1989, and subject to valid prior existing rights, the lands located within the OCRA are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto.

Lands: New permits for small devices and structures may be allowed where necessary for resource protection and management or visitor safety and comfort.

Transmission/utility corridors are not compatible with the objectives of the OCRA and normally will not be permitted unless there is no feasible alternative location.

Special uses may be authorized if they do not detract from the values of the Oregon Cascade Recreation Area.

Facilities: Trails and any roads will be designed, constructed, and maintained to the minimum standard needed to achieve objectives and goals of the Recreation Area. A limited number of helispots may be constructed where natural openings are unavailable.

Any sites with facilities will be managed to Development Level 1 (primitive) or 2 (near primitive) standards with most sites at Development Level 1. More highly developed support facilities for the OCRA will be provided through existing and new development on the periphery or in other zones of the OCRA. Development within OCRA will be limited to that necessary to manage use within the area.

Primitive facilities may be provided to protect resources, provide for visitor safety, and distribute use throughout the area Facilities will be constructed of native materials whenever possible.

Recreation facilities will primarily be primitive toilets, shelters, recreation stock control devices and enclosures, trailheads, vehicle control devices, primitive campsites for motorized vehicles, and minimum directional and safety signing. Existing recreation developments will be maintained.

Fire Management: Normally, low-impact suppression methods and natural barriers will be used. Heavy equipment should be avoided unless an Escaped Fire Situation Analysis indicates that the resource damage from equipment would be more than offset by reducing fire damage.

Prescribed burning may be used to meet the recreation and wildlife objectives. Prescribed fire is the preferred fuel treatment. Fuel accumulations resulting from wildlife or recreational enhancement activities may be treated by other methods if necessary to meet project objectives

Fuel loadings will consist of natural accumulations except as modified by prescribed burnings.

Integrated Pest Management: Monitor pest populations so that threats to adjacent areas can be detected early. If adjacent areas are threatened, suppression techniques favoring biological control should be used if available.

NORTH UMPQUA ZONE - ZONE 5

General Description: The North Umpqua Zone borders the northern end of the Mt Thielsen Wilderness and includes three significant creeks and rivers: the North Umpqua River, Bradley Creek, and Warrior Creek. Both Bradley and Warrior creeks are tributary to the North Umpqua River within this zone, the north boundary of which is 500 feet south of the Windigo Pass Road #60.

The Windigo Pass Trailhead and the Bradley Creek Trailhead Camp are the only developed sites within this zone. Both trailheads have sanitation facilities and are designed to accommodate horse use. The Pacific Crest National Scenic Trail follows the eastern side of this zone and the North Umpqua Trail leads to Miller Lake via Maidu and Lucille Lakes. Both trails provide important access to the Mt.Thielsen Wilderness. The Warrior Creek Trail is no longer maintained Recreation use is less than 5,000 visits per year. The Windigo Way road has been blocked at Bradley Creek and Windigo Pass and is not open

to motorized travel. The North Umpqua Zone is utilized by elk migrating between Big Marsh (Zone 4) and Kelsay Valley.

Management Direction

Goal: Improve wildlife habitat. Improve opportunities for nonmotorized summer use, and both motorized and nonmotorized winter use. Redistribute existing nonconforming motorized use to Zones 3 and 6.

Recreation Management: ROS direction is Semiprimitive Nonmotorized (SPNM). High probability of experiencing solitude, closeness to nature, tranquility, self reliance, challenge, and risk. Natural-appearing environment with a low interaction between users, but some evidence of other users, and a minimum of subtle on-site controls. Motorized use is prohibited with the exception of over-the-snow use. Special orders will specify the terms of area and seasonal closures to motorized use.

Trails provide the primary access into this zone; their length and difficulty vary. Emphasize construction of loop trails for day use. Maintenance levels are generally 1 through 3.

Search and rescue with motorized equipment is allowed. Law enforcement visibility at low level.

Visual Resource Management: The Visual Quality Objective within the area is Retention. All interior trails, roads, waterbodies, and use areas shall be inventoried as Sensitivity Level 1. A VQO of Partial Retention will be applied where timber is harvested to meet management objectives for the area.

Wildlife and Fish: May provide habitat for old growth species. Actions necessary to maintain or improve wildlife habitat are compatible. Installation of structures to provide water for wildlife is encouraged.

Range: Livestock grazing is compatible to the extent that such use will not significantly or adversely affect the resources of the Recreation Area.

Timber: Harvest of catastrophic timber loss is consistent with management prescription. No regeneration harvest programmed. No scheduled salvage harvest activities Harvest is allowed to prevent and control insects, diseases and other damaging agents and to prevent catastrophic mortality from insects, disease, or fire. Salvage of major timber mortality caused by fire, insects, disease, blowdown, or other causes is allowed when the scenic characteristics of the Recreation Area are significantly affected, or the health and safety of the public is threatened, or the overall protection of the forested area inside or outside the Recreation Area might be adversely affected by failure to remove the dead or damaged timber. Timber harvest is also allowed to maintain or improve wildlife habitat, water yield and quality, forage production, and dispersed outdoor recreation opportunities.

Watershed: Structural improvements shall be compatible with ROS goals and prescribed Visual Quality Objectives.

Minerals: Extraction of common variety minerals shall be discouraged, unless needed for construction projects within the area. Effective January 1, 1989, and subject to valid prior existing rights, the lands located within the OCRA are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto.

Lands: Issue special use permits consistent with the prescription goal. The location of any new utility corridors within the boundaries of this management area will be discouraged. When they must be located within the area, lines will be put underground or cross the area at its narrowest or least impacted portion as determined in the EA process. Land sales, land transfers, and land exchanges will be discouraged pending review through the EA process. Mitigating measures for construction activities will be explored in the EA.

Facilities: The design and construction of facilities must be consistent with visual and ROS direction. Compatible recreation facilities would include winter and summer use trails, bridges, trailheads, shelters, signs, and toilets. Compatible wildlife facilities would include guzzlers and other water developments. Design trails for multiple uses including, but not limited to, nordic skiing, hiking, mountain bicycle riding, winter motorized use, horse riding, and physically challenged users. Emphasize construction of loop trails for day use.

Future Development: Development of a loop trail in the Warrior Creek and Bradley Creek drainages for hiking and mountain bicycle use (if terrain allows) Reconstruction of Bradley Creek Trailhead Camp.

Fire Management: On wildfires, use methods which minimize impacts to use areas, waterbodies, and travel routes Heavy equipment should be avoided unless an Escaped Fire Situation Analysis indicates that the resource damage from equipment would be more than offset by reducing fire damage. An appropriate suppression response will be utilized on all wildfires. Prescribed burning of natural fuels permitted to the extent needed to meet this goal.

THIRSTY POINT ZONE - ZONE 6

General Description: The Thirsty Point Zone borders the west side of Mt. Thielsen Wilderness and is characterized by stands of lodgepole pine on dry pumice slopes. The only significant water is Thirsty Creek The western boundary of this zone is 200 feet east of the Thirsty Point Road #60-990 The southern boundary of the zone lies 500' north of the centerline of the north fork of Thielsen Creek. Most of the use is by hunters during the fall with less than 50 visits per year

Management Direction

Goal: Emphasize opportunities for Semiprimitive Motorized recreation Improve wildlife habitat.

Recreation Management: ROS direction is Semiprimitive Motorized (SPM). Moderate opportunity for solitude, tranquility, and closeness to nature. High degree of self reliance, challenge, and risk in using motorized equipment. Predominantly natural-appearing environment. Low concentration of users, but often evidence of other users on trails. Minimum on-site controls and restriction present, but subtle.

Motorized use on and off roads and trails may be allowed in designated areas. Winter vehicle use may be allowed on and off roads and trails. Trails should be located to meet established objectives and will not necessarily follow existing roads or trails. Trail maintenance levels 1 through 3 are typical Trail length and difficulty will vary.

Search and rescue with motorized equipment is allowed. Law enforcement visibility at low level.

Visual Resource Management: VQO is Retention All interior trails, roads, waterbodies, and use areas shall be inventoried as Sensitivity Level 1. A VQO of Partial Retention will be applied where timber is harvested to meet management objectives for the area.

Wildlife and Fish: May provide habitat for old growth species. Actions necessary to maintain or improve wildlife habitat are compatible Installation of structures to provide water for wildlife are encouraged.

Range: Livestock grazing is compatible to the extent that such use will not significantly adversely affect the resources of the Recreation Area

Timber: Harvest of catastrophic timber loss consistent with management prescription. No scheduled regeneration harvest activities. No scheduled salvage harvest. Harvest is allowed to prevent and control insects, diseases and other damaging agents and to prevent catastrophic mortality from insects, disease, or fire. Salvage of major timber mortality caused by fire, insects, disease, blowdown, or other causes is allowed when the scenic characteristics of the Recreation Area are significantly affected, or the health and safety of the public is threatened, or the overall protection of the forested area inside or outside the recreation area might be adversely affected by failure to remove the dead or damaged timber. Timber harvest is also allowed to maintain or improve wildlife habitat, water yield and quality, forage production, and dispersed outdoor recreation opportunities.

Watershed: Structural improvements shall be compatible with prescription goals and selected visual quality objectives.

Minerals: Extraction of common variety minerals shall be discouraged, unless needed for construction projects within the area. Effective January 1, 1989, and subject to valid prior existing rights, the lands located within the OCRA are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto.

Lands: Issue special use permits consistent with prescription goal. The location of any new utility corridors within the boundaries of this management area will be discouraged. When they must be located within the area, lines will be put underground, or cross the area at its narrowest or least impacted portion as determined in the EA process. Land sales, land transfers, and land exchanges will be discouraged pending review through the EA process. Mitigating measures for construction activities will be explored in the EA.

Facilities: The design and construction of facilities must be consistent with visual and ROS direction. Existing roads will be managed to maintenance level 2 (high clearance), or may be improved to access new recreation facilities No new roads will be constructed unless needed to access new recreation facilities.

Compatible recreation facilities include winter and summer use trails, bridges, trailheads, campgrounds, shelters, signs, staging areas for motorized uses, parking areas, play areas, skill trails, toilets, and viewpoints. Compatible wildlife habitat improvement facilities include guzzlers and other water developments. Design trails for multiple uses including, but are not limited to, ATV use, trail biking, mountain bicycling, snowmobiling, hiking, horse riding, nordic skiing,

and use by the physically challenged. Emphasize construction and maintenance of trails for motorized use. Emphasize construction of loop trails for day use.

Future Development: Development of a motorized loop route between Thielsen Creek and Thirsty Creek, for use by ATVs and motorized trail bikes. Development of a motorized trail from Diamond Lake to this zone, also for use by ATVs and motorized trail bikes.

Fire Management: On wildfires, use methods which minimize impacts to use areas, waterbodies, and travel routes. Heavy equipment should be avoided unless an Escaped Fire Situation Analysis indicates that the resource damage from equipment would be more than offset by reducing fire damage. An appropriate suppression response will be utilized on all wildfires. Prescribed burning of natural fuels permitted to the extent needed to meet this goal.

WEST THIELSEN ZONE - ZONE 7

General Description: The West Thielsen Zone borders the west boundary of the Mt Thielsen Wilderness and is in close proximity to Diamond Lake. This zone includes several trails: Tipsoo Peak, Howlock, Spruce Ridge, Mt. Thielsen, and Pacific Crest National Scenic Trails. All of these trails except Spruce Ridge provide important access to the Mt Thielsen Wilderness. Other than trails, there are no recreation facilities within this zone, which receives a relatively high amount of summer hiking, horseback, and nordic ski use. Recreation use is approximately 2,500 recreation visitor days per year. The west boundary of this zone is 500 feet east of Highway 138 and 200 feet east of the Summit Rock Road.

Management Direction

Goal: Provide a variety of opportunities for nonmotorized uses, in close proximity to the Diamond Lake Composite. Serve as a transition between the concentrated developed recreation use at Diamond Lake and the Mt. Thielsen Wilderness.

Recreation Management: ROS direction is semi-primitive nonmotorized (SPNM). High probability of experiencing solitude, closeness to nature, tranquility, self reliance, challenge, and risk. Natural-appearing environment with a low interaction between users, but some evidence of other users, and a minimum of subtle on-site controls. Motorized use is prohibited year-round, and the zone will be closed to such use by special order.

Mountain bicycle use is allowed only on Trail 1448 from its junction with Highway 138 to its junction with Trail 1458, and on Trail 1458 from the previous junction to the junction with Trail 1456, and on Trail 1456 from the previous junction to Highway 138.

Trails are the primary access into the zone, and their length and difficulty vary. Emphasize construction of loop trails for day use Maintenance levels are generally 1 through 3.

Search and rescue with motorized equipment is allowed. Law enforcement visibility at low level.

Visual Resource Management: The VQO is retention. All interior trails, roads, waterbodies, and use areas are Sensitivity Level 1. A VQO of partial retention will be applied where timber is harvested to meet management objectives for the area

Wildlife and Fish: May provide habitat for old growth species. Actions necessary to maintain or improve wildlife habitat are compatible. Installation of structures to provide water for wildlife is encouraged.

Range: Livestock grazing is compatible to the extent that such use will not significantly or adversely affect the resources of the Recreation Area.

Timber: Harvest of catastrophic timber loss is consistent with management prescription. No regeneration harvest programmed No scheduled salvage harvest activities. Harvest is allowed to prevent and control insects, diseases and other damaging agents and to prevent catastrophic mortality from insects, disease, or fire. Salvage of major timber mortality caused by fire, insects, disease, blowdown, or other causes is allowed when the scenic characteristics of the Recreation Area are significantly affected, or the health and safety of the public is threatened, or the overall protection of the forested area inside or outside the Recreation Area might be adversely affected by failure to remove the dead or damaged timber. Timber harvest is also allowed to maintain or improve wildlife habitat, water yield and quality, forage production, and dispersed outdoor recreation opportunities.

Watershed: Structural improvements shall be compatible with ROS goals and prescribed Visual Quality Objective.

Minerals: Extraction of common variety minerals shall be discouraged, unless needed for construction projects within the area. Effective January 1, 1989, and subject to valid prior existing rights, the lands located within the OCRA are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to the mineral leasing and geothermal leasing and all amendments thereto.

Lands: Issue special use permits consistent with the Act. The location of any new utility corridors within the boundaries of this management area will be discouraged. When they must be located within the area, lines will be put underground or cross the area at its narrowest or least impacted portion as determined in the EA process. Land sales, land transfers, and land exchanges will be discouraged pending review through the EA process. Mitigating measures for construction activities will be explored in the EA.

Facilities: The design and construction of facilities must be consistent with visual and ROS direction. Compatible recreation facilities include winter and summer use trails, bridges, trailheads, shelters, signs, and toilets. Compatible wildlife habitat improvement facilities include guzzlers and other water developments. Trails should be designed for multiple uses including, but not limited to, nordic skiing, hiking, mountain bike riding, horse riding, and physically challenged users. Emphasize construction of loop trails for day use.

Fire Management: On wildfires, use methods which minimize impacts to use areas, waterbodies, and travel routes. Heavy equipment should be avoided unless an Escaped Fire Situation Analysis indicates that the resource damage from equipment would be more than offset by reducing fire damage. An appropriate suppression response will be utilized on all wildfires Prescribed burning of natural fuels is permitted to the extent needed to meet this goal.

TABLE 1

SUMMARY OF MANAGEMENT DIRECTION BY ZONE

ZONES

Management Direction	Summit/ Crescent Lake	Tim-panogas	Calamut Lake	Little De-schutes Big Marsh	North Umpqua	Thirsty Point	West Thielsen
AREA ROS	SPNM	SPNM	SPM	SPNM	SPNM	SPM	SPNM
TRAIL ROS	SPM/NM 2	SPM	SPM	SPM/NM 2	SPNM	SPM	SPNM
WINTER ORV	Yes 1	Yes 1	Yes	Yes 1	Yes	Yes	No
SUMMER ORV	Yes 1	Yes 1	Yes	Yes 1	No	Yes	No
MOUNTAIN BIKES	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NEW REC FACILITIES	Yes	Yes	Yes	Yes	No	Yes	No
NEW TRAILS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WILDLIFE AND FISH	Yes	Yes	Yes	Yes	Yes	Yes	Yes

LEGEND

ROS - Recreation opportunity spectrum classification

SPM - Semiprimitive motorized

SPNM - Semiprimitive nonmotorized

NOTES

1) Restricted to designated trails

2) Manage designated existing trails for motorized use New trails would be nonmotorized

WINTER ORV - Snowmobile and Class 1 ATV allowed when posted
SUMMMER ORV - Class 1 ATV and two-wheeled motorized use allowed, unless posted closed
NEW REC FACILITIES - Includes new campgrounds, water systems and picnic areas
WILDLIFE AND FISH - Wildlife and fish enhancement projects

OTHER MANAGEMENT CONSIDERATIONS

WINDIGO PASS CORRIDOR

Windigo Pass Transportation Corridor: The OCRA borders the Windigo Pass Road 500 feet from centerline on both sides. This road is utilized both by summer recreationists and by snowmobiles traveling between Diamond and Crescent Lakes.

Windigo Pass Road (No. 60) from its junction with Forest Development Road (FDR) 6020 on the Deschutes National Forest south to its junction with FDR 6000-700 on the Umpqua National Forest will be managed as follows:

> There is no immediate need to improve this road since it is adequate to handle the existing low volume of traffic use The Windigo Pass Road will be managed at its current design and maintenance standards for the foreseeable future.
>
> The road may be improved in the future as needed to accommodate increased traffic demands. Any future upgrading of the road or improvement in road standards will be undertaken only after further NEPA documentation and public involvement and will include both the Umpqua and the Deschutes National Forests. Although most reconstruction would occur outside the OCRA, reconstruction inside the OCRA would not be precluded under the Act.

The Windigo Pass Road will be left unplowed and will be available as a snowmobile route in winter.

Windigo Pass Utility Corridor: The possibility for a utility corridor exists through Windigo Pass outside of the OCRA. As the boundary of the OCRA follows the curvature of Forest Road No. 60, the construction of a power transmission line totally within the boundary of this window may not be practical. However, Section 4 (e) of the Oregon Wilderness Act of 1984 which established the OCRA states, "Within the Recreation Area, the Secretary may permit, under appropriate regulations, those limited activities and facilities which he determines necessary for resource protection and management and for visitor safety and comfort, including . . . (6) public services land occupancies, including power transmission lines, provided there is no feasible alternative location, and, the Secretary finds that it is in the public interest to locate such facilities within the Recreation Area.

CINNAMON BUTTE

The OCRA borders Cinnamon Butte within 200 feet of the road accessing the summit of the Butte. This site contains an active Forest Service lookout, an electronics site operated by Douglas County, a TV translator operated by Diamond Lake Lodge, and a helispot. This site provides the best view accessible by automobile of the OCRA and Mt. Thielsen Wilderness. The upper portion of the Cinnamon Butte road should be reconstructed for safety reasons before it is advertised as a viewpoint to the general public.

PACIFIC CREST NATIONAL SCENIC TRAIL

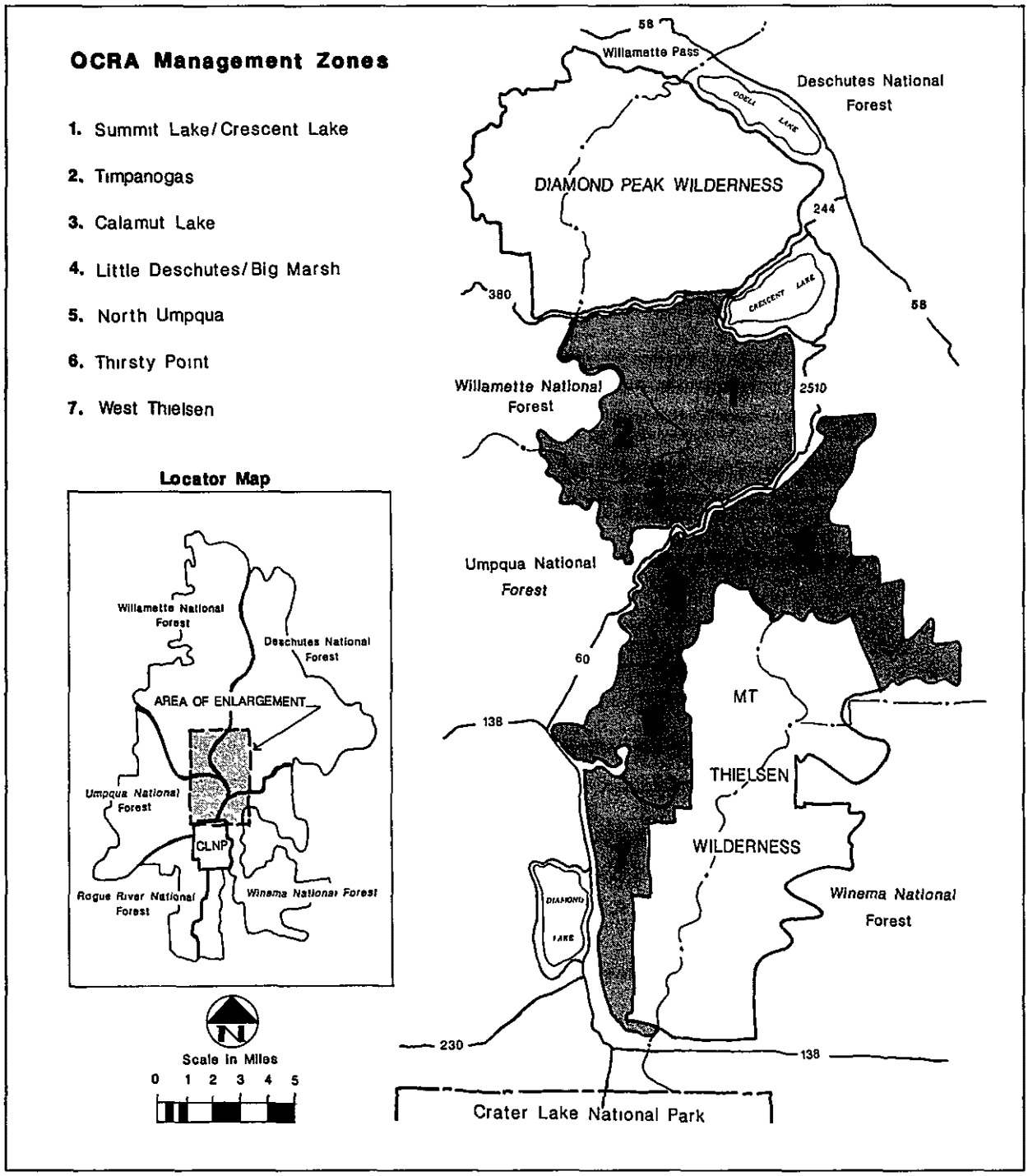
The Pacific Crest National Scenic Trail (PCNST) is located on the crest of the Cascade Range and traverses the entire length of the OCRA, approximately 45 miles. Direction for managing the PCNST

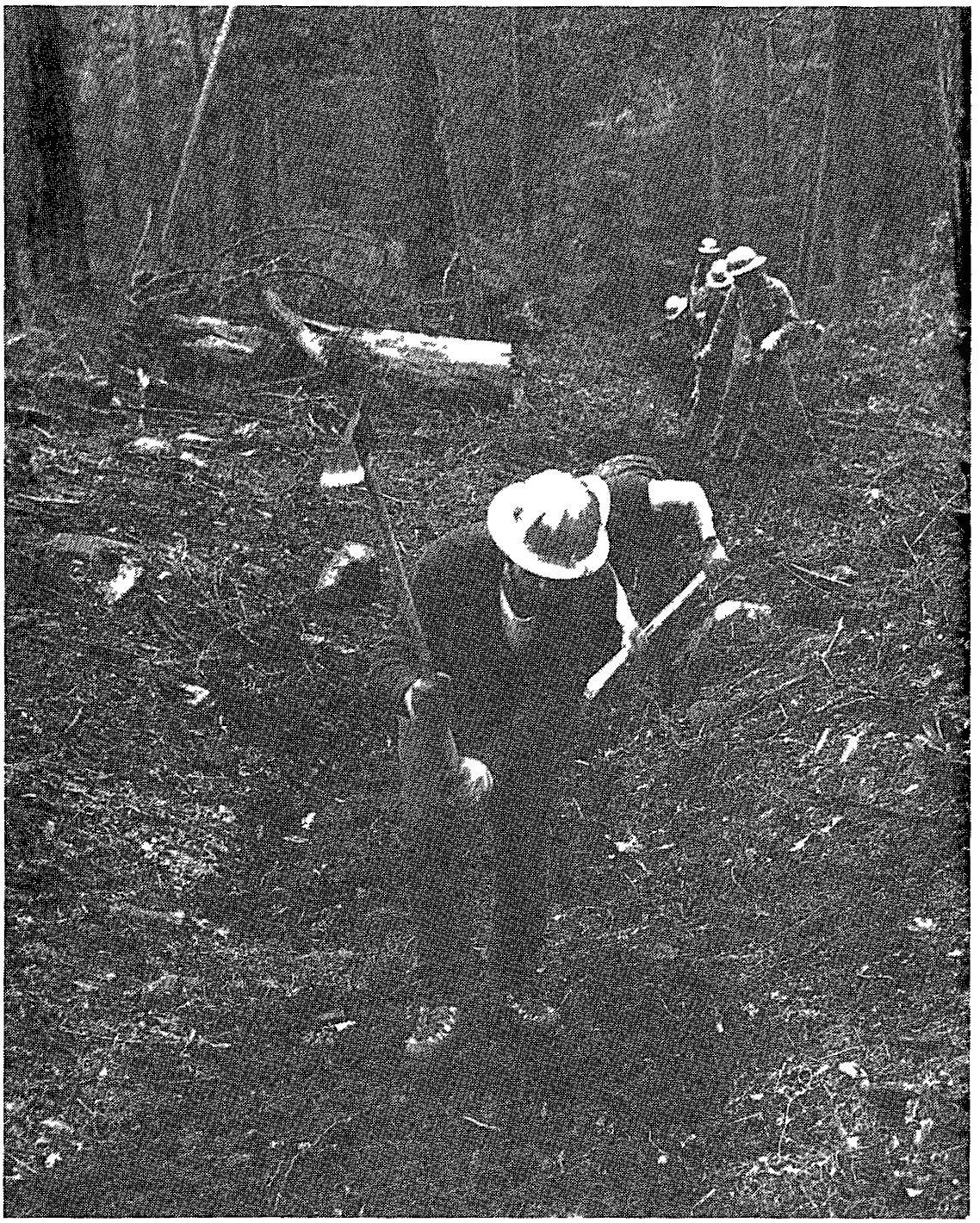
is provided in the National Trails System Act and the Comprehensive Management Plan for the Pacific Crest National Scenic Trail of 1982. The plan characterizes the entire trail using the five Recreation Opportunity Spectrum (ROS) classes. That portion of the trail within the OCRA is described by only three classes: 1) Primitive, 2) Semiprimitive Nonmotorized, and 3) Semiprimitive Motorized, with stated objectives for each ROS class. Motorized use is not permitted on the PCNST.

WILDERNESS

Portions of the Diamond Peak Wilderness and the entire Mt. Thielsen Wilderness (total area 70,800 acres) lie within the OCRA, comprising its northern and southeastern boundaries. Use in the two Wildernesses is primarily from early July through October with snowpack conditions limiting the use season. The Oregon Wilderness Act of 1984 is very specific as to the management of these areas, stating that new or existing wilderness will continue to be managed in accordance with the Wilderness Act of 1964, and in accordance with appropriate wilderness management plans.

