United States
Department of
Agriculture

Forest Service

Pacific
Northwest
Region

**Deschutes
National Forest**

Land and Resource Management Plan

Deschutes National Forest

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Land and Resource Management Plan

PREFACE

This National Forest Land and Resource Management Plan (Forest Plan or Plan) was developed to guide all natural resource management activities and establish standards/guidelines for the Deschutes National Forest. The purpose of the Plan is to provide for the use and protection of Forest resources, fulfill legislative requirements, and address local, regional, and national issues and concerns. To accomplish this, the Forest Plan:

- Establishes the management direction and associated long-range goals and objectives for the Forest for the next 10 to 15 years;
- Sets the allowable sale quantity for timber and identifies land suitable for timber management;
- Specifies standards/guidelines for Forest-wide application;
- Creates management areas with goals, themes and objectives and additional standards/guidelines;
- Calls for a monitoring and evaluation program to ensure that the direction is carried out. It includes measures which must be taken if outputs and environmental effects are other than those which were predicted.

This 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 (NEPA). Because this plan is considered a major Federal action significantly affecting the quality of the human environment, a detailed environmental impact statement has been prepared as required by the NEPA. The Forest Plan represents the Preferred Alternative as identified in the Final Environmental Impact Statement (FEIS or EIS) for the Plan.

If any particular provision of this Forest Plan or its application to any person or circumstance, is held invalid, the remainder of the Forest Plan and its application to other persons or circumstances shall not be affected thereby.

Additional information about this plan is available from the:

Forest Supervisor
Deschutes National Forest
1645 Highway 20 East
Bend, OR. 97701

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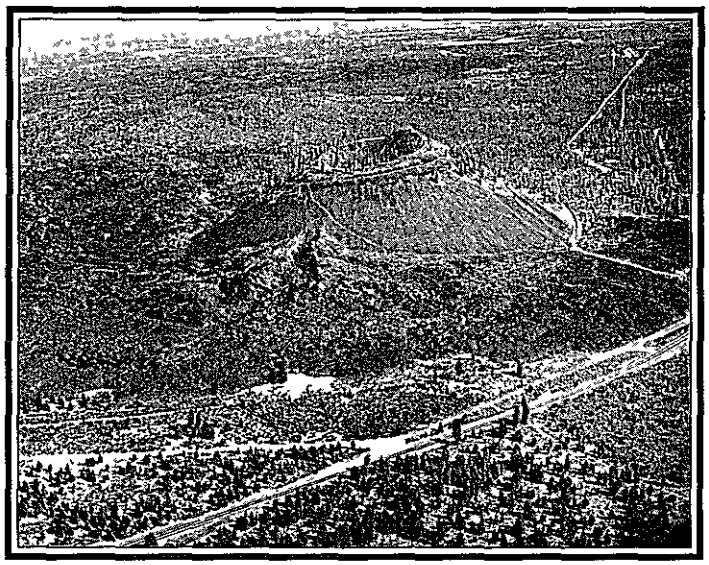
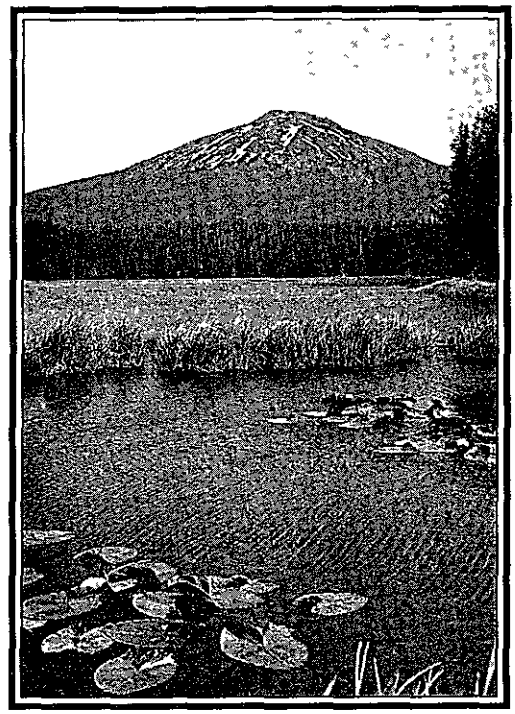
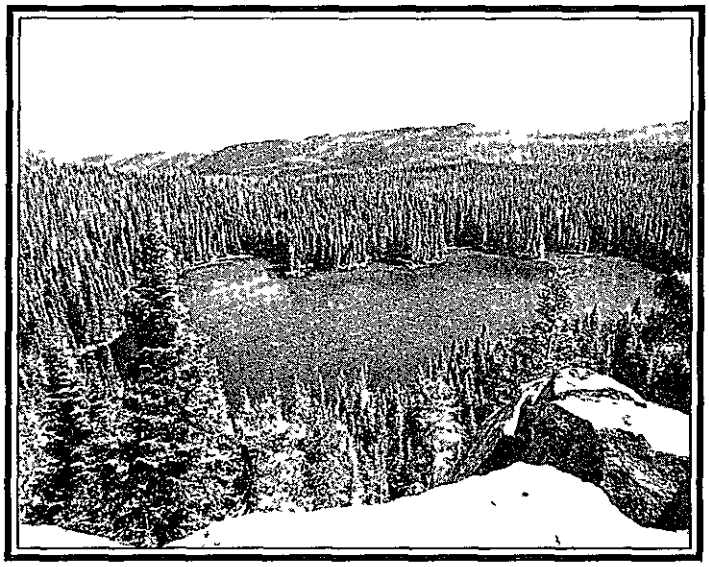






Chapter 1

Introduction to the Forest Plan

Purpose of the Forest Plan

The Land and Resource Management Plan (LRMP or the Forest Plan) establishes direction for the Deschutes National Forest for the next decade. It guides all natural resource management activities and establishes a dynamic management system for future decision making. It describes the desired future condition, establishes goals and objectives for forest management, and standards/guidelines (S&Gs) for the Deschutes National Forest. The Forest Plan establishes management area direction including prescriptions as well as S&Gs specific to each management area. It describes the availability and suitability of lands for resource management, levels of resource production and management, and monitoring and evaluation requirements The Forest Plan also establishes the allowable sale quantity for timber

The Forest Plan embodies the provisions of the National Forest Management Act of 1976 (NFMA), the implementing regulations, and other guiding documents Land use determinations, prescriptions, and S&Gs are a statement of the Plan's management direction, however, the projected outputs, services, and rates of implementation are estimates and are dependent on the annual budgeting process.

The Forest Plan will ordinarily be revised on a 10-year cycle, or at least every 15 years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly The Forest Supervisor will review the conditions on the land covered by the Plan and the demand of the public at least every 5 years to determine whether either has changed significantly.

Relationship to the Regional Guide

The Regional Guide for the Pacific Northwest Region (June 1984), as amended December 8, 1988, provides direction for National Forest Plans. It includes standards/guidelines addressing the major issues and management concerns considered at the Regional level, to facilitate forest planning.

Relationship to the EIS and ROD

This Forest Plan sets forth the Preferred Alternative for managing the resources of the Deschutes National Forest. The Plan results from extensive analysis and considerations that are addressed in the accompanying Final Environmental Impact Statement (FEIS). The planning process and the analysis procedures that were used to develop the Plan are described or referenced in the FEIS. The FEIS also describes other alternatives considered in the planning process. The Forest Plan establishes project and activity level decisions specifically identified in the Record of Decision and adequately disclosed for NEPA purposes in the FEIS.

The Forest will do project level environmental analysis and will use the data and evaluations in the Plan and FEIS as its basis. Environmental analysis for projects will be tiered to the FEIS and Plan.

All proposed projects must be tested for consistency with the Forest Plan. If projects are found inconsistent they must be changed or rejected or the Forest Plan amended before implementation.

Relationship to Other Plans

The Forest Plan serves as the single land management plan for the Deschutes National Forest. All other land management plans will be replaced by the direction in this Forest Plan. All resource management plans will also be replaced by this Plan. Resource management goals, objectives, direction, management practices and S&Gs are displayed in Chapter 4.

Relationship to Special Area Plans

Other planning documents, required by law, have been or will be developed to give additional and more specific guidance to management activities within the direction that is established in this Plan. These documents are needed for site specific information or to carry out the direction in this Plan. The documents listed below have been included or adopted in this plan or this plan will be amended to incorporate them when they are developed.

Laws:

* The Wilderness Act of 1984 added additional acreage to several wilderness areas on the Forest and established the Oregon Cascade Recreation Area or OCRA. (Direction in the Act is included in this Plan.)

* *The Wild and Scenic Rivers Act requires* plans and boundaries, to be defined, which are in the process of being developed and will be completed by 1992. This Plan will be amended to incorporate them The standards/ guidelines contained herein are interim until the required management plans are completed.

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 August, 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.

Plan Structure and Organization

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

Chapter 1 introduces the reader to 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 2 is a summary of the Analysis of the Management Situation Included are summaries of the current management situation for each resource, a brief socioeconomic overview of the Forest and related communities and counties, potential supply for various resource goods and services, and a brief look at demand. This Chapter also includes a section on information needs identified for the Deschutes National Forest.

Chapter 3 summarizes the Issues and Concerns *and briefly explains how each was dealt with in* the Forest Plan

Chapter 4 is the heart of the Plan and contains the Resource management prescriptions, goals, objectives, direction, management practices and S&Gs which the Forest has established for the planning period. Accompanying this are the projected resource outputs, activities, and budget necessary to achieve the goals The outputs and activities are provided to show an estimate of the projected quantities we would expect to achieve if the plan was implemented as shown.

The S&Gs apply to everyday on-the-ground projects and cover a wide range of resources. Some are specific and others provide procedures to follow. Also contained in Chapter 4 are descriptions of the Management Areas. Prescriptions for the Management Areas define the types of activities that can occur within a management area The locations of the various management areas within the Forest are shown on the map of Alternative E included with the FEIS

Chapter 5 contains information on Plan implementation, amendment, and the monitoring program. As the Forest Plan is implemented, it will be monitored to determine if the outputs and S&Gs in Chapter 4 are being met and if the S&Gs are adequate and being applied.

Forest Description

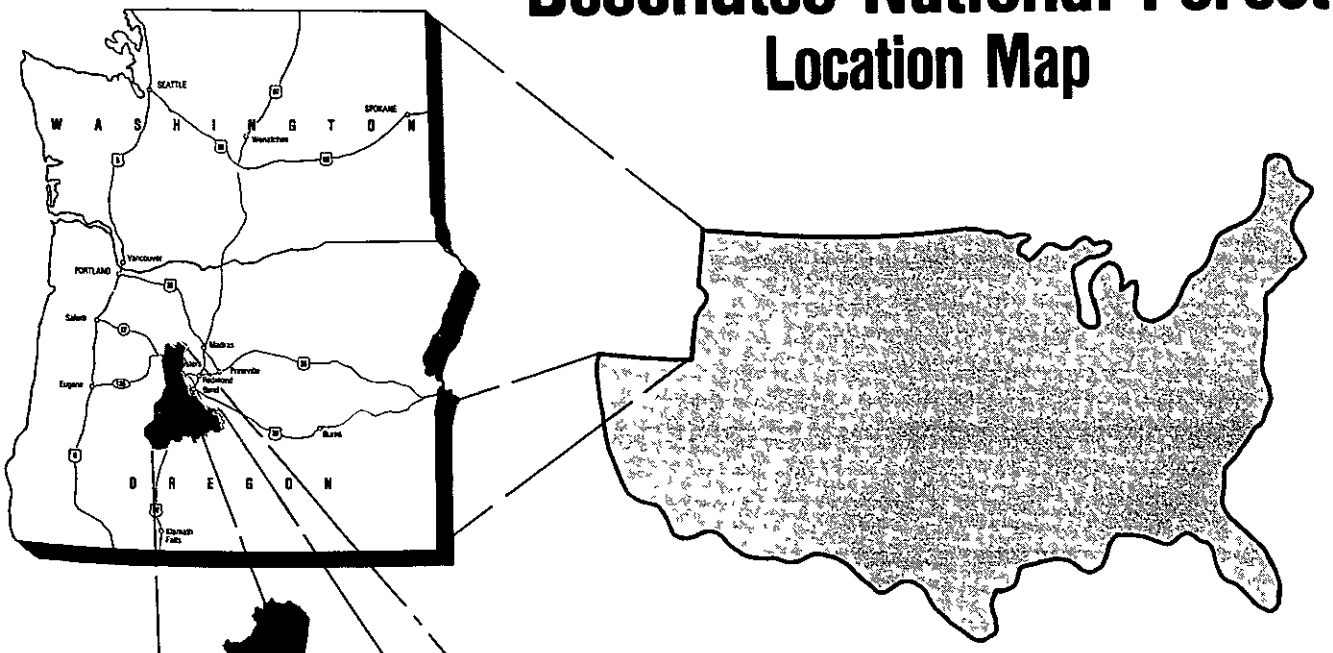
The Deschutes National Forest is located on the east slope of the Cascade Mountains in Central Oregon. The Forest lies mostly in Deschutes County but extends into Jefferson County on the north and into Klamath and Lake Counties on the south. Within the Forest boundary there are over 1.85 million acres, of which 1.6 million acres are National Forest lands.

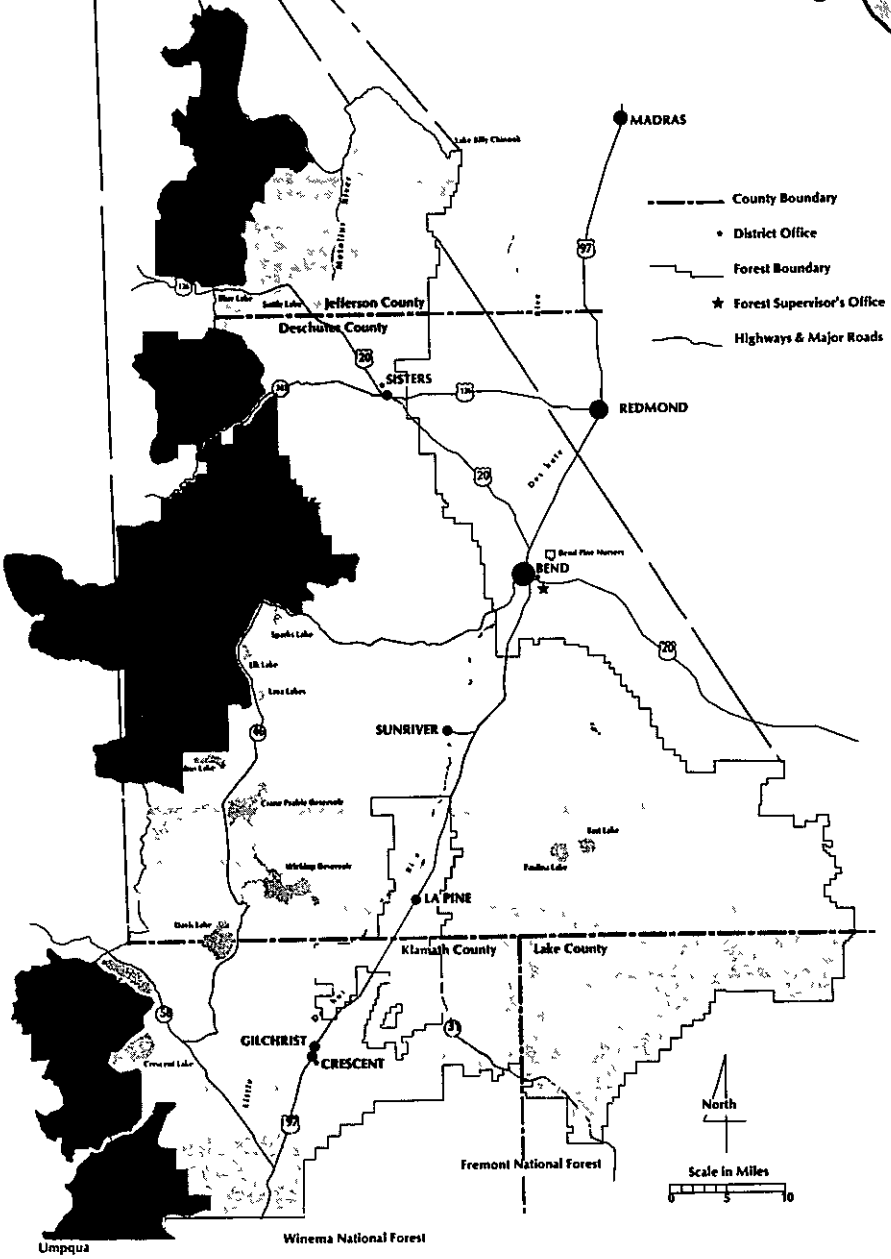
The largest cities in the area are Bend and Redmond. Madras, Sisters, LaPine, Crescent, and Gilchrist are other important population centers.

The Forest headquarters and two Ranger District offices are located in Bend Also located in Bend is the Bend Pine Nursery. Ranger District offices are also located in Sisters and Crescent. The Redmond Air Center, Regional Aviation Group, Regional Fire Cache, Regional Training Center and Deschutes National Forest Dispatch Office are located in Redmond.

Map 1 shows the location of the Deschutes National Forest.