Figure B-1. Oregon Cascades Recreation Area





YACC crew building a fire trail

APPENDIX C

Timber Sale Schedule

APPENDIX C

TIMBER SALE SCHEDULE

INTRODUCTION

This appendix displays how the timber outputs, as projected by the preferred alternative in the FEIS, are likely to be provided during the period from 1991 through 1993 However, there is a great deal of uncertainty surrounding the timber sale program at this time. The decision by the U S. Fish and Wildlife Service on whether to list the Spotted Owl as a threatened species, and the possible implementation of the Interagency Scientific Committee recommendations for long-term management of old-growth habitat, could result in a sale schedule much different from this proposal. There is also the still unresolved issue of old growth, with pending legislation in Congress concerning future management of "Ancient Forests". Another possibility is the renewal or introduction of new legislation similar to Section 318 of Public Law 101-121, by which Congress would set the sell level for the National Forests.

The following tables list the planned timber sale information and conditions current at the time of Forest Plan development. As conditions change and new information becomes available during implementation, this sale schedule may be modified.

The "small sales" and "district salvage" categories displayed in the following table reflect sales that, individually, do not exceed 2.0 MMBF and are generally within areas that have been developed. These programs are used to achieve a variety of special purposes such as the salvage of blow-down timber or to remove hazard trees from developed campgrounds. A variety of silvicultural methods may be used depending upon the objective of the particular sale.

The Harvest Method codes are:

HCC - Harvest Clearcut
HSW - Harvest Shelterwood
HFR - Harvest Final Removal
HCT - Harvest Commercial Thin
HSV - Harvest Salvage

TIMBER SALE ACTION SCHEDULE						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
BLUE RIVER DISTRICT			FISCAL YEAR 1991			
Blue Crystal	T 16S., R.4E., S.3,4,9,10	HCC	100	1,200	0.0	14
Cougar	T.16S , R5.E., S.28,29,32,33	HCC	150	7,500	0.0	11d
Long Term	T.15S , R.5E., R.6E.	HCC	67	2,100	0.3	3
Longspan/Spotty	T.15S, R 5E	HCC	110	7,600	0.0	14
		HFR	26			14
Nugget	T.16S , R.4E , S.7,8,17	HCC	100	3,100	0 0	14
Tipsy/Walker	T 19S., R.5E , S.4,9,15,21	HCC	30	3,100	0 0	11c
TMC	T.15S , R 5E , S 17,18,19,20	HCC	125	6,000	0 0	14
		HSW	25			14
Upper Tidbits	T.15S , R 4E , S.15	HCC	60	6,500	0.0	14
		HSW	65			14
West Hagan	T 16S , R.3E	HCC	223	12,100	0 6	14
		SUBTOTAL	1,040	49,200	0 9	
SWEET HOME DISTRICT			FISCAL YEAR 1991			
Blowdown Salvage	District-wide	HSV		25,000	0.0	14
Bull Star	T 11S., R 4E.	HCC	70	3,000	0.6	14
Daly West	T 12S , R 6E	HCC	81	5,200	0 7	14
Flam Santiam	T.13 & 14S., R.3 & 4E	HCC	130	5,000	4.2	14
Gate Wildcat	T.14S, R 6E	HCC	170	11,700	3 6	14
Gordon Three	T.14S , R4.E , S.5,9,10,14,15	HCC	130	7,000	0 0	11
Gregg Creek	T 11 & 12S., R 4 & 5E	HCC	225	10,000	0.4	14
Harter Jude	T.13S., R 5E	HCC	362	20,000	0 0	14
Hyatt North	T.13 & 14S , R 4E.	HCC	120	6,000	2 0	11
Hyatt West	T.14S , R 4E	HCC	139	8,400	2 1	14
Parks East	T.12S , R 7E , S 19,20,29	HCC	47	2,500	0.3	11
Misc. Small Sales	District-wide	HSV		4,600	0 0	
		SUBTOTAL	1,474	108,400	13 9	

TIMBER SALE ACTION SCHEDULE (Cont)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
DETROIT DISTRICT		FISCAL YEAR 1991				
Bagel	T.11S , R 5E , S 23,24	HCC	70	2,600	0.0	14
Cedar Fly	T 8S , R4E., S 25	HCC	85	1,876	0.0	14
		HFR	40			11d
		HSW	45			14
Charmer	T.11S , R 6E , S 25,26,27,34,35,36	HCC	79	2,310	0.6	14
Clivy	T 11S, R 5E , S 10,11,13,14	HCC	225	9,300	0 8	14
Devilscade	T 9S , R.7E	HCC	60	2,100	1 5	14
Glean	T 11S , R 6E , S 8,21,22,27,28	HCC	297	11,080	0 5	14
Heater Fly Thin	T.10S , R 5E , S 31,32	HCT	150			
				1,500	0 0	11a
High Scorpion	T.9S , R7E , S 6	HCC	130	5,200	0 0	14
Humbug	T 9S , R 6E , S 1,2,3,10,11,12	HCC	50	2,000	0 0	14
Linn Thin	T 10S., R 7E , S 25,30	HCC	82	3,484	1 8	14
		HCT	76			14
North Roaring Fly	T 9S , R 7E , S 34,35	HCC	60	2,500	0 0	14
Pam	T 11S , R 7E , S 2	HCC			1 0	
Quitters	T 9S , R 7E ,S 31,36	HCC	41	3,300	0 8	11c
		HCT	36			11c
Salvage 91	District-wide	HSV		2,000	0 0	
South Sullivan	T.9S , R 4E , S 1	HSW	38	900	1 6	14
Spireson	T9S , R 7E	HCC	50	2,300	1.0	14
Unnamed 91		HCC	530	27,000	0 0	14
Upper French Thin	T 9S , R 5E , S 20,21,22,27,28	HCT	90	900	1 8	14
West Cedar	T 8S , R 5E , S 31,32,	HCC	167	3,700	2 3	14
	T 9S , R 4E , S 1,12	HSW	24			14
		SUBTOTAL	1,936	84,050	13 7	
		SUBTOTAL HCT	316			
RIGDON DISTRICT		FISCAL YEAR 1991				
Alien	T 25S, R 5E , S 2	HCC	50	1,500	2 0	14a
Baldy	T.21S , R 4E , S 31	HCC	62	2,800	3.0	14a
Beaver Thin	T 24S , R 5E , S 21,22,23	HCC	107	3,200	1 8	14a
Carbon	T 25S, R 3E , S 11	HCC	267	12,000	2.0	14a
District Salvage		HCC	133	6,000	0 0	14a
Happybird	T 25S , R 5E , S 9		200	8,700	1.1	14a
Hollander	T 22S , R 2E , S 2	HCC	293	12,900	1.8	14a
Rover	T 25S , R 3E , S 9	HCC	216	9,700	2.1	14a
Stonepot	T 22S , R 3E , S 35	HCC	122	5,500	0 0	14a
		SUBTOTAL	1,250	62,300	13.8	

TIMBER SALE ACTION SCHEDULE (Cont.)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construc-tion**	**Manage-ment Area**
LOWELL DISTRICT		FISCAL YEAR 1991				
Amos	T 18 & 19S , R 2E	HCC	132	7,040	0.0	14
Boundary	T.18S , R.2E	HCC	195	10,800	1 6	14
Clark	T.18S , R 2E.	HCC	210	9,400	0 4	14, 11c
Monty Joe	T 19 & 20S , R.2E	HCC	76	6,725	0 3	14
Pencil Thin	T 19 & 20S , R.2E	HCT	236	1,500	0 0	14
Rolling Hazel	T.20S , R.1E	HCC	52	2,080	0 0	11a
Rubble 115W	T.8 & 9S , R.2 & 3E.	HCC	151	8,400	0 3	14
Savoir Faire	T 18 & 20S , R 2 & 2,3E.	HCC	100	9,000	1 4	14
Sliver Thin	T.20S , R 2E.	HCT	278	1,500	0 0	14
South Fork	T 19 & 20S , R 2E.	HCC	65	4,300	0 3	14
South Monty	T 19 & 20S , R 2E.	HCC	109	5,165	0.2	14
Stick Thin	T.18S , R.3E	HCT	250	1,500	0.0	14
Twig Thin	T.18 & 19S , R 3E.	HCT	250	1,500	0 0	14
91 Salvage Program				3,000	0.0	
		SUBTOTAL	1,090	71,910	4 5	
		SUBTOTAL HCT	778			
MCKENZIE DISTRICT		FISCAL YEAR 1991				
H M.G.	T.16S, R 7E , S 3-10,15-18	HCC	177	10,700	0 0	14
		HSW	28			14
Link	T.15S, R.7E	HCC	103	6,200	2 1	14
Lynx	T 14S, R 6E , S.26,27,35	HCC	134	9,200	1 0	14
		HSV	8			14
No-See-Um	T.15S , R 6E.	HCC	50	2,000	0 5	14
Paddlewheel	T 14S., R 6E.	HCC	100	5,000	1 0	14
Royal Wolf	T 16S, R.6E , S 27,28,32,35	HCC	150	8,000	0 0	14
Salvage 91	T.16, R 6	HSV	80	2,000	0 0	14
Sugar Cane	T.15S, R 7E.	HCC	50	2,600	1 5	14
Top Notch	T 15S, R 6E.	HCC	120	6,200	0 0	14
		SUBTOTAL	906	51,900	6 1	

TIMBER SALE ACTION SCHEDULE (Cont.)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
OAKRIDGE DISTRICT			FISCAL YEAR 1991			
After	T 21S , R 4E.	HCC	51	6,000	0 5	11a
		HCT	47			11a
		HFR	36			11a
Cirque	T 19S , R 5E , S.15,16,9,10,3	HCC	260	5,000	0.5	14a
Finberry	T.20S , R 5E , S 7,8,18	HCC	220	8,200	1 5	14a
Goblin	T 21S , R 6E , S 13,14,20	HCC	110	4,900	0 8	14a
Grub	T 21S , R 4E.	HCC	150	7,500	0 3	14a
Heart	T 21S , R 4E.	HCC	150	7,500	2 0	14a
Horn Removal	T 20S , R 5E , S 36	HFR	68	2,500	0 0	14a
Jump Up	T.20 & 21S , R 3E	HCC	130	6,994	0 4	14a, 11a
Mossy Top	T.19S , R 4 & 5E , S 13,7,8,9,16	HSW	100	6,500	2 5	14a
Pryor	T 21S , R.4E	HCT	50	6,000	0.5	11a
		HCC	113			11a
Razor Back	T.19S , R 5E.	HSW	100	5,000	0 5	14a
Salmon Tooth	T 21S , R 3E , S 13,14	HCT	97	2,000	0 8	11e, 11a
		HCC	13			11d
West Buffalo	T 19S , R 4E , S 22,23,24	HCC	117	7,001	1 5	14a, 11d, 6b
		SUBTOTAL	1,495	75,095	11 8	
		SUBTOTAL HCT	194			
		FISCAL YEAR TOTAL	9,191	502,855		

TIMBER SALE ACTION SCHEDULE (Cont)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construc-tion**	**Manage-ment Area**
BLUE RIVER DISTRICT			FISCAL YEAR 1992			
Bits	T 15S, R.4E , S.13,23,24	HCC	150	6,500	0.0	14
Gem	T 16S., R 4E , S.2,3,10	HCC	100	4,000	0.0	14
Orelock	T 15S., R 4E , S 24,25	HCC	50	1,750	0.0	14
Ores	T 15S , R 4E, S 11,13,14	HCC	225	4,500	0.0	14
		HSW	100			14
Shattered	T 18S , R 5½, S 1,6,12	HCC	100	6,700	0.0	11c
		HSW	50			11c
Sugar Plum	T.17S , R.4E , S.11,12	HCC	120	6,000	0.0	14
Ursus	T 14S., R 5E , S 28,29,30,31,32	HCC	125	6,000	0.0	14
		HSW	100			14
		SUBTOTAL	1,020	35,450	0 0	
SWEET HOME DISTRICT			FISCAL YEAR 1992			
Bruler Quartzville	T.11 & 12S., R 5 & 6E.	HCC	245	13,000	1 5	14
Elbow Boundary	T.15S , R 4E , S 1,2,3,4,5,10,11	HCC	145	8,000	2 6	14
Gate Ridge	T 13 & 14S , R 6 & 7E	HCC	33	2,000	0.5	14
Hen Moose	T 13S., R 3E	HCC	160	3,000	1.5	14
Maude Creek	T.13S , R 6E , S 14,15,22,23	HCC	139	4,700	2 3	14
Overstory Re-movals	T.13 & 14S., R 6E	HFR	184	2,700	0 0	14
Scar	T.11 & 12 S., R 6 & 7E	HCC	120	6,000	0 0	14
Sheep Burnside	T.14S , R 5 & 6E , S 1,2,3,6,7	HCC	90	4,000	2 6	11
Sheep Joe	T 14S , R 5E.	HCC	67	2,500	1 5	14
Single Daly	T.11 & 12S., R 5,6 & 7E	HCC	120	7,000	1 0	14
White Bull	T 11 & 12S , R 4 & 5E	HCC	200	5,000	0 0	14
Wiley Doe	T 14S., R 2E , S.11,12	HCC	98	4,700	0.0	14
Misc. Small Sales				1,300		
		SUBTOTAL	1,454	63,900	13 5	

TIMBER SALE ACTION SCHEDULE (Cont.)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
DETROIT DISTRICT			FISCAL YEAR 1992			
Blow Canyon		HCC	140	6,000	0.0	14
Bonanza	T 8S , R 4E , S 24	HCC	88	1,750	0.9	14, 11a
Canyon Creek HFR	T 9S , R 5E., S 24	HFR	125	1,000	0 0	11a
Coffin Fork	T.11S , R 6E	HCC	30	1,200	1 5	14
Crag	T 10S , R 7E , S 1	HCC	94		1 8	14
Cub Fly Thin		HCT	200	2,000	0 0	14
High Dry	T 10S., R 5E , S 1	HCC	100	4,000	2 5	11a, 11c
Horeb	T 9S., R 4E , S.3,8,9,10	HSW	107	2,548	0 0	14
		HCC	52			14
Lawkin	T 10S , R.4E.	HCC	86	3,010	1 2	14
Lost	T 11S., R 6E.	HCC	100	4,000	1 0	14
Salvage-92	District-wide	HSV		2,000	0 0	
Surprise HFR	T 9S , R 6E	HFR	15	400	0.0	14
Tum Fly	T 9S , R 5E , S 31	HCC	84	3,360	0.0	11a, 11c
Unnamed 92	District-wide	HCC	974	48,000	0 0	14
Upper Coffin		HCC	56	2,500	0.0	14
		SUBTOTAL	1,980	81,768	8 9	
		SUBTOTAL HCT	200			
RIGDON DISTRICT			FISCAL YEAR 1992			
District Salvage	District-wide	HCC	250	6,000	0.0	14a
Pinto	T 23S , R 5E , S 15	HCC	120	5,000	1 0	14a
Rocky	T 25S , R 4E., S 7	HCC	160	8,000	1 5	14a
Staley	T 25S , R 4E , S 13	HCC	140	7,000	2 5	14a
Tumbler	T 24S , R 4E , S 24	HCC	275	16,700	0 0	14a
Warner	T 23 & 24S , R 3 & 4E	HCC	220	12,000	1.5	14a
Windfall	T 23S , R 2E , S.1	HCC	200	8,000	2 0	14a
		SUBTOTAL	1,365	62,700	8.5	

TIMBER SALE ACTION SCHEDULE (Cont.)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
LOWELL DISTRICT			FISCAL YEAR 1992			
Alder 115F	T.18S , R 2E.	HCC	80	5,600	0.0	14
Cabin 116D	T.19 & 20S., R.2E.	HCC	135	10,640	0.0	14
Joe's Peak	T 19S , R 2E	HCC	9	500	0 0	14
Logan 115T	T.18 & 19S , R.2 & 3E	HCC	80	5,600	2 0	14
Noodle Thin	T.19S., R 3E	HCT	250	1,500	0 0	14
North Fall 115B	T.18S , R 2E	HCC	210	16,576	0 0	14
North Fork Winberry 116B	T 19S., R 2E	HCC	140	11,200	0 0	14
Rub II	T.18 & 19S., R 2E	HCC	26	1,300	0.0	14
Splinter Thin	*T.19 & 20S , R 2E.*	*HCT*	*250*	*1,500*	*0.0*	14
Tusk	T.18S., R.2E	HCC	100	7,995	0.0	14
West Deception 119I	T 21S., R 2E	HCC	310	24,864	0.0	14
Salvage Program	*District-wide*	*HSV*		*3,000*	*0.0*	14
		SUBTOTAL	1,090	90,275	2 0	
		SUBTOTAL HCT	*500*			
MCKENZIE DISTRICT			FISCAL YEAR 1992			
Bull Frog	T 16S , R.6E	HCC	100	5,200	0.5	14
Clipper	T 15S , R.6E , S 8,9	HCC	120	6,600	0 0	14
Fancy Free	T 15S , R 6E	HCC	160	8,300	0 0	14
Foot Loose	T.15S., R.7E	HCC	120	6,200	0 5	14
Jammer	T 15S , R.6E , S 4,9	HCC	90	5,000	0.0	14
King	T 16S., R 5E.	HCC	95	2,700	1 0	14
Pony	T.16S , R 5E.	HCC	140	7,300	0 5	14
Red Dog	T.16S., R.7E	HCC	100	5,200	0 0	14
Salvage 92	T.16S , R 6E.	HSV		2,000	0 0	14
South Side	T.16S , R 6E.	HCC	50	2,600	0 0	14
Swamp	T.16S , R 5E	HCC	60	3,100	0 0	14
		SUBTOTAL	1,035	54,200	2.5	

TIMBER SALE ACTION SCHEDULE (Cont)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construc-tion**	**Manage-ment Area**
OAKRIDGE DISTRICT			FISCAL YEAR 1992			
Amos	T 22S , R 5½E.	HCC	100	6,000	0 5	14a
Big Rhody	T.19 & 20S , R 4E , S 1,2,11	HCC	96	4,400	0 0	14a
		HFR	23			14a
Black Koch Over	T 21S , R 5E , S 15,22	HFR	76	1,900	0.0	14a
Desperado	T.19 & 20S, R 5½ & 6E	HCC	350	10,500	1 0	11a
		HSV	70			11d
Finish Line	T 20S , R 5E., S.7,12	HFR	56	1,100	0.0	14a
Happy Trails	T.22S , R 5 & 5½E.	HCC	50	10,300	2.0	14a
		HSW	40			14a
		HFR	30			11d
Judds Devil	T 22S, R 5E	HCC	120	9,000	1.0	11c, 14a
		HCT	30			11c
Koch Spot	T 22S , R 6E , S 32,33,34	HCC	100	6,000	0 0	14a
Koch Toes	T 21S., R 5E , S 22,23	HCC	60	3,300	1.0	14a
Sailing Shoe	T 21S , R 5E , S 34,35	HCC	155	9,300	5.0	14a
Southern	T 22S , R 5E	HCC	150	8,300	2.0	14a
Voodoo	T.18 & 19S , R 4 & 5E	HCC	250	8,000	1.0	14a
		SUBTOTAL	1,500	78,100	13 5	
		SUBTOTAL HCT	30			
		FISCAL YEAR TOTAL	9,444	466,390		

TIMBER SALE ACTION SCHEDULE (Cont)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
BLUE RIVER DISTRICT			FISCAL YEAR 1993			
Balmy	T 18S , R5.E.	HCC	100	5,500	0 0	11a
Finn	T.16S , R.3E	HCC	200	7,500	0 0	14
Quso	T.14S., R 5E , S.32,33,34	HCC	125	8,000	0.0	14
Skipper	T 19S , R 5E., S 11,14,23	HCC	150	6,750	0 0	14
Twinkle	T 18S , R.5E	HCC	100	4,000	0 0	14
Western Edge	T.16S , R 3E.	HCC	300	9,000	0 0	14
		SUBTOTAL	975	40,750	0.0	
SWEET HOME DISTRICT			FISCAL YEAR 1993			
Beabe	T 11 & 12S , R 5E	HCC	416	22,000	1 0	14
Camp Creek	T.12S , R.6 & 7E.	HCC	100	5,000	0 6	14
Canal	T 11S , R 4E.	HCC	140	7,000	1 1	14
Frost Lava 2	T 13S , R.7E , S 4,5,9,16	HSW	146	3,500	0 8	14
Hackleman	T 13 & 14S , R 6 & &7E	HCC	140	3,000	0 6	14
Owl Creek	T 14 & 15S , R 4E	HCC	150	5,000	1 0	14
Slumpy Gordan	T.12S , R 5E., S 11,12,13,14	HCC	100	5,000	1 7	14
Swamp	T 12S , R 5 & 6E	HCC	160	18,000	2 4	14
Misc. Salvage	District-wide	HSV		3,000	0 0	
		SUBTOTAL	1,290	71,500	9 2	
DETROIT DISTRICT			FISCAL YEAR 1993			
Salvage-93	District-wide	HSV		2,000	0 0	
Unnamed 93		HCC	1,800	78,000	0 0	14, 11c
	District-wide	HCT	500			14
		SUBTOTAL	1,800	80,000	0 0	
		SUBTOTAL HCT	*500*			
RIGDON DISTRICT			FISCAL YEAR 1993			
District Salvage	District-wide	HCC	250	6,000	0 0	14a
Glee	T 24S , R 5E.	HCC	150	6,000	1 5	14a
Knoll	T 22S , R 2E , S.13-15,22-26	HCC	270	13,000	2 5	14a
Ranger	T 24S , R 3E , S 17,18,19,20	HCC	185	10,000	0 5	14a
Slide	T.22S., R.4E , S.26,27,33,34	HCC	125	6,000	0 5	14a
Slinky	T 24S , R 3E S 4	HCC	110	7,000	1 5	14a
Spider	T 24 & 25S , R 4E	HCC	274	15,000	0 5	14a
		SUBTOTAL	1,364	63,000	7.0	

TIMBER SALE ACTION SCHEDULE (Cont)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construc-tion**	**Manage-ment Area**
LOWELL DISTRICT			FISCAL YEAR 1993			
Andy 115X	T 18 & 19S , R.2E	HCC	90	7,840	0.0	14
Brush 116A	T.19S , R 2E.	HCC	130	11,200	0 0	14
Eclipse II	T 17 & 18S , R 2 & 3E	HCC	40	3,375	0 0	14
Gold 115P	T 18 & 19S , R 3 & 4E	HCC	100	8,792	0.0	14
Goodman II	T 20S , R 1E.	HCC	20	1,600	0 0	14
Jones 115E	T 18S , R 2 & 3E	HCC	70	5,600	0 0	14
Middle Deception 119H	T 21S., R.2E.	HCC	180	15,120	0.0	14
Moonshine	T 18 & 19S , R 2 & 3E	HCC	150	12,460	0 0	14
Nine Mile 115K	T.18S , R 3 & 4E	HCC	70	5,600	0 0	14
Platt 115L	T 18S , R 3 & 4E	HCC	70	5,880	1.0	14
Rub III	T 18 & 19S , R 2E	HCC	40	3,400	010	14
Sunshine-Pernot 115G	T 18S , R 3E	HCC	60	5,488	0 0	14
Upper Fall 115M	T.18S , R 4E.	HCC	70	6,160	0 0	14
Salvage Program	District-wide	HSV		3,000	0 0	14
		SUBTOTAL	1,090	95,515	1 0	
MCKENZIE DISTRICT			FISCAL YEAR 1993			
Buffalo	T 16S , R 6E.	HCC	50	2,700	0 5	11e
Colt	T 16S , R 6E	HCC	100	5,500	0 5	14
Ditch	T 16S , R 6E.	HCC	120	6,600	1 0	14
Flo	T 16S , R 5E	HCC	50	2,700	0 5	11e
Fly Boy	T 15S , R 6E	HCC	180	9,900	0 0	14
Gnat	T.17S , R 6E	HCC	75	5,400	0 0	14
Hay	T 17S , R 6E	HCC	100	5,500	0 5	14
Jag	T 15S , R 7E	HCC	89	9,900	0 0	14
Muskie	T 14S , R 7E	HFR	23	1,100	0 0	14
Nugget	T.16S , R.7E.	HCC	70	3,700	0.5	14
Paradise	T 16S , R 6E.	HSW	50	2,700	0 0	11e
Pothole	T 17S , R 6E.	HCC	120	6,200	1 0	14
Twilight	T 14S , R 7E	HFR	94	1,900	0 5	14
Zinc	T.16S , R.7E , S 27,28	HCC	64	1 6	14	
		HSW	23			14
		SUBTOTAL	1,100	66,700	6 6	

TIMBER SALE ACTION SCHEDULE (Cont.)						
Sale Name	**Location**	**Harvest Method**	**Harvest Acres**	**Volume (MBF)**	**Miles Road Construction**	**Management Area**
OAKRIDGE DISTRICT			FISCAL YEAR 1993			
Buzzard	T.20S , R.3E.	HCC	125	5,000	1 3	11a
Cajun	T.19S., R.3E	HCC	150	7,500	0.0	11a, 14a
Dead Flat Thin II	T.21S., R.3E	HCT	230	2,000	0 0	11e
Megabucks	T 22S., R.5E.	HCC	50	3,300	2 0	11a, 11c
Ramp	T.22S., R.5E , S.23,24,25	HCC	80	8,500	2.0	14a, 11c
		HCT	120			11c, 11f
Rangy Salmon	T.21S , R.6E , S 8,9,10	HCC	180	11,000	2 5	14a
Slipknot	T.19 & 20S., R 5 & 5½E	HCC	195	11,000	1.5	11a
Speedo	T.19S , R.4E	HCC	170	8,400	1.0	14a
Walt's Revenge	T 19 & 20S , R.4 & 5E.	HCC	218	12,000	2.0	11a, 14a
Warm Eagel	T.20S , R.4E , S 22,23,27	HCC	163	6,000	1 0	14a
Who Alex	T.21S., R 4E.	HCC	163	7,200	0.0	11c
		SUBTOTAL	1,494	81,900	13 3	
		FISCAL YEAR TOTAL	9,113	499,365		



Spring hiking in the Cascades.

APPENDIX D

Resource Activity Schedules

APPENDIX D

RESOURCE ACTIVITY SCHEDULES

INTRODUCTION

This appendix contains activity schedules for various resources and activities Projects will be added to these activity schedules periodically as they are identified during the continuous project-planning proces Projects may also be deferred or modified if problems are identified during project-level environmental analysis. It is expected that the detailed schedules will require updating annually as a result of updated inventories or information, project-level environmental analysis, and the budget process

Table D-1 lists the activity schedules included in this appendix

Table D-1 Activity Schedules

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Table D-2. Annual Wildlife Projects[1]

Detroit District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	100	Increase forage availability
Bruch Encroachment	Acres	50	Reclaim meadow acres
Forage Enhancement	Acres	150	Aerial application of seed
Fertilization	Acres	100	Aerial application on forage
Sedge Planting	Acres	0 0	Reservoir drawdown zones
Prescribed Burning	Acres	50	Meadows, brushfields, special habitats
Meadow Till or Plowing	Acres	10	Meadows, roadbeds
Browse Planting	Acres	40	Riparian areas, special habitats
Excavate Ponds	Acres	0 0	
Cliff Basting	Each	2	Peregrine recovery
Tree Limbing	Each	2	Bald eagle management areas
Falcon Hack Site Construction	Each	0 0	Peregrine recovery
Meadow Enhancement	Acres	0 0	
Salt and Mineral Block	Each	10	Key deer and elk use areas
Planting View Screens	Acres	10	Roadside or rehab special habitats
Small Mammal Tunnels	Each	0 0	
Guzzlers	Each	0 0	
Gates	Each	20	High or moderate elk emphasis areas
Barriers	Each	5	High or moderate elk emphasis areas
Nesting Islands	Each	0	
Waterfowl Enhancement	Each	3	Wetland development
Dam Heads	Each	1	Pond development
Noxious Weed Control	Acres	10	Biological control, insects

Sweet Home District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	50	Increase forage availability
Bruch Encroachment	Acres	25	Reclaim meadow acres
Forage Enhancement	Acres	50	Aerial application of seed
Fertilization	Acres	100	Aerial application on forage sites
Sedge Planting	Acres	0 0	
Prescribed Burning	Acres	50	Meadows, brushfields, special habitats
Meadow Till or Plowing	Acres	10	Meadows, roadbeds
Browse Planting	Acres	10	Riparian areas, special habitats
Excavate Ponds	Acres	5	Wetland development
Cliff Basting	Each	1	Peregrine recovery
Tree Limbing	Each	1	Bald eagle management areas
Falcon Hack Site Construction	Each	0 2	Peregrine recovery
Meadow Enhancement	Acres	0 0	
Salt and Mineral Block	Each	10	Key deer and elk use areas
Planting View Screens	Acres	5	Roadsides or special habitat rehab
Small Mammal Tunnels	Each	0 0	
Guzzlers	Each	2	Dry upland areas
Gates	Each	5	High or moderate elk emphasis areas
Barriers	Each	10	High or moderate elk emphasis areas
Nesting Islands	Each	8	Waterfowl nest sites
Waterfowl Enhancement	Each	2	Wetland development
Dam Heads	Each	1	Pond development
Noxious Weed Control	Acres	250	Biological control, insects

Table D-2 Cont. Annual Wildlife Projects

McKenzie District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	100	Increase forage availability
Bruch Encroachment	Acres	40	Reclaim meadow acres
Forage Enhancement	Acres	120	Aerial application of seed
Fertilization	Acres	120	Aerial fertilization of forage
Sedge Planting	Acres	0 0	
Prescribed Burning	Acres	120	Meadows, brushfields, harvest units
Meadow Till or Plowing	Acres	10	Meadows in poor condition, roadbeds
Browse Planting	Acres	20	Riparian areas, special habitats
Excavate Ponds	Acres	5	Wetland development
Cliff Basting	Each	1	Peregrine recovery
Tree Limbing	Each	2	Bald eagle management areas
Falcon Hack Site Construction	Each	0 1	Peregrine recovery
Meadow Enhancement	Acres	0 0	
Salt and Mineral Block	Each	0 0	
Planting View Screens	Acres	10	Roadsides, special habitat rehab
Small Mammal Tunnels	Each	0 0	
Guzzlers	Each	1	Dry, upland areas
Gates	Each	5	High or moderate elk emphasis areas
Barriers	Each	10	High or moderate elk emphasis areas
Nesting Islands	Each	3	Waterfowl nest sites
Waterfowl Enhancement	Each	3	Wetland development
Dam Heads	Each	0 0	
Noxious Weed Control	Acres	100	Biological control, insects

Blue River District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	100	Increase forage availability
Bruch Encroachment	Acres	40	Reclaim meadow acres
Forage Enhancement	Acres	100	Aerial application of seed
Fertilization	Acres	150	Aerial fertilization of forage
Sedge Planting	Acres	40	Reservoir drawdown zone
Prescribed Burning	Acres	100	Meadows, brushfields, special habitats
Meadow Till or Plowing	Acres	10	Meadows, old roadbeds
Browse Planting	Acres	15	Riparian areas, special habitats
Excavate Ponds	Acres	5	Wetland development
Cliff Basting	Each	1	Peregrine recovery
Tree Limbing	Each	2	Bald eagle management areas
Falcon Hack Site Construction	Each	0 1	Peregrine recovery
Meadow Enhancement	Acres	0 0	
Salt and Mineral Block	Each	0 0	
Planting View Screens	Acres	10	Roadsides, special habitat rehab
Small Mammal Tunnels	Each	2	Dispersal enhancement
Guzzlers	Each	2	Dry upland sites
Gates	Each	10	High or moderate elk emphasis areas
Barriers	Each	20	High or moderate elk emphasis areas
Nesting Islands	Each	3	Waterfowl nest sites
Waterfowl Enhancement	Each	3	Wetland development
Dam Heads	Each	1	Pond development
Noxious Weed Control	Acres	50	Biological control, insects

Table D-2 Cont. Annual Wildlife Projects

Lowell District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	400	Increase forage availability
Bruch Encroachment	Acres	100	Reclaim meadow acres
Forage Enhancement	Acres	400	Aerial application of seed
Fertilization	Acres	400	Aerial fertilization of forage
Sedge Planting	Acres	5	Reservoir drawdown zone
Prescribed Burning	Acres	100	Meadows, brushfields, special habitats
Meadow Till or Plowing	Acres	5	Roadbeds, meadows
Browse Planting	Acres	20	Riparian areas, special habitats
Excavate Ponds	Acres	5	Wetland development
Cliff Basting	Each	0 0	
Tree Limbing	Each	3	Bald eagle management areas
Falcon Hack Site Construction	Each	0 0	
Meadow Enhancement	Acres	20	Improve meadow condition
Salt and Mineral Block	Each	10	Key deer and elk areas
Planting View Screens	Acres	10	Roadsides, special habitats
Small Mammal Tunnels	Each	0 0	
Guzzlers	Each	0 0	
Gates	Each	20	High or moderate elk emphasis areas
Barriers	Each	20	High or moderate elk emphasis areas
Nesting Islands	Each	5	Waterfowl nest sites
Waterfowl Enhancement	Each	2	Wetland development
Dam Heads	Each	0 0	
Noxious Weed Control	Acres	200	Biological control, insects

Oakridge District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	200	Increase forage availability
Bruch Encroachment	Acres	30	Reclaim meadow acres
Forage Enhancement	Acres	100	Aerial application of seed
Fertilization	Acres	500	Aerial fertilization of forage
Sedge Planting	Acres	0 0	
Prescribed Burning	Acres	500	Meadows, brushfields, special habitats
Meadow Till or Plowing	Acres	0 0	
Browse Planting	Acres	50	Riparian areas, special habitats
Excavate Ponds	Acres	10	Wetland developments
Cliff Basting	Each	0 0	
Tree Limbing	Each	0 0	
Falcon Hack Site Construction	Each	0 0	
Meadow Enhancement	Acres	0 0	
Salt and Mineral Block	Each	20	Key deer and elk area
Planting View Screens	Acres	10	Roadsides, special habitats
Small Mammal Tunnels	Each	0 0	
Guzzlers	Each	0 0	
Gates	Each	5	High or moderate elk emphasis areas
Barriers	Each	30	High or moderate elk emphasis areas
Nesting Islands	Each	0 0	
Waterfowl Enhancement	Each	0 0	
Dam Heads	Each	1	Pond development
Noxious Weed Control	Acres	10	Biological control, insects

Table D-2 Cont. Annual Wildlife Projects

Rigdon District			
Project Type	**Units**	**Amount**	**Comments**
Browse Cutback	Acres	50	Increase forage availability
Bruch Encroachment	Acres	20	Reclaim meadow acres
Forage Enhancement	Acres	50	Aerial application of seed
Fertilization	Acres	150	Aerial fertilization of forage
Sedge Planting	Acres	0 0	
Prescribed Burning	Acres	150	Meadows, brushfields, special habitats
Meadow Till or Plowing	Acres	0 0	
Browse Planting	Acres	40	Riparian areas, harvest units
Excavate Ponds	Acres	3	Wetland development
Cliff Basting	Each	4	Peregrine recovery
Tree Limbing	Each	1	Bald eagle management area
Falcon Hack Site Construction	Each	0 0	
Meadow Enhancement	Acres	20	Improve meadow condition
Salt and Mineral Block	Each	20	Key deer and elk use areas
Planting View Screens	Acres	10	Roadsides, special habitats
Small Mammal Tunnels	Each	0 0	
Guzzlers	Each	3	Dry upland sites
Gates	Each	5	High or moderate elk emphasis areas
Barriers	Each	20	High or moderate elk emphasis areas
Nesting Islands	Each	0 0	
Waterfowl Enhancement	Each	0 0	
Dam Heads	Each	3	Pond development
Noxious Weed Control	Acres	100	Biological control, insects

[1] Projects listed are proposed P&M activities and do not include enhancement or mitigation projects resulting from Timber Sale Area Improvement (KV) plans

Table D-3. Fish Management Program - Resource Activity Schedule[1] (Years 1-10)

Location	Totals	Project
Blue River District		
Blue River	15 miles	Instream habitat rehabilitation
South Fork McKenzie	15 miles	Instream habitat rehabilitation
Blue River Reservoir	300 acres	Shoreline stabilization and deep-pool enhancement
Cougar Reservoir	212 acres	Shoreline stabilization
Detroit District		
Little North Santiam	22 miles	Install egg incubators for summer steelhead and winter steelhead
		Instream habitat improvement work to improve productivity, spawning and rearing habitat.
North Santiam	25 miles	Instream habitat improvement work of main stem and tributaries
Breitenbush	10 miles	Instream habitat improvement work of main stem and tributaries
Detroit Reservoir	100 acres	Shoreline stabilization
Lowell District		
Fall Creek	4 mile haul	Haul winter steelhead around Fall Creek Reservoir
	1 structure	Construct smolt trap to facilitate passage of winter steelhead and spring Chinook smolt around Fall Creek Reservoir
	20 miles	Instream habitat rehabilitation within Fall Creek and Winberry drainages
Lookout Point Reservoir	375 acres	Shoreline stabilization and deep-pool enhancement
McKenzie District		
McKenzie	20 miles	Instream habitat rehabilitation of tributaries to McKenzie River
Rigdon District		
Hills Creek Reservoir	660 acres	Shoreline stabilization and deep-pool enhancement
Sweet Home District		
South Santiam	1 structure	Ladder Shed Camp Falls to increase winter steelhead habitat by 10 miles
	20 miles	Instream habitat rehabilitation within South Santiam sub-basin
	15 miles	Install egg incubators for winter steelhead at 10 sites
Quartzville	5 mile haul	Haul winter steelhead around Foster/Green Peter Reservoirs

[1] Fish management projects will be designed and implemented in cooperation with the goals and programs of Oregon Department of Fish and Wildlife

Table D-4. Watershed Management Program - Resource Activity Schedule[1] (Years 1-10)

Subdrainage or Creek	Totals	Average Annual Project Cost
Blue River District		$65,000
Fawn-Buck	1 acre	
Rebel	2 acres	
Mann	2 acres	
East Fork	1 acre	
Elk	3 acres	
Augusta	30 acres	
Rush	4 acres	
Wolf	14 acres	
Quartz	5 acres	
Simmonds	18 acres	
Quentin	16 acres	
Blue Quartz	3 acres	
Detroit District		$76,000
Little North Santiam	3 acres	
Cedar	30 structures	
Lost	60 structures	
Cliff	12 acres	
Blowout	4 acres	
Kenny	1 acre	
Straight	4 acres	
Skunk	5 acres	
Breitenbush	22 structures	
McKenzie District		$66,000
Frissell	46 acres	
Florence	6 acres	
Fritz	2 acres	
Deer	14 acres	
Castle	13 acres	
Belknap	5 acres	
Owl	3 acres	
Wilelada	5 acres	
Foley Springs	2 acres	
County	3 acres	

Table D-4 Cont. Watershed Management Program - Resource Activity Schedule[1] (Years 1-10)

Subdrainage or Creek	Totals	Average Annual Project Cost
Oakridge District		$180,000
Huckleberry	400 acres[2]	
Mossy-Grassy	480 acres[2]	
Short	8 acres	
Dartmouth	5 acres	
Leapfrog	1 acre	
High	3 acres	
Hammer	1 acre	
McKinley	8 acres	
Chalk	65 acres	
Evangeline	5 acres	
Christy	255 acres[2]	
Lowell	10 acres	
No-name	3 acres	
Warble	70 acres	
Squaw Butte	1 acre	
Salmon	29 acres	
Eagle Butte	6 acres	
Wall	10 acres	
Pitch	8 acres	
Furnish	7 acres	
Black	10 acres	
Kelsey	22 acres	
Tumble	5 acres	
Basin	2 acres	
Warner	13 acres	
Swamp	1 acre	
Noisy	10 acres	
Billy	8 acres	
Kitsen	40 acres	
Dead	20 acres	
Camp	3 acres	
Middle North Fork Willamette	50 acres	
Upper North Fork Willamette	50 acres	
Salt Creek	45 acres	
Pepper	3 acres	
Ranger	2 acres	
Lower North Fork Willamette	50 acres	
Sugar Daddy	4 acres	
Lowell District		$20,000
Hehe	18 acres	
Briem	2 acres	
Winberry	1 acre	
Bedrock Campground	1 acre	
Portland	1 acre	
Buzzard	3 acres	
Tiller	2 acres	

Table D-4 Cont. Watershed Management Program - Resource Activity Schedule[1] (Years 1-10)

Subdrainage or Creek	Totals	Average Annual Project Cost
Rigdon District		$67,000
Deadwood	2 acres	
Buck	5 acres	
Indian	10 acres	
Upper Gray	1 acre	
Hills Creek	5 acres	
Hillside	1 acre	
West Tumblebug	1 acre	
Hills Warfield	1 acre	
Tumbledown	20 acres	
Warfield	1 acre	
Andy's	1 acre	
Pope & Talbot Exchange	170 acres	
Sweet Home		$183,000
Gold Creek	15 acres	
McCuade Creek	12 acres	
Freezeout Road	2 acres	
Elk Creek	5 acres	
Galena Creek	2 acres	
Jude East	8 acres	
Cougar Creek	5 acres	
Holman Creek	5 acres	
Cougar Creek	1 structure	
Middle Santiam	10 acres	
M Santiam Headwaters	2 acres	
Moose Creek	10 acres	
Moose Creek	10 Structures	
Soda Fork	40 Structures	
Maude Creek		
Santiam Wagon Road		

[1] Watershed Improvement projects are designed to maintain or enhance water soil structure, water quality, and stream conditions Projects utilize mechanical methods to improve soil structure, and structural and vegetative methods to stabilize surface erosion, mass movement, streambanks, and stream channels Improvement to streams condition and water quality will also be achieved by stream and reservoir rehabilitation projects listed under Fish Management, and road stabilization projects listed under Road Management The cost of maintaining watershed improvements will be in addition to the initial project costs

[2] Includes soil rehabilitation projects

Table D-5. Capital Investment Program - Facilities

FY91		
District	**Project**	**Cost - M$**
Blue River	Warehouse	751
Detroit	Electrical Utilities	135
Oakridge	Entry Driveway	50
McKenzie	Trailer Pads	60
Lowell	UST Retrofit	100
Blue River	Flammable/G&O/Tank Removal	195
Detroit	Office Design	150

FY92		
District	**Project**	**Cost - M$**
Rigdon	Tree Cooler	450
Detroit	Office Design	50
Detroit	Warehouse Sprinklers	50
Detroit	Remodel Old Barracks	100
Detroit	Satellite TV System	60
Lowell	Office Space-Trailer/Modular	100
McKenzie	Conference Room/Office Space	100
Blue River	Office Space Addition	100

FY93		
District	**Project**	**Cost - M$**
Detroit	Office/Water System	1,800
Sweet Home	Flammable Storage	100
Rigdon	Parking/Access/Landscaping	270
Sweet Home	Warehouse/Access/Utilities	900
Sweet Home	Open Storage	100

Table D-5 Cont. Capital Investment Program - Facilities

FY94		
District	**Project**	**Cost - M$**
Lowell	Office Design	100
Oakridge	Open Storage/Fence	100
McKenzie	Parking New W C	75
Lowell	Drainage (old site)	50
Blue River	Gr Flt Parking	80
Blue River	Fence Compound	50
Supervisor's Office	Warehouse Paving	50
Supervisor's Office	Wellness Facility	15

FY95		
District	**Project**	**Cost - M$**
Lowell	Office	1,200
Blue River	Trailer Park	170

FY96		
District	**Project**	**Cost - M$**
Lowell	Saddle Blanket L O	50
McKenzie	Frezell L O	125
Blue River	Barracks Design	75

Table D-6. Capital Investment Program - Roads and Bridges

Project Name	Project Number	Construction Length	Reconstruction Length	Fiscal Year
Aufderheide Drive	190000	0 0	20 5	1991
Waldo Lake Campground Roads	5800-Locals	0 2	7 6	1991
Breitenbush/Humbug Campgrounds	4600-Locals	0 0	0 8	1991
Gold Lake Campground	5800500	0 0	0 6	1991
Boulder Central Crushing	Multi-roads	7 5	13 3	1991
Quartsville Road	110000	0 0	6 4	1992
McKenzie Bridge Campground	2600220	0 0	1 3	1992
Riverside Campground	2200067	0 0	0 3	1992
Starr Creek Bridge	1927100	0 0	1 bridge	--
1900408	1900408	0 0	4 5	--

Table D-7. Road Stabilization Projects

Blue River District		
Project Name	**Length**	**Type of Project**
Revegetate Roadsides	800 miles	Seed, fertilize, and mulch
Seed Roadbeds	25 miles (50 acres)	Seed and fertilize
Stabilize Scoured Channels	---	Blanket mulch, replant hardwoods, fir seedlings or shrubs
Pullback Fills	---	Equipment rental - Gradall or excavator
Pave Blue River - FR15	3 miles	Stabilize within 200 feet of Class I stream
Pave Quartz Creek - 2618	4 6 miles	Stabilize within 200 feet of Class I stream.

Detroit District		
Project Name	**Length**	**Type of Project**
FS 2233 (Skunk Creek)	3 miles	Mitigate erosion and stabilize sidecast
FS 1012820	1 mile ---	Sidecast stabilization and horizontal trenching Half bridge on steep sideslope needs repair
FS 2207	---	Retain sidecast
FS 4695120	500 feet	Stabilize sidecast
FS 4696703	200 feet	Remove debris and replace pipe
FS 4696701 (Deadhorse)	0 5 mile	Fix cut slope stability and remove hanging stumps
FS 10	0 3 mile	Fix slump (Blowout)
FS 10 (Blowout)	0 2 mile	Relocate road and stabilize
FS 2212 (Kinney Creek)	---	Stabilize slump over M&M Creek
FS 11 (Straight Creek)	---	Fix various slides and slumps
FS 46 (Breitenbush)	---	Replace retaining structure

Table D-7 Cont. Road Stabilization Projects

Lowell District		
Project Name	**Length**	**Type of Project**
Winberry Road - 1802	4.0 miles	Surface improvement to reduce sediment
Tiller Ridge - 1832	2 0 miles	Surface improvement to reduce sediment
Cowhorn - 1817	3 0 miles	Surface improvement to reduce sediment
Goodman - 5833	2 7 miles	Surface improvement to reduce sediment
Fall Creek - 1800	3 0 miles	Surface improvement to reduce sediment
HeHe Creek - 1831	3 0 miles	Surface improvement to reduce sediment
Fork Winberry - 1802150	1 1 miles	Surface improvement to reduce sediment
Kreuger Rock - 5847	0 5 mile	Surface improvement to reduce sediment
North Shore Road - 5821 - 5847549	 2 8 miles ---	 Improve drainages and surfacing Slope failure
Teller - 1832342 - 1832341 - 1835	 --- --- MP2 4	 Slipout Slope failure Slope failure
Andy Creek Quarry - 1824	---	Quarry erosion protection
South Winberry Quarry - 1802150	---	Quarry erosion protection
1825 to Nevergo Bridge - 1835	2 8 miles	Surface improvement
1835 to 1835226	2 2 miles	Surface improvement

McKenzie District		
Project Name	**Length**	**Type of Project**
Frissel Slide - 2650610	0 2 mile	Fill, drainage, and seeding
Sidecast Pullback	5 0 miles	Fills
Trailbridge - 2600730	1 3 miles	Surfacing
Deer Creek - 2654	5 25 miles	Surfacing and fills
Frissel Abandonment - 2650	2 9 miles	Fills and drainage (put back to bed)
Cut and fill annual revegetation	20 miles annually	Seed and fertilize

Table D-7 Cont. Road Stabilization Projects

Sweet Home District		
Project Name	**Length**	**Type of Project**
Moose Creek Pave - 2025	0 5 mile	Surface (pave)
Moose Creek - 2025	3 8 miles	Surface (aggregate)
Soda Fork - 2041	0 5 mile	Stabilize slipout, etc
Knob Rock - 1152	1 0 mile	Surface, stabilize, etc
Sheep Creek - 2047	20 4 miles	Surface, stabilize, etc
Single Creek - 2047	1 0 mile	Fill pullback
Moose Mountain - 2027	3 8 miles	Surface and drainage
Canyon Creek - 2022	15 6 miles	Drainage, surface stabilize, etc
Calapooia - 2820	17 2 miles	Drainage, surface stabilize, and fill protection
Gordon - 2032 - 2032	 1 7 miles 0 1 mile	 Surface stabilize and drain Bridge (Black Creek)
Gold Creek - 1100720	1 5 miles	Fill pullback
McQuade Creek - 1142	8 0 miles	Fill pullback
Little Meadow - 1133	6 0 miles	Fill pullback
Elk Creek - 1131101	4 8 miles	Fill pullback
Canal Creek - 1131202	8 0 miles	Fill pullback
Parish Lake - 2266	1 0 mile	Stabilize surface
District - Fertilize	---	Fertilize slopes ($10,000 per year)
District - Dispersed Recreation Sites	---	Stabilize near streams

Table D-8. Developed Recreation Sites

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	Look Out Boat Ramp	Construction	BR	102	N
1991	Terwilliger Hot Springs	Construction	BR	100	N
1991	Twin Springs CG	Construction	BR	25	N
1991	Delta Nature Trailhead	Reconstruction	BR	8	N
1991	Roaring Springs Trailhead	Reconstruction	BR	5	N
1991	Cove Creek Boating Site	Construction	DE	2000	N
1991	Cove Creek Campground	Construction	DE	700	N
1991	Little N Santiam Trailhead	Construction	DE	28	N
1991	Maxwell Snowpark	Construction	DE	50	N
1991	Cove Creek CG/BS Feas	Study	DE	6	N
1991	Uppr Arm Feasability	Study	DE	2	N
1991	Broken Bowl	Reconstruction	LO	35	N
1991	Lonewolf Trailhead	Reconstruction	LO	2	Y
1991	Lower McKenzie NRT Trailhead	Construction	MC	165	N
1991	Proxy Falls Trailhead	Construction	MC	35	Y
1991	Snow Park Toilets	Construction	MC	36	N
1991	Big Lake water system	Reconstruction	MC	60	Y
1991	Big Lake West	Reconstruction	MC	50	Y
1991	Dee Wright	Reconstruction	MC	30	Y
1991	Sahalie Falls Toilet	Reconstruction	MC	100	N
1991	Big Springs Snow Park	Construction	SH	70	N
1991	Lava Lake Snow Park	Construction	SH	70	N
1991	Snow Park Toilets	Construction	SH	80	N
1992	Sunnyside/Westside	Construction	BR	75	N
1992	Santiam Flats Campground	Construction	DE	640	N
1992	Lt No Santm -Rec Dev Plan	Plan	DE	5	N
1992	Upper Arm Campground	Reconstruction	DE	100	N
1992	Clark Cr Org Camp	Barrier Free	LO	100	Y
1992	Windberry Divide Trailhead	Construction	LO	12	N
1992	Carmen-Drury Trailhead	Construction	MC	26	N
1992	Highway 242 Interpretive Site	Construction	MC	50	Y
1992	Sand Mountian Interp Site	Construction	MC	35	Y
1992	Sawyers Ice Cave Interp Site	Reconstruction	MC	13	Y
1992	Clear Lake Day Use	Reconstruction	MC	50	N
1992	Lower Linton Trailhead	Reconstruction	MC	30	N
1992	Scott Lake C G	Reconstruction	MC	20	N
1992	Trailbridge	Reconstruction	MC	300	Y
1992	Cupit Mary Trailhead	Reconstruction	OA	6	Y
1992	South Waldo Trailhead	Reconstruction	OA	6	Y
1992	Lava Lake Horse Camp	Construction	SH	80	Y
1992	Yukwah CG-Host Facility	Construction	SH	40	N
1992	Trail Shelters	Reconstruction	SH	40	N
1992	Longbow Organization Camp	Stabilize	SH	10	Y
1993	Echo Day Use Site	Construction	BR	40	N
1993	Pinewood Snow Shelter	Construction	DE	15	Y
1993	Whispering Falls CG/Water	Construction	DE	200	N
1993	Riverside Campground	Reconstruction	DE	150	N
1993	Clark Creek Organization Camp	Construction	LO	37	N
1993	Winberry Horse Camp	Construction	LO	50	N
1993	Deception Butte Trailhead	Reconstruction	LO	13	N

Table D-8 Cont. Developed Recreation Sites

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1993	Trailhead Package	Reconstruction	LO	29	N
1993	Black Canyon	Rehabilitation	LO	2	N
1993	Fish Lake Campground	Construction	MC	60	N
1993	Fish Lake Interpretive Site	Construction	MC	200	Y
1993	Mt Washington PCT South Trlhd	Construction	MC	25	Y
1993	Proxy Falls Trailhead	Construction	MC	19	Y
1993	Benson-Tenas Trailhead	Reconstruction	MC	38	N
1993	Horse Creek	Reconstruction	MC	100	Y
1993	Horse Pasture Mt Interp Site	Construction	Mc	35	N
1993	Eugene to PCNST Trailhead	Construction	OA	6	Y
1993	Waldo Snow Park	Construction	OA	119	Y
1993	Emigrant Pass-Interp Site	Construction	RI	10	Y
1993	Larison Cove-Boating Site	Construction	RI	12	Y
1993	OCMWR Interpretive Site	Construction	RI	65	Y
1993	Rigdon Meadows Horse Camp	Construction	RI	120	N
1993	Rigdon Meadows-Interp Site	Construction	RI	40	Y
1993	Campers Flat	Reconstruction	RI	28	N
1993	Trout Creek CG-Electrical	Construction	SH	90	N
1993	Trout Creek CG-Group Site	Construction	SH	80	N
1993	Trout Creek CG-Host Facility	Construction	SH	40	N
1993	Trout Creek CG-Paving	Construction	SH	60	N
1993	Visitor Center I-5 North	Construction	SH	500	Y
1993	Yukwah CG-Electrical	Construction	SH	90	N
1993	Yukwah CG-Paving	Construction	SH	60	N
1993	SH Toilet Retrofits	Reconstruction	SH	50	N
1994	Delta CG	Construction	BR	120	N
1994	Frissell Crossing Trailhead	Construction	BR	60	N
1994	Slide Creek CG	Construction	BR	50	N
1994	South Fk Bridge Trailhead	Reconstruction	BR	30	N
1994	Breitenbush CG & Water	Reconstruction	DE	20	N
1994	Southshore CG & Water	Reconstruction	DE	150	N
1994	Bedrock CG	Reconstruction	LO	160	N
1994	Puma	Reconstruction	LO	11	N
1994	Castle Rock Trailhead	Construction	MC	16	Y
1994	Lost Creek Interpretive Site	Construction	MC	25	N
1994	Mt Washington PCT North Trlhd	Construction	MC	15	N
1994	Old Growth Grove Trailhead	Construction	MC	20	Y
1994	Rainbow Falls Trailhead	Construction	MC	25	N
1994	Alder Springs	Reconstruction	MC	50	N
1994	Carmen Day Use	Reconstruction	MC	40	N
1994	Blue Pool CG Toilet	Barrier Free	OA	80	Y
1994	McCredie Springs	Construction	OA	100	Y
1994	Waldo Viewpoint	Construction	OA	112	Y
1994	Gold Lake CG/ Toilet	Replacement	OA	20	Y
1994	Chuckle Springs-Interp Site	Construction	RI	15	Y
1994	Sacandaga	Reconstruction	RI	32	N
1994	Campground Solar Systems	Construction	SH	10	N
1994	Hackleman Creek OGG Trailhead	Construction	SH	50	Y
1994	Horse Shoe Loop	Construction	SH	70	Y
1994	Lava Lake Viewpoint	Construction	SH	200	Y