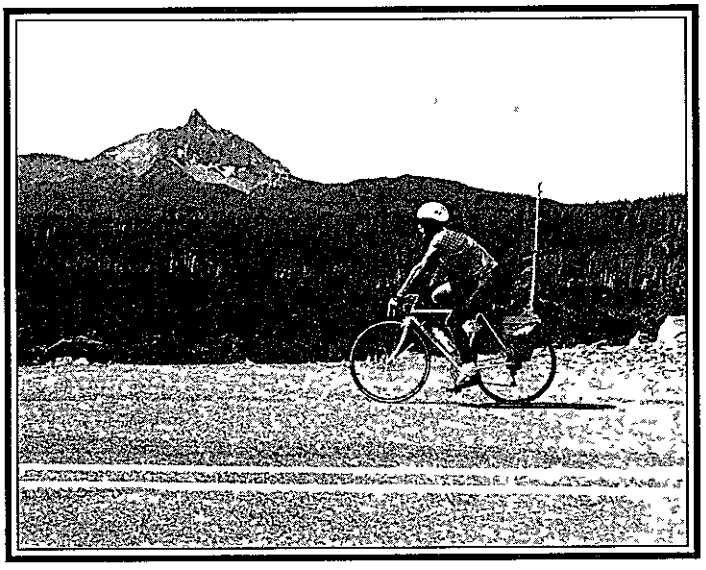
Deschutes National Forest
Location Map

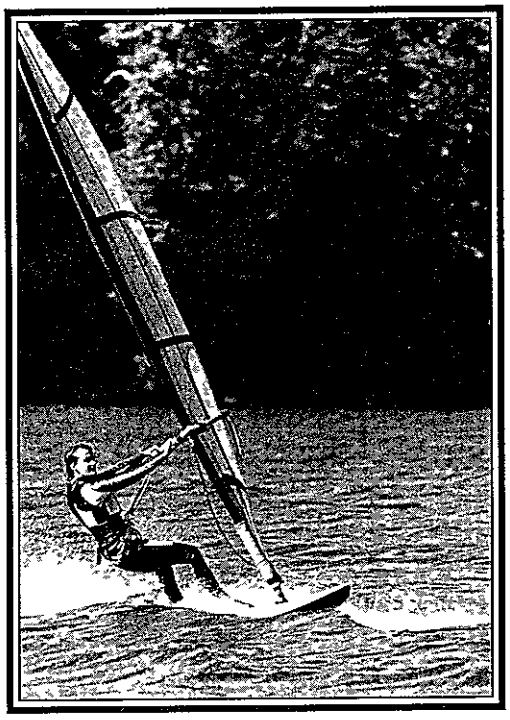




Chapter 2

Summary of the Analysis of the Management Situation





Chapter 2

Summary of the Analysis of the Management Situation

Introduction

This Chapter begins with a brief overview of the socioeconomic environment in which the Deschutes National Forest operates This is followed by a summary discussion of the supply and demand situations pertaining to the significant market and nonmarket goods and services produced on the Forest. Finally, topics for research needed to fill some of the gaps in scientific knowledge and reduce the amount of uncertainty in resource management decisions are suggested

Social Economic Overview

In order to assess the current economic and social conditions, and to estimate and monitor potential changes that might result from the implementation of a Forest Plan, a "Forest Influence Area" was delineated. The Forest Influence Area is where the majority of Forest products are first used and where public concern about management of the Forest is concentrated. While forest management decisions on the Deschutes may have economic consequences to people outside of the nearby surrounding communities, the majority of resulting economic impacts are felt within the local economy. Therefore, because of its dominance in the Forest Influence Area, Deschutes County was often used as a proxy for the full area of influence for purposes of economic impact analysis A larger area, which includes communities in adjacent counties and the Willamette Valley, was used for the social analysis.

Population

The 1980 census showed that Deschutes County's population was 62,142, Jefferson County was 11,599, and Klamath County was 59,117. Deschutes County grew by 31,700 people from 1970 to 1980, an increase of 104 percent. This equates to an annual growth rate of about 7.2 percent. Of this net change, only 10 percent (3,162 persons) was due to natural increase. The vast majority of the growth, 90 percent (28,538 persons), was due to in-migration However, since 1980 the population growth rate has slowed significantly to about 1.5 percent per year

The only incorporated cities in the Forest Influence Area are located in Deschutes County· Bend (1980 population 17,263), Redmond (1980 population 6,452), and Sisters (1980 population 696) Concentrations of people in the unincorporated part of Deschutes County include the areas east and south of Bend and the communities of LaPine, Sunriver, Tumalo, and Cloverdale In 1980, 40 percent of Deschutes County's population lived in incorporated cities, while 60 percent lived outside of these communities.[1]

The Crescent division of Klamath County has no incorporated cities. Communities in this area include Crescent, Gilchrist, and Chemult The Grandview division of Jefferson County also has no cities Settlements in this division include Camp Sherman and Grandview.

Obviously, Deschutes County's growth depended on attracting people from elsewhere. People cite recreation opportunities, climate, and quality of the environment as reasons for moving to and living in Deschutes County.

[1]Labor Market Information, LM, State of Oregon, Employment Division, Department of Human Resources, 1984.

Local Economy

The three most important basic industries in the Forest Influence Area include agriculture, wood products manufacturing, and recreation and tourism.[1]

Agriculture

While increasing slightly in absolute terms, agriculture within the Forest Influence Area has been diminishing in relative importance. In Deschutes County, gross cash farm income increased from $11.3 million in 1970 to $13.3 million in 1980, and to $16.1 million in 1983 However, agricultural producers in Deschutes County are facing increasing production costs and decreasing (or constant) farm prices. These factors, coupled with inflation, are resulting in the sale of many farms.[2]

Recreation and Tourism

The recreation and tourism industry is increasingly being touted as a mainstay of the local economy. Winter and summer recreation expenditures have added an element of stability to the otherwise volatile wood products based economy. In 1983, 1.54 million out-of-State tourists visited Central Oregon, and spent an estimated $187.2 million during their stay. It is also estimated that an equal number of Oregonians visited Central Oregon during that year. In total, the resulting recreation expenditures generated approximately $374.4 million in personal income to the local economy.[3] Most of the recreation activities that attract these visitors are related to the opportunities on the Deschutes National Forest.

Manufacturing

The manufacturing component of the Forest Influence Area is dominated by the wood products industry. This industry currently employs about 17 percent of all workers in Central Oregon The remainder is made up of diverse light industries. Wood products manufacturing is directly tied to the national housing market, and the housing market is tied to mortgage interest rates. Current high interest rates, the prospects of future increases in interest rates, plus increasing competition from Canadian imports are causing some instability in the industry.

Primary Processing or Milling

Mills in Deschutes County are heavily dependent on timber supplied by the Forest. However, this relationship has experienced some unprecedented changes over the last few years. Ten years ago, over 80 percent of the logs bought by Deschutes County mills came from the Deschutes National Forest. Since 1981 this relationship has changed to the point where in 1983 only 47 percent of the timber sold from the Forest was purchased within the traditional marketing area. Much of the volume began to go west over the Cascades due to the prospects of timber supply reductions west of the Cascades It is anticipated that for the next five to ten years, local mills will continue to operate in a more competitive market for Forest timber.

Currently two major sawmills are operating in the Forest marketing area; one in Bend and one in Gilchrist. In addition, Prineville has four sawmills. Together these mills have an estimated installed capacity, on a two-shift level, of about 400 million board feet per year. Of this total capacity, 100 million board feet represents capacity for small logs. A veneer plant which has a capacity of 50 million board feet is located in Redmond. Two chipping facilities are within the area; one in Redmond and one in Lapine.

Secondary Manufacturing

The dominant secondary wood processing activity in the Forest marketing area is mill work manufacturing (moldings, trims, casings etc.) Ponderosa pine boards are the most common raw material for this industry. Furniture, cabinet making, and post and pole firms also exist in the area

[1]Labor Market Information, LM, State of Oregon, Employment Division, Department of Human Resources, 1984

[2]Butler, Jesse N , Hewell, Denny, Sullivan, Michael C Overall Economic Development Program for Central Oregon, for FY 1984-1985 Central Oregon Intergovernmental Council, 1984

[3]Butler, Jesse N Tourism and Recreation in Deschutes County Central Oregon Intergovernmental Council, 1984.

Social Environment

People and communities in the Forest Influence Area have important, but different, ties to the Deschutes National Forest. The nature of these ties means that aspects of the Forest Plan Alternatives could affect each somewhat differently.

Four types of communities have been identified and will be described. Also, two types of ties between Forest and community have been identified One tie between Forest and community is its contribution of raw material for industry and the jobs it and Forest management provide. A second tie is the scenic and recreational environment the Forest offers to recreationists and residents. Two of the community types have very clear and nonoverlapping ties to the Forest while the other two communities are affected by both types of ties but in different ways.

Rural Industrial Communities

Rural industrial communities are closely tied to the Forest in work, subsistence, and play. The supply of available timber constitutes the economic link between the Deschutes National Forest and these communities with regards to their timber harvesting, wood processing, and transportation businesses. The wood products industry is the predominant industry in towns like Crescent, Gilchrist, Prineville, and Redmond. But timber is not the only tie. People in these communities use fuelwood, fish, and game for part of their subsistence. Recreation (often roaded and/or motorized) is also a central component of the life styles in these communities Therefore, the provision of diverse recreation opportunities on the Forest is also a major concern

Rural Recreation and Residential Communities

Rural recreation and residential communities adjacent to, and within, the Deschutes National Forest are dependent primarily upon forest based recreation activities and recreation residences for their livelihood Environmental and scenic amenities and nearby recreational opportunities are major reasons for their existence. Towns and settlements along the Metolius and the upper Deschutes River, such as LaPine and Sisters, are included in this community type. Local service-oriented businesses provide convenience items and cater to tourists, skiers, and sportsmen.

Management activities which result in changes in the environmental quality, or appearance of the forest setting, amenities, and recreation opportunities all could have direct impacts on these communities

Central Oregon Urban Center

This community type includes Bend which is the dominant community in the Forest Influence Area. It has a large industrial sector based on wood products, and a large service sector keyed to recreationists and tourists It is the major shopping and service center for outlying communities. The socioeconomic health of the wood products industry and the service sector, and the quality of the environment, are all central concerns to Bend's residents.

As a larger and more diverse community, some conflicts over Forest management can be absorbed without much social disruption. While more sensitive issues tend to pull people together within the smaller communities, they tend to polarize a community like Bend which has economic and emotional ties on all sides of the issues. The Deschutes National Forest, because of its amenities and economic contributions to Bend, renders it a Forest-dependent community.

Westside Communities

While activities on the Deschutes National Forest do not directly impact the daily lives of people in the populous communities west of the Cascades, they are important to many of them for various reasons. Over the last few years, more and more Forest timber sales have been purchased by the westside wood products industry. In addition, residents from the Willamette Valley participate in a wide diversity of recreational activities provided on this Forest.

These communities represent the more diffuse Regional publics which are affected by management decisions on the Forest. Conflicts over resource management decisions on the Forest

are more likely to be seen as symbolic of broader issues Responses may reflect the position of specific interest groups rather than the sentiment of local residents who are more directly affected by the issues.

Resource Supply Conditions

The primary issues which guided the development of the Forest Plan revolved around the management of the recreation, timber, visual, and wildlife resources. "Benchmarks" were developed in order to help define the decision space available to the Forest within which alternatives could be formulated to address the identified planning issues. The benchmarks were designed to explore the maximum supply potentials for each resource that could be produced while satisfying all of the legal requirements for forest planning. The legal requirements included those pertaining to maximum size and dispersion of harvest units, and those related to the minimum habitat requirements for spotted owls, bald eagles, goshawks, pine martens, northern three-toed woodpeckers, and primary cavity nesters

The following table displays the outputs and effects associated with the various resource maximization benchmarks. With regard to the present net value estimates, timber outputs account for 50 to 85 percent of the total discounted benefits, while recreation contributes from 20 to 45 percent. Special use permits and range outputs account for less than 10 percent of the total discounted benefits side of the present net value calculations. The importance of recreation values on the Forest should not be overlooked. In fact, the objectives of the two maximum present net value benchmarks (Run-4 and Run-7) were achieved through the allocation of 70,000 acres of forested lands to an intensive recreation emphasis as opposed to wood production due to the relative tradeoffs between the recreation and timber values on those acres.

Table 2-1 also highlights the recreation, timber, visual, and wildlife output levels for each of the resource maximization benchmarks. From this, an idea of the magnitude of complimentary and competitive relationships that exist between the production of these key resources can be obtained.

Table 2-1 Outputs and Effects of Benchmark Analyses

	Min. Level	Max. PNV Dep.+Util (Run-4)	Max. PNV NDF-CMAI (Run-7)	Max. Timber	Max. Range	Max. Wildlife	Max. Visual	Max. Recreation
Discounted Benefits ($MM):								
Timber	0.0	1217.7	1053.6	1060.3	1060.3	992.1	964.7	858.1
Recreation	160.7	773 6	773.6	409.9	409.9	217.2	409.9	776.9
Range	1.0	6.8	6 8	6.8	10 5	3 7	5.6	5.6
Special Uses	0.0	20 3	20.3	20.3	20.3	20.3	20.3	20.3
Discounted Costs ($MM)	119.0	516 8	434.2	521.2	521.2	389.6	381.9	416.4
PNV ($MM)	41.7	1501.6	1420.1	976.1	979.88	843.7	1018 6	1244 5
Harvest Levels (MMCF):								
Decade 1	938.9	505.7	517.8	517.8	450 8	455 4	402 7	
Decade 2	704.2	505.7	517.8	517.8	450.8	455.4	402.7	
Decade 3	528.1	505.7	517.8	517.8	450.8	455.4	402.7	
Decade 4	396.1	505 7	517.8	517.8	450.8	455.4	402.7	
Decade 5	316.0	505 7	517.8	517 8	450 8	455.4	402 7	
Long Run Sustained Yield (MMCF)	439.8	505.7	517.8	517.8	450.8	455.4	402.7	
Acres With Programmed Harvesting Prescriptions (M Acres):	1115 3	1125 4	1150.0	1150 0	972 1	1079.8	869 2	
Recreation Use (MRVD/Year)·								
Developed	143.5	1449.2	1449.2	494.8	494.8	494 8	494.8	1456.6
Dispersed	1037.8	1537.7	1537.7	1067 6	1067.8	1067.6	1067.8	1586 9

Table 2-1 Outputs and Effects of Benchmark Analyses (continued)

	Minimum Level	Max. PNV Dep.+Util (Run-4)	Max. PNV NDF-CMAI (Run-7)	Max. Timber	Max. Range	Max. Wildlife	Max. Visual
Wildlife Population Levels:							
Three-Toed Woodpecker (Pairs)	110	110	110	110	600	110	110
Deer (No. of Deer)	N/A	N/A	N/A	N/A	33,500	N/A	30,500
Osprey (Pair)	N/A	N/A	N/A	N/A	180	N/A	N/A
Pine Marten (Number)	100	100	100	100	1890	100	100
Woodpeckers (% of Bio.Pot.)	20%	20%	20%	20%	80%	20%	20%
Spotted Owls (Pairs)	10	10	10	10	12	10	10
Bald Eagles (Pairs)	45	45	45	45	50	45	45
Goshawks (Pairs)	70	70	70	70	115	70	70
Old Growth (% of Ecoclass)	0	0	0	0	20%	0	0
Visual Quality:							
Percent of Max Potential Retention, Partial Retention	0	0	0	0	4	100%	35%
Range (Permitted M AUM's/Year)	29	29	29	45	16	24	24X

Resource Demand Projections

The term "demand" is one that is often used incorrectly in casual conversations about the use of forest resources Economists have a more rigorous and narrow definition of the word: 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.

Currently, few definitive studies and sparse data is available to assess demand, in this sense of the word, for the variety of key resources provided by the Forest. Therefore, the following assessment of both current and anticipated future use levels is based on recent historical trends and some expression for the future from various industries, organizations, and the public.

Recreation

The Deschutes National Forest plays a unique role as a recreation provider for Oregon and the Pacific Northwest Bounded by the Crest of the Cascades on the west and the high desert on the east, the Forest offers a wide variety of recreation opportunities These opportunities include Wilderness, developed ski areas, and developed campgrounds associated with the many lakes, streams, and reservoirs on the Forest. Most of the Forest is also available to dispersed recreation uses such as hunting, fishing, camping, and off-road vehicles.

The Forest's geographic location makes it unique in relation to the major population centers in the Northwest Situated along the east flanks of the Cascade Mountains, the Forest provides a dry climate for recreation desired by much of the region's population living in the rain belt west of the Cascades The short driving time; 2-4 hours from Eugene, Salem, or Portland, and 7-8 hours from Seattle, make the Forest very accessible both on weekends and for longer vacations.

Several major resorts are located within the Forest boundary including Sunriver, the Inn of the Seventh Mountain, and Black Butte Ranch. These resorts offer their guests a wide variety of recreation experiences, many of which take place on the Forest.

In 1986, the Deschutes National Forest was ranked 3rd among the 19 National Forests in the Pacific Northwest Region, and 25th among 125 Forests in the Nation with regard to total recreation use. Recreation visitor use for 1986 was nearly 2,600,000 visitor days Assuming that people's propensity to recreate will remain relatively constant over the foreseeable future, the demand for recreation on the Forest is projected to grow at the same rate as the projected population growth for the State of Oregon, which is estimated to be 2 to 2.5 percent per year.

Timber

The demand for Forest timber is based on local, regional, national, and international markets for processed wood products, and, to a lesser extent, local and nearby regional markets for fuelwood. We will discuss these two markets separately.

It is reasonable to state that the demand for Forest stumpage at any point in time is quite volatile, and dependent upon a number of factors not controllable at the Forest level. With regards to processed wood products, the demand for timber is a function of the species being offered, and the strength of the markets for products which can be manufactured from those species. Since species stumpage prices are determined in the market place through the competitive bidding process, an examination of these prices reflects the buyers' anticipations of future market conditions at the time of sale. For example, during the period 1977 through 1982, the average annual high bid values for ponderosa pine ranged from $100 to $302 per thousand board feet (MBF) On the other hand, average annual high bid values for lodgepole pine, the second most common species sold on the Forest, ranged from $24 to $63 per MBF over the same period of time.

The fluctuation in prices paid for any one species over time is heavily influenced by the strength of the building and paper industries, which in turn are affected by the level of interest rates for borrowing capital. The differences in stumpage prices between species reflect the variation in final retail values received for products made from those species, and the processing costs involved in making those products. It is interesting to note that the wide range in ponderosa stumpage prices

were experienced in consecutive years, $302 in 1981 to $100 in 1982, reflecting the transition from a strong wood products market to a very weak one.

An examination of recent trends in stumpage prices paid for timber at the time of harvest, and the amount of timber sales which are unsold, give some additional clues as to the volatility and uncertainty surrounding the markets for wood products. Table 2-2 displays the volume of timber harvested from the Forest and the average stumpage prices paid at the time of harvest for the years 1981 through 1988. As was true of the bid prices discussed in the previous paragraph, 1982 is portrayed as a weak market year both in terms of volumes harvested, and prices paid for the stumpage compared to the other years. A higher proportion of lodgepole pine was harvested between 1986 and 1988. Since lodgepole pine has lower value than most other commercial timber species, the average price paid began to decline after 1985.