Table D-8 Cont. Developed Recreation Sites

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1994	Lost Prairie CG	Construction	SH	100	N
1994	Tombstone Snow Park	Construction	SH	100	N
1995	Mona CG	Construction	BR	45	N
1995	South Fk-North Fk Trailhead 1	Construction	BR	93	N
1995	Westside Bridge Trailhead	Reconstruction	BR	40	N
1995	Opal Creek Trailhead	Construction	DE	28	N
1995	Hoover Swimming & Boating	Reconstruction	DE	24	Y
1995	Southshore Swim/Boat Site	Reconstruction	DE	20	Y
1995	Visitor Center I-5 South	Construction	LO	500	Y
1995	Big Pool	Reconstruction	LO	11	N
1995	Hampton	Reconstruction	LO	55	N
1995	Foley Ridge Trailhead	Construction	MC	45	N
1995	Lost Creek Trailhead	Construction	MC	60	Y
1995	Olallie Campground	Construction	MC	100	N
1995	Ray Benson Snow Park	Construction	MC	75	Y
1995	Betty Lake Horse Camp	Construction	OA	100	Y
1995	Salmon Creek Falls	Construction	OA	16	Y
1995	Blair Lake Trailhead	Reconstruction	OA	10	Y
1995	Noisy Creek - Interp Site	Construction	RI	25	Y
1995	Timpanogas Snow Shelter	Construction	RI	141	N
1995	Hackleman Snow Park	Construction	SH	50	N
1995	Sanmarka CG	Construction	SH	180	Y
1995	Old Growth Grove Trailheads	Rehabilitation	SH	30	Y
1996	French Pete CG	Construction	BR	40	N
1996	South Fk-North Fk Trailhead 2	Construction	BR	110	N
1996	Five Way Jct Snow Shelter	Construction	DE	25	Y
1996	Larison View Trailhead	Construction	DE	3	N
1996	Elk Lake Campground	Reconstruction	DE	300	N
1996	Black Canyon/Hampton Boat Rmp	Reconstruction	LO	60	N
1996	Winberry CG	Reconstruction	LO	21	N
1996	Little Cowhorn Lookout	Rehabilitation	LO	25	N
1996	Campground Amphitheatres	Construction	MC	100	N
1996	Upper McKenzie NRT Trailhead	Construction	MC	80	N
1996	Blair Lake Campground	Reconstruction	OA	100	Y
1996	Gander Lake Trailhead	Reconstruction	OA	6	Y
1996	Quartzville Creek CG	Construction	SH	180	Y
1997	Cougar Organization Camp	Construction	BR	75	N
1997	Frisell Xing CG	Construction	BR	40	N
1997	Roaring River CG	Construction	BR	40	N
1997	South Fk-North Fk Trailhead 3	Construction	BR	107	N
1997	Hidden Lake Trailhead	Reconstruction	BR	31	N
1997	Flagstone Group Campgrnd	Construction	DE	100	N
1997	Lakeview CG	Construction	LO	97	N
1997	Trailbridge Overlook	Construction	MC	50	N
1997	Winter Trail Shelters	Construction	MC	60	Y
1997	Fisher Creek Trailhead	Reconstruction	OA	8	Y
1997	Swan Lake Trailhead	Reconstruction	OA	10	Y
1997	Hills Creek CG	Construction	RI	600	N
1997	Hills Creek-Picnic Ground	Construction	RI	18	N
1997	Larison Rock-Obsvtn Site	Construction	RI	8	N

Table D-8 Cont. Developed Recreation Sites

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1997	Iron Mt Trailhead Parking	Construction	SH	50	Y
1998	Box Canyon Guard Station	Construction	BR	50	N
1998	Big Meadows Snow Shelter	Construction	DE	15	Y
1998	Willis Creek Grp Campgrnd	Construction	DE	100	N
1998	Salt Creek CG	Construction	OA	508	Y
1998	Skookum Creek CG	Rehabilitation	OA	90	Y
1998	Alpine Lake-Horse Camp	Construction	RI	540	Y
1998	Big Swamp-Interpretive Site	Construction	RI	15	Y
1998	Hills Peak-Obsvtn Site	Construction	RI	9	N
1998	Pool Creek-Picnic Ground	Construction	RI	6	N
1999	Homestead CG	Construction	BR	25	N
1999	Stahlman Group CG	Construction	DE	100	N
1999	Pocket Creek	Construction	LO	105	N
1999	Beaver Marsh-Interp Site	Construction	RI	15	Y
1999	Chuckle Springs-Picnic Ground	Construction	RI	6	N
1999	Coffeepot CG	Construction	RI	260	N
1999	Cozy Cove-Picnic Ground	Construction	RI	30	N
1999	South Willamette-Picnic Grnd	Construction	RI	30	N
1999	Hills Creek-Lodge, Resort	Feasibility	RI	10	N
2000	Outerson Observation Site	Construction	DE	50	N
2000	Shady Cove Campground	Reconstruction	DE	200	N
2000	Bearbones-Obsvtn Site	Construction	RI	2	N
2000	Hemlock Bute-Obsvtn Site	Construction	RI	3	Y
2000	Lower Crossing-Picnic Ground	Construction	RI	24	N
2000	Modoc Point CG	Construction	RI	340	N
2000	Noisy Creek CG	Construction	RI	80	N
2000	Staley Creek CG	Construction	RI	600	N
2000	Swift Creek CG	Construction	RI	200	N
2000	Tufti-Picnic Ground	Construction	RI	36	Y
2000	Vine CG	Construction	RI	800	N
2000	South Willamette-Rec Res	Feasibility	RI	10	N

Table D-9. Dispersed Recreation Projects

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	FAY LAKE CAMP	Construction	DE	15	N
1992	BIG MEADOWS CAMP	Construction	DE	30	N
1992	HAND LAKE SHELTER	Reconstruction	MC	15	Y
1992	SCOTT/LOST LAKE TOILETS	Reconstruction	MC	80	N
1992	SKI SHELTER 1	Construction	OA	12	Y
1992	GORDON MEADOWS SHELTER	Reconstruction	SH	10	Y
1993	FOX CREEK CAMP	Construction	DE	20	N
1993	SADDLEBLANKET LOOKOUT	Restoration	LO	31	Y
1993	BOAT LAUNCH TOILETS	Construction	MC	60	N
1993	WINTER SHELTERS-2	Construction	MC	20	Y
1993	SKI SHELTER 2	Construction	OA	13	Y
1993	LARISON COVE DISPERSED SITE	Construction	RI	76	Y
1993	DISPERSED LAKE SITES	Rehabilitation	SH	40	N
1994	DUNLAP LAKE CAMP	Construction	DE	15	N
1994	PUZZLE CREEK CAMP	Construction	DE	20	N
1994	LITTLE BLANKET SHELTER	Restoration	LO	3	Y
1994	ELK CAMP SHELTER	Restoration	LO	3	Y
1994	MCKENZIE RIVER SITES	Restoration	MC	25	N
1994	TIMPANOGAS SNOW SHELTER	Construction	RI	80	Y
1995	BLOWOUT BRIDGE CAMP	Construction	DE	15	N
1995	LONE WOLF SHELTER	Restoration	LO	3	Y
1995	ASH SWALE SHELTER	Restoration	LO	3	Y
1995	DEER BUTTE OVERLOOK	Construction	MC	35	N
1995	SCOTT/LOST LAKE SITES	Restoration	MC	85	N
1995	SKI SHELTER 3	Construction	OA	14	Y
1996	MEADOWS RELOG CAMP	Construction	DE	30	Y
1996	SANTIAM WAGON RD DISP SITES	Construction	SH	5	Y
1997	TULE LAKE CAMP	Construction	DE	15	N
1997	WHITEWATER CAMP	Construction	DE	15	N
1997	TIDBITS SHELTER	Reconstruction	SH	10	Y
1998	OPAL CREEK CAMP	Construction	DE	15	N
1998	SHORT LAKE CAMP	Construction	DE	15	N
1999	ELKHORN LAKE CAMP	Construction	DE	25	N
2000	LEONE LAKE CAMP	Construction	DE	15	N

Table D-10. Recreation Access Management Guides

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	BR	25	N
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	DE	25	N
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	LO	25	N
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	MC	25	N
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	OA	25	N
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	RI	25	N
1991	ATV-ORV-MB ACESS MANAGEMENT	Management Guide	SH	25	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	BR	20	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	DE	20	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	LO	20	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	MC	20	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	OA	20	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	RI	20	N
1992	TRAIL SYSTEM MANAGEMENT	Management Guide	SH	20	N

Table D-11. Forest Trail Projects

Fiscal Year	Trail Name	Trail Number	Description	District	Miles	Estimated Cost ($1,000)	Coop $
1991	Echo	3309 0	Construction	BR	4 0	48	N
1991	Roaring Springs	3313 0	Construction	BR	3 0	57	Y
1991	Delta NT	3317 0	Reconstruction	BR	0 5	49	N
1991	Renfrew	3336 1	Reconstruction	BR	2 5	26	Y
1991	S Breitenbush	3366 0	Construction	DE	2 0	30	N
1991	Big Meadows H-Ski	3501 1	Construction	DE	10 0	31	Y
1991	Fall Creek NRT	3455 0	Construction	LO	5 0	55	Y
1991	Eagle's Rest	3461 0	Construction	LO	5 8	70	Y
1991	South Willamette	3465 0	Construction	LO	3 3	40	Y
1991	Hardesty	3469 0	Construction	LO	6 0	90	N
1991	Buckhead NT	3474 0	Construction	LO	0 5	54	Y
1991	Clark Creek NT	3456 0	Reconstruction	LO	0 6	6	N
1991	Cowhorn	3458 0	Reconstruction	LO	0 8	7	Y
1991	Eula Ridge	3463 0	Reconstruction	LO	0 9	10	N
1991	Saddleblanket	3487 0	Reconstruction	LO	1 9	10	N
1991	Horsepasture Mt	3529 5	Reconstruction	MC	0 3	5	N
1991	Fuji Shelter Loops	3601 9	Construction	OA	4 5	3	Y
1991	Fuji Mount X-C	3674 1	Construction	OA	4 8	4	N
1991	Huckleberry	3693 0	Reconstruction	OA	15 0	40	N
1991	Mt Ray	3682 0	Relocate	OA	1 5	20	N
1991	MF Willamette	3609 0	Construction	RI	30 0	360	Y
1991	Heart Lake	3407 0	Construction	SH	1 5	20	N
1991	Shelter Falls	3415 0	Construction	SH	1 5	40	N
1992	Buck Mountian	3304 0	Reconstruction	BR	9 0	92	N
1992	Tidbits South	3328 0	Reconstruction	BR	1 2	15	N
1992	Little N Santiam I	3338 0	Reconstruction	DE	4 0	39	Y
1992	Bachelor Mountain	3420 0	Reconstruction	DE	2 0	13	N
1992	Bugaboo Ridge	3423 0	Reconstruction	DE	3 0	20	N
1992	Bruno Meadows	3424 0	Reconstruction	DE	2 0	10	N
1992	Alpine	3450 0	Construction	LO	0.2	3	Y
1992	Fall Creek NRT Ext	3455 0	Construction	LO	4 5	204	Y
1992	Clover Patch	3457 0	Construction	LO	0 3	3	Y
1992	Bedrock/Silck Creek	3460 0	Construction	LO	6 5	85	N
1992	Winberry Divide	3476 0	Construction	LO	0 3	5	Y
1992	Winberry Divide	3476 0	Construction	LO	1 5	3	N
1992	Patterson Mountain	3477 1	Construction	LO	1 0	12	N
1992	Saddleblanket X-C	3487 1	Construction	LO	2 5	50	N
1992	Eugene to Crest	3559 0	Construction	LO	2 0	60	N
1992	Alpine	3450 0	Reconstruction	LO	1 0	6	Y
1992	Scotty Scott	3515 0	Reconstruction	MC	3 0	44	N
1992	Sawyer Ice Cave	3400 0	Reconstruction	MC	0 1	13	Y
1992	McKenzie NRT Bridges	3507 0	Reconstruction	MC	0 0	50	N
1992	Lava River	3540 0	Reconstruction	MC	0 6	18	N
1992	Gold Lake X-C	3602 0	Construction	OA	1 0	20	N
1992	Maiden Peak X-C	3602 1	Construction	OA	3 0	60	N
1992	Flat Creek	3566 0	Reconstruction	OA	1 5	20	N
1992	Waldo Lake-North	3590 0	Reconstruction	OA	3 0	33	N
1992	Waldo Lake-East	3590 0	Relocate	OA	5 0	60	N
1992	Wall Creek	3695 0	Relocate	OA	1 0	16	N
1992	Salmon Creek Falls	3698 0	Relocate	OA	3 0	36	Y

Table D-11 Cont. Forest Trail Projects

Fiscal Year	Trail Name	Trail Number	Description	District	Miles	Estimated Cost ($1,000)	Coop $
1992	Indigo Extension	3543 0	Construction	RI	2 0	24	Y
1992	Pool Creek	4228 0	Construction	RI	0 5	6	N
1992	Old Cascades	3402 0	Construction	SH	28 0	130	Y
1993	Tamanawas	3315 0	Construction	BR	4 0	50	N
1993	French Mountain	3300 0	Reconstruction	BR	2 5	22	N
1993	Lookout Mountain	3334 0	Reconstruction	BR	1 5	17	N
1993	Rebel Cr Bridge 1	3323 0	Replacement	BR	0 0	16	N
1993	Little N Santiam II	3338 0	Construction	DE	7 0	294	Y
1993	Cloverpatch	3457 0	Construction	LO	2 5	37	N
1993	Deception Rock	3459 0	Construction	LO	7 0	143	N
1993	Hardesty Tie	3469 0	Construction	LO	1 7	24	Y
1993	Johnny Creek NT	3454 0	Reconstruction	LO	0 3	5	Y
1993	Old-Growth Interp	0 0	Construction	MC	4 0	65	Y
1993	Horse Creek North	3514 0	Construction	MC	7 0	85	N
1993	Castle Rock	4326 0	Construction	MC	3 2	38	Y
1993	South Waldo X-C	3586 1	Construction	OA	2 8	2	N
1993	Salt Creek X-C	3600 5	Construction	OA	1 0	3	N
1993	Mt Ray X-Country	3682 1	Construction	OA	3 1	2	N
1993	Pacific Crest NST	2008 0	Reconstruction	OA	0 4	6	N
1993	NF Willamette	3666 0	Relocate	OA	40 0	524	N
1993	Fuji Mountain	3674 0	Relocate	OA	0 5	12	N
1993	Sacandaga	3611 0	Construction	RI	3 0	36	Y
1993	South Willamette	3695 0	Construction	RI	4 0	60	N
1993	Soapgrass	3390 0	Construction	SH	5 0	40	Y
1993	Santiam Wagon Road	3413 0	Construction	SH	22 0	190	Y
1993	Yukwah NT	3421 0	Construction	SH	0 3	72	Y
1993	Elk-View	4153 0	Construction	SH	1 0	70	Y
1993	McQuade Creek	3397 0	Relocate	SH	3 5	50	Y
1994	South Fk/North Fk	3500 1	Construction	BR	7 0	151	N
1994	McCoy-Boulder Winter	4185 0	Construction	DE	5 0	25	N
1994	Rapidan	3360 0	Reconstruction	DE	4 0	24	N
1994	Alpine-Sinker Mt	3450 0	Construction	LO	2 0	40	N
1994	Clover Patch-Tire	3457 0	Construction	LO	1 0	15	Y
1994	Saddleblanket	3487 0	Construction	LO	1 9	28	Y
1994	Lost Creek	3541 1	Construction	MC	3 0	40	N
1994	Blair Lake	3553 0	Relocate	OA	0 5	8	N
1994	Waldo Lake-West	3590 0	Relocate	OA	6 5	86	N
1994	Windy Pass South	1439 0	Relocate	RI	1 0	15	N
1994	Sawtooth	3634 0	Relocate	RI	1 0	15	N
1994	Winter Trails	0 0	Construction	SH	10 0	40	Y
1994	Gregg reek	4148 0	Construction	SH	3 0	60	N
1994	Beabe Creek	4149 0	Construction	SH	3 0	20	Y
1994	Moose Lake	3393 0	Relocate	SH	1 5	25	Y
1994	Weiderman	3396 0	Relocate	SH	3 5	45	Y
1994	Stewart Creek	4150 0	Relocate	SH	5 0	50	Y
1995	Blue River 1	3305 0	Construction	BR	9 0	180	N
1995	South Fk/North Fk	3500 2	Construction	BR	3 0	93	N
1995	O'Leary	3321 0	Reconstruction	BR	2 5	36	N
1995	Opal Creek	4187 0	Construction	DE	7 0	236	N
1995	Cowhorn Ext	3458 0	Construction	LO	1 5	23	N

Table D-11 Cont. Forest Trail Projects

Fiscal Year	Trail Name	Trail Number	Description	District	Miles	Estimated Cost ($1,000)	Coop $
1995	Bedrock/Slick Creek	3460 0	Construction	LO	9 1	115	N
1995	Gold Point/Sinker	3468 0	Construction	LO	1 5	20	N
1995	Lawler	3473 0	Reconstruction	LO	0.6	8	Y
1995	Mt.Washington Loop	4315 0	Construction	MC	4.5	58	Y
1995	Smith Reservoir	4321 0	Construction	MC	1 3	16	Y
1995	Eagle Creek	3693 0	Relocate	OA	4 5	55	N
1995	Two Girls	4154 0	Construction	SH	3 0	60	N
1995	South Pyramid	3403 0	Relocate	SH	6 0	45	N
1996	Blue River 2	3305 0	Construction	BR	7 5	80	N
1996	South Fk/North Fk	3500 3	Construction	BR	7 0	110	N
1996	Skookum Flat	3522 1	Construction	BR	8 6	26	N
1996	Lucky Boy	3303 0	Reconstruction	BR	3 0	28	N
1996	Grasshopper	3569 0	Relocate	BR	1 5	19	N
1996	Detroit Resrv I	3365 0	Construction	DE	5 0	42	N
1996	Goodman Creek	3461 1	Construction	LO	2 0	28	Y
1996	Ash Swale Loop	3464 0	Construction	LO	7 0	108	Y
1996	Jones Creek	3472 0	Reconstruction	LO	2 0	30	N
1996	Santiam Wagon Road	3535 0	Reconstruction	MC	4 9	41	Y
1996	Eugene-Crest PCNST	3559.0	Construction	OA	2 0	29	N
1996	Salt Crk. Canyon	3697 0	Construction	OA	6 0	108	N
1996	Tufti	3624 0	Construction	RI	1 0	15	Y
1996	Larison Creek 1	3646 0	Construction	RI	5 0	70	Y
1997	Hidden Lake SIA	3325 0	Construction	BR	1 2	53	N
1997	South Fk/North Fk	3500 4	Construction	BR	7 0	107	N
1997	Rebel Cr Bridge 2	3323 0	Replacement	BR	0 0	16	N
1997	French Creek Ridge	3349 0	Reconstruction	DE	8 0	40	N
1997	Trail bridges	0 0	Reconstruction	MC	0 0	50	N
1997	Mt David Douglas	3670 0	Relocate	OA	5 0	73	Y
1997	Lighthouse Rock	3694 0	Construction	RI	2 0	30	N
1998	Wolf Rock/Lake	3310 0	Construction	BR	2 0	43	N
1998	Indian Ridge	3315.0	Construction	BR	2 5	50	N
1998	HiYu	3316 0	Construction	BR	7 0	102	N
1998	Hidden Lake Ext	3325 1	Construction	BR	3 5	36	N
1998	Lengasher	3507 5	Construction	BR	5 0	155	N
1998	Tumble Lake	3379 0	Reconstruction	DE	1 0	5	N
1998	Tumble Ridge	3380 0	Reconstruction	DE	5 0	30	N
1998	Deception Way	3601 0	Construction	RI	1 5	23	N
1998	Alias Larison	3605 0	Construction	RI	2 0	30	N
1998	Larison-Deception	3622 0	Construction	RI	2 0	30	N
1998	Tumblebug	3691 0	Construction	RI	5 0	75	N
1998	Gray Deception	3623 0	Reconstruction	RI	5 0	75	Y
1999	Ridge Creek	3333 0	Construction	BR	4 0	48	N
1999	Cougar	3335 0	Construction	BR	10 0	123	N
1999	Elk Lake Loop	3346 0	Construction	DE	2 0	8	N
1999	Indian Ridge I	3378 0	Construction	DE	5 0	30	N
1999	Christy Fault NT	3696 0	Construction	OA	0 5	20	N
2000	Detroit Resrv II	3365 0	Construction	DE	5 0	42	N
2000	Calapooya Divide	4227 0	Construction	RI	80 0	320	Y

Table D-12 Wilderness Trail Projects

Fiscal Year	Trail Name	Trail Number	Description	District	Miles	Estimated Cost ($1,000)	Coop $
1991	French Pete	3311.0	Relocate	BR	1 2	20	N
1991	East Fork Bridge	3308 0	Replacement	BR	0 0	40	N
1991	Blue Lake	3422 0	Reconstruction	DE	4 0	28	N
1991	Dixie Lakes	3494 0	Reconstruction	DE	1 5	10	N
1991	Pacific Crest NST	2007 1	Reconstruction	MC	5 2	58	N
1991	Scott Mountain	3502 4	Reconstruction	MC	1 6	14	N
1991	Scotty Way	3513 5	Reconstruction	MC	1 3	16	N
1991	Linton Lake	3519 0	Reconstruction	MC	1 0	13	N
1991	Louise Creek	3520 0	Reconstruction	MC	2 0	30	N
1992	Hunts Creek	3440 0	Reconstruction	DE	4 0	21	N
1992	Red Hill	3515 0	Reconstruction	MC	3 0	20	N
1992	Proxy Falls	3532 0	Reconstruction	MC	0 4	14	N
1992	James Creek	3546 0	Reconstruction	MC	1 0	10	N
1992	Mt Yoran	3698 0	Reconstruction	RI	1 0	15	N
1993	Lake of the Woods	3493 0	Reconstruction	DE	6 7	30	N
1993	Crossing Way	3307 1	Reconstruction	MC	1 5	15	N
1993	Patjens Lake	3395 0	Reconstruction	MC	2 0	22	N
1993	Separation Lake	3536 0	Reconstruction	MC	3 5	40	N
1993	Bear Mountain	3602 0	Reconstruction	RI	1 0	15	N
1994	Yankee	3318 0	Reconstruction	BR	4 5	93	N
1994	Santiam Lodge	3696 0	Reconstruction	DE	2 0	15	N
1994	Elk Creek	3510 2	Reconstruction	MC	2 2	25	N
1994	Mink Lake Loop	3526 0	Reconstruction	MC	1 5	15	N
1994	Stawano	3537 0	Reconstruction	MC	1 0	10	N
1994	Moolack Lake	3578 0	Relocate	OA	0 5	16	Y
1994	Diamond Peak	3699 0	Reconstruction	RI	3 2	48	N
1994	Mid-Santiam	3414 0	Reconstruction	SH	5 0	60	N
1995	South Fork Bridge	3327 0	Replacement	BR	0 0	15	N
1995	Triangulation	3373 0	Reconstruction	DE	5 0	35	N
1995	Triangulation Peak	3374 0	Reconstruction	DE	1 0	7	N
1995	Hand Lake	3513 0	Reconstruction	MC	2 5	28	N
1995	Sunset Lake	3515 1	Reconstruction	MC	0 6	8	N
1995	Park	3530 0	Reconstruction	MC	2 0	25	N
1995	Gander Lake	3568 0	Relocate	OA	2 0	36	Y
1996	Bear Point	3342 0	Reconstruction	DE	2 0	15	N
1997	Crag	3364 0	Reconstruction	DE	3 0	21	N
1997	Water Holes	3538 0	Reconstruction	MC	10 1	80	N
1998	Cheat Creek	3441 0	Reconstruction	DE	3 0	21	N
1998	Wildcat	3331 1	Reconstruction	MC	3 6	39	N
1998	Indian Holes	3520 2	Reconstruction	MC	1 2	10	N
1998	Separation Creek	3524 0	Reconstruction	MC	3 0	33	N
1999	Scount-Bays	3376 0	Reconstruction	DE	2 0	15	N
1999	Abandoned trails	0 0	Rehabilitation	MC	10 0	0	Y
2000	Devils Ridge	3345 0	Reconstruction	DE	3 0	24	N
2000	Whetstone Mt	3369 0	Reconstruction	DE	8 0	50	N
2000	Waldo Mountain	3592 0	Relocate	OA	2 0	45	Y

Table D-13. Wilderness Area Projects

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	French Pete #3311 FP 15	Rehabilitation	BR	2	N
1991	Marion Lake Basin	Rehabilitation	DE	30	N
1991	Three Sisters Wilderness	Plan Development	MC	25	N
1991	Mink Lake Basin	Restoration	MC	12	Y
1991	Obsidian Travel Zone	Restoration	MC	10	Y
1991	Upper Erma Bell Lake	Restoration	OA	1	N
1991	Otter Lake	Restoration	OA	1	N
1992	French Pete #3311 FP 14	Rehabilitation	BR	1	N
1992	Pamelia Lake Basin	Rehabilitation	DE	25	N
1992	Mt Washington All TZ's	Restoration	MC	7	Y
1992	Linton Meadow TZ	Restoration	MC	7	Y
1992	Upper Quinn Lake	Restoration	OA	1	N
1992	Lower Quinn Lake	Restoration	OA	1	N
1992	Rigdon Lakes Area	Restoration	OA	1	N
1992	Waldo Meadows	Restoration	OA	1	N
1992	Campsite Rehab (10 sites)	Rehabilitation	RI	2	N
1992	Donaca Lake Rehab	Rehabilitation	SH	10	N
1993	French Pete #3311 FP 23	Rehabilitation	BR	1	N
1993	Jefferson Park	Rehabilitation	DE	30	N
1993	Trail Shelters	Removal	MC	80	N
1993	Horse Lake TZ	Restoration	MC	6	Y
1993	Separation Lake TZ	Restoration	MC	7	Y
1993	Eddeleo Lakes	Restoration	OA	1	N
1993	Upper Salmon Lake	Restoration	OA	1	N
1993	Gander Lake	Restoration	OA	1	N
1993	Swan Lake	Restoration	OA	1	N
1993	Kinwa Lake	Restoration	OA	1	N
1994	French Pete #3311 FP 12	Rehabilitation	BR	1	N
1994	Hunts Cove	Rehabilitation	DE	20	N
1994	Nash Lake tz	Restoration	MC	6	Y
1994	Pacific Crest TZ	Restoration	MC	7	Y
1994	Linton Lake TZ	Restoration	MC	6	Y
1994	Moolack Lake	Restoration	OA	1	N
1994	Wahonda Lake	Restoration	OA	1	N
1995	Duffy/Mowich Lakes	Rehabilitation	DE	25	N
1995	Sisters Mirror Lake TZ	Restoration	MC	6	Y
1995	Honey Lake TZ	Restoration	MC	4	Y
1995	Bingo Lake	Restoration	OA	1	N
1995	Torrey Lake	Restoration	OA	1	N
1995	Chetlo Lake	Restoration	OA	1	N
1995	Chimney Peak	Removal	SH	5	N
1996	Red Butte/Jorn/Bowerman Lakes	Rehabilitation	DE	30	N
1996	Marion Lake Basin II	Rehabilitation	DE	15	N
1996	Hunter Camps	Removal	MC	6	N
1996	McFarland Lake TZ	Restoration	MC	4	Y
1996	Rooster Rock	Removal	SH	5	N
1997	Pamelia Lake Basin II	Rehabilitation	DE	12	N
1997	Santiam Lake	Rehabilitation	DE	15	N
1997	Stream Side Areas	Restoration	MC	16	Y
1997	Long Lake	Restoration	OA	1	N

Table D-13 Cont. Wilderness Area Projects

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1998	Blue Lake	Rehabilitation	DE	15	N
1998	Jefferson Park II	Rehabilitation	DE	15	N
1998	Climber Trails	Rehabilitation	MC	12	N
1999	Marian Lake Basin III	Rehabilitation	DE	5	N
1999	Meadow Areas	Restoration	MC	16	Y
2000	Pamelia Lake Basin III	Rehabilitation	DE	5	N
2000	Photo Points	Survey	MC	6	N

Table D-14. Cultural Resource Projects

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	Upper Willamette Rockshelters	Interpretation	LO	20	N
1991	Upper Willamette Rockshelters	Display	OA	20	N
1991	Upper Willamette Rockshelters	Display	RI	15	N
1991	Santiam Wagon Road	Enhance	SH	30	N
1991	Long Bow Community Shelter	Interpretation	SH	25	N
1991	Santiam Wagon Road	Interpretation	SH	15	N
1991	Long Bow Community Shelter	Rehabilitation	SH	10	N
1992	Independence Prairie Grd Sta	Interpretation	DE	10	N
1992	Independence Prairie Grd Sta	Rehabilitation	DE	50	N
1992	OCM Wagon Road	Enhance	RI	15	N
1992	OCM Wagon Road	Interpretation	RI	15	N
1992	Rigdon Meadows	Interpretation	RI	15	N
1992	Santiam Wagon Road	Enhance	SH	35	N
1992	Santiam Wagon Road	Interpretation	SH	15	N
1993	Hidden Lake Cedar Grove	Feasibility	BR	20	N
1993	Gold Butte Lookout	Interpretation	DE	50	N
1993	Gold Butte Lookout	Rehabilitation	DE	75	N
1993	Independence Prairie Grd Sta	Rehabilitation	DE	20	N
1993	Saddle Blanket Lookout	Interpretation	LO	15	N
1993	Sourgrass Mtn & Alpine Trl	Interpretation	LO	5	N
1993	Saddle Blanket Lookout	Rehabilitation	LO	15	N
1993	Fish Lake Remount	Interpretation	MC	45	N
1993	Huckleberry RR Trestle	Interpretation	MC	5	N
1993	McKenzie CCC	Interpretation	MC	30	N
1993	Fish Lake Remount	Rehabilitation	MC	150	N
1993	McKenzie CCC	Rehabilitation	MC	65	N
1993	Oregon CMWR	Enhance	RI	30	N
1993	Oregon CMWR	Interpretation	RI	15	N
1993	Rigdon Meadows	Interpretation	RI	20	N
1994	Hidden Lake Cedar Grove	Implementation	BR	30	N
1994	Independence Prairie Grd Sta	Interpretation	DE	10	N
1994	Marion Forks Guard Station	Rehabilitation	DE	15	N
1994	North Fork Historic District	Interpretation	OA	30	N
1994	Oregon CMWR	Enhance	RI	35	N
1994	Oregon CMWR	Interpretation	RI	20	N
1995	Blue River Guard Station	Rehabilitation	BR	100	N
1995	Breitenbush Guard Station	Rehabilitation	DE	20	N
1995	Clark Creek Organization Camp	Rehabilitation	LO	30	N
1995	3 Sisters Trlhd Obsid Quarry	Display	MC	10	N
1995	3 Sisters Trlhd Obsid Quarry	Interpretation	MC	10	N
1995	Santiam Ski Lodge	Interpretation	MC	45	N
1995	White Branch Organization Cmp	Interpretation	MC	10	N
1995	Santiam Ski Lodge	Rehabilitation	MC	150	N
1995	White Branch Organization Cmp	Rehabilitation	MC	20	N
1995	Lower Salt Cr Historic Trlhd	Enhance	OA	10	N
1995	Lower Salt Cr Historic Trlhd	Interpretation	OA	10	N
1995	Packard Creek	Interpretation	RI	35	N
1995	Gold Hill Archaeology	Interpretation	SH	20	N
1996	Breitenbush Guard Station	Interpretation	DE	10	N
1996	Clark Creek Organization Camp	Interpretation	LO	15	N

Table D-14 Cont. Cultural Resource Projects

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1996	Hogg Rock Railroad	Enhance	MC	10	N
1996	Hogg Rock Railroad	Interpretation	MC	10	N
1996	Box Canyon Historic Trail	Enhance	OA	10	N
1996	Kitson Springs	Interpretation	RI	15	N
1997	Mount Jefferson Wldrnss Trlhd	Interpretation	DE	5	N
1997	Fall Creek/Winberry Drainage	Feasibility	LO	5	N
1997	Fall Creek/Winberry Drainage	Interpretation	LO	20	N
1997	McCredie Springs	Interpretation	OA	15	N
1997	McCredie Springs	Enhance	SH	5	N
1998	Blue River CCC Camps	Feasibility	BR	10	N
1998	Devil Point Quarry	Display	DE	10	N
1998	Devil Point Quarry	Interpretation	DE	5	N
1998	Santiam River Drainage Prehis	Interpretation	DE	20	N
1998	Scott Pass Trail	Interpretation	MC	10	N
1998	Taylor Burn Guard Station	Interpretation	OA	10	N
1998	Waldo Lookout	Interpretation	OA	10	N
1998	Waldo Lookout	Rehabilitation	OA	10	N
1998	Santiam River Drainage Prehis	Display	SH	15	N
1999	Blue River CCC Camps	Design	BR	20	N
1999	McKenzie River-Obsid Cliffs	Feasibility	BR	10	N
1999	Lookout Point Oven	Interpretation	LO	5	N
2000	McKenzie Rvr Drainage Prehis	Interpretation	BR	50	N
2000	Blue River CCC Camps	Interpretation	BR	30	N
2000	LNS Mining District	Interpretation	DE	20	N

Table D-15. Dispersed Recreation Area Management Guides

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	CHUCKSNEY MT. SPNM	Management Guide	BR	10	Y
1991	BIG MEADOWS SPM W/HARVEST	Management Guide	DE	20	N
1991	DETROIT LAKE COMPOSITE	Management Guide	DE	100	Y
1991	SLICK CREEK-BEDROCK SPNM	Management Guide	LO	18	Y
1991	HARDESTY MT. SPNM	Management Guide	LO	8	Y
1991	SANTIAM PASS SPM	Management Guide	MC	50	Y
1991	SCOTT LAKE	Management Guide	MC	30	Y
1991	HIGHWAY 242 ROAD CORRIDOR	Management Guide	MC	20	Y
1991	WILLAMETTE PASS-WINTER	Management Guide	OA	5	N
1991	WILLAMETTE PASS-SUMMER	Management Guide	OA	5	N
1991	LARISON CREEK SPNM	Management Guide	RI	10	N
1991	EMIGRANT PASS SPM	Management Guide	RI	10	N
1991	LAVA LAKE SPMN	Management Guide	SH	6	Y
1991	GORDON MEADOWS SPNM	Management Guide	SH	10	Y
1992	BACHELOR MT. SPM W/HARVEST	Management Guide	DE	20	N
1992	LITTLE NORTH SANTIAM COMP	Management Guide	DE	60	N
1992	OBSIDIAN	Management Guide	MC	5	N
1992	WALDO LAKE BASIN SPNM	Management Guide	OA	120	Y
1992	WALDO LAKE ROAD CORRIDOR SPM	Management Guide	OA	5	N
1992	LARISON ROCK SPNM	Management Guide	RI	8	N
1992	BULLDOG ROCK SPNM	Management Guide	RI	5	N
1992	ECHO MT. SPNM	Management Guide	SH	10	Y
1992	BROWDER RIDGE SPNM	Management Guide	SH	7	Y
1993	HENLINE MT SPNM	Management Guide	DE	6	N
1993	NORTH SANTIAM BLOWOUT COMP	Management Guide	DE	40	N
1993	DEER BUTTE-CUPOLA ROCK	Management Guide	MC	10	N
1993	ENGLISH MT SPNM	Management Guide	MC	15	N
1993	EMIGRANT CREEK SPNM	Management Guide	RI	10	N
1994	BREITENBUSH COMPOSITE	Management Guide	DE	40	N

Table D-16. Special Interest Area Management Guides

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	HIDDEN LAKE/LULU LAKE	Management Guide	BR	10	Y
1991	ROARING RIVER SPRINGS	Management Guide	BR	10	N
1991	OPAL CREEK	Management Guide	DE	25	Y
1991	MONUMENT PEAK	Management Guide	DE	15	Y
1991	FALL CREEK	Management Guide	LO	18	N
1991	HARDESTY MOUNTIAN	Management Guide	LO	10	N
1991	FISH LAKE	Management Guide	MC	30	Y
1991	SANTIAM WAGON ROAD	Management Guide	MC	20	Y
1991	CLEAR LAKE	Management Guide	MC	30	N
1991	BABY ROCK	Management Guide	OA	4	Y
1991	CONSTITUTION GROVE	Management Guide	OA	2	N
1991	RIGDON RANCH	Management Guide	RI	10	N
1991	TUMBLEBUG GORGE	Management Guide	RI	10	N
1991	MOON POINT	Management Guide	RI	10	N
1991	THREE PYRAMIDS	Management Guide	SH	15	Y
1991	IRON MOUNTIAN/CONE PEAK	Management Guide	SH	25	Y
1992	WOLF ROCK/WOLF LAKE	Management Guide	BR	10	N
1992	SOUTH FORK MCKENZIE RIVER	Management Guide	BR	20	N
1992	TERWILLIGER HOT SPRINGS	Management Guide	BR	50	N
1992	MCKENZIE RIVER	Management Guide	BR	20	N
1992	PHANTOM NATURAL BRIDGE	Management Guide	DE	10	N
1992	HILL CREEK	Management Guide	DE	10	N
1992	SAND MOUNTAIN	Management Guide	MC	20	Y
1992	MCKENZIE RIVER	Management Guide	MC	20	N
1992	SALT/DIAMOND CANYON	Management Guide	OA	6	Y
1992	BRADLEY LAKE	Management Guide	RI	10	N
1992	VINE ROCKSHELTER	Management Guide	RI	2	N
1992	SANTIAM WAGON ROAD	Management Guide	SH	30	Y
1992	RIGGS/DON LAKES	Management Guide	SH	10	N
1992	DALY/PARISH LAKES	Management Guide	SH	10	N
1993	CARPENTER MOUNTIAN	Management Guide	BR	10	N
1993	RIDER SWAMP	Management Guide	BR	10	N
1993	PINNACLE PEAK	Management Guide	DE	10	N
1993	CARPENTER MT	Management Guide	MC	10	N
1993	TAMOLICH VALLEY	Management Guide	MC	5	N
1993	LAMB BUTTE	Management Guide	MC	15	N
1993	HELL HOLE	Management Guide	OA	3	Y
1993	CHUCKLE SPRINGS	Management Guide	RI	10	N
1993	DEADHORSE ROCKSHELTER	Management Guide	RI	2	N
1993	DOE MOUNTIAN	Management Guide	SH	5	N
1993	SHELTER FALLS	Management Guide	SH	10	N
1993	COUGAR ROCK	Management Guide	SH	5	N
1994	GOLD HILL	Management Guide	BR	10	Y
1994	EAGLE CREEK	Management Guide	OA	6	Y
1994	WHITE CLIFFS CAVE	Management Guide	OA	3	Y
1994	DAVID DOUGLAS	Management Guide	OA	3	Y
1994	OREGON CNTRL MLITARY WAGON RD	Management Guide	RI	10	N
1994	HORSEPASTURE CAVE	Management Guide	RI	2	N
1994	GOLD HILL	Management Guide	SH	30	Y

Table D-17. Old-Growth Grove Management Guides

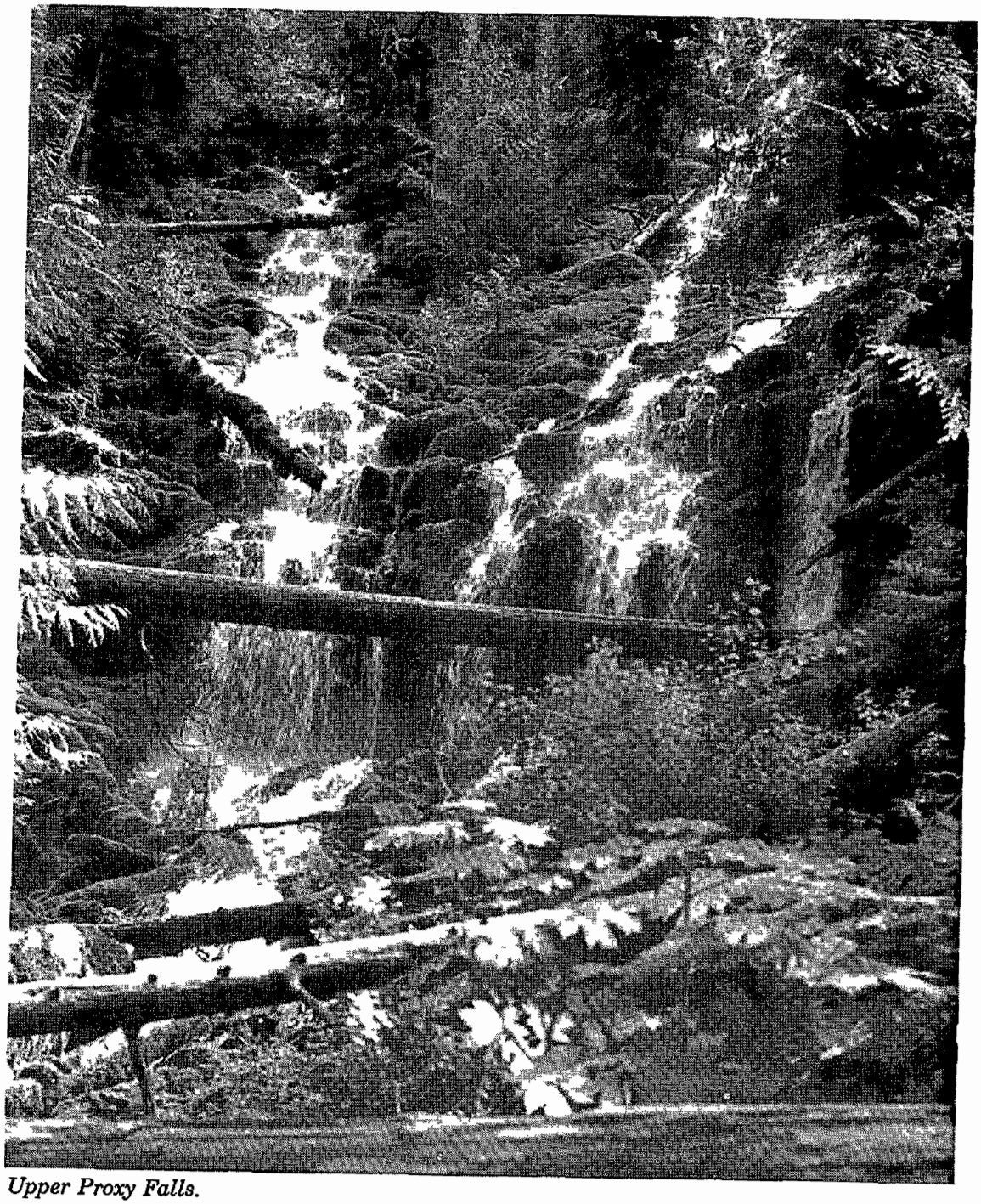
Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	DELTA GROVE	Management Guide	BR	10	N
1991	TUMBLE LAKE GROVE	Management Guide	DE	15	N
1991	SOUTH FORK BREITENBUSH GROVE	Management Guide	DE	20	N
1991	HUGGING TREE GROVE	Management Guide	LO	5	N
1991	LITTLE FALL CREEK GROVE I	Management Guide	LO	5	N
1991	LITTLE FALL CREEK GROVE II	Management Guide	LO	5	N
1991	FISH LAKE GROVE	Management Guide	MC	10	N
1991	LOST CREEK GROVE	Management Guide	MC	10	N
1991	SARDINE BUTTE GROVE	Management Guide	OA	4	Y
1991	KELSEY CREEK GROVE	Management Guide	OA	4	Y
1991	THREE CREEKS GROVE	Management Guide	SH	20	Y
1991	HACKLEMAN CREEK GROVE	Management Guide	SH	7	Y
1992	CLIFF'S CREEK GROVE	Management Guide	DE	10	N
1992	WHITEWATER BEND GROVE	Management Guide	DE	20	N
1992	FALL CREEK GROVE	Management Guide	LO	5	N
1992	SLICK CREEK/BEDROCK GROVE	Management Guide	LO	5	N
1992	HIGHWAY 20 GROVE	Management Guide	MC	10	N
1992	CASTLE ROCK GROVE	Management Guide	MC	10	N
1992	ELK CAMP GROVE	Management Guide	OA	4	Y
1992	FISHER CREEK GROVE	Management Guide	OA	4	Y
1992	JOE'S PRAIRIE GROVE	Management Guide	RI	10	N
1992	SEVEN MILE CREEK GROVE	Management Guide	SH	7	N
1992	INDIAN CREEK GROVE	Management Guide	SH	6	N
1993	OUTERSON MT. GROVE	Management Guide	DE	20	N
1993	JONNY CREEK GROVE	Management Guide	LO	5	N
1993	CAYUSE CREEK GROVE	Management Guide	OA	4	Y
1993	UPPER SALMON CREEK GROVE	Management Guide	OA	4	Y
1993	BIG SWAMP GROVE	Management Guide	RI	5	N
1993	SCAR CREEK GROVE	Management Guide	SH	7	N
1993	CAMP CREEK GROVE	Management Guide	SH	7	N
1993	SCAR MT GROVE	Management Guide	SH	10	N
1994	UPPER FURNISH CREEK GROVE	Management Guide	OA	4	Y
1995	GOLD LAKE GROVE	Management Guide	OA	2	Y
1995	WALL CREEK GROVE	Management Guide	OA	2	Y

Table D-18. Wild and Scenic River Plans

Fiscal Year	Project Name	Description	Dis-trict	Estimated Cost ($1,000)	Coop $
1991	MCKENZIE RIVER	Management Plan	MC	50	N
1991	NF-MF WILLAMETTE RIVER	Management Plan	OA	50	N
1993	BLUE RIVER	Study	BR	50	N
1993	SOUTH FORK MCKENZIE RIVER	Study	BR	50	N
1993	LITTLE NORTH SANTIAM RIVER	Study	DE	50	N
1993	OPAL CREEK	Study	DE	50	N
1993	SOUTH FORK BREITENBUSH RIVER	Study	DE	50	N
1993	BREITENBUSH RIVER	Study	DE	50	N
1993	NORTH SANTIAM RIVER	Study	DE	50	N
1993	MIDDLE FORK WILLAMETTE RIVER	Study	RI	50	N
1993	QUARTZVILLE CREEK	Study	SH	50	N
1993	MIDDLE SANTIAM RIVER	Study	SH	50	N
1993	SOUTH SANTIAM RIVER	Study	SH	50	N

Table D-19. Scenic Resource Management Guides

Fiscal Year	Project Name	Description	District	Estimated Cost ($1,000)	Coop $
1991	MCKENZIE VIEWSHED	Management Guide	BR	20	N
1991	NORTH SANTIAM VIEWSHED	Management Guide	DE	20	N
1991	HIGHWAY 58 VIEWSHED	Management Guide	LO	15	N
1991	MCKENZIE VIEWSHED	Management Guide	MC	20	N
1991	MCKENZIE SCENIC BYWAY	Management Guide	MC	25	Y
1991	HIGHWAY 58 VIEWSHED	Management Guide	OA	20	Y
1991	SHADY BEACH	Interpretation	RI	15	N
1992	NORTH FORK-SOUTH FORK VWSHD	Management Guide	BR	20	N
1992	AUFDERHEIDE SCENIC BYWAY	Management Guide	BR	20	Y
1992	NORTH SANTIAM HIGHWAY	Interpretation	DE	10	N
1992	DETROIT LAKE	Interpretation	DE	10	Y
1992	LITTLE NORTH SANTIAM VIEWSHED	Management Guide	DE	15	N
1992	BREITENBUSH VIEWSHED	Management Guide	DE	15	N
1992	NORTH FORK-SOUTH FORK VWSHD	Management Guide	OA	25	N
1992	AUFDERHEIDE SCENIC BYWAY	Management Guide	OA	20	Y
1992	*MF WILLAMETTE VIEWSHED UPDATE*	Management Guide	*RI*	*10*	*N*
1992	IRON MOUNTIAN	Interpretation	SH	15	Y
1992	RECREATION VIDEO	Interpretation	SH	10	Y
1992	SOUTH SANTIAM VIEWSHED	Management Guide	SH	20	N
1993	STAHLMAN POINT VISTA	Design	DE	15	N
1993	FALL CREEK VIEWSHED	Management Guide	LO	15	N
1993	TOWN OF OAKRIDGE VIEWSHED	Management Guide	OA	6	Y
1993	TOMBSTONE PASS	Interpretation	SH	50	Y
1994	BREITENBUSH ROAD	Design	DE	10	N
1994	WALDO LAKE VIEWSHED	Management Guide	OA	6	Y
1994	HILLS CREEK VIEWSHED	Management Guide	RI	8	N
1994	*HIGHWAY 20 AUTO TOUR-TURNOUTS*	*Interpretation*	*SH*	*100*	Y
1994	BROWDER RIDGE AUTO TOUR	Interpretation	SH	40	Y
1995	COOPERS RIDGE ROAD	Design	DE	15	N
1995	SALMON CREEK VIEWSHED	Management Guide	OA	6	Y
1996	BOULDER RIDGE ROAD	Design	DE	10	N
1996	LAVA LAKE AUTO TOUR	Interpretation	SH	40	Y
1997	QUARTZVILLE AUTO TOUR	Interpretation	SH	40	Y



Upper Proxy Falls.

APPENDIX E

Watershed & BMPs

APPENDIX E

LAKES AND WATERSHED MANAGEMENT

INTRODUCTION

The first part of this Appendix provides information to be used in management of lakes outside Wilderness. Table E-1 is a list of lakes on the Forest, the management area they are within, and the level of access existing and planned
(Where the management area description is asteriked, the lake is within a Wilderness, but very close to the boundary, and requires the management area to provide for protection of the lake)

The second part of this Appendix provides details of the process to be used to assess cumulative effects on water quality and stream conditions, and to identify appropriate measures, including Best Management Practices, to mitigate the effects.

A list of the Planning Area subdrainages is at the end of this Appendix. It provides information used in the cumulative effects assessment Additional information on Best Management Practices is found in Appendix H of the FEIS.

Table E-1. Lakes

District	Lakes	Management Area	Access Level	
			Developed	Dispersed
Blue River	Wolf	9B	X	--
	Hidden	5A	X	--
	Lulu	5A	X	--
Detroit	Bruno, Lower	9B	--	X
	Bruno, Upper	9B	--	X
	Elkhorn	9B	--	X
	Dunlap	9B	--	X
	Elk	10C	X	--
	Jo Jo	11A,F	--	X
	Presley	10F	X	--
	Tule	10F	X	--
	Rog	10F	X	--
	Pine Ridge	13A	X	--
	Fay	10D	--	X
	Fir	10D	--	X
	Pika	10D	--	X
	Leone	10F	--	X
	Opal	9B	--	X
	Tumble	7A	--	X
	Short	9B	--	X
McKenzie	Clear	5B	X	--
	Lost	11F	X	--
	Fish	5B	X	--
	Big	10F	X	--
	Scott, Lower	10E, 13A	X	--
	Scott, Upper	10E, 13A	X	--
	Robinson	10F	--	X
	Benson	10E	--	X
	Nornie	10E	--	X
	Huckleberry - 2	10E	--	X
	Melakwa	10E, 13A	X	--
	Irish Camp	13A	--	X
	Prince	10F*	--	X
	Kutan	10F*	--	X
Oakridge	Devils	10F	--	X
	Deer Camp	10E	--	X
	Andrews	10F	--	X
	Huckleberry - 1	10F	--	X
	Blair	10F	X	--
	Elbow	10E	--	X
	Green	10E	--	X
	Spirit	10F	--	X
	Canim	10E	--	X
	Waldo	10C,E,12B	--	X
	Cardiac	10E	--	X
	Grace	10E	--	X
	Lucas	10E	--	X
	Island, Lower	10E	--	X
	Island, Upper	10E	--	X
	Verde	10E	--	X

Table E-1 Cont. Lakes

District	Lakes	Management Area	Access Level	
			Developed	Dispersed
Oakridge Continued	Jo Ann	10E	--	X
	Lorin	10E	--	X
	Shadow	10C	--	X
	Trio #3	10C	--	X
	Betty	10E	--	X
	Horsefly	10E	--	X
	Howkum	10E	--	X
	Betty, Lower	10E	--	X
	Birthday	10E	--	X
	Boo Boo	10E	--	X
	Gold	10C	X	--
	Little Gold	7B	--	X
	Marilyn, Lower	7B	--	X
	Marilyn, Upper	7B	--	X
	Abernathy, Upper	10F	--	X
	Abernathy, Lower	10F	--	X
	LeMay	10F	--	X
	Lopez	10F	--	X
Rigdon	Dee	10F	--	X
	Windfall	10F	--	X
	Rae	10F	X	--
	Warner	10F	X	--
	Fir	10C	--	X
	Spruce	10C	--	X
	Sunrise	10C	--	X
	Sunset #2	10C	--	X
	Alameda	10C	--	X
	Little Mosquito	10F	X	--
	Loletta	10F	X	--
	Nanack	10F	--	X
	Opal	10F	X	--
	Pepsi	2B	--	X
	Timpanogas, Lower	2A	X	--
	Timpanogas, Upper	2B	X	--
	June	2A	--	X
	Indigo	2B	--	X
	Amos	2B	--	X
	Andy	2B	--	X
Sweet Home	Don	5A	--	X
	Daly	5A	--	X
	Crescent	10E	--	X
	Cougar	10E	--	X
	Riggs	5A	--	X
	Parrish	5A	--	X
	Silver	10F	--	X
	Moose	10F	X	--
	North Peak	5A	--	X
	Lava	10F	--	X
	Gordon, Lower	10E	--	X
	Gordon, Upper	10E	--	X
	Heart	10E	--	X

CUMULATIVE WATERSHED EFFECTS ASSESSMENT AND MANAGEMENT PROCESS

Introduction

The process which should be used to meet Standard and Guidelines to assess Watershed Cumulative Effects is described below. This process is designed to assess the potential adverse cumulative effects on water quality and stream channel conditions, and to identify management practices which best mitigate the potential effects. The process requires use of professional judgement, and includes use of quantitative methods where appropriate and available. The process will be updated as monitoring, administrative studies, and research provides additional information.