Table 2-2 Volumes Harvested and Stumpage Prices Paid (1981-1988)

Year	Volume Cut (MMBF)	Average Price Paid ($/MBF)
1981	190	154
1982	147	095
1983	234	137
1984	244	134
1985	291	142
1986	222	130
1987	226	136
1988	166	137

Table 2-3 presents the total volume of timber offered and sold from the Deschutes National Forest for the years 1981 through 1988. Over that period of time, approximately 95 percent of all timber offered for sale by the Forest was purchased. This implies that there has almost always been some demand for timber from the Forest, although sometimes it is stronger than others, as is evident by the fluctuation in prices offered and paid for stumpage. Of the timber sales left unsold, about 80 percent of the volume was lodgepole pine.

Very seldom is Ponderosa pine left not purchased. As indicated by the above discussion on bid values by species, markets for lodgepole pine are marginal compared to those for Ponderosa. In times of depressed economies, it may be more difficult to sell this species to commercial wood processors.

Table 2-3 Volumes Offered and Sold (1981-1988)

Year	Offered (MMBF)	Sold (MMBF)
1981	No Data	140
1982	185	170
1983	216	199
1984	192	161
1985	140	162
1986	203	190
1987	183	201
1988	181	180

While timber will probably continue to be an important commodity on the Forest, the immediate future for the Pacific Northwest in general with regard to the wood products industry is not particularly bright. High home mortgage rates and the loss of market shares to imports from Canada will probably continue to prevent the wood products industry in the Northwest from returning to the strength it experienced during the 1970's within the near forseeable future. A quantification of the expected future demands for timber from the Forest, as expressed in the 1985 RPA Program, is presented in Table 2-4.

The use of wood for fuel, especially lodgepole pine, is another component of the demand for timber on the Forest. The growth in firewood use becomes more apparent by examining the 1,000 percent increase in the number of firewood permits issued over the past 13 years.

Some of this increase in personal use firewood consumption is attributable to an increase in local population. Estimated Deschutes County population has grown from 30,000 in 1970 to 64,000 in 1982. Increasing costs of alternative energy sources have also been a factor. Firewood cutting also appears to be a way of life in Central Oregon, both as a source of supplemental income and as a recreation experience.

These trends of increasing population, rising energy costs, and ease of accessibility have made firewood an increasingly important product of the Forest Several factors, however, may temper this rising trend in the future. These include; a slowing down of the population growth, increasing remoteness of good wood sources as areas near towns are used up, the possibility of regulation of wood burning stoves to preserve air quality, the increasing energy efficiency of new homes and leveling off of the increases in alternative energy sources, and the continuing harvesting of lodgepole pine in the Forest's normal sale program.

If firewood consumption levels off, 20 percent of the current mature lodgepole pine inventory will be removed as firewood over the next 10 years. If we assume that firewood consumption increases at 10 percent per year, as much as 40 percent could be removed as firewood in the next 10 years.

Range

Demand for livestock grazing has been fairly constant in the cattle industry with most of the cattle allotments used each year. Demand for sheep grazing has been light with only 0 to 4 of the 15 sheep allotments being used on an annual basis since 1978. Part of the reason for this is the lack of water on the Forest, resulting in high costs to graze livestock since much of the water has to be hauled by truck.

Wildlife

The primary demand for wildlife focuses on mule deer. Sportsmen groups have requested that mule deer populations be increased, some as high as the maximum potential The Oregon Department of Fish and Wildlife has established herd management objectives that are higher than the current population levels, but not as high as the maximum. Current populations are 20,300 deer, and their objectives are for 24,850.

Table 2-4 shows an estimate of the supply and demand/consumption for the major resources on the Forest.

Table 2-4 Average Annual Supply and Demand/Consumption for Significant Resources

Significant Resources	Unit of Measure		Decades 1	2	5
Developed Recreation	MRVD	Supply	2583	2583	2583
		Demand	1390	1695	2583
Dispersed Recreation	MRVD	Supply	185	185	185
		Demand	55	67	122
Livestock Grazing	MAUM	Supply	60	60	60
		Demand	32	36	45
Mule Deer	M deer	Supply	33.5	33.5	33.5
		Demand	24.9	24.9	24 9
Firewood	M Cords	Supply[1]	51.0	51.0	51 0
		Demand[2]	60.0	61.2	64.9
Timber	MMCF	Supply	17.9	17.9	17.9
		Demand[3]	46.7	46.7	46.7
Geothermal	M Acres Of High Potential	Supply[4]	972	972	972
		Demand[5]	560	---	---

[1]Based on lodgepole pine.

[2]Based on the assumption that demand is directly related to population growth in Oregon

[3]Based on RPA program for the Deschutes National Forest.

[4]Acres available for lease - entire Forest except Wilderness, Oregon Cascade Recreation Area, Bend Municipal Watershed, and other sensitive areas.

[5]Acres leased. This is a good indicator for the first decade. No adequate assessment of geothermal energy is yet possible on the Deschutes National Forest. Exploration holes as deep as 5500 feet suggest high potential in certain areas, but no production holes have been drilled. The scientific and industrial communities believe, however, that the potential for developable geothermal resources is high on the Forest. In the current exploratory phase for geothermal resources, the number of acres leased is a reasonable indicator of demand. In the future, however, production of steam or electricity will be an appropriate way to measure the demand for geothermal energy.

Information and Research Needs

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

The following are the highest priority research needs

Long-term Site Productivity (LTSP)

Forest managers need information on the effects of forest management on long-term site productivity in the South Central Oregon Forests (Deschutes, Winema, Ochoco and Fremont). Issues of concern include

What is the most appropriate definition for LTSP?

How do logging activities, fuels treatment activities and harvesting systems affect LTSP?

What effect does compaction and displacement have on LTSP?

Of what importance is down woody material to LTSP?

How much organic material is needed to maintain LTSP?

What effect does whole-tree removal (particularly in the lodgepole pine/pumice community types) have on LTSP?

What are the effects of periodic underburning on the growth of Ponderosa pine forests over time?

Uneven-aged management

Forest managers need information on the effects of uneven-aged management on a number of important concerns. These concerns include:

What is the growth and yield of stands managed using uneven-aged management?

How do we calibrate or validate existing growth models used for uneven-aged management growth and yield simulation?

Growth and Yield

Forest managers need information on the effect of various management practices on the growth and yield of commercial timber species Issues of concern include:

What is the growth and yield of even and uneven-aged stands and how does the growth and yield of managed stands compare with yield table predictions?

How do mortality predictions in yield tables compare with actual managed stands?

What is the effect of the genetics program in the South Central Oregon Forests on growth and yield?

How do we validate or calibrate existing growth models used for uneven-aged management growth and yield simulation?

Forest Insects and Diseases

Forest managers need more information on the effects and management of forest insects and diseases on the growth and yield of commercial conifer species Information needed includes:

What are the effects of root rots on mixed conifer stands?

What is the effect of mountain pine beetle on second-growth ponderosa pine growth and yield?

What is the interaction between silvicultural systems and insect and disease management?

Ponderosa Pine Products

Forest managers need more informations about growing, manufacturing, and the economics of managing ponderosa pine for various products. Important concerns include:

What type of product should we be managing for in the future?

What effects will tree size and amount of clear bole have on our local industries?

What are the economics of pruning ponderosa pine?

Wildlife

Deer and Elk cover

Forest managers need information on the biological requirements of deer and elk in the South Central Oregon Forests. Information needed includes:

What are the hiding and thermal cover requirements for deer and elk in summer, transitional and winter ranges?

How do our current harvest practices, including even- and uneven-aged management influence these requirements?

Cavity-dependent wildlife species

Forest managers need more information about the management of the habitat for certain cavity-dependent wildlife species in the South Central Oregon Forests. Needed information includes:

What are the habitat requirements for viable populations of black-backed and three-toed woodpeckers?

Do our current snag management practices meet the habitat needs of both primary excavators and secondary cavity users?

Other Species:

Goshawk

Research is needed to validate assumptions that allocated habitat areas will be occupied by birds displaced from other areas.

Great Grey Owl

Further studies are needed to determine distribution of species on the Forest.

Peregrine Falcon and Wolverine

Further studies are needed to determine distribution of both species.

Townsend's Big-Eared Bat

Further studies are needed to determine distribution of species on the Forest.

Pine Marten

Further studies are needed to determine habitat relationships.

Conifer Regeneration

Forest managers need more information about conifer regeneration. Important information needed includes:

What are the regeneration opportunities and limitations for regeneration of Ponderosa pine on the desert fringe?

Cone Production

Forest managers need to increase and develop a reliable source of ponderosa pine and western larch seed in several seed zones to meet regeneration requirements. Important concerns include:

What can be done to improve seed production of these species in the seed zones of greatest concern?

Ecology Program

Forest managers need more information about ecological relationships in the South Central Oregon Forests. Information needed includes:

What is the forage response on pumice soils in various community types following disturbance, fertilization, and underburning?

How do we manage lodgepole pine in riparian areas to meet all management objectives.

Additional Needs

Consensus was also reached on the following additional research needs in timber management which are somewhat lower in priority than those listed above, but for which additional research is vitally needed:

Uneven-aged management

How does UAM meet the habitat requirements for deer and elk?
How does UAM meet the habitat requirements for old-growth dependent wildlife species?

What are successional trends for both understory and overstory species in uneven-aged stands?

What is the effectiveness of natural regeneration in uneven-aged stands?

What are the compaction problems associated with uneven-aged management practices?

What is the role of prescribed fire in uneven-aged management?

How can stands be managed to provide for old-growth characteristics?

Deer and Elk Cover

What are the growth responses and growth profiles of native vegetation after management practices?

Growth and Yield

How does the growth of both understory and overstory trees in shelterwood or seed tree harvested units compare at various levels of overstory stocking?

What is the suppression effect of overstory or leave trees on the growth of younger trees?

What are the proper stocking level curves for mixed conifer stands?

Forest Insects and Diseases

What is the effect of various levels of western spruce and Modoc budworm defoliation on the recovery of Douglas-fir and true firs? At what point will these conifers fail to meet growth and yield expectations in the future?

What is the effect of tip moths and shoot borers on the growth and yield of Ponderosa and lodgepole pine? Are there cost-effective control measures?

What is the effect of dwarf mistletoe in uneven-aged stands?

Ponderosa Pine Products

Can we successfully mill and dry second-growth pine to produce a desired product?

What are the economics of commercially thinning second-growth Ponderosa pine and how can benefit/cost ratio be improved?

Cavity-Dependent Wildlife Species

How can we manage wildlife trees in perpetuity to maintain habitat for cavity-dependent species?

What are the best ways to kill green wildlife trees to provide effective habitat for cavity-dependent species?

Conifer Release

Under what conditions is the cost of conifer release justified by increased growth and yield?

What are the most effective means of conifer release for various vegetative conditions?

What is the suppression effect of overstory trees on the growth of younger trees?

Conifer Regeneration

What are the regeneration opportunities and limitations for lodgepole pine and mixed conifer species on frost prone soils?

What are the regeneration opportunities and limitations for regeneration of mountain hemlock?

What are the natural regeneration opportunities and how can they be achieved, by community type?

What opportunities exist to improve the survival of planted white fir by planting it under a shelterwood overstory?

What are the effects on gene conservation and long-term growth and yield where natural regeneration is prescribed in lodgepole pine stands where most of the quality trees have been killed by the mountain pine beetle?

What opportunities exist to control long-stolen sedge without herbicides?

What are the effects of seeding non-native perennial plants on conifer survival and growth?

Ecology Program

What is the vegetation succession within all community types following various types of disturbance?

How to manage tree stands to provide for old growth characteristics.

What are the effects of prescribed burning on soil hydrophobicity?

Identification of hardy vegetation for campground use;

Timber theft research and high-tech solutions;

Product utilization of small diameter material for chips, by-products, and co-generation uses;

2nd growth manufacturing and drying techniques need to be considered.

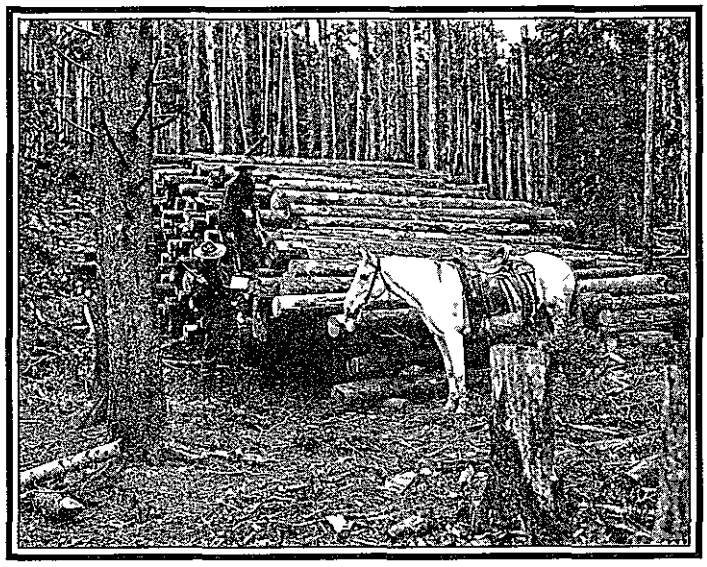
Recreation Program

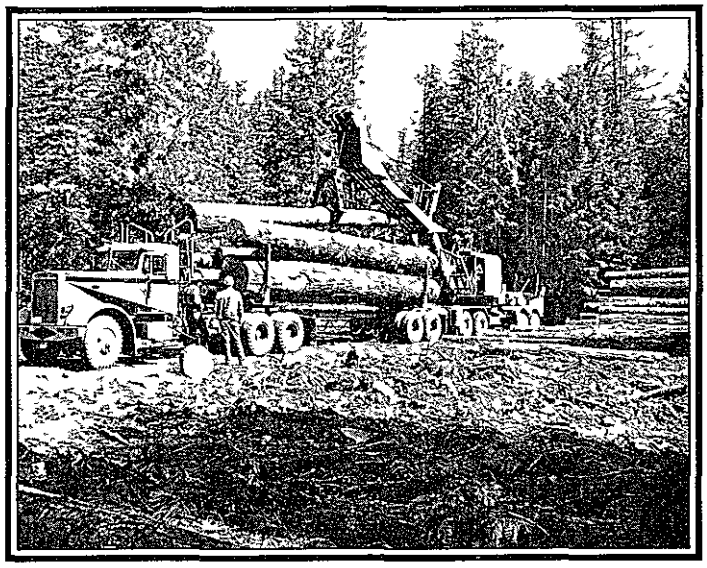
An accurate way to measure recreation use by facility and type of recreation.

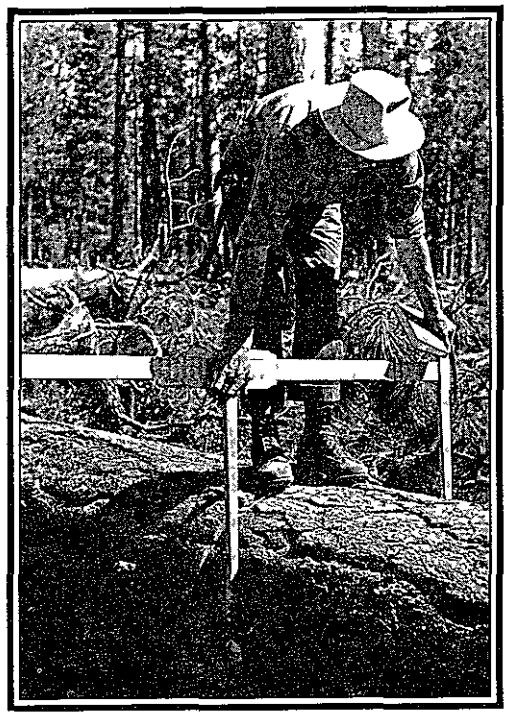
Better methods of determining supply and demand for long-range planning and project justification.

Chapter 3

Response to Issues, Concerns, and Opportunities







Chapter 3

Response to Issues, Concerns, and Opportunities

The identification of issues and concerns was an ongoing process in the development of the Plan. This process is documented in Appendix A of the Environmental Impact Statement (EIS). Eighteen issues, concerns, and opportunities were addressed Of these, 8 had a wide range of treatments and 10 were responded to by applying standards/ guidelines which were designed to protect or enhance the resource. A discussion of how this Forest Plan responds to the issues follows.

For issues related to water quality, soil productivity, cultural resources, and threatened or endangered plants, standard/guidelines were developed to guide management activities. These are contained in Chapter 4.

For issues and opportunities relating to wildlife, several approaches were used. For cavity dependent species, raptors, herons, peregrine falcon, and wolverine, standards/guidelines were developed which include procedures to follow when they are present. For bald eagles, northern spotted owls, and osprey, management areas and prescriptions were developed to achieve the desired habitat conditions. The amount of habitat provided for the bald eagle is a result of consultation with the Endangered Species Branch of the Fish and Wildlife Service and is consistent with recovery goals of an Interim Recovery Plan. The amount of northern spotted owl habitat is based on the Regional Guide for the Pacific Northwest Region. Osprey habitat in the long term is provided around Crane Prairie, but no specific direction was established for nest sites elsewhere on the Forest.

Habitat for goshawks, pine marten, and numerous other species is provided by prescriptions which result in mature and old growth forests. To ensure that habitat will be adequately distributed, old growth areas were established.

Deer habitat was provided for by developing management areas and prescriptions. Management of the vegetation is designed to provide for optimum forage and cover. The amount of habitat and condition is to provide for an increase in the mule deer population compatible with the population objectives of the Oregon Department of Fish and Wildlife.