Standard and Guideline FW-93 states:

> **The potential for cumulative effects of operating and scheduling practices on beneficial uses and stream channel conditions shall be considered in project design. The potential for cumulative effects of past, present and reasonably foreseeable projects shall be assessed on the watershed area which contributes to the potential effect, including private land where appropriate. The assessment should consider the effects of management practices on riparian conditions, mass movement, and hydrological recovery. Activities on National Forest lands should be dispersed in time and space to the extent practicable, and to the extent needed to protect beneficial uses. In areas with intermingled ownerships scheduling of activities should be coordinated.**

The following process is intended to supplement the Best Management Practice W-5 Cumulative Watershed Effects, in the document *General Water Quality Best Management Practices*, U.S.F.S, Pacific Northwest Region, November 1988. The process includes making a preliminary assessment of existing watershed condition, estimating effects of proposed activities through a more intensive assessment, and determining the type of mitigation measures and watershed improvement activities which would result in meeting watershed objectives.

Preliminary Assessment

A preliminary assessment of the potential cumulative effects of proposed projects on beneficial uses of the water and on stream channel conditions should be made during project scoping required by the National Environmental Policy Act (NEPA). The preliminary assessment should identify whether the potential for cumulative effects is an issue to be considered in development of project alternatives Where cumulative effects is identified as an issue, an intensive assessment of watershed conditions described below should be made. Three steps of the preliminary assessment should be followed.

STEP 1 Identify Location and Type of Potential Effect

Location of Potential Effect The potential for cumulative effects should be identified relative to the type and location of beneficial uses of the waters, and relative to sensitive stream reaches. Beneficial uses such as fish spawning and rearing habitat, and Wild and Scenic River values are located throughout the stream are affected by stream conditions and water quality throughout many reaches of the stream or river. Uses such as domestic intakes and hatchery intakes are affected by the water quality at specific sites. Beneficial uses in reservoirs are often effected by water quality of the incoming waters. Sensitive stream reaches are those which are inherently unstable, or where past events have reduced the stability of the stream banks and streambed.

Types of Potential Effects Some of the potential adverse cumulative effects to beneficial uses and stream channel condition are:

- Decreased diversity and stability of aquatic spawning and rearing habitat (gravels and pools), due to decreases in LWM.
- Increased pool filling by deposited sediment and bedload
- Decreased quality of spawning gravels due to increased water velocity during peak flows and increased embeddedness by fine sediments.
- Increased stream channel erosion from cumulative increases in rain-on-snow peak flow runoff.
- Increased streambank erosion and stream widening due to cumulative effects of increases in peak flows, sediment, and decreases in LWM.
- Increased turbidity from a cumulative increases in sediment
- Increased water temperatures from direct removal of shade, and/or from stream widening.

STEP 2 - Identification of Assessment Area

The area of assessment should include the watershed area that would contribute to the potential cumulative effects, including non-National Forest lands within and outside the Forest boundary where appropriate. The Planning Area Subdrainages shown on the Subdrainage List at the end of this Appendix can be used as assessment areas in many cases, as they approximate the land area which contributes to potential cumulative effects in the lower reaches of tributary streams, and portions of mainstem streams. Further identification of specific Hydrological Subdrainages may be appropriate in some cases.

STEP 3 - Assessment of Conditions

Assessment Criteria Where one or more of the following three conditions exist within the analysis area, the potential for cumulative effects should be considered an issue in development of project alternatives, and an intensive assessment should be conducted.

1. **A high potential for increases in sediment from mass movement or surface erosion exists. Ground disturbing activities such as road construction, timber harvesting or mining is proposed in areas of potentially highly unstable soils; or heavy use of unpaved roads adjacent to streams is proposed.**

   Subdrainages with a Stability Rating of 2 or higher on the Subdrainage List have a high potential for increases in sediment from debris torrents. Other subdrainages may be considered as having a high potential for mass movements because of past road construction or timber harvest practices, or existing deep-seated mass movements.

   This criteria addresses the potential for increases in sediment due to increases in mass movement and surface erosion, and for debris torrents to reduce stream structure in steep headwater streams.

2. **The potential for changes in the timing and size of peak flows exists due to changes in hydrological recovery of the vegetation in the transient snow zone.**

The Hydrological Recovery of Subdrainages would approach Aggregate Recovery Percent (ARP) levels shown in Table A due to proposed activities, or are already at these levels. Levels shown in Table A are 10% above Midpoint ARP levels shown on the Subdrainage List.

This criteria is intended to address the potential for changes in peak flows during rain-on-snow events, and the associated potential change in the stability of the streambanks and streambed. As used here ARP is not intended to address the changes in frequency and size of mass movement related to changes in subsurface water, as this effect should be assessed when evaluating the potential for increases in sediment.

Table A.

Landtype, Beneficial Uses[1]	ARP
EH	95%
EM, HH	90%
EL, HM, MH	85%
HL, MM, LH	80%
ML, LM	75%
LL	70%

[1]Landtype Sensitivity and Beneficial Uses are explained and listed on the Subdrainage List at the end of this Appendix

3. **The role and functioning of Large Woody Material in the water, and the amounts of LWM available for future recruitment to the channel has been substantially reduced below natural levels.**

It is estimated that when more than 25% of the length of perennial streams has been subject to timber salvage, timber harvest, road building or debris torrents during the past 40 years the role and functioning of the LWM in streams has been substantially reduced.

This criteria addresses the potential for direct increases in water temperature, decreases in functioning of LWM in pool formation, storage and sorting of sediment and gravel, and influencing the width and gradient of the channels.

The cumulative effects related to other watershed processes, such as water chemistry, may be identified as an issue where past monitoring has indicated that the potential exists. An appropriate intensive assessment for these issues should be developed at the time the issue is identified.

Information from the preliminary assessment can be used to focus on potential cumulative effects of the proposed activities. Based on the preliminary assessment, eight Watershed Condition Types (WCT) can be identified. For each WCT the potential effects can be estimated. Such effects may or may not

have occurred currently depending of the history of storm events in the area and on site specific channel characteristics.

Intensive Assessment

Intent and Uses The intent of the intensive assessment is to gather field information for use in the selection of project level scheduling and operational BMPs, including watershed improvement projects Information on existing potential for upslope mass movements, and conditions of riparian areas and stream channels will be used to identify areas needing site-specific prescriptions to maintain stability of sediment, determine riparian prescriptions, and to recommend levels of hydrological recovery.

STEP 1 - Collect Information on Potential Upland Sediment Sources

Verify Criteria A of the preliminary assessment. Sites with a high risk of generating sediment should be identified on the ground. These sites include:

- Landtypes over 60% slope on tuff and breccia bedrock.
- Where subsurface water accumulates on landtypes with shallow soils, slopes over 60% slope on basalt and andesite bedrock
- Streambanks (including Class IV) over 60% slope.
- Roads and landings constructed with uncompacted sidecast fill.
- Roads surfaces constructed on and/or surfaced with soft bedrock materials.

Landtypes which are actively moving should be identified. These areas are generally excluded from the landbase considered suitable for timber management.

STEP 2 - Collect Information on Stream Condition

The stream condition should be assessed (as a minimum) in terms of the following characteristics:

1. The existing and potential role and functioning of Large Woody Material (LWM) in pool formation, stream velocity, sorting and storing sediment and gravels, and stabilize stream gradient and width, and enhance floodplain and side channel functioning.
2. The existing and potential effect of deposition of sediment and bedload on the depth of pools (created both by LWM and boulders).
3. The existing and potential effect of fine sediment on spawning gravel.
4. The existing and potential for erosion of streambanks and streambeds, and conditions which may result in channel widening.

The assessment should be made on enough length of the stream to provide information about the influence of Class III and IV streams on the Class I and II stream conditions and water quality. Local variation and unique geological conditions should be recognized.

The following criteria can be used as general quantification of acceptable conditions. Where applicable, methods used to assess these parameters should be consistent with Regional inventory methods. These numbers are subject to revision based on monitoring and research, and agency direction.

1. **Large Woody Material (LWM) -** LWM should be evaluated based on separate averages for low-gradient and high gradient streams. In low gradient streams, an average of 20 pieces/1000 lineal feet is preferred. The size of wood should provide stable, diverse stream habitats during high flows. Where possible LWM should be longer than the stream width, with assorted diameters including pieces larger than 25 inches. A similar quantity and size of wood should be available for recruitment in the future.

   On steeper stream channels approximately 50% of the channel length should be directly influenced by LWD. This means half the length of any given reach of stream should be in a pool or sediment bar upstream of LWD, or in a plunge pool and associated gravel deposit downstream of a LWD accumulation, as well as the stream area occupied by the LWD.

2. **Pools -** Pool volume should not be reduced by excessive deposition of fine sediments or bedload.

3. **Substrate -** Less than 25% of substrate should be comprised of fines sediment, (<1.0mm), and less than 25% of riffle areas should be embedded by fine sediments.

4. **Streambanks and streambed -** 90% of the lower streambanks should be stabilized by LWM, vegetation, or bedrock. Stream channel downcutting should not reduce floodplain functioning or significantly alter floodplain vegetation.

Selection of Project Practices.

Practices should be selected which are highly effective in protecting beneficial uses, and will provide a low risk of adverse effects to streambank and streambed stability. (See definition of "highly effective" in **General Water Quality Best Management Practices.**) Practices to protect beneficial uses should meet or exceed State-approved BMPs as described in the Oregon Forest Practices Act.

Table E-2 summarizes the types of BMP and mitigation prescriptions which should be developed for the eight Watershed Conditions Types.

Riparian Management prescriptions should address the existing conditions of the stream channel, and usually maintain levels of input close to natural, or provide a prescription to improve the role and functioning of LWM in the stream.

Prescriptions should be developed to mitigate the existing and potential input of sediment to streams. Where chronic sources of sediment exist, prescriptions should be developed to stabilize the sites. Where areas with a high potential for sediment exist, the specific high risk areas should be identified, and management prescriptions made to maintain the stability of the material. In areas with a low risk of increased sediment, measures should be included to ensure that management activities do not increase the risk of sedimentation which will be adverse to beneficial uses or stream channel conditions.

The hydrological recovery of an area should be prescribed to mitigate the potential effects of peak flows on stream channels. The level of hydrological recovery prescribed should reflect three main factors; the percent of the area in the transient snow zone, the rate of runoff from the land, and the existing and potential streamchannel conditions. The first two factors have been accounted for in development

of Midpoint ARP levels. The third factor should be determined during the intensive assessment. The recommended ARP may vary above or below the Midpoint ARP, depending on the streamchannel conditions. Table II-E summarizes the variation according to existing and potential streamchannel conditions. WCT 3 and 4 should be prescribed at or above the Midpoint ARP when streambanks are comprised of easily erodible material.

Chapter V of the Plan summarizes how the implementation, effectiveness and validity of this process will be monitored.

Watershed Condition Types

TYPE 1	PRELIMINARY ASSESSMENT
Riparian	Less than 25% of riparian areas affected by past management practices, including debris torrents.
Sediment source	Area is inherently stable. Past practices have not created potentially unstable sites and/or road surfaces.
Hydrological Recovery	Area is more recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment identifies a High sediment risk, see Type 3.
Large Woody Material	LWM available to form pools, to store and sort sediment and gravels, control stream width and gradient, and to provide cover. Future supply of LWM available.
Pools/sediment	Pools quality is not excessively reduced by sediment or bedload movement.
Substrate/sediment	Existing instream conditions may have no evidence of increases in sediment. Low potential for fines and/or embeddedness to exceed 25%, and for debris torrents to occur.
Stream channel stability	Insignificant evidence of stream bank or stream bed scouring.
	RECOMMENDATIONS
Riparian	Maintain existing and future functioning of LWM.
Sediment source	Select BMPs which will avoid increasing movement of sediments to streams.
Hydrological Recovery	No Recommended ARP necessary. This is based on the assumption that LWM is and will be of adequate size and quantity to armour streambanks, at to mitigate the increases in stream velocity which have the potential to occur during increased peak flows.

Watershed Condition Types - continued

TYPE 2	PRELIMINARY ASSESSMENT
Riparian	Same as Type 1.
Sediment source	Same as Type 1.
Hydrological Recovery	Less recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment identifies a High sediment risk, see Type 4.
Large Woody Material	Same as Type 1.
Pools/sediment	Same as Type 1.
Substrate/sediment	Same as Type 1.
Stream channel stability	Same as Type 1.
	RECOMMENDATIONS
Riparian	Same as Type 1.
Sediment sources	Same as Type 1.
Hydrological Recovery	Same as Type 1.

Watershed Condition Types - continued

TYPE 3	PRELIMINARY ASSESSMENT
Riparian	Less than 25% of riparian areas affected by past management practices, including debris torrents.
Sediment source	Area has high potential for sediment, either from inherently or created potentially highly unstable areas, and/or from road surfaces.
Hydrological Recovery	Area is more recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment identifies a Low sediment risk, see Type 1.
Large Woody Material	LWM is available to form pools, to store and sort sediment and gravels, to control stream width and gradient, and to provide cover. Future supply of LWM available.
Pools/sediment	Existing pool condition reflects the history of sediment inputs in the area. Upland erosion may have resulted in some sediment or bedload filling pool areas. Potential for pool filling is high.
Substrate/sediment	Existing substrate conditions reflect the history of sediment inputs in the area. Increases in fines and embeddedness may be evident. Potential for increases in fines is high.
Stream channel stability	Potential for stream bank or stream bed scouring due to debris torrent exists. LWM is generally effective in mitigating potential increases in peak flows.
	RECOMMENDATIONS
Riparian	Maintain existing and future functioning of LWM, especially in moderately stable and potentially unstable Class IV streams.
Sediment sources	Select BMPs which will avoid increasing movement of sediments to streams. Emphasize identification of areas of potentially unstable soils along streams, on slopes, and on roads. Develop site-specific recommendations to maintain slope and surface stability in these areas.
Hydrological Recovery	Recommended ARP should be within 5% above or below of Midpoint ARP, depending on the resistance of streambanks to erosion from potential increased peak flows, and on quantity and stability of LWM.

Watershed Condition Types - continued

TYPE 4	PRELIMINARY ASSESSMENT
Riparian	Same as Type 3.
Sediment source	Same as Type 3.
Hydrological Recovery	Less recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment identifies a Low sediment risk, see Type 2
Large Woody Material	Same as Type 3.
Pools/sediment	Same as Type 3.
Substrate/sediment	Same as Type 3.
Stream channel stability	Same as Type 3.
	RECOMMENDATIONS
Riparian	Same as Type 3.
Sediment sources	Same as Type 3
Hydrological Recovery	Same as Type 3.

Watershed Condition Types - continued

TYPE 5	PRELIMINARY ASSESSMENT
Riparian	More than 25% of riparian areas affected by past management practices, including debris torrents.
Sediment source	Area is inherently stable. Past practices have not created potentially unstable sites and/or road surfaces.
Hydrological Recovery	Area is more recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment identifies a High sediment risk, see Type 7.
Large Woody Material	LWM not available to form pools, to store and sort sediment and gravels, control stream gradient, or provide cover.
Pools/sediment	Existing pools are not effected by large amounts of sediment or bedload from upslope mass movement or roads.
Substrate/sediment	Existing instream conditions have no evidence of increases in sediment. The potential for excessive sediment is low.
Stream channel stability	Streambank or streambed scouring may occur due to lack of LWM available to control gradient and width of stream gradient. Stream channels susceptible to erosion by increases in peak flows.
	RECOMMENDATIONS
Riparian	Improve existing and future functioning of LWM.
Sediment source	Select BMPs which will avoid increasing movement of sediments to streams.
Hydrological Recovery	Recommended ARP should be at or above Midpoint ARP in order to minimize streambank and streambed erosion.

Watershed Condition Types - continued

TYPE 6	PRELIMINARY ASSESSMENT
Riparian	Same as Type 5.
Sediment source	Same as Type 5.
Hydrological Recovery	Less recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment identifies a High sediment risk, see Type 8.
Large Woody Material	Same as Type 5.
Pools/sediment	Same as Type 5.
Substrate/sediment	Substrate may show evidence of increases in sediment from eroded streambanks. The potential exists for fines and embeddedness to exceed 25% in areas with highly erodible streambanks.
Stream channel stability	Some streambank or streambed scouring may be observed due to the cumulative effects of the lack of LWM to control gradient and width of stream gradient, and the increased erosive power of peak flows
	RECOMMENDATIONS
Riparian	Same as Type 5.
Sediment sources	Same as Type 5.
Hydrological Recovery	Same as Type 5.

Watershed Condition Types - continued

TYPE 7	**PRELIMINARY ASSESSMENT**
Riparian	More than 25% of riparian areas affected by past management practices, including debris torrents.
Sediment source	Area has high potential for sediment, either from inherent or created slope instability, and/or road surfaces.
Hydrological Recovery	Area is more recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential Sediment	If Intensive Assessment shows a Low sediment risk, see Type 5.
Large Woody Material	LWM not available to form pools to store and sort sediment and gravels, control gradient, and to provide cover.
Pools/sediment	Existing pool condition reflects the history of sediment inputs to the stream. Upslope erosion may have resulted in some sediment or bedload filling pool areas. Potential for pool filling is high because of lack of LWM forming pools, and because of the potentially high sediment potential.
Substrate/sediment	Existing substrate conditions reflect the history of sediment input in the area. Potential for fines and embeddedness to exceed 25% is high.
Stream channel stability	Existing condition may show evidence of stream channel erosion by debris torrents. Stream widening may be occurring due to increased bedload and reduction in stabilizing LWM. Stream banks and stream beds are susceptible to stream scouring during potentialy increased peak flows.
	RECOMMENDATIONS
Riparian	Improve existing and future functioning of LWM. Emphasize retention of LWM in in moderately stable and potentially unstable Class IV streams to minimize movement of debris torrents to Class I and II streams.
Sediment source	Select BMPs which will avoid increasing movement of sediments to streams Emphasize identification of potentially unstable areas along streams, on slopes, and on roads. Develop site-specific recommendations to maintain stability for these areas.
Hydrological Recovery	Recommended ARP should be at least 5% more recovered than Midpoint ARP to minimize the risk of increases in peak flows and the associated *risk of increases in stream channel scouring.*

Watershed Condition Types - continued

TYPE 8	PRELIMINARY ASSESSMENT
Riparian	Same as Type 7.
Sediment source	Same as Type 7.
Hydrological Recovery	Less recovered than Midpoint ARP.
	INTENSIVE ASSESSMENT AND POTENTIAL EFFECTS
Potential sediment	If the Intensive Assessment shows a Low sediment risk, see Type 6.
Large Woody Material	Same as Type 7.
Pools/sediment	Same as Type 7.
Substrate/sediment	Substrate may show evidence of increases in sediment from eroded streambanks. The potential exists for fines and embeddedness to exceed 25% in areas with highly erodible streambanks
Stream channel stability	Existing condition may show evidence of stream channel erosion by increased peak flows and by debris torrents. Stream widening may be occurring due to changes in bedload, peak flows, and the absence of LWM.
	RECOMMENDATIONS
Riparian	Same as Type 7.
Sediment sources	Same as Type 7.
Hydrological Recovery	Enhance recovery to at least 5% above Midpoint ARP.

Table E-2. Summary of Watershed Conditions, Assessment, and BMP Selections

Type	Preliminary Assessment			Intensive Assessment/Effects[2]				Recommended Practices		
	Riparian Condition	Sediment Risk	Hydrological Recovery[1]	Lack of LWM	Sediment in Pools	Sediment in Substrate	Stream channel stability	Riparian Management	Sediment	Hydrological Recovery
1	<25% impacted	Low	More than Midpoint ARP					Maintain LWM	Do not increase fine sediment.	No Recommended ARP needed
2	<25% impacted	Low	Less than Mid-point ARP					Maintain LWM	Do not increase fine sediment.	No Recommended ARP needed
3	<25% impacted	High	More than Midpoint ARP		X	X		Maintain LWM	Identify high-risk areas. Do not increase fine sediment	Recommended ARP +/- 5% of Midpoint ARP based on streambanks.
4	<25% impacted	High	Less than Mid-point ARP		X	X	X	Maintain LWM	Identify high-risk areas Do not increase fine sediment.	Recommended ARP +/- 5% of Midpoint ARP based on streambanks.
5	>25% impacted	Low	More than Midpoint ARP	X			X	Improve LWM	Do not increase fine sediment.	Recommended ARP at or above Midpoint ARP
6	>25% impacted	Low	Less than Mid-point ARP	X	X	X	X	Improve LWM	Do not increase fine sediment.	Recommended ARP at or above Midpoint ARP
7	>25% impacted	High	More than Midpoint ARP	X	X	X	X	Improve LWM	Identify high-risk areas. Do not increase fine sediment.	Recommended ARP 5% above Midpoint ARP
8	>25% impacted	High	Less than Mid-point ARP	X	X	X	X	Improve LWM	Identify high-risk areas. Do not increase fine sediment.	Recommended ARP 5% above Midpoint ARP

[1] "More than Midpoint ARP" means that the area is more recovered that the Midpoint ARP levels shown on the Subdrainage list

[2] Existing or potential effects determined during the Intensive Assessment are indicated by "X".

SUBDRAINAGE LIST

The list of Planning Area Subdrainages provides information which can be used in the cumulative effects assessment process. The following information is listed:

1. Watershed Number
2. Subdrainage Number
3. Subdrainage name
4. Land sensitivity to peak flow runoff: Extreme, High, Medium, Low
5. Beneficial use rating: High, Medium, Low
6. Midpoint ARP: Between 60% and 85%.
7. Debris Torrent risk rating between 1 and 3, with 1 being most stable.

The landtypes were rated from extreme sensitivity to low sensitivity based on the percent of the subdrainage in the transient snow zone, and the overall slope of the subdrainage. Subdrainages which are outside the transient snow zone are listed as having a Midpoint ARP of zero.

The benefical uses were rated for the stream reaches which would be substantially influenced by runoff from the subdrainage This was primarily in the stream at the lower end of the subdrainage. When the size and location of the subdrainage indicated that the flow could have substantial influence on the mainstem, the beneficial uses of that stream reach was described. User values may change following ground verification.

The ratings were as follows:

HIGH	Spawning and rearing for anadromous fish Significant sport fish Sensitive fish Intakes for domestic and hatchery waters Wild and Scenic Rivers.
MODERATE	Resident trout
LOW	No fish

FOREST PLANNING WATERSHED NUMBERS

Detroit District
- 1 Little North Santiam
- 3 Detroit Tributaries
- 77 Blowout
- 78 Lower North Santiam
- 79 Upper North Santiam
- 92 Breitenbush

Sweet Home District
- 4 Quartzville
- 5 Middle Santiam
- 6 South Santiam
- 9 Calapooia/Wiley
- 61 Canyon
- 71 Hackleman

McKenzie District
- 7 Upper McKenzie
- 14 Lower Horse Creek
- 31 Wilderness Lakes (Wilderness)
- 41 Upper Horse (Wilderness)
- 73 Deer
- 72 Scott

Blue River District
- 0 Lookout (Experimental Forest)
- 10 Blue River
- 11 Lower McKenzie
- 12 Quartz Creek
- 13 South Fork McKenzie

Lowell District
- 15 Fall Creek
- 16 Winberry Creek
- 19 Middle Fork Willamette Tributaries

Oakridge District
- 17 Lower North Fork Middle Fork Willamette
- 18 Salmon Creek
- 20 Salt Creek
- 32 Upper North Fork Middle Fork Willamette

Rigdon District
- 21 Lower Middle Fork Willamette
- 22 Hills Creek
- 24 Upper Middle Fork Willamette

Subdrainage List

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS	BENE USE	MP ARP	STABLITY RATING
0	10I	LOWER LOOKOUT	M	M	70	2.3
0	10L	MCRAE	M	M	70	2 0
0	10M	MACK	M	H	75	2 0
0	10N	UPPER LOOKOUT	M	H	75	1 9
1	01A	DRY	H	M	75	1 8
1	01B	HORN	H	H	80	1 6
1	01C	GOLD	H	H	80	1 8
1	01D	BATTLE AX	M	M	70	1.8
1	01E	OPAL	H	M	75	1.6
1	01F	BONANZA MINE - STONY	H	L	70	1.6
1	01G	CEDAR	H	M	75	1.8
1	01H	LITTLE CEDAR	H	H	80	1 9
1	01I	CROWN MINE	H	H	80	1.8
1	01J	ELKHORN	H	H	80	1 8
1	99D	MOLALLA RIVER	H	M	75	1 7
3	03A	SANTIAM SARDINE	H	M	75	1.7
3	03B	MAYFLOWER	E	M	80	2.0
3	03C	WHITMAN	H	M	75	1.9
3	03D	HALLS RIDGE	M	L	65	2.0
3	03E	TUMBLE	M	H	75	1 9
3	03F	NORTH SIDE DETROIT	H	L	70	2 0
3	03G	UPPER WEST FRENCH	H	M	75	1.7
3	03H	LOWER EAST FRENCH	H	M	75	1.9
3	03I	LOWER FRENCH	H	M	75	2.0
3	03J	HEATER	M	L	65	2.0
3	03K	SLATE	H	M	75	2.3
3	03L	KINNEY	L	M	65	1.7
3	03M	CUMLEY	M	L	65	1.6
3	03N	WASHOUT	H	L	70	2 0
3	03P	LAWHEAD	L	L	60	1 4
3	78T	BOX CANYON	M	M	70	2.2
3	87A	THOMAS CREEK	M	M	70	1.2
4	04A	LOWER QUARTZVILLE	E	H	85	2.2
4	04B	MCQUADE	E	H	85	2.4
4	04C	BEABE	H	M	75	2.6
4	04D	BRULER	L	M	65	2 1
4	04E	UPPER QUARTZVILLE	M	H	75	2 1
4	04F	CANAL	E	H	85	2 1
4	04G	ELK	E	H	85	2.4
5	05A	TALLY	H	M	75	2 1
5	05B	BEAR	M	M	70	2 0
5	05C	JUDE	M	H	75	2 0
5	05D	BACHELOR	L	M	65	1.9
5	05E	TOMMY	L	M	65	2.0
5	05F	PYRAMID	L	H	70	1.9