Issues related to timber were addressed by (1) determining the lands that were suitable for timber production, (2) development of numerous sets of yield tables which reflect different investments and objectives, (3) developing a strategy for harvesting the mountain pine beetle infested mature lodgepole pine, (4) developing all the multiple use objectives necessary to accomplish the goals and objectives of the Preferred Alternative, and (5) completing runs with FORPLAN which incorporates the above. One of the relationships that existed in developing the timber program was, if lodgepole pine were forced to be harvested in the early decades, the amount of Ponderosa pine would be decreased proportionatly. Ponderosa pine is the most valuable species on the Forest and to industry. If the amount of Ponderosa pine decreases, this reduces the job opportunities and revenues to the government and counties. To deal with the catastrophic conditions that exist in lodgepole pine and to provide for some stability to local communities, lodgepole pine harvest was held high in the first decade and then only minimally treated until the fourth decade, but Ponderosa pine harvest was held relatively constant. This was done at a level that did not depart from nondeclining yield, while meeting multiple use objectives for timber, recreation, visual quality, wildlife, watershed, and soils.
Recreation issues and opportunities were primarily addressed through three prescriptions and development of management areas. One prescription emphasizes developed recreation with a high interaction of people (Recreation Opportunity Spectrum (ROS) Roaded Natural or Rural) Another one emphasizes undeveloped recreation where people would have little contact with others (ROS Semiprimitive Nonmotorized and Semiprimitive Motorized). The third prescription emphasized winter recreation (ROS Semiprimitive Motorized and Nonmotorized, and Roaded Natural). These prescriptions are applied to areas of the Forest which have the higher capability to produce the

desired experiences. Dispersed recreation is also provided throughout the Forest in the form of hunting, fishing, rafting, hiking, and driving for pleasure. Another important dimension of recreation in Central Oregon is destination resorts, which are located near and are heavily dependent upon the recreational opportunities of the Forest.

Tied to recreation is scenic quality. Prescriptions were developed to provide for management of vegetation in areas seen by large numbers of people to protect and enhance scenic beauty. These prescriptions result in smaller treatment areas, quickly cleaning up areas after activities which disturbs the vegetation or soil, and managing timber to produce a variety in the landscape or large trees. The exception to meeting visual quality standards will be in mature lodgepole stands in visual areas. Some disturbance and larger cutting units will be apparent due to the mountain pine beetle situation.

The Plan addresses geothermal in that the Management Areas and prescriptions define the compatibility of leasing and development and provide direction on any restrictions that might be necessary to protect resources. The standards/ guidelines for geothermal provide direction that will guide future leases on the Forest. Existing leases remain valid unless they can be brought into compliance with the Plan or expire. Leasing is denied in the interior of the Newberry Crater. Leasing within the Newberry Known Geothermal Resource Area outside the interior of the Crater will be evaluated in a separate environmental analysis.

A key local issue is personal use firewood. The Plan provides for 40,000 cords annually (does not include logging residue) to be made available as firewood to meet the current level of demand. If demand for firewood should increase during the life of this Plan, up to 60 thousand cords would be made available annually to meet the increased demand. However, this wood is not included as a part of the allowable sale quantity. In addition to lodgepole pine, other species can also be made available.

Another aspect of the issues was whether the Forest could meet its share of the Resources Planning Act program. The Plan exceeds the program levels for timber in the first two decades and then meets it for the next three decades. The program levels for range are provided for but whether they are actually achieved will depend somewhat on demand, particularly for sheep grazing. The Plan exceeds the wildlife habitat improvement program, primarily because of the amount of prescribed burning included in the prescription for emphasizing deer habitat. The program for developed and dispersed recreation is not met in the early decades primarily because of lack of demand. The Forest is capable of meeting the recreation program, should the use trends and demand change.

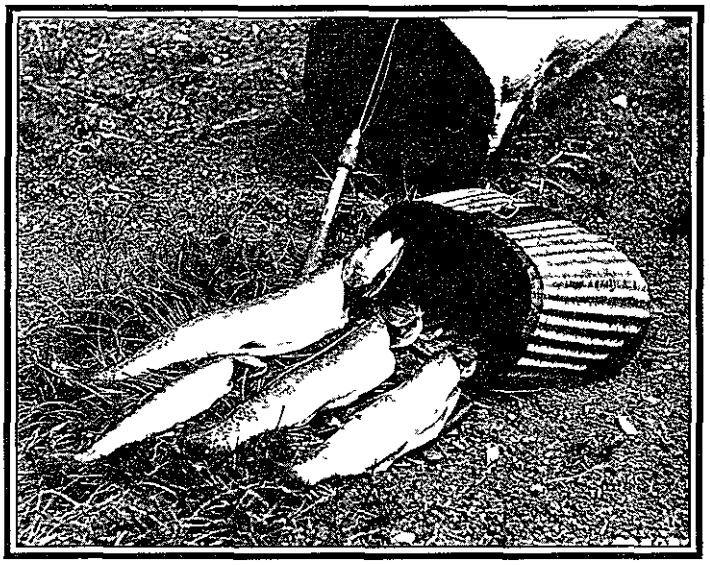
For roadless areas, the Plan, in the long term, provides for the development of approximately 100,000 acres while retaining approximately 45,000 acres as undeveloped. In the short term, timber harvesting or road building were not scheduled as a part of the timber program. However, because of the mountain pine beetle epidemic, some harvesting and road building may occur to salvage material, provide firewood, or reduce fuels and fire hazards. Roading may also occur as a result of geothermal exploration or to provide access for recreational purposes.

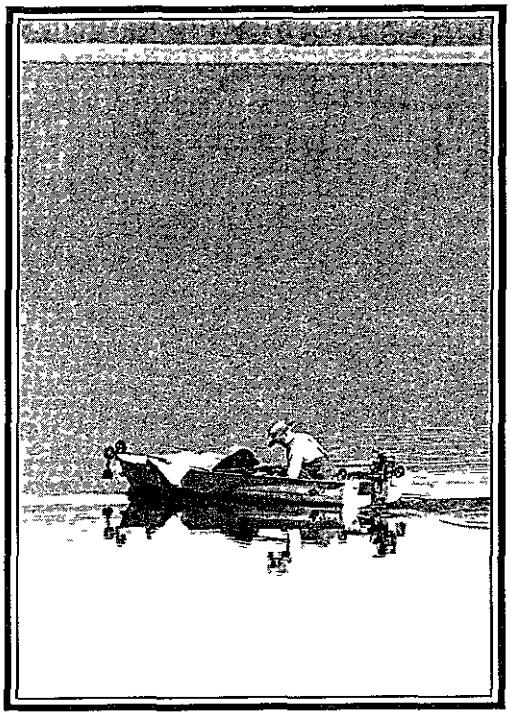
All of the issues, to one degree or another, affect the lifestyles and economy locally and regionally. The Plan provides for maintaining jobs, income, and revenues near current levels. Opportunities for recreation are improved through increasing emphasis on developed recreation and winter recreation. Hunting opportunities should increase in the long term as herds increase. A program for providing personal use firewood is in the Plan. The scenic beauty of areas frequently seen or visited by people will be protected or enhanced. Air and water quality will be protected.

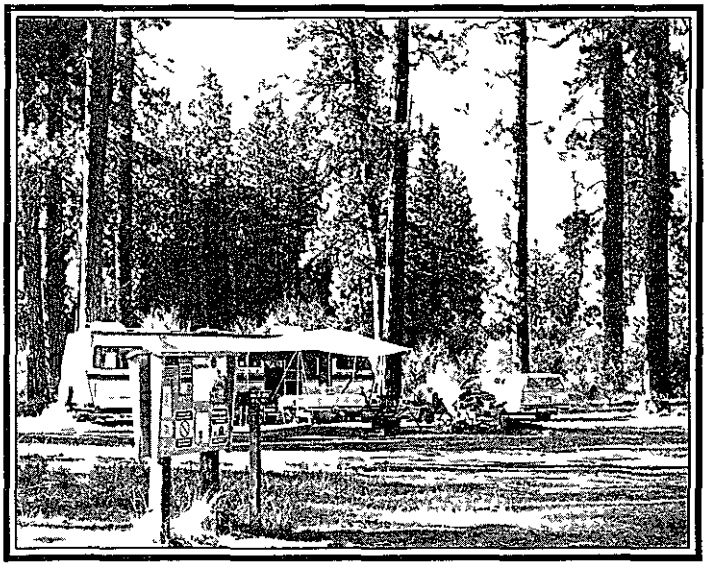
The direction for accomplishing the goals and objectives of the Plan is contained in Chapter 4. For additional information on how the issues were addressed, refer to Chapter 2 of the EIS.

Chapter 4

Forest Management Direction







Chapter 4

Forest Management Direction

Introduction

This Chapter of the Forest Plan (Plan) outlines the direction for managing the Deschutes National Forest This management direction is described in sections, in the following order:

Forest Management Goals - are the product of a vision of what resources and activities on the Forest should be like and reflect the Issues, Concerns, and Opportunities discussed in Chapter 3.

The Desired Future Condition of the Forest - describes the desired condition for each major resource on the Forest. Some resource descriptions include what condition is desired in 10 years and in 50 years.

Forest Management Objectives - includes the level of goods and services which are anticipated as this Plan is implemented. The two parts of this section are:

Projected Outputs - is an overall display of what and how much resources and activities can provide.

Resource Summaries - is further description of individual resource programs to be followed during implementation.

Forest-wide Standards and Guidelines (S&Gs) - are the overall directions for managing resources and activities on the Forest, and includes a goal statement for each.

Management Area Prescriptions - further define management direction for specific areas of the Forest. A goal, general theme and objectives, and standards and guidelines unique to each management area are included.

This Forest Plan includes allocations. In addition to providing direction for each resource and activity on the Forest, it divides the Forest into 28 management areas, each of which has a different role in providing goods and service and perpetuating Forest ecosystems (some management areas are made up of several parcels of land which are scattered across the Forest.)

The S&Gs for management areas must be in compliance with Forest-wide direction. All S&Gs are intended to supplement, but do not replace, policy direction found in Forest Service Manuals and Handbooks, and the Regional Guide for the Pacific Northwest Region. They also must comply with applicable State and Federal laws and regulations.

Some S&Gs are unconditional, they will always be performed. Others are followed when circumstances permit. In the Front Country Management Area, for instance, large Ponderosa pine are to be maintained in the foreground as seen from travelways. In some places, of course, there are no large trees.

It is important to stress that conditional S&Gs are not discretionary. They *must* be followed When they are not, the reason must be documented in project plans, and the Plan amended or the project changed.

Some management areas essentially serve a single purpose. This includes the Old Growth, Bald Eagle, Spotted Owl, and Osprey Management Areas The objective is to protect and enhance conditions required by the indicated species There is no timber management in Old Growth and Spotted Owl Areas and trees are removed in the others only to enhance eagle and osprey habitat. Limitations on activities in these areas, however, will benefit a number of other resources, including visual and water quality and other wildlife species.

Wilderness is considered a value in itself, the preservation of a natural environment, but it also provides recreational, educational, and scientific opportunities as well as protection for soil, water, and visual quality and wildlife habitat. The Oregon Cascade Recreation Area and Wild and Scenic Rivers provide recreation opportunities and resource protection.

In another category of management area, values in addition to the primary emphasis are actively pursued. The production of timber and domestic stock forage is the objective in General Forest Areas. Forage and cover for big game is provided by Deer Habitat. These areas also provide opportunities for fuelwood gathering, recreation, and habitat improvements for other wildlife species. These secondary opportunities are pursued fully as long as doing so does not interfere with a management areas primary emphasis.

Forest Management Goals

These goals reflect the issues and concerns listed in Chapter 3 and laws and regulations pertaining to National Forest management

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

Protect the unique and valuable characteristics of floodplain and riparian zones; maintain or enhance water quality and fish habitat.

Maintain or enhance soil productivity.

Provide for the protection, preservation or documentation of prehistoric and historic sites, buildings, objects, and antiquities of local, regional, or national significance.

Provide habitat for viable populations of all vertebrate species currently found on the Forest and maintain or enhance the overall quality of wildlife habitat.

Protect and manage habitat for the perpetuation of plants which are listed by the state or federal agencies as threatened, endangered, or sensitive.

Provide an optimum level of timber production consistent with various resource objectives, environmental constraints, and economic efficiency.

Provide fuelwood as a renewable energy resource for personal and commercial uses.

Provide for exploration, development, and production of energy resources on the Forest while maintaining compatibility with other resource values.

Provide safe, efficient access for the movement of people and materials involved in the use of the National Forest lands.

Provide a fire protection and prescribed burning program which is responsive to land and resource management goals and objectives.

Protect and provide the benefits of Wilderness values for the public in accordance with the Wilderness Act of 1964.

Preserve and provide interpretations of unique geological, biological, and cultural areas for education, scientific, and public enjoyment purposes.

Provide old-growth tree stands for (1) preservation of natural genetic pools, (2) habitat for plants and wildlife species associated with over-mature tree stands, (3) contributions to the diversity spectrum, (4) aesthetic appeal

Provide a range of quality recreation opportunities in an undeveloped forest environment.

Provide a full range of quality outdoor recreation opportunities within a forest environment that can be modified for visitor use, visitor satisfaction, or to accommodate large numbers of visitors

Provide Forest visitors with visually appealing scenery.

Manage vegetation to provide optimum forage conditions for use by domestic livestock

Desired Future Condition of the Forest

This prediction is stated in the present tense, as if it had already occurred.

The current condition of the Forest is indicated in Chapter 2 of this document, Analysis of the Management Situation, and Chapter 3 of the FEIS, Affected Environment. As the Forest Plan is implemented, the Forest will change. This section describes how the major resources on the Forest will be managed, what they will look like, and how they are expected to be utilized as a result of direction contained in this Plan

Community Relations

The Forest has continued to be an integral part of peoples lives, whether they are neighbors or visitors to the Forest. There is increasing interest in Central Oregon by people attracted by its quality of life

A dynamic, new partnership of trust and mutural respect among all owners of the National Forest has been the objective. Dialogues have been opened when misunderstandings about the direction of Forest management materialize. The public actively participates through nontraditional partnerships in project planning and implementation. Adaptability to change has been a key to the success of these partnerships and in performing traditional Forest Service activities and programs

Pacific Northwest Strategy

The Forest in 10 Years

Opportunities for the Forest to help enhance the vitality of surrounding communities will occur through a Regional initiative called the Pacific Northwest Strategy It is envisioned that the Pacific Northwest Strategy will be a new focus of operation for many people, one that empowers Forest Service people and local citizens to look and work beyond the traditional boundaries. At the same time, it reaffirms and emphasizes working with other government agencies, local businesses, and the communities themselves in a spirit of interdependency and cooperation that has always existed at the local Ranger District level As the Strategy becomes an integral part of doing business, its central focus will be to foster and enhance communication, cooperation, and partnerships.

The Forest in 50 Years

Each community will have capitalized on its uniqueness and involved its citizens in the development of a desired future. The activities associated with the Pacific Northwest Strategy will continue to support the goals and plans of resource-dependent communities.

Recreation

The Deschutes National Forest is famous for its open park-like stands of large Ponderosa pine. That appearance has been retained by limiting tree removal in key areas This includes the foreground along all State and most County highways as well as many Forest Service roads, primarily those leading to major trailheads. Most major buttes and recreation areas are also included.

Lodgepole pine stands that were killed by the mountain pine beetle have been regenerated and this has markedly improved the appearance of that portion of the Forest Views of distant peaks, unique rock forms, unusual vegetation, and other features of interest have been enhanced by visual management.

Mt. Bachelor has continued to grow as an international destination for both alpine and nordic skiing. Recreationists have more to do on the mountain, which is now a year round resort. The construction of additional regional or destination alpine areas awaits the development of Mt. Bachelor to near the capacity indicated in the Master Plan. Nordic and local alpine areas, however, have been added elsewhere on the Forest to meet increasing demand

People visiting the five Wildernesses on the Forest and the Oregon Cascade Recreation Area (OCRA) have become increasingly numerous Management plans for these areas are summarized in Appendix 4.

Unusual geological, biological, and cultural sites and areas have been preserved and managed for education, research, and to protect their unique character. Facilities and opportunities for public interpretation and enjoyment of the unique values of these sites and areas have been provided. The primary benefiting use of these areas is for developed and dispersed recreation, research, and educational opportunities.

Developed recreation sites have become increasingly popular. New campgrounds have been built and existing sites expanded to meet this demand but the emphasis has been on rehabilitating and extensively maintaining existing sites. The objective has been to keep occupancy rates, when measured on a Forest-wide basis, at approximately the 43 percent level.

The private sector has continued to operate some existing campgrounds and has constructed new ones. Some existing resorts operating under special-use permits have contributed new camping facilities.

The number of resorts that provide overnight accommodatons has not increased, except at Skyliner Lodge and a nordic hut system between Mt. Bachelor and the Hoodoo Ski Area. Compatibility between the forest environment and the various types of recreation has been maintained. To meet the increasing needs of year round recreation, several resorts now operate during the winter as well as summer.

Day use facilities such as boat ramps, picnic areas, and interpretive sites are more numerous. The kinds of facilities have changed over time to reflect changes in the popularity of different kinds of recreation

More visitors participate in activities which are not associated with developed sites. Activities which disperse recreation throughout the Forest include nordic skiing, river rafting, mountain bicycling, and off-highway vehicle use. These sports have been accommodate by additional trails and trailhead facilities.

There are also more winter trails, trailhead facilities such as snow parks and shelters for snowmobilers. The Forest also offers additional opportunities for all-terrain vehicles and motorcycles.

Vegetation

In 10 Years

The Forest's commitment to multiple-use management has resulted in two major decisions that will continue to have a major effect on vegetation. First, no area of the Forest is devoted *solely* to the production of timber for use as a commodity. Second, uneven-aged management is practiced wherever it is silviculturally sound to meet high public demand for visual quality, fewer clearcuts, and perpetuation of big trees. Even-aged management is generally practiced in lodgepole pine and mountain hemlock stands, and uneven-aged management is preferred in Ponderosa pine stands and in mixed conifer stands when short and long-term objectives can be met using this system.

Most of the Forest's lodgepole pine stands were decimated by the mountain pine beetle epidemic of the 1970's and 1980's. The regeneration of these stands has replaced many of the older, dying stands with younger, vigorous stands of trees. Silvicultural treatments tailored to meet visual and wildlife habitat objectives are beginning to contribute to overall stand diversity. The thinning schedule has been delayed in some stands, and thinning spacing has been varied in other stands to provide deer hiding areas over time.

All of the Forest's mountain hemlock is in areas which preclude timber management activity. These stands have been left to mature, decay, and regenerate as they have for centuries.

The forest still posesses an abundance of large diameter trees. Changes in diversity are subtle, and for the most part, unnoticeable. Old-growth habitats have been decreased by timber harvest, but much of the old-growth has been included in management areas where there is either a reduced harvest or no programmed harvest.

In 50 Years and Beyond

Stands of trees are managed to achieve many resource management objectives including, but not limited to: the production of usable wood fiber for a variety of uses, the maintenance and enhancement of visual quality, recreational oppor-

tunities, wildlife habitat, and livestock grazing opportunities.

The forest is "fully regulated," which means that it produces an approximately equal annual yield of desired timber size and quality. There is a progression of size and age classes consistently growing at such rates that an equal number of harvestable trees are regularly available. This long-range goal was accomplished by: species composition and stocking level controls; protection from animal, insect, and disease damage; regeneration of stands no longer capable of optimum growth or other desired characteristics; regeneration of some stands with genetically improved trees; and management of forest resources to maintain long-term site productivity.

Emphasis on uneven-aged management has been an important factor in producing the current age and size diversity of vegetation in the forest. Stands managed with this system show a variety of age classes ranging from immature, small trees to mature, large diameter (24"+) trees. Road systems to facilitate managing uneven-aged stands are in place. Large diameter, old-growth trees still exist in uneven-aged stands, as well as in management areas with no programmed timber harvest, or with reduced harvests and longer rotations. More than 21% of the forested land on the Deschutes has no allowable harvest or no programmed harvest, and will remain or grow into an old growth condition over time. In these areas it is possible that over time, old growth could be replaced again by younger stands as a result of fire or other natural "catastrophic" stand replacement events.

In stands managed by the uneven-aged system, trees of many sizes are intermixed singly and in groups and clumps. The goal has been a complete range of age and size classes, including seedlings, saplings, poles, and large trees within each stand.

Most of the insect-infested lodgepole stands regenerated or thinned in the first two decades are 40 to 60 years old. The purposeful staggering of thinning timing and spacing has helped to increase overall size diversity and to create a mixture of vegetation capable of serving as deer hiding areas and forage areas over time.

Even-aged management has also been practiced in most mountain hemlock stands, and in some stands of Ponderosa pine and mixed conifer where the occurance or risk of insect or disease damage made it unlikely that an uneven-aged management system could meet long-term management objectives.

With both even and uneven-aged management being practiced, size and age diversity is present on a landscape level, created by a mosaic of even-aged stands, as well as on a stand level, created by uneven-aged management practices within many Ponderosa pine and mixed conifer stands. Species and genetic diversity has also been encouraged by presciptions for natural regeneration and by planting some genetically improved trees in even and uneven-aged stands.

Forest Health

In 10 Years

Insect and disease considerations are fully incorporated into the resource management process. Undesirable impacts from forest pests on resource objectives are greatly reduced Where they occur, they are a result of scoping, analysis and a decision framework that considers the desirable and undesirable roles of pests in the context of integrated resource management objectives. Out-of-control situations and nonattainment of resource objectives because of misperceptions of pest behavior does not occur.

50 Years and Beyond

The Forest is in an overall state of health, vigor and diversity where-by it can fulfill the full complement of resource managment goals both in the long and short-term Forest pest impacts are still present in the Forest but as desirable agents of a healthy functioning ecosystem. Resistance to devastating epidemics is high. This resistance is maintained proactively with vigilance, planning and sound silvicultural techniques. The need for all large scale direct suppression projects and most small scale projects is eliminated.

Wildlife/Fisheries

The management of habitat for bald eagles, northern spotted owls, and osprey has been emphasized. Nesting habitat and foraging areas have been protected and enhanced. Old growth stands with large trees have been retained for bald eagles and northern spotted owls. Osprey habitat contains numerous trees and snags suitable for nesting. Stands are managed so that suitable nesting sites are available on a continuing basis and spaced to minimize territorial competition. Efforts are made to reduce human disturbance during the nesting season.

Important deer winter and transition ranges are managed to achieve a desirable arrangement of cover and forage. Cover, usually not exceeding 40 percent, is provided by stands which vary in size. These stands have intermingled openings with a variety of grasses, forbs, and shrubs available for forage. This forage is maintained by prescribed burning. Elsewhere on the Forest, cover and forage is the result of activities called for in the various management area prescriptions.

In addition to mature and old growth provided to meet the habitat needs of certain species, other old-growth areas are scattered throughout the Forest.

Habitats for species utilizing dead and or downed trees are provided. Snags and trees for replacing snags are left in harvest areas, either as uniformly distributed single trees or in small clusters. Dead logs are left on the ground for species which use them as habitat and to provide nutrient recycling.

Fish habitat has been maintained and improved to meet fish production targets. Streams, rivers, and lakes were inventoried to prepare for the habitat improvement program. Riparian zones are managed to enhance water quality and fisheries. Land management projects are modified if harmful increases in sedimentation of fish habitat or detrimental effects on stream channel structure are detected. Fish habitat management includes a quality objective to insure the availability of diverse fishing experiences. It takes into account demand, fish production capability, and environmental quality.

Range

Quality forage is available on range lands. Livestock grazing in riparian areas is intermittent and carefully monitored. Allotments are managed under a grazing system that protects plant vigor, minimizes conflicts with other resources, and calls for cost effective range improvements.

Energy

A stable supply of fuelwood is available for household use. It is accessible and reasonably priced. Slash from logging and thinning is also available as a fuel. The Forest has worked with the developers of new markets for wood as an energy source.

Large areas of the Forest have become prime targets for the exploration and development of geothermal energy. If the supply of electricity in the western states slips from surplus to deficit, geothermal energy development will become increasingly attractive.

Geothermal leases and permits have been issued in a timely way. Drill pads, piplines, power plants, and electrical transmission lines, to the extent possible, are designed and located to minimize impacts on other resources, particularly visual quality.

Minerals

Volcanic cinders, sand and gravel, crushable road rock, and common fill and clay continue to be provided for use on the Forest, by other government agencies, and by the public.

Lands remain open to exploration, location and development of locatable minerals except in areas which have been withdrawn from mineral entry, or have been restricted by management area prescriptions.

Soils

Long-term soil productivity is unchanged. Land disturbing activities are designed to:

1. Preserve the litter, duff and topsoil layers;
2. Maintain and replace organic matter;
3. Protect soil biology;
4. Maintain soil porosity, structure and aeration.

Management activities that change any of these elements are considered critical. This includes the removal of topsoil during tree planting, compacting soil with logging machinery, or changing the nutrient status by harming soil organisms or removing large woody debris Monitoring and remedial measures have maintained long-term soil productivity.

Water

Water quality has remained high. It is constantly monitored to maintain quality levels required by benefiting resources.

The Bend Municipal Watershed is managed to protect the community's domestic water supply. Access for administrative purposes and dispersed recreational activities is allowed at a level which is compatible with the water quality goals of the management area.

Air

Measures to protect air quality have been refined and regularly employed. The Forest must comply with the Clean Air Act, the Oregon Clean Air Implementation Plan, and local air quality regulations.

Riparian

Riparian areas are managed to protect fish habitat, water quality and conditions required by wildlife species which depend upon or utilize them.

Transportation

Access to and within the Forest is well balanced between travel needs and the environment. The planned increase or decrease in recreation activities are coordinated with road and trail construction, reconstruction, and management. Roads and trails are maintained in a safe condition consistent with the expected user; the signing is accurate and informative.

Roads to most recreation sites are paved or gravel surfaced in a condition suitable for passenger cars Many of these roads are also constructed with adequate alignment, grades, and structural capacity to safely allow the hauling of commercial products. The quality of scenic views has been maintained through timber management and road maintenance operations. The Cascade Lakes Highway continues to be maintained and improved to the standards of a National Scenic Byway.

Some of the road system has been closed for the protection of wildlife habitat or to reduce erosion; however, the majority of the mileage remains open for ongoing timber management activities or for general public access such as hunting, fishing, pleasure driving, and fuelwood gathering. These lower standard roads are available for use by the more experienced drivers. Maps, signing and primitive conditions at the beginning of the roads managed for high clearance vehicles give travelers advice on what to expect Unexpected road conditions are adequately signed.

Other Resources

Natural processes are dominant in Research Natural Areas for scientific purposes. This program provides for:

Baseline areas against which effects of human activities can be measured;

Sites for study of natural processes in undisturbed ecosystems;

Gene pool preserves for all types of organisms.

The Pringle Falls Experimental Forest is within the Forest boundary and is administered by the Pacific

Northwest Forest and Range Experiment Station. The Experimental Forest serves as a field laboratory for research. Studies evaluate the effects of silvicultural practices on growth and yield of Ponderosa and lodgepole pine. The effects of harvesting on soil moisture and other resources are also evaluated and the role of fire in natural ecosystems is investigated.

Forest Management Objectives

This section is about "how much and when". It includes an estimation of levels of production for Forest resources.

Many of the levels of production predicted for Forest resources are based on assumptions. One sort of assumption underlies predictions about supply and demand, another about the adequacy of resource protection measures. Some outputs may also be affected by the level of funding the Forest Service receives from Congress.

The monitoring program will test assumptions. If they are not supported by the actual results of activities on the ground, a formal procedure to change practices or amend the Forest Plan will be initiated. This process, which includes public involvement, is described in Chapter 5.

Projected Outputs

Table 4-1 displays the outputs and activities expected with full implementation of the Forest Plan.

The projected average annual outputs and activities may not always be accomplished in any given year. In addition to budgets, personnel ceilings could affect accomplishment of outputs and activities. Adjustments in outputs and activities could vary by as much as 10 percent from the average annual outputs planned. Should appropriated budgets or personnel vary significantly from the planned needs, the necessary adjustments in outputs and activities will be evaluated to determine whether amendment of the Plan is necessary.

Table 4-1 Average Annual Quantifiable Resource Outputs

Outputs	Unit of Measure	Decade 1	Decade 2	Decade 5
Developed Recreation Use	MRVD's[1]	1,421	1,725	2,663
Non-Wilderness Dispersed Recreation Use				
Roaded	MRVD's	1,493	1,722	2,138
Unroaded	MRVD's	55	67	122
Wilderness Use	MRVD's	77	94	171
Trail Construction/Reconstruction	Miles-Summer	60	60	60
	Miles-Winter	25	25	25
Developed Site Construction/Reconstruction	PAOT	400	400	400
Visual Quality Objectives				
Preservation	Acres	232,137	FOR ALL	DECADES
Retention	Acres	126,462	FOR ALL	DECADES
Partial Retention	Acres	218,090	FOR ALL	DECADES
Modification/Max Mod	Acres	1,043,722	FOR ALL	DECADES
Wildlife and Fish Use	M WFUD's[3]	24 5	29 9	54 2

Management Indicator Species (Habitat capacity needed to provide the indicated population levels)

Bald Eagles		Pairs	35-45	35-45	35-45
Northern Spotted Owls		Pairs	14	14	14
Osprey		Pairs	125	125	125
Goshawk		Pairs	43	45	46
Northern 3-Toed Woodpecker		Pairs	70-1020	30-420	40-600
Pine Marten		Pairs	450-1285	375-1065	450-1285
Mule Deer		Numbers winter	24,900	24,900	24,900
Elk		Numbers	1,500	1,500	1,500
Woodpeckers	% of Potential	Population	40/60%	40/60%	40/60%

Resident Trout (Number)	Habitat capacity outputs will be determined for each stream and river reach and each lake based on the analyses of habitat survey information collected during the implementation of this Plan An overall increase is expected due to the implementation of the standards and guidelines and improvement work
Wolverine & Peregrine Falcon	Occasional sightings of these species Standards/Guidelines developed to address habitat if species are confirmed to be present
Great Blue Heron	Approximately 40-50 pairs are present Rookeries (nest trees) are protected by Standards and Guidelines.

Table 4-1 Average Annual Quantifiable Resource Outputs (continued)

Outputs	Unit of Measure	Decade 1	Decade 2	Decade 5
Wildlife Habitat Improv	M Acre Equivalents[4]	27	27	27
Fish Habitat Improvement	Structures or Acres	100	100	100
Range--Permitted Grazing Capacity	MAUM's[5]	32	36	45
Timber Offered•				
Allowable Sale Quantity	Million BF[6]	99 8	--	--
Total Sale Program Quantity	•	141.8	--	--
Timber Offered				
Allowable Sale Quantity	Million CF[7]	17 9	17.9	17.9
Total Sale Program Quantity		25 4	23 5	24.5
Allowable Sale Quantity by Working Group Mix				
Ponderosa Pine	MMCF	5 6	4.1	4 5
Lodgepole Pine	MMCF	5.8	1 0	8 7
Mixed Conifer	MMCF	6 5	12 8	4.7
Mountain Hemlock	MMCF	0 0	0.0	0 0
Personal Use Fuel Wood	M Cords	40 0	40 0	40 0
Reforestation	M Acres/yr	9.6	8 4	9.5
Timber Stand Improvement	M Acres/yr	11 9	8 6	9 8
Long-Run Sustained Yield	Million CF	20 7	20.7	20 7
Timber Growth	Million CF	20 3	20 9	26 9
Soil Restoration	Acres/yr	400	400	0
Water Restoration	Acres/yr	15	15	15
Soil	Risk Index[8]	15 0	11 0	10 5
Available Geothermal Leasable Acres				
High Potential	M Acres	100.0	100 0	100.0
Moderate Potential		470 0	470 0	470.0
Low Potential		400 0	400 0	400.0
Geothermal Leasing	M Acres Under Lease	250 0	200 0	200 0
Geothermal Developed Power Plants	Megawatts	50	150	200
Common Variety Minerals				
For FS use	Yards 3	160 M	160 M	160 M
For other use		160 M	160 M	160 M
Mining Claims	# Claims	58	50-100	50-100
Special Uses				
New	# Permits	100	125	195
Administered		775	825	945
Fire Management Effectiveness Index	$/M Protected Acres	2,696	2,764	2,594
Forest Road Program Road				
Construction	Miles	5	5	3
Reconstruction		11	11	9
Timber Purchaser Road				
Construction	Miles	10	9	5
Reconstruction		43	40	32

• - While expressed in board feet, most of the non-chargeable component of the TSPQ is not suitable as sawtimber It is primarily firewood and chipable material.

Table 4-1 Average Annual Quantifiable Resource Outputs (continued)

Outputs	Unit of Measure	Decade 1	Decade 2	Decade 5
Roads Subject to Highway Safety Act	Miles	850	950	1,000
High Clearance Vehicles & Closed Roads	Miles	7,650	7,050	6,000
Fuel Treatment	M Acres	7 1	5 8	13 4
Operational Costs	Million $	11.2	10 7	12 3
Capital Investment Costs	Million $	5 9	5 8	6 6
Appropriated	Million $	17.1	16 5	18 9
Returns to Government	Million $	10 6	14.1	21 6
Payments to Counties	Million $	2 6	3 5	5 4
Lands Tentatively Suitable for Timber Production	M Acres	1,150 9	1,150 9	1,150 9
Lands Suitable & Appropriate for Regulated/ Programmed Timber Harvesting	M Acres	841 1	841.1	841 1
Lands Suitable & Appropriate for Regulated/ Programmed Timber Harvesting by Yield Category				
Full Yield	M Acres	573 3	573 3	573.3
50-99% of Full Yield		267 8	267 8	267 8
1-49% of Full Yield		0 0	0 0	0.0

Resource Summaries

This section summarizes the resource outputs and schedules by program area. These resource summaries are supplemented by appendices. The appendices are not direction but are annually updated lists of information. In contrast, the resource summaries are direction statements and, unless results of monitoring drive a different decision, will not change. These planned activities will become the foundation for developing the annual program of work and the Forest budget

Timber Management Program

Timber harvest is scheduled from a base of 841,100 acres of suitable Forest lands. This includes management areas

Bald Eagle
Osprey
Deer Habitat
General Forest
Scenic Views
Front Country (Unseen & Seen Areas)
Metolius Black Butte Scenic
Metolius Special Forest
Metolius Scenic Views

Management Areas not available for scheduled timber harvest include:

Special Interest Areas
Research Natural Areas
Spotted Owl Habitat
Wilderness
Bend Watershed
Intensive Recreation
Dispersed Recreation
Winter Recreation
Oregon Cascade Recreation Area
Old Growth
Experimental Forest
Wild & Scenic Rivers
Metolius Heritage
Metolius Wildlife/Primitive
Metolius Special Interest
Metolius Research Natural Areas
Metolius Spotted Owl

Metolius Old Growth
Metolius Wild and Scenic Rivers
Riparian Areas

Bald Eagle
Metolius Scenic Views
Metolius Special Forest
Metolius Black Butte Scenic

Timber harvest and related activities are reduced in the following areas when timber harvests are scheduled:

Scenic Views Management Area
Deer Habitat Management Area
Osprey Habitat Management Area
Front Country M.A. (areas seen from significant viewer locations)

Table 4-2 shows that there are 1430.0 thousand acres of forested land on the Deschutes National Forest. It also indicates that 588.9 thousand acres of the forested land are classified as unsuitable for timber production for various reasons.

Table 4-2 Determination of Lands Suitable for Timber Production (M Acres)

Classification	Acres
1. Non-Forest Land (includes water)	190.9
2. Forest Land	1430 0
3. Forest land withdrawn from timber production	176.3
4. Forest land not capable of producing crops of industrial wood[1]	10.2
5. Forest land physically unsuitable:	
--irreversible damage likely to occur	0.0
--not restockable within 5 years	92.6
6. Forest land--inadequate information[2]	0.0
7. Tentatively suitable forest land (item 2 minus items 3, 4, 5, and 6)	1150.9
8. Forest land not appropriate for timber production	
Management Requirements	7.0
To meet multiple use objectives	242.7
Cost efficiency and scheduling	60.1
subtotal	309 8
9. Unsuitable forest land (items 3, 4, 5, 6, and 8)	588.9
10. Total suitable forest land (item 2 minus item 9)	841.1
II. Total National Forest Land (item 1 and 2)	1620.9

[1] Dedicated roads.
[2] Lands for which current information is inadequate to project responses to timber management Usually applies to low site lands.