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS	BENE USE	MP ARP	STABLITY RATING
5	05G	SINGLE	M	M	70	1.9
5	05H	SCAR	M	M	70	2.0
5	05I	SWAMP	M	H	75	2.2
5	05J	MIDDLE SANTIAM	H	H	80	2.3
6	06F	SQUAW	M	M	70	2.0
6	06G	SEVENMILE	M	M	70	2 0
6	06H	THREE	L	M	65	1.9
6	06I	BLACK	L	M	65	1 7
6	06J	LOWER CANYON	M	H	75	2.0
6	06K	BOULDER	H	M	75	2.0
6	06L	TROUT	H	M	75	2.0
6	06N	SODA FORK	M	H	75	2.0
6	06P	MOOSE	M	H	75	2 1
6	06Q	HENSLEY	H	H	80	2 2
6	06R	LOWER SOUTH SANTIAM	M	M	70	2 2
6	06W	UPPER SOUTH SANTIAM	M	M	70	2.0
7	07F	UPPER WEST SIDE MCKEN	M	H	75	1.6
7	07G	BUNCHGRASS	L	H	70	1.6
7	07I	HACKLEMAN	M	H	75	1 3
7	07J	GATE	M	H	75	1.5
7	07K	HOODOO	L	H	70	1.2
7	07L	EAST SIDE UPPER MCKEN	L	L	60	1 1
7	07M	CRATERS			NA	1 0
7	07P	SOUTH SIDE MCKENZIE	M	L	65	1 7
7	07Q	IKENICK	M	M	70	1.3
7	07S	WHITE BRANCH	L	H	70	1 4
7	07U	FROST	L	L	60	1.1
7	07W	WASHINGTON	L	M	65	1.1
9	08A	LITTLE WILEY	H	H	80	2.3
9	08B	LOWER WILEY	E	H	85	2 8
9	08C	UPPER WILEY	M	M	70	2 0
9	09A	UPPER CALAPOONIA	H	H	80	2 0
9	09B	LOWER CALAPOONIA	M	H	75	2.0
10	10A	SIMMONDS	M	M	70	2.2
10	10B	BLUE QUARTZ	H	M	75	2.2
10	10C	MONA -SCOUT	H	M	75	2.6
10	10D	TIDBITS	H	M	75	2.0
10	10E	LOWER BLUE	H	H	80	2 6
10	10F	COOK	M	M	70	2 1
10	10G	QUENTIN	M	M	70	2.1
10	10H	UPPER BLUE	M	H	75	2.1
10	10J	SOUTH BLUE LAKE	M	L	65	2.2
10	10K	MANN	L	M	65	2.0
11	11A	ELK - CONE	E	H	85	2.2
11	11B	ENNIS	H	H	80	2 6
11	11C	DEER CREEK	H	H	80	2.3

Subdrainage List

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS.	BENE. USE	MP ARP	STABLITY RATING
11	11D	MINOR TRIBUTARIES	H	H	80	2.0
11	11E	SOUTH FORK GATE AND N	E	M	80	2.4
12	12A	CANE - COFFEE	E	M	80	2.0
12	12B	WYCOFF - SUGAR	H	M	75	2.0
12	12C	LYTLE - INDIAN	H	H	80	2.2
12	12D	UPPER QUARTZ	H	H	80	2.1
12	12E	FAWN-BUCK	H	M	75	2.4
12	12F	WEST LOWER QUARTZ	M	H	75	2.0
13	13A	COUGAR	M	H	75	1.9
13	13B	EAST FORK	M	M	70	1.8
13	13C	WALKER	M	M	70	1.8
13	13D	SMITH	H	M	75	2.0
13	13E	FRENCH PETE	M	H	75	1.7
13	13F	REBEL	M	M	70	1.8
13	13G	CASCADE	M	M	70	2.0
13	13H	SOUTH FORK - MINK	L	H	70	1.3
13	13I	ELK	M	H	75	1.4
13	13J	ROARING RIVER	L	H	70	1.4
13	13K	TRAILS	H	H	80	1.9
13	13L	TWIN SPRINGS	M	H	75	2.0
13	13M	LOWER AUGUSTA	H	H	80	1.9
13	13N	STARR	H	M	75	2.0
13	13P	HARDY	M	H	75	2.0
13	13Q	GREEN RIDGE	M	L	65	1 9
13	13R	BOONE RYDER	M	L	65	2.0
13	13S	DEATHBALL	H	L	70	1.8
13	13U	GRASSHOPPER	H	M	75	2 2
13	13V	UPPER AUGUSTA	M	H	75	1.8
14	14A	NORTH SIDE HORSE	M	M	70	1 5
14	14B	SEPARATION - HONEY	L	M	65	1.3
14	14G	MOSQUITO	H	H	80	1 6
14	14H	OWL - POTHOLE	M	M	70	1.8
14	14I	KING	M	M	70	1 9
14	14J	TAYLOR	M	H	75	1.9
15	151	BOUNDARY	M	M	70	2 0
15	15A	LITTLE FALL	H	H	80	2.2
15	15B	NORTH FORK FALL	H	M	75	2.2
15	15C	CLARK	M	H	75	2 1
15	15D	SLICK - BEDROCK	H	H	80	2 0
15	15E	JONES	H	M	75	2.3
15	15F	ALDER	E	H	85	2 5
15	15G	SUNSHINE - PERNOT	H	H	80	2.2
15	15H	EAST HEHE	H	H	80	2.2
15	15I	UPPER HEHE	H	H	80	2.7
15	15J	TILLER	M	H	75	2.1
15	15K	NINEMILE	M	H	75	2.4

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS.	BENE. USE	MP ARP	STABLITY RATING
15	15L	PLATT	H	H	80	2.7
15	15M	UPPER FALL	H	H	80	2.6
15	15N	DELP	H	H	80	2.3
15	15P	GOLD	H	M	75	2.2
15	15Q	PACIFIC - MARINE	H	M	75	2.5
15	15R	PUMA	H	M	75	2.6
15	15S	NORTH PORTLAND	M	H	75	2.2
15	15T	LOGAN	E	H	85	2.2
15	15U	NEVERGO	H	H	80	2.0
15	15V	GALES	H	H	80	2.0
15	15W	RUBBLE	M	M	70	2.1
15	15X	ANDY	M	H	75	2.0
15	15Y	SOUTH FALL TRIBUTARIE	L	M	65	2.0
15	15Z	TIMBER	M	M	70	2.0
16	16A	BRUSH	M	H	75	2.0
16	16B	NORTH FORK WINBERRY	M	H	75	2.0
16	16C	MONTERICA	H	H	80	2.1
16	16D	CABIN	M	M	70	1.9
16	16E	UPPER SOUTH FORK	M	M	70	2 1
16	16F	LOWER SOUTH FORK	H	H	80	2.2
17	171	COFFEE	M	L	65	2.0
17	172	TENTH	M	L	65	1.7
17	173	EIGHTH	M	M	70	1.6
17	174	HUCKLEBERRY	M	M	70	1.6
17	175	FIFTH	M	L	65	1.8
17	176	THIRD	M	M	70	1.7
17	177	FIRST	M	M	70	1 8
17	178	HIGH PRAIRIE	M	L	65	1 8
17	179	MOSSY - GRASSY	M	M	70	1.8
17	17A	SHORT - HEMLOCK	H	H	80	2.1
17	17B	DARTMOUTH	H	H	80	2.1
17	17C	LEAPFROG	M	M	70	2.0
17	17D	HIGH	H	H	80	2.2
17	17E	HAMMER	H	H	80	2.0
17	17F	MCKINLEY	H	H	80	2.1
17	17G	CHALK	H	H	80	2.2
17	17H	EVANGELINE	H	M	75	2 1
17	17I	BILLY	M	M	70	2.1
17	17J	NEHI	M	M	70	2 2
17	17K	SARDINE	M	M	70	2.2
17	17L	CHRISTY HEAD	M	M	70	2 1
17	17M	LOWELL	M	M	70	2 0
17	17N	LOWELL HEAD	M	L	65	1.6
17	17P	CHRISTY SOUTH	M	M	70	1.8
17	17Q	FLATS	M	L	65	1.5
17	17R	BUFFALO	M	M	70	1.6

Subdrainage List

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS	BENE. USE	MP ARP	STABLITY RATING
17	17S	MAJOR PRAIRIE	M	L	65	2.0
17	17T	BROCK	M	M	70	1.9
17	17U	CAPTAIN	M	M	70	1.6
17	17V	MAJOR PARKER	M	M	70	1 8
17	17W	ROOSEVELT	M	M	70	2 0
17	17X	DEVILS CANYON	H	M	75	2 0
17	17Y	HEMLOCK	M	M	70	2 0
17	17Z	WHITEROCK SHALE	M	M	70	2 0
18	181	NO NAME	M	M	70	2 0
18	182	WARBLE	H	M	75	2 0
18	183	HEART	H	M	75	2.0
18	184	SQUAW BUTTE	H	M	75	2.0
18	185	SALMON FALLS	H	M	75	2 0
18	186	HECKLETOOTH	H	M	75	2 2
18	187	HATCHERY	M	M	70	2 1
18	188	SALMON HEAD			NA	1.1
18	18A	OAKRIDGE	L	L	60	1 9
18	18B	FLAT	M	M	70	2 1
18	18C	NEEDLE	H	M	75	2.1
18	18D	EAGLE BUTTE	H	H	80	2 0
18	18E	WARM SPRING	H	M	75	2.0
18	18F	WALL HEAD	L	M	65	1.7
18	18G	TILLICUM	M	H	75	1 6
18	18H	CREVICE	M	M	70	1 6
18	18I	MULE	M	M	70	1 7
18	18J	PITCH	H	M	75	1 9
18	18K	LOWER FURNISH	M	M	70	2 0
18	18L	FURNISH HEAD	L	M	65	1 5
18	18M	FURNISH DIVIDE	M	L	65	1 8
18	18N	SALMON CANYON	M	M	70	1.7
18	18P	NETTIE	L	L	60	1.3
18	18Q	BINGO	L	L	60	1 5
18	18R	FUJI	L	L	60	1 6
18	18S	BLACK GLACIAL	L	L	60	1.5
18	18T	RANGER	L	M	65	1 7
18	18U	SALMON KOCH	M	M	75	2 0
18	18V	BLACK KOCH	H	M	75	2 0
18	18W	CEDAR	H	M	75	2 0
18	18X	SIDESLOPE	H	L	70	2.0
18	18Y	LONG BLOCK	M	M	70	1.9
18	18Z	KELSEY	M	M	70	1 9
19	19A	RHODES - SCHOOL	M	M	70	2 0
19	19B	CAIN - ARMET	M	M	70	2 0
19	19C	HOSPITAL - CARPET	M	M	70	1 9
19	19D	NORTH SHORE TRIBUTARI	M	M	70	2 0
19	19E	TIRE	M	M	70	2.3

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS	BENE. USE	MP ARP	STABLITY RATING
19	19F	BURNT - BUCKHEAD	M	H	75	2.3
19	19G	EAST DECEPTION	H	H	80	2.0
19	19H	MIDDLE DECEPTION	H	M	75	2 2
19	19I	WEST DECEPTION	M	M	70	2 3
19	19J	WHITE - DELL	M	H	75	2 1
19	19K	ROCK	M	M	70	2 3
19	19L	DUVAL	H	M	75	2.2
19	19M	SCHWEITZER	H	M	75	2.1
19	19N	NORTH - SOUTH	H	M	75	2.2
19	19P	CRALE	L	H	70	2 0
19	19Q	LOWER GOODMAN	M	M	70	2 4
19	19R	EAST GOODMAN	H	M	75	2 3
19	19S	WEST GOODMAN	M	M	70	2 1
19	19T	ROLLING - FERN	L	H	70	2.1
19	96A	LOST CREEK	H	M	75	2 0
20	20A	MONTIETH ROCK	H	M	75	2 1
20	20B	GOBEL	M	H	75	2 0
20	20C	BASIN	M	H	75	2 0
20	20D	WARNER	H	H	80	1.9
20	20E	MCCREDIE	H	M	75	2 0
20	20F	SIDE SALT	H	M	75	2.0
20	20G	EAGLE BEAK	M	M	70	2.0
20	20H	VERDUN	M	M	70	2 1
20	20I	SWAMP	M	M	70	2 0
20	20J	EAGLE HEAD	L	M	65	1 4
20	20K	DAVID DOUGLAS	M	L	65	1 6
20	20L	FUJI MEADOW			NA	1 2
20	20M	ISLAND LAKE			NA	1.2
20	20N	LORIN			NA	1.2
20	20P	SKYLINE			NA	1.1
20	20Q	MARILYN			NA	1 0
20	20R	ABERNATHY			NA	1 1
20	20S	FALL CREEK	L	M	65	1 2
20	20T	SHADY CRUZATTE	L	M	65	1 5
20	20U	NOISY	M	M	70	1 9
20	20V	COYOTE	M	M	70	2.0
20	20W	WICOPEE FIELDS	M	M	70	1.9
20	20X	COUGAR	H	M	75	2.0
20	20Y	TUMBLE	H	M	75	2 3
20	20Z	SALT HEAD			NA	1.0
21	211	DEADHORSE	H	M	75	2.3
21	212	INDIAN SOUTH	M	M	70	2.2
21	213	RIGDON	H	L	70	2.1
21	214	COFFEEPOT	M	M	70	2.3
21	215	WATERDOG	M	M	70	1 7
21	216	EMILE FIR	H	M	75	2 0

Subdrainage List

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS.	BENE. USE	MP ARP	STABLITY RATING
21	217	SOUTH PACKARD	H	M	75	2.6
21	218	COAL FORK	M	M	70	2.0
21	219	GOLD	H	M	75	2.4
21	21A	MODOC	M	L	65	2.1
21	21B	WILLOW	M	M	70	2.1
21	21C	COFFEEPOT HEAD	H	M	75	2.1
21	21D	POWDER BUCK	M	M	70	2.1
21	21E	CONE BILLS	M	M	70	2.0
21	21F	DRY PINE	M	M	70	2 0
21	21G	YOUNG	M	M	70	2.0
21	21H	DEADWOOD	L	M	65	1.8
21	21I	STEEPLE	M	M	70	2.1
21	21J	COAL CENTER	M	M	70	2 0
21	21K	COAL HEAD	M	M	70	1.8
21	21L	INDIAN NORTH	M	M	70	2 2
21	21M	SPRING SNAKE	H	M	75	2.4
21	21N	BOHEMIA	H	M	75	2.3
21	21P	WINDFALL	H	M	75	2.4
21	21Q	MCFARLAND	H	M	75	2.3
21	21R	PACKARD NORTH	H	M	75	2.3
21	21S	STONY SNOW	E	L	75	2.3
21	21T	PACKARD COVE	H	M	75	2 0
21	21U	LARISON HEAD	H	M	75	2.2
21	21V	LARISON MOUTH	H	M	75	2.3
21	21W	LOWER LARISON	H	M	75	2.1
21	21X	MAJOR ALIAS	H	M	75	2 0
21	21Y	GRAY DECEPTION	H	M	75	2.5
21	21Z	CHILLY SPOT	H	L	70	2.4
22	22A	CT BEACH	H	L	70	2.1
22	22B	SHADY GATE	H	L	70	2.0
22	22C	MIKE	M	M	70	2.0
22	22D	WARFIELD	M	M	70	1.8
22	22E	TNT POOL	H	L	70	1 8
22	22F	WOLF	L	M	65	1.5
22	22G	PINTO HEAD	M	M	70	1 7
22	22H	PINTO NOTCH	L	M	65	1 3
22	22I	HILL TOP	M	M	70	1.9
22	22J	HILL SIDE	E	L	75	2.2
22	22K	GROUNDHOG EAST	H	M	75	1.7
22	22L	SOUTH FORK	M	M	70	1 6
22	22M	NORTH FORK	M	M	70	2 0
22	22N	JUNIPER	H	M	75	2 0
22	22P	TUFTI -	H	M	75	2 1
22	22Q	KITSON	H	M	75	2 2
22	22R	LANDES	H	M	75	2 1
23	231	POTTER	M	M	70	2 0

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS.	BENE. USE	MP ARP	STABLITY RATING
23	232	LAURA'S NEIGHBOR	M	M	70	2.2
23	233	UMPQUA STALEY	L	M	65	1.9
23	234	RIGDON POINT	H	L	70	2.0
23	235	SPIDER PLUS	M	M	70	2.0
23	236	LITTLE DOME	M	L	65	2.0
23	237	RIVER	M	M	70	1.8
23	238	CALAPOOYA	M	M	70	1.4
23	239	DOME	M	M	70	2 1
23	23A	WARNER SIMPSON	M	M	70	1.9
23	23B	SIMPSON	M	M	70	1.5
23	23C	NOISY HEAD	M	L	65	1.7
23	23D	NOISY MOUTH	H	M	75	1.7
23	23E	COULEE MOSS	H	L	70	1.9
23	23F	SWIFT HEAD	L	M	65	1.4
23	23G	BEAR	L	M	65	1.3
23	23H	LOWER BEAR	L	M	65	1.7
23	23I	INDIGO SKUNK	H	M	75	1.9
23	23J	CORRIGAN GULCH	L	M	65	1.3
23	23K	EMIGRANT BEAVER	L	M	65	1.1
23	23L	PADDY'S CENTER	M	H	75	1.5
23	23M	PADDY'S VALLEY	M	H	75	1.4
23	23N	START O' WILLAMETTE	L	L	60	1.3
23	23P	TUMBLEBUG	L	M	65	1.6
23	23Q	DOUGLAS LANE	M	M	70	1.8
23	23R	GORGE	H	L	70	2.0
23	23S	MCGOWAN TUMBLE	L	M	65	1.6
23	23T	LIGHTHOUSE	M	L	65	1.7
23	23U	GRASSY ECHO	H	M	75	2.0
23	23V	ECHO EAST	M	M	70	2.0
23	23W	ECHO START	L	L	60	2.0
23	23X	NORTH FORK LIZARD	M	L	65	1.7
23	23Y	SOUTH X	L	L	60	1.4
23	23Z	STALEY SOUTH FORK	L	M	65	1.5
24	24A	GLADE	M	M	70	2.2
24	24B	AUGUSTA	M	M	70	1.8
24	24C	TINY	M	M	70	1.9
24	24D	BOX CANYON	L	L	60	1.5
24	24E	OUTER BEND	M	L	65	1.4
24	24F	SKOOKUM	L	L	60	1.2
24	24G	OTTER	L	L	60	1.2
24	24H	ERMA BELL	L	M	65	1.1
24	24I	POTHOLE			NA	1.1
24	24J	HARVEY	L	M	65	1.2
24	24K	TORREY			NA	1 0
24	24L	WALDO			NA	1.0
24	24M	EDDEELEO			NA	1.0

Subdrainage List

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS.	BENE. USE	MP ARP	STABLITY RATING
24	24N	MOOLACK LAKE	M	M	70	1 5
24	24P	MOOLACK			NA	1 6
24	24Q	WINCHESTER	L	M	65	1.5
24	24R	FISHER HEAD	M	M	70	1 7
24	24S	FISHER EAST	L	M	65	1 6
24	24T	FISHER WEST	M	M	70	2 2
24	24U	NORTH PRAIRIE	M	M	70	2 0
24	24V	CAYUSE EAST	M	M	70	1.6
24	24W	CAYUSE WEST	H	M	75	1.8
24	24X	INNER BEND	M	L	65	1 6
31	13H	SOUTH FORK - MINK			NA	1.3
31	13I	ELK			NA	1.4
41	14B	SEPARATION - HONEY	L	M	65	1.3
41	14C	HARVEY - SPHINX	L	M	65	1 4
41	14D	RONEY	M	M	70	1 6
41	14E	EUGENE	L	M	65	1 1
41	14F	HORSE LAKE			NA	1.2
61	06A	OWL	M	H	75	2 1
61	06B	ELBOW	M	M	70	2.1
61	06C	UPPER CANYON	M	H	75	2 1
61	06D	MIDDLE CANYON	H	H	80	2.0
61	06E	TWO GIRLS	M	M	70	1.7
71	07H	BROWDER	L	H	70	1 5
71	07I	HACKLEMAN	M	H	75	1 3
71	07J	GATE	M	H	75	1 5
71	07T	MAUDE	L	M	65	1 1
71	07U	FROST			NA	1.1
71	07V	NORTH FORK PARKS	L	M	65	1.2
72	07N	SCOTT - ANDERSON	L	H	70	1 1
72	07R	KINK	L	H	70	1 1
73	07A	FLORENCE	M	M	70	2.0
73	07B	PARADISE CAMP - BELKN	H	M	75	2.0
73	07C	FRISSEL	M	M	70	1.9
73	07D	WEST SIDE MCKENZIE	H	M	75	2.0
73	07E	DEER	M	H	75	1.8
73	11F	MILL	M	H	75	1.8
73	11G	SWAMP -CASTLE ROCK	M	H	75	2.0
77	78L	BEARD	M	H	75	2 0
77	78M	DIVIDE	M	M	70	2.0
77	78N	HAWKINS	M	M	70	2.0
77	78P	LOST	M	M	70	1 9
77	78Q	WEST SIDE BLOWOUT - I	M	M	70	2 0
77	78R	CLIFF	M	M	70	2 1
77	78S	SOUTH SIDE BLOWOUT	H	L	70	2.1
77	78U	UPPER BLOWOUT	M	M	70	1 9
78	78A	MACKEY	M	L	65	2.1

Ws #	SUB#	SUBDRAINAGE NAME	LAND SENS.	BENE. USE	MP ARP	STABLITY RATING
78	78B	DRY	H	H	80	2.5
78	78C	BOULDER	L	M	65	1 9
78	78D	MCCOY	M	M	70	1 6
78	78E	TUNNEL	M	L	65	1 5
78	78F	MISERY	M	M	70	2 1
78	78G	MARY'S	M	M	70	1.9
78	78H	BEAR	L	M	65	2.0
78	78I	RAINBOW - CABIN	M	H	75	2.0
78	78J	LOG -TOM	M	M	70	2 0
78	78K	SOUTH SIDE DETROIT	M	H	75	2.0
78	78W	MT BRUNO	H	L	70	1.9
78	79A	RIVERSIDE	H	L	70	1.9
78	79F	CAMP - FISHER POINT	L	L	60	1.2
78	79G	LYNX	L	M	65	2.0
78	79H	STRAIGHT	L	M	65	1 9
78	79I	PARKETT	M	M	70	1 8
78	79J	BUGABOO	M	M	70	1.4
78	79K	BRUNO	M	M	70	1.7
79	78V	WHITEWATER BEND	M	M	70	1 7
79	79B	RED - GRIZZLEY	L	M	65	1.7
79	79C	MINTO	M	M	70	1.5
79	79D	MARION	L	H	70	1.3
79	79E	UPPER NORTH SANTIAM	L	M	65	1 2
92	91W	WHITEWATER RIVER			NA	2.0
92	92A	CANYON	M	M	70	2 0
92	92B	NORTH SIDE BREITENBUS	H	M	75	2.0
92	92C	BYARS	H	L	70	2 0
92	92D	HUMBUG	H	M	75	2.0
92	92E	FOX	H	M	75	2.4
92	92F	SCORPION	H	M	75	2 1
92	92G	SHORT	M	H	75	2 1
92	92H	MANSFIELD	M	H	75	1.9
92	92I	NORTH FORD BREITENBUS	M	H	75	1.8
92	92J	ROARING	M	M	70	1.7
92	92K	SOUTH FORK BREITENBUS	M	H	75	1.7
92	92L	DEVILS	M	H	75	1.8
92	92M	HILL	M	M	70	1 8
92	92N	LEONE - CURTIS	H	M	75	2 2
92	92P	SLIDE	H	L	70	2.4
92	92Q	WIND	H	L	70	2 2
92	92R	CLIFFS	H	L	70	2.4



Helen Smith, Forest Service volunteer

APPENDIX F

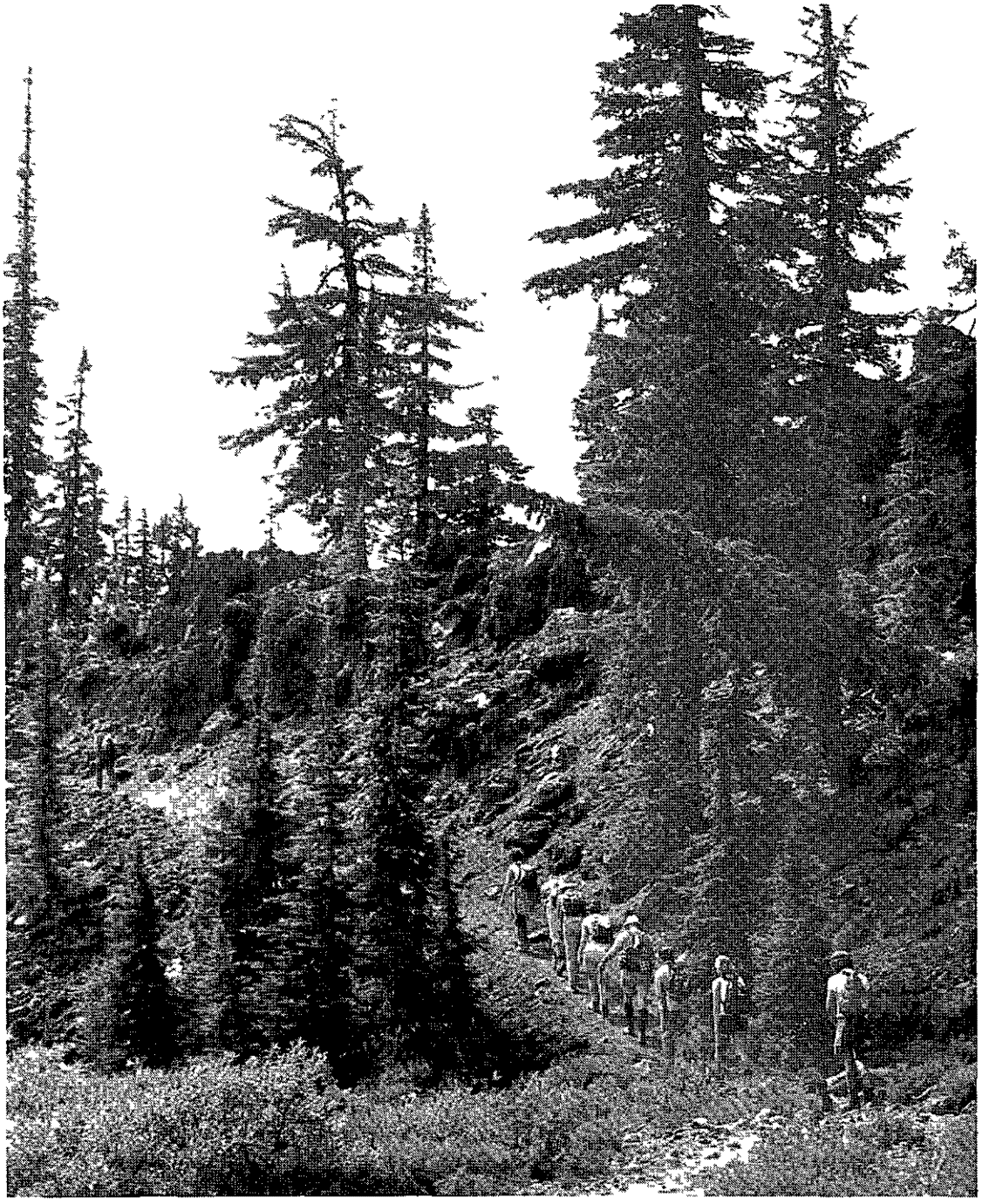
Budget to Implement

APPENDIX F

BUDGET NEEDED TO IMPLEMENT THE FOREST PLAN

Table F-1.