279.1 thousand acres of forested lands shown in Table 4-2 were withdrawn from the suitable and available forested land base for three primary reasons These included 176.3 thousand acres withdrawn from timber production because of designations of either Wilderness, Research Natural Areas, Experimental Forest, or Oregon Cascade Recreation Area; 10 2 thousand acres that were in dedicated roads; and, 92.6 thousand acres where restrocking could not be assured within 5 years of harvest, should it occur. This gave a tentatively suitable forest land base of 1,150.9 thousand acres. From this land base, 242 7 thousand acres were removed to meet multiple use objectives (forest land in management areas without scheduled timber harvest). These acres were not available to the FORPLAN model for scheduling timber harvesting activities. Of the tentatively suitable forest land included in the FORPLAN model, it was determined that an additional 60.1 thousand acres were not appropriate for programmed timber harvesting in the Forest Plan for cost efficiency reasons. This gave a net suitable forest land base of 841.1 thousand acres. Table 4-3 below presents a breakdown of the suitable forested acres by timber productivity classes. Data is not available to provide a similar breakdown for unsuitable forest lands.

Table 4-3 Timber Productivity Classification of Tentatively Suitable and Unsuitable Forested Lands

Potential Growth (CF/Acre/Year)	Suitable Lands (M Acres)
Less than 20	---
20 - 49	693.2
50 - 84	91.0
85 - 119	56 9
120 - 164	---
165 - 224	---
225+	---
Totals	**841.1**

Table 4-4 and 4-5 summarize and display the anticipated acreage treated by silvicultural practice/ harvest methods that may be used to implement the Forest Plan, and their contribution to the ASQ. Entomologists have predicted substantial mortality will occur in stands susceptible to mountain pine beetle epidemic. The Forest Plan will permit harvest of this mortality as it occurs, often in conjunction with other harvesting methods.

Table 4-4 Vegetative Management Practices on Suitable Forest Land (During the Next Decade)

Practice	Average Annual Treatments M Acres
Regeneration Harvest·	
Clearcut	1.5
Shelterwood & seed tree:	
Preparatory Cut	---
Seed Cut	5.9
Removal Cut	---
Selection	4.4
Overstory Removal of Existing Stands	2.2
Intermediate harvest:	
Commercial thinning	0 1
Salvage/sanitation harvest	---
Timber Stand Improvement	11.9
Reforestation[1]	9.6

[1]Includes natural (approx 70%) and artificial (approx 30%)

Table 4-5 Allowable Sale Quantity (ASQ) and Timber Sale Program Quantity (TSPQ)

(Annual Average for First Decade)

Allowable Sale Quantity MMCF[1]	
Regeneration harvest:	
Clearcut	4.7
Shelterwood & seed tree	6.4
Selection (uneven-age)	2.8
Overstory Removal of Existing Stands	4.0
Intermediate harvest:	
Commercial thinning	<.1
Total: ASQ	
MMCF	**17.9**
MMBF	**99.9**

Table 4-5 Allowable Sale Quantity (ASQ) and Timber Sale Program Quantity (TSPQ) (continued)

Additional Sales[2] MMCF	
Sawtimber	0.4
Other Products	7.1
Total: TSPQ[3]	
MMCF	**25.4**
MMBF	**141.8**

[1]Only includes chargeable volumes from suitable lands.
[2]Only includes nonchargeable volumes from suitable and/or unsuitable lands
[3]Total of allowable sale quantity and additional sales

The age class distribution of existing and future stands (Decade 15) is shown in Table 4-6. In the future there will be a similar proportion of stands in younger age classes than at present. In addition, about one-fourth of the present stands will move into the managed multi-story condition.

Table 4-6: Age Class Distribution on Suitable Forest Lands (1,000 acres)

Age Class	Dec. 1 Present Forest	Dec. 5 Future Forest
0-10	71.6	95.2
11-39	218.6	207.3
40-79	410.2	222.8
80+	0.0	223 2
Managed multi-storied stands		

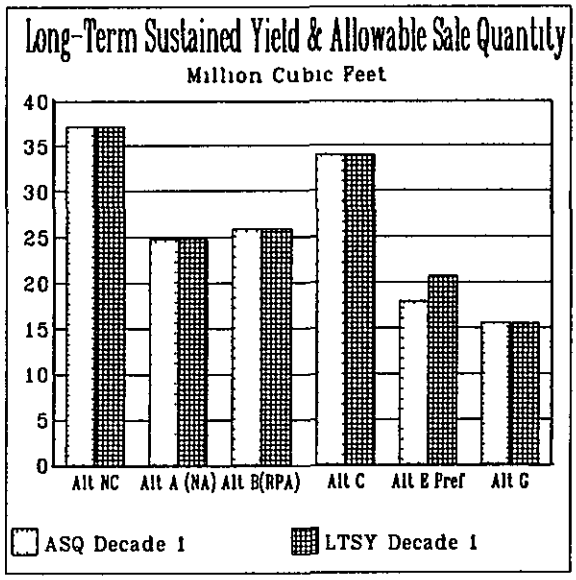
Table 4-7 displays the volume of timber in growing stock (Inventory) and the growth of that stock for existing and future forests. Note that growing stock of the future forest will exceed the present, and that annual growth of the future forest will exceed the projected ASQ by 4.1 MMCF.

Table 4-7 Present and Future Forest Conditions

Present Forest:	MMCF	1,126 6
Growing stock	MMBF	6,283.5
Future Forest:		
Growing stock	MMCF	1,427 2
Annual net growth	MMCF	219 7
Rotation age[1]		
Mixed Conifer	Years	95
Lodgepole pine		115
Ponderosa pine		85

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

Table 4-8 Display of Long-Term Sustained Yield Capacity and the Projected Allowable Sale Quantity



Investments will be required for transportation systems, reforestation, and protection (fuel treatments, control of insects, disease, and animal damage) to attain this level of timber production.

Table 4-9 shows the estimated harvest and acres treated that will occur in the first decade by Management Area in order to meet the intent of the S&Gs. It is the modeled solution of what is anticipated to occur on the ground. It is based on current conditions and information available at the time of Forest Plan development If conditions change, or if new information becomes available, it may be necessary to modify which areas get treated in order to better meet the objectives of the S&Gs. In the end, meeting the objectives of the S&Gs will be the determining factor in the need for treatment The degree of any modification will determine whether or not the Forest Plan needs to be amended.

Table 4-9 Ten Year Estimated Harvest and Area Treated by Management Area

Management Area	Area Treated (M Acres)[1]	Estimated Harvest (MMCF)[2]
3	0.5	0.4
5	0 5	0.2
7	0.1	0.1
8	125 9	159.0
9	9 6	11.8
18	2 9	4.3
21 & 26	0 7	0.8
22	1 2	2 5
Totals	**141.4**	**179.1**

[1] Thousand Acres
[2] Million cubic feet

Table 4-10 displays the average annual costs by activity for implementing the timber management program.

Table 4-10 Forest Plan Budget and Average Annual Activities

Silvicultural Exam & Prescrpt	ET111-2	NFTM	607	80000	Acres
Timber Resource Planning	ET112	NFTM	169	1	Plans
Resource Coordination	ET113	NFAF	120	0	
Resource Coordination	ET113	NFCR	192	0	
Resource Coordination	ET113	NFGE	6	0	
Resource Coordination	ET113	NFRG	38	0	
Resource Coordination	ET113	NFSW	160	0	
Resource Coordination	ET113	NFVR	142	0	
Resource Coordination	ET113	NFWF	272	0	
Resource Coordination	ET113	SSSS	159	0	
Timber Sale Prep	ET114	NFTM	1673	103300	MBF
Timber Sale Prep	ET114	NFTM		18513	MCF
Timber Sale Prep	ET114	SSSS	605	38500	MBF
Timber Sale Prep	ET114	SSSS		6900	MCF
Timber Harvest Administration	ET12	NFTM	884	103300	MBF
Timber Harvest Administration	ET12	NFTM		18513	MCF
Timber Harvest Administration	ET12	SSSS	244	38500	MBF
Timber Harvest Administration	ET12	SSSS		6900	MCF
Reforestation	ET24	CWKV	2685	7662	Acres
Reforestation	ET24	NFRI	693	1963	Acres
Timber Stand Improvement	ET25	CWKV	658	2525	Acres
Timber Stand Improvement	ET25	NFRI	1806	9406	Acres
Nursery Activities	ET26	NFRI	215		
Genetic Tree Activities	ET27	NFRI	366	0	
TIMBER TOTAL			**11670**		

Recreation

The following Table 4-11 shows the average annual activities necessary to provide the recreation opportunity and conditions resulting from the Preferred Alternative.

Table 4-11 Forest Plan Budget and Average Annual Activities (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Recreation					
Cultural Resource Activities	AC	NFCR	144	8500	Acres
Rec. Res. Operations	AN1	NFRN	2132	3370	M PAOT Days
Rec.Res. Improvements	AN22	CNRF	650	400	PAOTS
Rec.Res. Improvements Maint.	AN23	NFRN	847	23031	PAOTS
Trail Operations	AT1	NFTR	93	900	Miles
Trail Construction/Recon.					
Summer Trails	AT22	CNTR	724	55	Miles
Winter Trails					
Trail Maintenance	AT23	NFTR	260	900	Miles
Visual Resource Activities	AV	NFVR	116	0	
Wilderness Resource Activities	AW	NFRN	221	182	M Acres
Recreation Total			**5187**		

Table 4-12 shows the rivers that are now designated as part of the National Wild and Scenic System. These sections of rivers currently have interim boundaries Future surveys, which will include public participation, will be used to determine final boundaries and to develop management plans for each designated river. Until such time as management plans are developed the following rivers will be managed as described in Management Area 17 and 28 to protect their outstanding and remarkable values.

Table 4-12 Wild and Scenic Rivers

River	Termini	Classification	Mileage
Squaw Creek	Source to 3 Sisters Wilderness boundary and its tributaries	W	27.0
	Boundary of 3 Sisters Wilderness to Gaging Station 800 ft. upstream from intake of McAllister Ditch	S	8.8
Big Marsh	NE/1/4 sec.15, T.26,R.6 to confluence w/Crescent Ck.	R	15.0
Crescent Crk	SW/1/4 sec.11, T.24, R.6 to W. sec. line of sec.13, T.24 R.7	R	10.0

Table 4-12 Wild and Scenic Rivers (continued)

Deschutes	Wickiup Dam to N. boundary of Sunriver at SW 1/4 of sec.20, T.19 R.11	R	40.4
	N. boundary of Sunriver at SW 1/4 of sec.20, T.19 R.11 to Lava Island Camp	S	11.0
	Lava Island Camp to Bend Urban Growth Boundary at SW corner of sec.13, T.18, R.11	R	3 0
Little Desch.	Source in NW1/4 sec.15, T.26 R.6 1/2 to N. sec. line ofsec.12, T.26, R.7	R	12.0
Metolius	S. Deschutes NF boundary to Bridge 99	R	11.5
	Bridge 99 to Lk. Billy Chinook	S	17.1

W = Wild, S = Scenic, R = Recreational

The following rivers have been determined to be eligible for consideration as wild and scenic rivers and the corridor, defined as 1/4 mile on either side of the banks, will be managed in accordance with Management Area 17 or 28 to protect the outstandingly remarkable values which made them eligible until their suitability can be determined. Further information on eligible rivers can be found in Appendix D of the EIS.

River	Termini	Classification	Mileage	Management Area
Paulina Creek	Source to Forest Bdry. E. Line of Sec.29, T. 21S, R.11E	R	8.0	17
Deschutes River	Source in Little Lava Lake to Crane Prairie Reservoir	R	8.0	17
Browns Creek	Springs in Sec. 30, T.21S., R.8E. to Wickiup Reservoir	R	2.0	17
Fall River	Source in Sec.10, T.21S., R.9E. to confluence with Deschutes River	R	11.2	17
Jack Creek River	Source in Sec. 1, T.13S., R.8E. to confluence with Metolius	R	5.0	28

R = Recreational

Destination Resorts

Another important dimension of recreation in the Central Oregon area is the destination resorts which are located near the Forest and are heavily dependent
upon the recreational opportunities associated with the Forest. Recognizing this, the Forest, working with the various counties, will analyze any proposal and determine their compatibility with National Forest objectives. When conflicts are identified, the Forest will work with the counties to try to eliminate or mitigate conflicts. Large destination resorts, as defined by the Deschutes County Comprehensive Plan, will not be located on National Forest Land, but necessary support facilities such as access roads and utility corridors will be evaluated on a case-by-case basis through the NEPA process The general direction will be to disallow support facilities on National Forest lands if private lands are available and suitable.

Wildlife/Fisheries Habitat

The Forest will provide and manage habitat to support the following estimated population levels as shown in Table 4-13.

Table 4-13 Wildlife Population Levels

Species	Target Population Level
Woodpeckers	40-60% of the potential population[1]
Mule Deer:	
Summer population levels	30,400
Winter population levels	25,900 *
Elk	1500
Ospreys	125 pairs
Bald Eagles	35-45 pairs
Goshawks	40 pairs
Northern Spotted Owls	14 pairs
Great Blue Herons	40-50 pairs
Pine Marten	450-1285 pairs
Townsend's Big Eared Bat	250 in summer
Three-toed Woodpecker	70-1020 pairs

[1]40% of the potential population in even-aged stand treatments; 60% of the potential population in uneven-aged stand treatments

*This population number is for herd winter ranges that include ownerships off the Forest. The proportion of deer actually wintering on Forest lands is dependent on annual winter weather considerations.

Many other wildlife species will benefit from habitat managed for the above featured species.

Table 4-14 shows the average annual activities that are planned to meet the above mentioned population levels.

Table 4-14 Average Annual Wildlife/Fisheries Habitat Improvement Activities

Activity	Unit of Measure	Amount
Prescribed Burning/Mechanical Treatment	Acres	802
Snag Creation	Structures	463
Threatened and Sensitive Species Habitat Mgmt.	Acres	105
Water Structures	Structures	9
Watchable Wildlife Habitat Improvement	Structures	25
Waterfowl Habitat Improvement	Structure/Potholes	24/2

The prescribed burning is primarily associated with prescriptions to manage the deer winter and transition ranges. Some burning is also associated with improvement of forage on summer ranges and for non-game species. The priority for fish habitat is to conduct the inventories and base the amount of improvement work on the results of the inventory. The number of structures for fish habitat improvement are estimates and subject to change.

Table 4-15 Forest Plan Budget (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	# of Units	Unit of Measure
Wildlife and Fish					
Inland Fish Operations	CI1	NFWF	191	0	
Inland Fish Structural Improv.	CI221	CWKV	16	25	Structures
Inland Fish Structural Improv.	CI221	NFWF	70	50	Structures
Inland Fish Non-Struct Improv.	CI222	CWKV	10	25	Acres
Inland Fish Non-struct Improv.	CI222	NFWF	62	50	Acres
Inland Fish Habitat Improv Mtc	CI23	NFWF	10	0	
T & E Operations	CT1	NFWF	410	0	
T & E Non-Struct Habitat Impr	CT222	CWKV	20	100	Acres
T & E Non-Struct Habitat Impr	CT222	NFWF	37	105	Acres
Wildlife Operations	CW1	NFWF	401	0	
Wildlife Habitat Struct Improv	CW221	CWKV	100	230	Structures
Wildlife Habitat Struct Improv	CW221	NFWF	114	463	Structures
Wildlife Hab Non-Struct Improv	CW222	CWKV	79	400	Acres
Wildlife Hab Non-Struct Improv	CW222	NFWF	75	802	Acres
Wildlife Habitat Improv Maint.	CW23	NFWF	10	0	
Wildlife and Fish Total			**1609**		

Range

Range management will center largely on administering existing permits and allotments. To increase the capacity and improve range conditions, some additional activities are necessary. In addition to forage increased through timber harvesting, some additional improvements will be necessary and the activities are listed in Table 4-16.

Table 4-16 Range Improvement Activities

Activity	Unit of Measure	Amount
Water Developments/Fencing/Cattle Guards	Structures	20
Seeding/Prescribed Burning/Crushing	Acres	400

Table 4-17 Forest Plan Budget (In 1989 Dollars)

Range	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Range Resource Operations	DN1	NFRG	281	29	MAUM's
Range Res Structural Improve.	DN221	CWKV	26	10	Structures
Range Res Structural Improve.	DN221	NFRG	53	20	Structures
Range Res Structural Improve.	DN221	RBRB	6	3	Structures
Range Res Non-Struct Improv.	DN222	CWKV	30	200	Acres
Range Res Non-Struct Improv.	DN222	NFRG	32	400	Acres
Range Res Non-Struct Improv.	DN222	RBRB	3	40	Acres
Range Resource Improv. Maint.	DN23	NFRG	4	0	
Range Resource Improv. Maint.	DN23	RBRB	3	0	
Noxious Farm Weeds	DN24	NFRG	21	6	Acres
Range Total			**458**		

Soil and water restoration will be pursued to maintain long-term site productivity, and correct conditions which are damaging to beneficial uses of the water resources. Rehabilitation of compacted soils is needed on sensitive soil areas.

Table 4-18 Watershed

Activity	Unit of Measure	Amount
Soils Restoration	Acre	400
Water Restoration	Acre	15

Table 4-19 Forest Plan Budget (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Soil, Water & Air					
Air Resource Inventory	FA111-1	NFSW	50	22000	ACRES
Air Resource Planning	FA112	NFSW	15	0	
Air Administration	FA121	NFSW	15	0	
Soil Inventory	FW111-1	NFSW	43	300000	
Water Inventory	FW111-2	NFSW	117		
Watershed Planning	FA112	NFSW	81		
Watershed Res. Administration	FW12	NFSW	156	0	
Watershed Res. Improv Constr.	FW22	CWKV	80	400	Acres
Watershed Res. Improv Constr.	FW22	NFSW	87	432	Acres
Watershed Res. Improv Maint.	FW23	NFSW	13	0	
Water, Soil and Air Total			**657**		

Transportation and Facilities

The proposed traffic service categories for the Forest road system are shown in Table 4-20.

The development, maintenance, and management of the Forest development road system will be responsive to resource management objectives. Many road-related activities will occur in support of the timber management program, with additional activities undertaken to facilitate recreational use, Forest administration, and resource protection.

The projected operational status of the Forest development road system is as follows:

Table 4-20 Miles of Road by Category

	Open & Maintained for Passenger Cars		Open & Maintained for High Clearance Vehicles		Seasonal Closure for High Clearance Vehicles		Long-Term Closure		Total Forest Mileage
Decade	Miles	%	Miles	%	Miles	%	Miles	%	Miles
1	850	10	4250	50	1100	13	2300	27	8500
2	950	12	4150	52	900	11	2000	25	8000
3	1000	14	3600	52	800	11	1600	23	7000

Direction detailing construction, reconstruction, operational management and environmental protection requirements for the Forest road system are further described in the Forest-wide standards/guidelines or throughout the Management Area Prescriptions detailed in this Chapter.