Description	Amount M$ Base Year 1990
Cultural Resources	69 03
Recreation Resources	4,458.30
Trail Management	213.29
Trail Construction and Maintenance	1,155 94
Visual Resources	338 48
Wilderness Resources	433 95
Fish Management	881 06
T&E Management	632 75
Wildlife Management	2,899.08
Range	42 31
Silvicultural Exams	335.95
Timber Resource Planning	273 47
Timber Resource Coordination	1,556.60
Timber Sale Preparation	5,159 54
Timber Harvest Administration	3,204 77
Reforestation	5,199.02
Timber Stand Improvements	2,149.78
Genetic Tree Activities	402.71
Air Quality	400 00
Soil and Water Management	362.35
Watershed Resources	579.13
Minerals and Geology	274.15
Lands	584.62
Engineering - Road and Bridge Program	11,705 42
Engineering - Facilities Construction/Improvements	1,196 68
Engineering - Facility Maintenance/Quarters	390.58
Engineering - Geometronics	92 21
Engineering - Road Maintenance	6,726 23
Land Management Planning	611 00
Fire	5,375 19
Law Enforcement	701.33
Line and Program Support	5,567.35
TOTAL BUDGET	63,972 26



Hikers in the Three Sisters Wilderness

APPENDIX G

Trail Management Classes

Table G-1. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
CARPENTER MOUNTIAN	3302.0	BR	I	E	1.0
CHUCKSNEY MOUNTIAN	3306.0	BR	I	E	6.5
EAST FORK WESTEND	3308.2	BR	I	E	0.3
FRENCH PETE EASTEND	3311.0	BR	I	E	0.1
FRENCH PETE WESTEND	3311.2	BR	I	E	0.1
DELTA NATURE TRAIL	3317.0	BR	I	E	0.4
YANKEE MOUNTIAN	3318.0	BR	I	E	0.5
RIDER CREEK	3319.0	BR	I	E	0.8
FRISSELL CROSSING	3320.0	BR	I	E	0.8
PYRAMID	3322.0	BR	I	E	0.5
REBEL CREEK	3323 0	BR	I	E	1.7
REBEL ROCK	3324 0	BR	I	E	0.6
LOWDER MOUNTIAN EASTEND	3329 0	BR	I	E	0.1
QUAKING ASPEN	3332.0	BR	I	E	0.2
OLLALIE SOUTH-PAT SADDLE	3529 4	BR	I	E	0 1
OLLALIE SOUTH-FRISSELL	3529.6	BR	I	E	0.1
GRASSHOPPER SOUTH	3569.1	BR	I	E	9.9
BUCK MOUNTIAN	3304.0	BR	II	E	4.9
CROSSING WAY	3307.0	BR	II	E	2.8
SOUTH FORK	3327.0	BR	II	E	0.5
LOWDER MOUNTIAN WESTEND	3329 2	BR	II	E	1.7
CASTLE ROCK	3506.0	BR	II	E	4.6
ELK CREEK	3510.0	BR	II	E	3.5
GRASSHOPPER NORTH	3569.0	BR	II	E	3.6
BUCK MOUNTIAN EXTENSION	3304.1	BR	III	E	0.5
EAST FORK EASTEND	3308 0	BR	III	E	0 2
INDIAN RIDGE	3315.0	BR	III	E	2.1
O'LEARY	3321.0	BR	III	E	8.8
TIDBITS SOUTH	3328.0	BR	III	E	1.2
WALKER CREEK	3330.0	BR	III	E	1.0
MCBEE	3523.0	BR	III	E	4.8
ROARING RIDGE	3312.0	BR	IV	E	2.9
SADDLE	3326.0	BR	IV	E	1.5
FRENCH MOUNTIAN	3300 0	BR	I	P	2.5
WOLF ROCK	3310.0	BR	I	P	2.0
ROARING SPRINGS	3313.0	BR	I	P	2.0
HIDDEN LAKE SIA	3325 0	BR	I	P	0.2
HIDDEN LAKE EXTENSION A	3325.1	BR	I	P	1.5
LOOKOUT MOUNTIAN-HJA	3334.0	BR	I	P	1.5
SOUTH FK-NORTH FK	3500.0	BR	I	P	4.8
SOUTHH FK-NORTH FK	3500 2	BR	I	P	1.2
GRASSHOPPER LOOP	3569.2	BR	I	P	5 0
COUGAR	3335.0	BR	II	P	15.0
LENGASHER	4102.0	BR	II	P	5.0
LUCKEY BOY	3303.0	BR	III	P	4.0
BLUE RIVER	3305 0	BR	III	P	16 5

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
ECHO	3309.0	BR	III	P	1.1
INDIAN RIDGE EXTENSION	3315.1	BR	III	P	2.5
ROARING RIDGE EXTENSION	3312.1	BR	IV	P	2.7
HIYU	3316.0	BR	IV	P	6.0
HIDDEN LAKE EXTENSION B	3325.2	BR	IV	P	3.5
TIDBITS SOUTH EXTENSION	3328.1	BR	IV	P	7.5
RIDGE CREEK	3333.0	BR	IV	P	5.5
RENFREW	3336.1	BR	IV	P	4.0
SOUTH FK-NORTH FK	3500.1	BR	IV	P	1.2
SKOOKUM FLAT	3522.1	BR	IV	P	8.6
HARDESTY CUT OFF	3469.1	LO	I	E	0.3
STATION BUTTE	3471.0	LO	I	E	0.3
BUCKHEAD NT	3474.0	LO	I	E	0.5
LAWLER	3473.0	LO	I	E	0.5
ALPINE	3450.1	LO	I	E	0.6
JONNY CREEK NT	3454.0	LO	I	E	0.7
BLACK CANYON NT	3486.0	LO	I	E	1.0
CLARK CREEK NT	3456.0	LO	I	E	1.1
PATTERSON MOUNTIAN	3477.0	LO	I	E	1.1
CLOVER PATCH	3457.0	LO	I	E	1.2
LONE WOLF	3470.0	LO	I	E	1.5
SOUTH WILLAMETTE	3465.0	LO	I	E	1.5
SADDLE BLANKET	3487.0	LO	I	E	1.8
CLARK BUTTE	3456.1	LO	I	E	2.0
SAW TOOTH	1403.0	LO	I	E	3.2
GOLD POINT	3468.0	LO	I	E	4.3
HARDESTY	3469.0	LO	I	E	5.7
JONES	3472.0	LO	I	E	5.8
TIRE MOUNTIAN	3485.0	LO	I	E	6.1
FALL CREEK NRT	3455.0	LO	I	E	13.7
DECEPTION BUTTE	3466.0	LO	II	E	0.3
GOODMAN CREEK	3461.1	LO	II	E	0.8
COW HORN	3458.0	LO	III	E	1.0
CLOVER PATCH	3457.0	LO	III	E	1.3
EAGLES REST	3461.0	LO	III	E	1.8
LOST CREEK	3462.0	LO	III	E	2.5
ALPINE	3450.0	LO	III	E	2.8
GOODMAN	3461.1	LO	III	E	3.2
ALPINE	3450.1	LO	III	E	3.5
SOUTH WILLAMETTE	3465.0	LO	III	E	3.5
EULA RIDGE	3463.0	LO	III	E	4.0
LAWLER	3473.0	LO	III	E	5.1
ALPINE	3450.3	LO	III	E	5.5
WINBERRY DIVIDE	3476.0	LO	III	E	6.0
HARDESTY	3469.0	LO	IV	E	0.3

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
CLARK BUTTE	3456.1	LO	IV	E	0.7
STATION BUTTE	3471.0	LO	IV	E	0.7
HE HE MOUNTIAN	3475.0	LO	IV	E	1.0
JOES PEAK	3482.0	LO	IV	E	2.5
DECEPTION BUTTE	3466.0	LO	IV	E	4.0
SCHWEITZER CREEK	3467.0	LO	I	P	0.3
SADDLE BLANKET LOOP	3487.1	LO	I	P	2.5
SLICK CREEK LOOP	3460.0	LO	I	P	4.3
FALL CREEK NRT	3455.1	LO	I	P	4.5
SLICK CREEK TIE	3460.1	LO	I	P	4.8
PATTERSON MOUNTIAN	3477.1	LO	III	P	1.3
ASH TIE	3464.1	LO	III	P	1.5
ALPINE	3450.1	LO	III	P	2.9
ASH SWALE LOOP	3464.0	LO	III	P	4.0
SCHWEITZER CREEK	3467.0	LO	III	P	5.6
ALPINE	3450.0	LO	III	P	6.0
DECEPTION TIE	3459.1	LO	IV	P	2.3
DECEPTION ROCK	3459.0	LO	IV	P	4.8
PACIFIC CREST NST	2008.0	OA	I	E	14.8
GRASSHOPPER MEADOWS	3314 0	OA	I	E	1.4
SARDINE	3564.0	OA	I	E	0.3
SWAN LAKE	3570.0	OA	I	E	0.2
WARM SPRINGS	3582.0	OA	I	E	0.3
SOUTH WALDO	3586 0	OA	I	E	6.6
WALDO LAKE	3590.0	OA	I	E	21.8
WALDO SHORELINE	3590.1	OA	I	E	2.0
WALDO SHORELINE	3590.2	OA	I	E	2.0
WALDO SHORELINE	3590.3	OA	I	E	2.0
WALDO MEADOWS	3591.0	OA	I	E	1.0
CHARLTON LAKE	3593.0	OA	I	E	1.1
TWINS PEAK	3595.0	OA	I	E	3.3
DIAMOND CREEK FALLS	3598.0	OA	I	E	2.3
VIVIAN LAKE	3662.0	OA	I	E	3.5
BOBBY LAKE	3663.0	OA	I	E	1.5
BETTY LAKE	3664.0	OA	I	E	1.7
SALT CREEK FALLS	3673.0	OA	I	E	0.2
FUJI MOUNTAIN	3674 0	OA	I	E	6.1
CONSTITUTION GROVE	3675.0	OA	I	E	0.4
GOLD LAKE	3677.0	OA	I	E	3.8
GOLD LAKE-PCNST TIE-IN	3678.0	OA	I	E	1.1
MAIDEN PEAK	3681.0	OA	I	E	5.8
MT. RAY	3682.0	OA	I	E	4.8
HARRLASON HORSE CAMP	3684.0	OA	I	E	0.8
MARILYN LAKES	3689.0	OA	I	E	1.0
JOE GODDARD NATURE TRAIL	3690 0	OA	I	E	0.3

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
LOWER MIDDLE FORK	3691.0	OA	I	E	1.0
KLOVDAHL	3692.0	OA	I	E	0.3
BLAIR LAKE	3553.0	OA	II	E	7.4
MULE MOUNTAIN	3553.2	OA	II	E	0.6
EUGENE TO CREST	3559.0	OA	II	E	16.0
GANDER LAKE	3568.0	OA	II	E	0.5
OWL CABIN WAY	3571.0	OA	II	E	1.0
HIGH DIVIDE	3572.0	OA	II	E	2.5
HUCKLEBERRY LAKE	3573.0	OA	II	E	1.0
SPIRIT LAKE	3584.0	OA	II	E	1.0
SALMON LAKES	3585.0	OA	II	E	1.3
WALDO MOUNTAIN	3592.0	OA	II	E	1.0
ABERNATHY LAKE	3671.0	OA	II	E	0.7
VERDUN	3686.0	OA	II	E	2.5
ALPINE	3450.3	OA	III	E	5.5
FLAT CREEK	3566.0	OA	III	E	2.5
DEVIL'S GARDEN	3665 0	OA	III	E	1.2
DEER CREEK	3672.0	OA	III	E	0.7
WALDO LAKE SHORELINE	3590.4	OA	I	P	14.5
SALT CREEK CANYON	3660.0	OA	I	P	6.5
WALL CREEK	3661.0	OA	I	P	1.5
NORTH FORK	3666.0	OA	I	P	34.4
MT. DAVID DOUGLAS	3670.0	OA	I	P	5.0
EAGLE CREEK	3679.0	OA	I	P	7.7
HARRLASON-PCNST	3684.0	OA	I	P	1.5
KELSEY CREEK	3556.0	OA	II	P	3.0
SALMON CREEK	3557.0	OA	II	P	4.0
EUGENE TO PCNST	3559.0	OA	II	P	2.2
DEVIL'S HOLE	3696.0	OA	III	P	0.3
WINDY PASS SOUTH	1439.0	RI	I	E	2.6
PACIFIC CREST	2000.5	RI	I	E	4.4
KITSON RIDGE	3606 0	RI	I	E	1.8
LARISON ROCK	3607.0	RI	I	E	4.3
MIDDLE FORK	3609.0	RI	I	E	10.1
BEARBONES	3612.0	RI	I	E	1.1
SAND PRAIRIE	3618.0	RI	I	E	0.3
HEMLOCK BUTTE	3620.0	RI	I	E	0.5
TUFTI CREEK	3624.0	RI	I	E	0.5
STALEY RIDGE	3637.0	RI	I	E	1.2
TIMPANOGAS LAKE	3638.0	RI	I	E	1.1
JUNE LAKE	3639.0	RI	I	E	3.0
JUNE-INDIGO TIE	3640.0	RI	I	E	0.4
COWHORN TRAVERSE	3641.0	RI	I	E	0.3
STUART O'WILLAMETTE	3642.0	RI	I	E	1.1
WINDY PASS	3643.0	RI	I	E	6.0

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
DOME ROCK	3644.0	RI	I	E	0.5
LARISON CREEK	3646.0	RI	I	E	6.3
INDIGO SPRINGS	3647.0	RI	I	E	0.2
OPAL LAKE	3648.0	RI	I	E	0.2
INDIGO LAKE	3649.0	RI	I	E	1.9
INDIGO LAKE LOOP	3649.1	RI	I	E	0.8
SUMMIT LAKE SNOWMOBILE	3650.0	RI	I	E	12.0
YOUNGS ROCK	3685 0	RI	I	E	3.5
MOON POINT	3688.0	RI	I	E	1.1
STONY	3696.0	RI	I	E	0.3
YOUNGS ROCK	3685.0	RI	III	E	1.8
UOUNGS ROCK TIE	3685.1	RI	III	E	0.1
STALEY RIDGE	3637.0	RI	IV	E	1.0
ALIAS LARISON	3605.0	RI	I	P	2.0
MIDDLE FORK	3609.0	RI	I	P	29.9
SACANDAGA	3611.0	RI	I	P	3.0
CHUCKLE SPRINGS	3614.0	RI	I	P	0.4
LARISON-DECEPTION	3622.0	RI	I	P	1.0
TUFTI CREEK	3624.0	RI	I	P	0.3
STALEY RIDGE	3637 0	RI	I	P	2.0
INDIGO EXTENSION	3643.1	RI	I	P	2.0
TUMBLEBUG GORGE	3691.0	RI	I	P	5.0
SOUTH WILLAMETTE	3695.0	RI	I	P	4.0
POOL CREEK	4228.0	RI	I	P	0.3
LARISON SOUTH	4229 0	RI	I	P	4.0
DECEPTION WAY	3601 0	RI	IV	P	1.5
LARISON-DECEPTION WAY	3622.0	RI	IV	P	1.0
GRAY-DECEPTION	3623.0	RI	IV	P	5.0
LIGHTHOUSE ROCK	3694.0	RI	IV	P	2.0
CALAPOOYA DIVIDE	4227.0	RI	IV	P	50.0
LARISON VIEW	4230.0	RI	IV	P	0.5
PACIFIC CREST NST	2007.0	MC	I	E	4.1
PATJENS LAKE LOOP	3395 0	MC	I	E	3.2
SAWYERS CAVE	3400.0	MC	I	E	0.1
HUCKLEBERRY LAKE	3501.0	MC	I	E	1.0
BENSON LAKE	3502.1	MC	I	E	1.3
BENSON LAKE	3502.1	MC	I	E	0.5
KOOSAH FALLS	3503.0	MC	I	E	0.4
SAHALIE FALLS	3504.0	MC	I	E	0.1
SAHALIE TIE-IN	3504.3	MC	I	E	0.7
MCKENZIE RIVER TRAIL	3507.0	MC	I	E	14.4
MCKENZIE RIVER TRAIL	3507.1	MC	I	E	11.5
CLEAR LAKE LOOP	3507.2	MC	I	E	1.7
DEER BUTTE	3508.2	MC	I	E	0.4
ROBINSON LAKE	3508.3	MC	I	E	0.3

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
FOLEY RIDGE	3511.0	MC	I	E	0.5
HAND LAKE	3513.2	MC	I	E	0.4
HAND LAKE CUTOFF	3513.3	MC	I	E	1.5
HORSE CREEK	3514.0	MC	I	E	0.3
POCKET WAY	3522.0	MC	I	E	0.9
OBSIDIAN	3528.0	MC	I	E	0.6
OLALLIE TRAIL	3529.0	MC	I	E	0.9
OLALLIE TRAIL	3529.1	MC	I	E	4.0
OLALLIE TRAIL	3529.2	MC	I	E	1.8
OLALLIE TRAIL	3529.3	MC	I	E	1.4
HORSEPASTURE MOUNTIAN	3529.5	MC	I	E	1.3
SANTIAM WAGON ROAD	3535.0	MC	I	E	4.9
SANTIAM WAGON ROAD	3535.1	MC	I	E	1.6
SEPERATION CREEK	3536.0	MC	I	E	0.4
LAVA RIVER	3540.0	MC	I	E	0.6
LOST CREEK TRAIL	3541.0	MC	I	E	0.3
ICE CAP	3548.0	MC	I	E	0.4
SAND MOUNTIAN LOOP	3549.0	MC	I	E	4.0
TOLL STATION	3549.1	MC	I	E	1.2
NORTH LOOP	3550.0	MC	I	E	2.1
SOUTH LOOP	3556.0	MC	I	E	1.9
LITTLE NASH	3557.0	MC	I	E	0.4
FIRELINE LOOP	3558.0	MC	I	E	3.1
PACIFIC CREST NST TIE-IN	3560.0	MC	I	E	1.2
TWO BUTTES CUTOFF	4322.0	MC	I	E	1.6
DEER BUTTE	3508.0	MC	II	E	1.0
OLALLIE TRAIL	3529.0	MC	II	E	3.8
FRISSEL TRAIL	3512.0	MC	III	E	4.2
POCKET WAY	3522.0	MC	III	E	0.6
SAND MOUNTIAN LOOP	3549.0	MC	III	E	3.2
BOUNDARY LOOP	3549.2	MC	III	E	4.3
NORTH LOOP	3550.0	MC	III	E	1.9
SOUTH LOOP	3556.0	MC	III	E	3.6
SANTIAM AIRSTRIP	3557.0	MC	III	E	3.4
FIRELINE LOOP	3558.0	MC	III	E	0.6
HASH BROWN LOOP-1	3559.0	MC	III	E	4.0
MOUNTIAN VIEW	4316.0	MC	III	E	0.5
PRAIRIE VIEW	4317.0	MC	IV	E	4.0
HORSE CREEK	3514.2	MC	I	P	7.2
LOST CREEK TRAIL	3541.1	MC	I	P	3.3
MT. WASHINGTON LOOP 3	4325.0	MC	I	P	5.1
CASTLE ROCK 1	4326.0	MC	I	P	1.2
KOOSAH-SAHALIE TIE	4328.0	MC	I	P	0.2
SMITH RIDGE COMPLEX 3	4320.0	MC	II	P	3.3
SMITH RESERVOIR	4321.0	MC	II	P	4.0
CASTLE ROCK 2	4327.0	MC	II	P	2.7

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
SEARCH COMPLEX 1	4311.0	MC	III	P	2.0
SEARCH COMPLEX 2	4312.0	MC	III	P	3.0
SEARCH COMPLEX 3	4313.0	MC	III	P	2.0
HASH BROWN LOOP-2	4314.0	MC	III	P	0.8
HASH BROWN LOOP-3	4315.0	MC	III	P	1.9
MT. WASHINGTON LOOP 1	4323.0	MC	III	P	5.1
SMITH RIDGE COMPLEX 1	4318.0	MC	IV	P	3.1
SMITH RIDGE COMPLEX 2	4319.0	MC	IV	P	6.2
MT. WASHINGTON LOOP 2	4324.0	MC	IV	P	14.9
PARISH LAKE	3383.0	SH	I	E	0.5
CRECENT MOUNTIAN	3384.0	SH	I	E	4.0
DALY LAKE	3385.0	SH	I	E	1.0
GORDON LAKES	3386.0	SH	I	E	5.6
GORDON PEAK	3387.0	SH	I	E	6.1
RIGGS LAKE	3388.0	SH	I	E	0.6
IRON MOUNTIAN	3389.0	SH	I	E	1.6
IRON MOUNTIAN	3389.1	SH	I	E	0.1
SOAPGRASS	3390 0	SH	I	E	2.5
GORDON MEADOWS ADMIN.	3394.0	SH	I	E	0.8
TWIM BUTTES	3404.0	SH	I	E	1.2
HOUSE ROCK LOOP	3406 0	SH	I	E	0.6
HOUSE ROCK FALLS	3406.1	SH	I	E	0.1
HEART LAKE	3407 0	SH	I	E	1.0
CONE PEAK	3408 0	SH	I	E	3.3
BROWDER RIDGE	3409 0	SH	I	E	3.7
ECHO MOUNTIAN OGG	3410.0	SH	I	E	1.4
HACKLEMAN OGG	3411.0	SH	I	E	0.8
GATE CREEK	3412.0	SH	I	E	3.1
SANTIAM WAGON ROAD	3413.0	SH	I	E	22.7
LONGBOW LOOP	3418.0	SH	I	E	0.3
TROUT CREEK LOOP	3419.0	SH	I	E	1.0
TOMBSTONE NATURE TRAIL	3420.0	SH	I	E	0.7
YUKWAH NATURE TRAIL	3421.0	SH	I	E	0.3
PYRAMIDS	4145.0	SH	I	E	2.1
LONG RANCH	4146.0	SH	I	E	1.0
GOLD HILL-QUENTIN	3370.0	SH	II	E	2.7
GOLD HILL-CINERELLA	3370.1	SH	II	E	2.8
GORDON LAKES	3386.1	SH	II	E	1.6
MCQUADE CREEK	3397.0	SH	II	E	4.7
TIDBITS MOUNTIAN	3398 0	SH	II	E	1 4
KNOB ROCK	3401.1	SH	II	E	3.0
WEIDERMAN	3396.0	SH	IV	E	2.8
CHIMMNEY PEAK	3382.1	SH	I	P	3.5
SOAPGRASS	3390.1	SH	I	P	2.3
SOAPGRASS	3390.2	SH	I	P	1.6

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
MOOSE LAKE	3393.0	SH	I	P	1.0
OLD CASCADES CREST	3402.0	SH	I	P	20.7
HEART LAKE	3407.1	SH	I	P	1.0
MIDDLE SANTIAM	3414.1	SH	I	P	0.2
SHELTER FALLS	4144.0	SH	I	P	1.5
BOULDER CREEK	4147.0	SH	I	P	1.3
GREGG CREEK	4148.0	SH	I	P	3.0
THREE CREEKS OGG	4151.0	SH	I	P	1.5
ELK VIEW	4153.0	SH	I	P	0.2
SOUTH PYRAMID	3403.0	SH	II	P	6.0
BEABE CREEK	4149.0	SH	II	P	4.5
BEAR PASS	4152.0	SH	II	P	2.8
STEWART CREEK	4150.0	SH	IV	P	4.5
HUMBUG FLATS	3336.0	DE	I	E	1.0
ELKHORN RIDGE	3347.0	DE	I	E	0.5
HENLINE FALLS	3348.0	DE	I	E	0.3
HENLINE MOUNTIAN	3352.0	DE	I	E	2.7
NASTY ROCK	3356.0	DE	I	E	1.6
OGLE MOUNTIAN	3357.0	DE	I	E	2.5
SOUTH BREITENBUSH GORGE	3366.0	DE	I	E	2.0
OPAL LAKE	3372.0	DE	I	E	0.2
TUMBLE LAKE	3379.0	DE	I	E	1.0
TUMBLE RIDGE	3380.0	DE	I	E	1.1
DOME ROCK	3381.0	DE	I	E	0.4
DUFFY	3427.0	DE	I	E	0.2
MARION	3436.0	DE	I	E	0.5
NEWPORT	3438.0	DE	I	E	0.4
PAMELIA	3439.0	DE	I	E	0.4
PINE RIDGE	3443.0	DE	I	E	0.3
MINTO MOUNTIAN	3448.0	DE	I	E	1.8
SANTIAM LODGE	3496.0	DE	I	E	0.5
LITTLE NORTH SANTIAM	3338.0	DE	II	E	4.2
CRAG	3364.0	DE	II	E	1.0
SOUTH BREITENBUSH GORGE	3366.0	DE	II	E	3.0
LEONE LAKE	3367.0	DE	II	E	1.0
SOUTH BREITENBUSH	3375.0	DE	II	E	1.1
MAXWELL BUTTE	3391.0	DE	II	E	1.3
BINGHAM RIDGE	3421.0	DE	II	E	0.5
DUFFY	3427.0	DE	II	E	2.5
PINET LAKE	3432.0	DE	II	E	0.5
BIG MEADOWS TOE	3434.0	DE	II	E	0.5
CHEAT CREEK	3441.0	DE	II	E	0.4
WOODPECKER	3442.0	DE	II	E	1.4
TURPENTINE LOOP	3455.0	DE	II	E	2.5
BIG MEADOWS LOOP	3456.0	DE	II	E	3.0

Table G-1 Cont. Trail Management Classes by Ranger District

Trail Name	Trail No.	District	Class	Existing/Proposed	Mileage
PIKA-FIR	3489.0	DE	II	E	0.9
MAXWELL HORSE-SKI	4186.0	DE	II	E	2.0
BEACHIE	3341.0	DE	III	E	1.7
DEVILS RIDGE	3345.0	DE	III	E	0.7
ELKHORN RIDGE	3347.0	DE	III	E	4.2
FRENCH CREEK RIDGE	3349.0	DE	III	E	4.5
GOLD BUTTE LOOKOUT	3350.0	DE	III	E	0.3
ROARING CREEK	3361.0	DE	III	E	0.3
TRIANGULATION	3373.0	DE	III	E	1.0
TUMGLE RIDGE	3380.0	DE	III	E	4.2
COFFIN LOOKOUT	3392.0	DE	III	E	1.0
BACHELOR MOUNTIAN	3420.0	DE	III	E	1.9
INDEPENDENCE ROCK	3421.0	DE	III	E	1.7
BUGABOO RIDGE	3423.0	DE	III	E	1.9
BRUNO MEADOWS	3424.0	DE	III	E	1.5
COFFIN MOUNTIAN	3425.0	DE	III	E	2.1
BLOWOUT ARM	3426.0	DE	III	E	0.2
NEWPORT	3438.0	DE	III	E	0.7
MINTO MOUNTIAN	3448.0	DE	III	E	1.2
STAHLMAN POINT	3449.0	DE	III	E	2.2
FRENCH CREEK RIDGE	3349.0	DE	IV	E	3.2
MANSFIELD	3355.0	DE	IV	E	1.6
RAPIDAN	3360.0	DE	IV	E	3.8
SHORT MOUNTIAN	3363.0	DE	IV	E	1.9
COFFIN LOOKOUT	3392.0	DE	IV	E	1.5
BUGABOO RIDGE	3423.0	DE	IV	E	1.2
MCCOY SNOWMOBILE	4185.0	DE	IV	E	21.0
DUNLOP-ELK	3337.0	DE	I	P	4.0
ELK LAKE LOOP	3346.0	DE	I	P	1.5
NASTY ROCK	3356.0	DE	I	P	0.5
MONUMENT LOOP	3368.0	DE	I	P	2.5
INDIAN RIDGE	3378.0	DE	I	P	5.0
OPAL CREEK	4187.0	DE	I	P	1.2
LITTLE NORTH SANTIAM	3338.0	DE	II	P	7.8
PIETY	3359.0	DE	II	P	2.5
BIG MEADOWS HORSE-SKI	3501.1	DE	II	P	10.0
MAXWELL HORSE-SKI	4186.0	DE	II	P	8.0
OPAL CREEK	4186.0	DE	II	P	3.3
DETROIT RESERVOIR	3365.0	DE	III	P	12.6
STAHLMAN POINT	3449.0	DE	III	P	0.5
MAXWELL HORSE-SKI	4186.0	DE	III	P	20.0
INDIAN RIDGE	3378.0	DE	IV	P	10.0
MCCOY SNOWMOBILE	4185.0	DE	IV	P	5.0

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