Table 4-21 is an inventory of the road and facility construction projects planned for the first and second five year periods after the Forest Plan becomes final.

Table 4-21 Construction Projects

Road Construction **Project Name and Numbers**	**Est. Cost ($M)**
First Five Years	
Brown's Mtn. Crossing - Road 42	1,000
Lodgepole Access Program	1,000
China Hat Surfacing - Road 18	250
Crane Prairie Access - Road 4270	220
Odell Creek Bridge - Road 4660	80
Gunsight Pass/Billy Chinook - Road 1170	60
Benham Falls Access - Road 9702	150
Road 22 Overlay/Reconstruction	1,000
Roaring Creek Bridge - Road 1260	83
Cultus Fish Passage - Roads 4630 & 4600620	40
Big Marsh Culvert Replacement - Road 6020	50
Candle Creek Bridge - Road 1290	83
Sheep Springs Horse Camp Access-Roads 1230 & 1260200	100
Recreation Access	300
General Access	300
Second Five Years	
Lodgepole Access Program	1,000
Fish Mitigation	300
Recreation Access	1,200
General Access	1,200
Fire, Range, & Administration	300

Deschutes National Forest Facility Construction Program - Fire, Administration & Other (FA&O)

Project Name	**Est. Cost ($M)**
First Five Years	
Sisters Sewer Hookup	176
Black Butte Lookout Tower Replacement	198
Sisters Office Expansion, Phases II & III	290
Second Five Years	
Sisters Bunkhouse	146
East Butte, Spring Butte & Odell Butte Tower Replacement	295
Bend/Fort Rock Office Complex	1,500
Crescent Apartment Complex	200

Facility Construction - Bend Pine Nursery FA&O

First Five Years

Irrigation System Upgrade	1,100
Equipment Storage/Warehouse	200

Second Five Years

Farm Equipment Storage	200
Processing Building	350
Employee Center	250

Facility Construction - Redmond Air Center FA&O

First Five Years

Replacement Jump Tower	120

Second Five Years

New Barracks	500
New Administration Building	1,200
New RAG Hanger	300

Facility Construction - Multi-Financed

First Five Years

Bend/Fort Rock Warehouse Complex	900
Rosedale (Crescent) Warehouse Complex	500

National Funding for Reforestation (NFRI) - Bend Pine Nursery

First Five Years

Extractory Modification	60
Windbreak Irrigation	20
Fertilizer Storage	80
Office Expansion	60

Second Five Years

Additional Farmland	100
Portable Greenhouse	20
Additional Access Road	25
Field Drainage Sumps	20

National Funding for Fire & Aviation - Redmond Air Center

First Five Years

Dispatch Relocation	80
Office Remodel/Expansion	50
Ramp Management/Fitness	150
Retardant Remodel, Phase I	50
Fire Cache Modifications	50

Second Five Years

Juniper Barracks Remodel/Expansion	125
RAG Office Remodel	50
Retardant Remodel, Phase II	45
Pest Management Storage	75
Tammarack Barracks Remodel	60
Ponderosa Barracks Remodel	60

First Five Years

Lava Butte Lookout Rennovation	80
Crescent Office Modifications	95
Coop/Detail Housing	95
Crescent Child Care Facility	80
Rosedale Residences Retrofit	90

Second Five Years

Sisters Residences Retrofit	95
Monty GS Utilities	30
Crescent Wellness Facility	80
Crescent Paint Storage	25
Fort Rock Paint Storage	25
Sisters Paint Storage	25

Table 4-22 Forest Plan Budget (In 1989 Dollars) for Facilities

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Facilities					
Facilities Operations	LF1	NFFA	37	0	
Facilities Improvement Prep	LF21	CNFA	84	0	
Facilities Construction	LF22	CNFA	5	0	
Facilities Maintenance	LF23	NFFA	273	0	
Transportation Administration	LT12	NFRD	78	0	
Road & Bridge Administration	LT122	CNGP	12	0	
Road & Bridge Administration	LT122	CNRN	7	0	
Road & Bridge Administration	LT122	CNTM	112	0	
Road & Bridge Administration	LT122	SSSS	12	0	
Road & Bridge Admin. Support	LT123	CNGP	36	0	
Road & Bridge Admin. Support	LT123	CNRN	33	0	
Road & Bridge Admin. Support	LT123	CNTM	237	0	
Engineering Rd Preconstruction	LT2141	CNGP	33	0	
Engineering Rd Preconstruction	LT2141	CNRN	21	0	
Engineering Rd Preconstruction	LT2141	CNTM	99	0	
Engineering Rd Preconstruction	LT2141	SSSS	11	0	
Engineering Rd Preconstruction	LT2142	CNRN	21	0	
Engineering Rd Preconstruction	LT2142	CNTM	513	0	
Engineering Rd Preconstruction	LT2142	SSSS	55	0	
Road & Bridge Constr. Admin	LT2211	CNGP	16	0	
Road & Bridge Constr. Admin	LT2211	CNRN	10	0	
Road & Bridge Constr. Admin	LT2211	CNTM	65	0	
Road & Bridge Constr. Admin	LT2211	SSSS	7	0	
Road & Bridge Reconstr. Admin	LT2212	CNRN	10	0	
Road & Bridge Reconstr. Admin	LT2212	CNTM	231	0	
Road & Bridge Reconstr. Admin	LT2212	SSSS	25	0	
Road Construction Contracts	LT222	CNRN	170	6	Miles
Road Construction Contracts	LT222	CNTM	100	10	Miles
Road Construction Contracts	LT222	PUCR	100	16	Miles
Road Reconstruction Contracts	LT223	CNRN	100	6	Miles
Road Reconstruction Contracts	LT223	CNTM	1000	12	Miles
Road Reconstruction Contracts	LT223	CWFS	1	0	Miles
Road Reconstruction Contracts	LT223	PUCR	900	100	Miles
Bridge Reconstruction Contract	LT225	CNTM	83	1	Each
Road Maint.Level 1- Closed	LT231	CWFS	7	0	Miles
Road Maint.Level 1- Closed	LT231	NFR1	29	1200	Miles
Road Maint.Level 2-High Clear	LT232	CWFS	5	0	Miles
Road Maint.Level 2-High Clear	LT232	NFRD	191	6150	Miles
Road Maint.Level 3,4&5 Pas'ngr	LT233	CWFS	502	0	Miles
Road Maint.Level 3,4&5 Pas'ngr	LT233	NFRD	1319	950	Miles
Facilities Total			**6550**		

Roads of Issue

Table 4-23 Roads of Issue and Actions Allowed

Road Name	Road No.	Action
Todd Lake-Three Creek Lake	4600370	Maintain for passenger cars, at low speed, between Hwy 46 and Road 4600380, and for high clearance vehicles only from Rd. 4600380 to Three Creek Lake.
Irish-Taylor	4630600	Maintain for high clearance vehicles at the current standard.
Waldo Lake-Charlton Lake	5897 (old #); Rd 4290 (new #)	See Rock Creek Accords below.
Windigo Pass	60	See Windigo Accords below.

The Rock Creek Accords
July 1, 1988

Waldo Lake-Charlton Lake Road

There is a real opportunity to enhance recreation on the Willamette and Deschutes National Forests by improving the connection between Waldo Lake and the recreation sites along Century Drive. Improving the connecting route to better accommodate passenger cars and recreational vehicles would result in a very scenic loop drive Any future need to pave the road will be driven by the recreation opportunities and experiences which will be analyzed. The road will not be paved simply to shorten travel routes between Bend and Eugene.

Further analysis and public involvement through NEPA will be done prior to any future decision to pave this road. Improvement of this connection to a paved, double-lane standard will remain an option. Customers who will use the road, as well as publics who may be affected by changing traffic patterns (Crescent Junction), will be involved in all future decisions.

Until the analysis is done, the road between Clover Meadow and Waldo Lake will be maintained as a single-lane gravel road. Some experimental actions with surface treatments, such as dust oil, higher grade rock, and other methods, may be tried and monitored during the interim period.

This road will be closed to all commercial haul. Traffic volume will be monitored The normal season of use is June 15 to October 15, and this road will not be plowed for winter use.

The intersection near Waldo Lake will be landscaped.

Signs will be erected on each end of the connecting route: the west end will indicate Cascade Lakes Highway - 8 miles; the east end will indicate Waldo Lake - 8 miles. The route will be shown on state and Forest Service maps to reflect the actual road standard and surface condition.

The Windigo Accords
July 28, 1988

Windigo Pass Road - Deschutes/Umpqua National Forests

The Windigo Road FR 60, from its junction with FR 6020 at Umli on the Deschutes National Forest south to its junction with FR 6000 - 700 at the south end of the Oregon Cascades Recreation Area on the Umpqua National Forest, will be managed as follows.

There is no immediate need to improve this road. The road 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 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 involvement with the public, the Umpqua, and Deschutes National Forests.

The road will be left unplowed and maintained as a snowmobile route in winter.

Research Natural Areas

The following RNA's will be recommended for inclusion in the Research Natural Area Program:

Cache Mountain
Cultus River
Katsuk Butte
Torrey-Charlton
Many Lakes
Wechee Butte
Mokst Butte

Land Exchange Program

Exchanging an average of about 2,500 acres annually will be the program goal.

Special Uses

Issuing an average of 75 new special use permits and/or easements annually and administering 750 permits and/or easements annually.

Table 4-24 Forest Plan Budget (In 1989 Dollars) for Special Uses

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Lands					
Land Status Inventory	JL111	NFLA	24	0	
Special Use Admin. (non-rec)	JL122	NFLA	267	600	Cases
Land Ownership Administration	JL123	NFLA	41	60	Cases
Land Activity Maintenance	JL23	NFLA	23	0	
Landline Location	JL24	NFLL	252	25	Miles
Rights of Way	JL25	CNTM	22	5	Cases
Land Purchases	JL261	LALW	29	180	Acres
Land Transfer	JL264	NFLA	89	1600	Acres
Land Sales, Grants, Selections	JL265	NFLA	10	50	Acres
Lands Total			**757**		

Mineral Leasing/Development

Leasing an average of about 10 new leases (20,000 acres) acres annually for geothermal will be the program goal. The total annual average of acres leased is about 200,000.

Administering about two small and one/two large geothermal plans of operation and development annually is anticipated.

Administering 300 permits for mineral material pits (managing about 50 active and 250 inactive) and producing 250,000 cubic yds. of mineral materials annually is anticipated

Table 4-25 Forest Plan Budget (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Minerals and Geology					
Min & Geo Resource Activity	GM	NFGE	50	20	Cases
Min & Geo Resource Activity	GM	NFMC	79	575	Cases
Min & Geo Resource Activity	GM	NFME	433	400	Cases
Min & Geo Resource Activity	GM	NFML	22	25	Cases
Minerals Total			**584**		

Protection - Law Enforcement and Fire Management

Table 4-26 Forest Plan Budget (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
Protection					
Fire Management Preparation	PF11	NFAF	5441	0	
Fuels Improvements	PF2	BDBD	1933	20000	Acres
Fuels Improvements	PF2	NFAF	459	5000	Acres
Regular CLE Agreements	PF121	NFCL	110		
Cannabis CLE Agreements	PF122	NFCL	2		
Drug Control (Non-Cooperative)	PL131	NFCL	5	0	
Law Enforcement Other	PL132	****	445		
Protection Total			**8395**		

Land Management Planning and Administration

Table 4-27 Forest Plan Budget (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units
Land Management Planning				
Land Mgmt. Planning Activities	ML	CNGP/NF**	460	0
Administration				
Line Management	TG3	****	453	0
Program Support	TG4	****	3269	0
Total Administration			**3722**	

Forest Pest Management

Table 4-28 Forest Plan Budget (In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units
Pest Management				
Surveys & Technical Assistance	QC122-1	SPPM	134	0
Insect & Disease Suppression	QC124-1	SPPM	6	0

Forest-Wide Standards/ Guidelines (S&Gs)

Following are standards/guidelines which apply to activities on the Deschutes National Forest. They are overall direction that guides the application of prescriptions for management areas but may be modified or augmented by S&Gs for individual management areas.

As activities are planned, they will be coordinated with other Agencies such as the County Planning Boards, Oregon Department of Fish and Wildlife, Oregon State Department of Forestry, Fish and Wildlife Service, the City of Bend, the Bureau of Land Management, the Confederated Tribes of the Warm Springs Indians, and the Klamath Tribe.

These S&Gs coupled with the Management Areas provide the framework for use, development, and protection of the Forest's resources.

Recreation

Cave Management

Goals

To preserve and protect caves and their environments because they have unique biological, geological, hydrogological, archaeological, palaeontological, cultural, scientific, educational and recreational values.

To coordinate the management of cave and surface resources as a recreational opportunity. Free access will be permitted in caves which are safe and do not contain attributes which would be harmed by visitation.

To interpret cave resources for increased public understanding and awareness of the need to protect and preserve these unique ecosystems.

To maintain confidentiality about the location of caves with unique characteristics that could be destroyed by public access This includes caves which have not yet been evaluated to determine whether they are vulnerable or significant.

To control access in caves when necessary to protect visitors from hazardous situations and to preserve wildlife habitat and sensitive features.

Standards/Guidelines

CV-1 Caves will be managed in partnership with caving organizations, scientists, and outdoor recreationists A public education program will insure an understanding of the value of these irreplaceable resources.

CV-2 Significant and potentially significant caves will 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.

CV-3 Until a significant cave list is completed, all caves will be protected as follows:

* Trees will not be harvested in a 150 to 200 foot radius around cave entrances and infeeder drainages with slopes of less than 30 degrees. There will be no ground disturbing activities on slopes steeper than 30 degrees adjacent to cave entrances.

* Similar buffers will be maintained around direct drainages into caves. This includes sinkholes, cave collapse areas known to open into a cave's drainage system, and perennial, intermittent or ephemeral streams flowing into caves.

* Clearcutting will be prohibited within 250 feet of the entrance to caves with significant populations of bats. A 150 to 200 foot wide forested corridor between the entrance of these caves and the nearest foraging area will be maintained. When the foraging area is a nearby stream, trees will not be harvested for 75 to 100 feet on either side

CV-4 A management plan will be developed for each significant cave. It will include an inventory and mapping of cave resources, research and monitoring programs, and when necessary, a cleanup or restoration program. Access will be determined by the capacity of caves to withstand the impacts of visitation and management prescriptions will be developed on a cave by cave basis.

CV-5 Measures for the protection of caves will 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.

CV-6 The location of caves will be kept confidential when needed to protect major archaeological sites, habitat for endangered wildlife, sensitive cave biota, and unique geological features.

CV-7 Communication and cooperation between the Forest Service, caving organizations, and recreationists will be fostered. Exchanged information will not be made public if it could lead to the degradation of sensitive caves.

CV-8 There will be vigorous enforcement of laws protecting caves from illegal relic collectors and vandalism.

Trail System Management

Goal

To maintain the existing trail system and provide additions or modifications to the system which will meet the increasing and changing demands in dispersed recreation. To the extent possible this system will provide trails of all difficulty levels, trails in visually appealing settings, and trails for those modes of travel appropriate for the Forest in both summer and/or winter.

Standards/Guidelines

General

TR-1 The trail system will be developed to provide a variety of experiences.

TR-2 New, reconstructed, and relocated trails will be located to take the greatest advantage of environmental features.

TR-3 Trails will be located or relocated whenever possible where they will not be disrupted by developmental activities such as logging or road building. Where disturbance of a trail cannot be avoided cleanup should be concurrent. Reassurance markers and signing will be maintained to avoid inconveniencing trail users.

TR-4 Trails may be constructed in any management area unless specifically excluded or constrained by the Management Area direction.

TR-5 Trails to be constructed, reconstructed, or relocated during the life of this Plan are listed in the trails implementation schedule in Appendix 18 of this document Formal and informal public involvement will be an on-going part of the trail planning process to assure NEPA compliance and also to assure users needs are being met through the Forest's trails program. Periodic adjustments to the trails implementation schedule will be made in conformance with NEPA procedures.

TR-6 Volunteer groups and individuals will be encouraged to maintain and construct parts of the trail system.

TR-7 As a general rule, the Forest will be open to all modes of trail travel except where specifically closed.

TR-8 The Forest will prepare and periodically update a Forest Travel Plan which will identify areas, roads, and trails which are open or closed

TR-9 Additional direction on trails is contained in specific management area prescriptions and in the various Wilderness plans.

TR-10 Trails permitting multiple travel modes will be monitored for conflicts among users. When conflicts arise all avenues of resolution will be explored. The intent is to use the minimum regulation necessary to resolve conflicts.

TR-11 Priorities for completing proposed trail projects will be based on responses to increased

use need for resource protection and availability of funds

TR-12 All trails will be periodically reviewed for Nationally recognized status.

Summer Trails

TR-13 Most summer trails will be open to both horses and hikers Some trails may be closed to horses when the cost of construction/ reconstruction or maintenance would be significantly increased because of horse use.

TR-14 Emphasis will be placed on the reconstruction of the existing summer trail system to eliminate poor or problem sections rather than on construction of new trails.

Winter Trails

TR-15 The nordic trail system needs to be expanded on all Districts to meet the needs of this rapidly growing sport. Expansion opportunities will be sought in areas that will not reduce snowmobiling opportunities and which can provide for separation of uses

TR-16 The majority of snowmobile trails will be open to all terrain vehicles in winter.

TR-17 The Forest will work with the State Sno-park committee on the designation of additional parking lots.

TR-18 Where conflicts develop between non-motorized and motorized winter use the following sequence of steps will generally be taken:

* Trails will be designed to encourage the intended user and to discourage others. An inviting system of trails will be provided for both non-motorized and motorized users.
* Intensify educational and indirect management efforts to resolve the conflict.
* Restrict motorized use of nordic trails.
* Close the area where the conflict is occurring to motorized use.

Off-Highway Vehicles (OHV's)

TR-19 In areas of the Forest where there are extensive motor vehicle closures a better public service will be provided by designating trails or areas where OHV's can operate legally. Each District will identify such opportunities as appropriate.

TR-20 The Forest will work with the State All-Terrain Vehicle committee on the planning and construction of Off Highway Vehicle (OHV) trails and facilities.

TR-21 In addition to winter use of OHV's, the Forest will provide additional opportunities for summer use of OHV's and other OHV's such as motorcycles Part of the Forest Service road system that is not maintained for public use and that is not involved in logging operations may be opened for this use. Closures will be coordinated with ODFW.

TR-22 All trails will be periodically reviewed for Nationally recognized status.

Specially Designated Trails

TR-23 Management and development of each segment of the National Trails System shall be designed to harmonize with and compliment any established multiple-use plans for that specific area in order to ensure continued benefits from the lands.

TR-24 In the event of conflicts between the trail or its use, and the legislated purpose or planned objectives for these areas, the legislated purposes on area objectives will prevail.

TR-25 The trail will co-exist in harmony with all other uses and activities of the land as determined through the land management planning process.

TR-26 When resource activities occur immediately adjacent to or across the trail, the integrity of the trail proper will be protected by modified management practices as needed.

Pacific Crest National Scenic Trail Non-Wilderness Segments

TR-27 All permanent trail relocations must be approved by the Chief of the Forest Service.

TR-28 Additional information can be referenced in the "Comprehensive Management Plan for the Pacific Crest National Scenic Trail (PCNST); USDA Forest Service, Pacific Northwest Region, Portland, Oregon, January 1982."

Peter Skene Ogden National Recreation Trail

TR-29 This trail is closed to motor vehicles. The primary emphasis is horse/hiker.

The Molten Land National Recreation Trail

TR-30 Travel is restricted to foot travel.

TR-31 Interpretation is the primary function of the trail.

Lava Cast Forest National Recreation Trail

TR-32 Travel is restricted to foot travel.

TR-33 Interpretation is the primary purpose of the trail.

Metolius-Windigo National Recreation Trail

TR-34 The trail will increase dispersed recreation.

RE-35 The intent of this trail was to not add additional constraints on other resource management activities. Management practices for a variety of resources will be encountered along the trail.

TR-36 Horse and foot travel are the intended uses of this trail. Currently, portions of the trail are located on roads. The objective is to move the entire trail off roads and eliminate shared use with motorized users. Snowmobile use is permitted in winter, however, the trail will not be maintained to snowmobile standards.

Cultural Resources

Goal

To provide for the protection and preservation of prehistoric and historic sites, buildings, objects, and antiquities of local, Regional, or National significance.

Standards/Guidelines

CR-1 In compliance with applicable Federal historic preservation legislation (National Historic Preservation Act, Executive Order 11593), a professionally supervised cultural resource inventory program will be conducted on both a Forest-wide and project specific level. The surveys will be conducted according to an inventory plan and research design agreed to by the Forest Service and the State Historic Preservation Office (SHPO). Based on this data base, the Forest will develop and maintain a Forest-wide cultural resource overview that summarizes and compiles known cultural resource information.

CR-2 Cultural resource properties located during inventory will be evaluated by a professional archaeologist/historian to determine their eligibility for listing in the National Register of Historic Places, according to the criteria of eligibility established in the National Historic Preservation Act.

CR-3 In concert with the inventories and site evaluations, the Forest will develop the thematic National Register nominations and management plans for the various classes of prehistoric and historic resource properties found on the forest.

CR-4 Results of project level cultural resource inventories, or the intent to carry out such inventories, will be documented through environmental analysis for the project.

* Cultural resource properties in conflict with ground disturbing projects will be professionally evaluated to determine site significance and to aid in determining the full range of management alternatives.

* Depending upon the nature of the project, the activity may be redesigned to avoid damage

or disturbance to significant sites, or mitigation procedures will be developed. In some instances where avoidance is not possible, the value of the property may be conserved through a professionally acceptable data recovery program.

CR-5 Management of cultural resources will be coordinated with other agencies including the State Historic Preservation Office and the Advisory Council on Historic Preservation, as required by Federal and State historic preservation laws and regulations. Management of the Native American cultural resources will also be appropriately coordinated with the Warm Springs and Klamath tribal groups The Deschutes Historic Landmarks Commission will also be consulted as appropriate.

CR-6 Management of the Native American cultural resources will be coordinated with the appropriate Native American Tribe. This coordination will include (but not necessarily be limited to) notification of the appropriate Tribal Group when projects are proposed in areas of known concern, and opportunity for Tribal involvement in research of sites with known Tribal affiliations.

CR-7 Cultural resources may be developed for educational, scientific, or recreational purposes to the extent the integrity of the resource is maintained.

* Cultural resource management will ensure that properties and their records are protected to prevent unauthorized uses and to prevent degradation.

* The maintenance level for eligible historic structures and prehistoric sites will be based on an analysis of utility, scientific and historical value, public interest, area allocation, and available funding.

* Public use of cultural properties will be monitored to prevent degradation or as specified in a management plan for the property.

* Artifacts recovered from sites on National Forest lands must be curated in a repository with adequate long-term curatorial capabilities.

CR-8 Human Burials: The appropriate treatment of historic and prehistoric human burials shall follow federal policies and Oregon state law. Upon their discovery, burials will be treated as follows:

* They will be immediately evaluated by a Forest Service archaeologist and a qualified forensic anthropologist to determine if the skeletal material is human and to what time period and ethnic group it may be ascribed.

* Appropriate local officials (county coroner) and American Indian tribes will be notified of the discovery if the skeletal material is human Based on the circumstances of the discovery and the origin and ethnic affiliation of human remains, the burial site will be treated as follows:

  The burial will be reinterred in place. The project (e g , a timber sale cutting unit) will be redesigned to avoid causing further impact to the site. The burial site will be monitored and protected in place for all future projects and to prevent vandalism and natural degradation.

  Where reinternment in-place is neither feasible or prudent, and where affiliation with a recognized American Indian tribal group can be reasonably established, the pertinent tribe or confederation of tribes will be contacted The nearest tribe or confederation will be contacted in situations where a direct link cannot be made to an existing tribal entity. In either case, based on consultation with the appropriate tribal officials, the burial may be reinterred on an adjacent Indian reservation.

CR-9 Contemporary American Indian Sacred Sites and Religious Places:
The Forest will meet all requirements of the American Indian Religious Freedom Act (AIRFA) prior to the implementation of projects. Based on the AIRFA consultation process with American Indian groups, federal protection of contemporary American Indian sacred sites may include but is not limited to, access to sacred and traditional sites, use and possession of sacred objects, the enactment of sacred objects, and the enactment of ceremonies and traditional rites. Related activities may include gathering of plants for food, medicinal, or craft uses, and the construction of sweat lodges and structures for curing and vision questing

CR-10 AIRFA addresses the religious rights or freedoms of all American Indians without regard for federal tribal recognition, but does not convey exclusive use of areas or free use of Forest products. Therefore, in considering access to traditional areas or sacred sites, for example, the Forest must also take into account other existing or potential uses. Publicly owned property (cultural sites, artifacts) remain the property of the United States Government. Activities which may affect such properties, sites, or artifacts are subject to existing laws and regulations.

CR-11 The nonrenewable, generally fragile, nature of cultural resources will be recognized and will be accordingly managed to the greatest scientific and public good.

Wild and Scenic Rivers

Goal

Protect and enhance the outstandingly resource values found along these streams for present and future generations.

WS-1 Rivers designated by Congress as wild and scenic rivers will be managed in accordance with the standards/guidelines found in Management Area 17 or, in the case of the Metolius River, Management Area 28 until river management plans are complete and this Plan is amended.

WS-2 Rivers found to be eligible for consideration as wild and scenic rivers (table 4-12) have not been mapped as wild and scenic rivers. These rivers will be managed in accordance with the prescriptions found in Management Area 17 or Management Area 28, in the case of the Metolius River, until such time as further study is completed and this Plan is amended.

Forest Health

Goal

To maintain and enhance the vigor of the forest ecosystem through the control of forest pests.

Standards/Guidelines

FH-1 It is the responsibility of the resource manager to consider, document and mitigate, if possible, the potential impact of forest pests, both on short and long-term land management objectives.

FH-2 Working within the natural ecosystem i.e. vegetative manipulation using biologically sound silvicultural techniques is preferable to direct control methods.

> It is important to remember that every silvicultural alternative, including no treatment, affects insect and disease levels and their impact within the forest ecosystem. Vegetative manipulation can both increase, or decrease, insect and disease risk.

FH-3 Management strategies should emphasize prevention of pest problems rather than suppression activities

FH-4 Treatment of pest problems should be a result of integrated area analysis to achieve quantifiable land management objectives. Treatment on an isolated stand by stand basis is not recommended.

FH-5 It may not be possible, or desirable, to treat all affected stands in an analysis area in one entry. Priority systems for treatment will need to be established by the Interdisciplinary Team. These systems could be based on a number of factors including: loss of future management options if treatment is delayed, diversity, site productivity, visual and/or wildlife considerations.

FH-6 Pesticides will be used following all applicable state and Federal laws, including the labeling instructions of the EPA.

FH-7 Pesticide use will be conducted in accordance with direction in the following Forest Service Manuals: 2150 (Pesticide-Use Management and Coordination), 2109.11 (Pesticide Project Handbook), 2109.12 (Pesticide Storage, Transportation, Spills, and Disposal Handbook); 2109 13 (Pesticide Project Personnel Handbook); 6709.11 (Health and Safety Code Handbook, Chapter 9).

FH-8 Herbicides will be used in accordance with direction in the Region 6 Vegetative Management Environmental Impact Statement.

Timber Management

Goal

To manage the timber resources of the Forest in a way that is consistent with other resource objectives, environmental constraints, and economic efficiency.

Standards/Guidelines

Silvicultural Prescriptions

These standards/guidelines provide for both uneven-aged and even-aged timber management on suitable lands.

TM-1 Silvicultural prescriptions will be prepared for all timber management activities proposing the *management of forest vegetation to meet resource* management objectives. Prescriptions will be recorded in the Forest data base.

TM-2 All prescriptions will be prepared or approved by a certified silviculturist.

TM-3 Elements required in a silvicultural prescription are documented in FSM 2478 and the Silvicultural Examination and Prescription Handbook (FSH 2409.26d). No standardized format will be required, but all requirements must be addressed in the prescription or through project environmental analysis.

TM-4 Silvicultural prescriptions must designate the predetermined number and sizes of snags, green wildlife trees and downed logs that will meet the habitat requirements for cavity nesting species. These requirements are outlined in the Deschutes National Forest Wildlife Tree and Log Implementation Plan. Grouping of green replacement will be the preferred implementation technique. Compliance will be based on the harvest unit area rather than an individual acre Exceptions to these requirements must be documented through the project environmental analysis.

Sufficient snags will be maintained to provide 40 percent of potential population levels of cavity nesting species within even-aged harvest units of the General Forest, visual areas (retention, partial retention, and middle ground), and Deer Management Area allocations. In uneven-aged harvest units, live replacement trees will be left during harvest to assure 60 percent of cavity nesting potential through the rotation, except where natural deficits occur in diameter classes.

TM-5 Stand examinations and/or other data gathering processes will be used to verify or develop silvicultural prescriptions. Data gathering processes shall be designed to provide the appropriate detail and accuracy commensurate with the complexity of the silvicultural and resource decisions at hand.

TM-6 Silvicultural prescriptions shall identify an optimum and minimum stocking level for all stands where regeneration harvests are applied Regeneration harvests include overstory removal from stands of advanced regeneration, the seed cut and final harvest of naturally regenerated stands and clearcuts which are later planted or interplanted

TM-7 The optimum stocking level shall be based on the objective of maximum cubic foot volume production unless other resource objectives are identified and documented during the project planning process. The minimum stocking level will be based on the total number, distribution, and condition of trees needed to carry out the least intensive silvicultural strategy identified in the Forest Plan or as specified in Regional stocking level curves (FSH 2409.26d) or site specific local curves as well as mortality predicted at 20 percent over the length of the rotation. A site specific

analysis documented in the silvicultural prescription may justify a change in management intensity or predicted mortality level.

TM-8 The decision to replant, interplant or apply additional site preparation to regeneration harvested areas which are stocked above the minimum stocking level but below the optimum stocking level by planted, advanced or natural regeneration shall be based on a site specific economic analysis. The economic analysis will weight the additional costs of replanting, interplanting, or applying supplemental site preparation against the discounted benefit of the additional volume contributed from the additional trees which resulted from the retreatment. Retreatment should not be prescribed with a benefit/cost ratio of less than 1.0 unless warranted by other management objectives which were identified and documented in the project planning process.

TM-9 Regeneration harvested areas which are stocked below the minimum stocking level after overstory removal from advanced regeneration, after the specified time period (regeneration time lag, see TM-49) for natural regeneration but prior to overstory removal, or after the third year exam in plantations shall be evaluated for retreatment. Consideration shall be given to the existing trend toward stocking by natural regeneration as well as other resource objectives identified for the harvested area and the implementation compartment as a whole. Where stocking is below the minimum, no positive stocking trend is indicated and other identified resource objectives can be met, additional site preparation, replanting or interplanting shall be prescribed without further economic analysis. The most recent interpretation of regeneration assurance should be followed.

TM-10 The silvicultural prescription will consider integrated pest management. Pests include insects, diseases, animals, and vegetation. Where conditions are such that unacceptable damage or reductions in tree growth can be predicted, protection measures may be warranted prior to the actual damage occurring.

Table 4-29 Possible Forest Pest Management Strategies for General Forest Stands

Pest	Conditions Favoring Damage	Management Strategy
Mountain pine beetle	PP-Overstocked, clumpy stands LPP-Stands of low vigor due to overstocking and/or age	Keep stands in vigorous condition by controlling stocking levels through thinning, clearing, and prescribed burning Strive for radial growth of at least 1"/decade
Western pine beetle	Stands with overmature, low vigor Ponderosa pines; also, in overstocked pine stands damaged by mtn pine beetle	Remove high risk trees with declining crown vigor, decrease intertree competition by thinning, cleaning, or underburning Attempt to establish mistletoe free unit boundaries whenever possible
Dwarf Mistletoes	Multi-storied single-species stands with moderate to heavy infection [1]	Eliminate inoculum by regeneration harvest
	Multi-storied single-species stands with mistletoe throughout but which could be converted to a fully stocked single story with light mistletoe.[1]	Convert to single story structure, leaving only lightly infected trees Regenerate at the end of the rotation
	Multi-storied mixed-species stands where one species is infected [1]	*Favor non-host species in silvicultural operations*
	Infected overstory in single-species shelterwood [1]	Remove overstory before regeneration is 3 ft tall or 10 yrs old
	Lightly infected understory in two-storied stands [1]	Remove overstory and thin understory to maintain infections at low levels
Defoliating insects--(Western spruce budworm and Douglas-fir tussock moth)	Multi-storied stands with major true fir and/or Douglas-fir components	Short term Treat infested stands with chemical or biological insecticides. Long term Favor pines to reduce TF/DF component
Root diseases (laminated root rot; Armillaria, annosus root disease)	Stands with major TF/DF components where inoculum is present	Regenerate areas with tolerant or resistant species For Laminated root rot and Armillaria, discriminate against Douglas fir and white fir (favor Pine), for annosus root disease, discriminate against white fir, favor any other species If white fir is desired, treat stumps with borax within 48 hrs of cutting to prevent infection
Indian paint fungus	Stands with major component of white fir and a history of tree suppression and wounding.	Do not manage high risk understories Where white fir is desired, start over and keep rotations under 120 years, promote tree vigor throughout the life of the stand, avoid wounding crop trees
Western gall rust	Moist cool weather conditions in young vigorous lodgepole pine stands	Replace stand if the number of trees with bole infections is less than the minimum stocking level for the site Otherwise discriminate against trees with infections during thinning Without mitigation, most regeneration and/or small trees will not become large trees

[1]Attempt to establish mistletoe free unit boundaries whenever possible Without mitigation, most regeneration and/or small trees will not become large trees

NOTE: Not all pest conditions have been covered in these examples

TM-11 Livestock grazing will be controlled to achieve successful reforestation. Livestock shall not be permitted on a reforestation area until seedlings are capable of withstanding the type of grazing use intended.

TM-12 Regeneration examinations shall be made in accordance with FSM 2472.4, including as a minimum, exams after the first and third growing seasons. Certification of regeneration units must be made based on a site specific determination, and regeneration units must meet minimum stocking guidelines prior to certification as successfully reforested. Certification for seed tree and shelterwood units follows removal of the overstory and determination that the minimum stocking objectives have been met.

TM-13 In clearcut units, site preparation shall be completed within 2 years of harvest. Planting shall occur within 1 year of site preparation. Exceptions can occur but only for resource objectives that have been documented through environmental analysis. These units shall be suitable and certified as satisfactorily reforested 3 years after planting, or no later than 5 years following harvest.

TM-14 The Silvicultural Prescription Handbook (FSH 2409.26d) will be used as the guide for all even-aged management prescriptions. The following standards/guidelines will be used for all unevenaged management prescriptions.

Uneven-Aged Management

Appropriate Uneven-Aged Silvicultural Systems

TM-15 Uneven-aged management within the Ponderosa and mixed conifer community types can be applied using either individual tree or group selection silvicultural systems. Individual tree selection should be applied where forest stands contain a variety of size classes, usually three or more, which are evenly distributed on nearly every acre throughout the stand. In the single tree selection system, the growing space created by the removal of a single mature tree will become occupied by numerous seedlings. In turn, the seedlings will grow and will gradually be reduced in number by thinning until a single mature tree again occupies this growing space at the end of the prescribed rotation.

TM-16 Group selection should be applied where forest stands are irregular or contain a mosiac of small even-aged groups. Even-aged groups may be as small as one quarter acre and contain two or three mature trees or in rare cases as large as six or seven acres. Even-aged groups are usually less than two acres in size and no wider than twice the height of mature trees in the stand. From an ecological viewpoint, maximum group size is reached when climatic conditions within the even-aged group are no longer modified by the adjacent even-aged groups. Activities will vary within each small even-aged group depending on the size, age and density of the trees Both individual tree and group selection systems are appropriate. The decision to apply either system of uneven-aged management should be based on actual stand and site conditions.

TM-17 Whether individual tree or group selection, the silvicultural objective is to systematically reallocate the site's growth potential to a stand with nearly all size classes represented. This structure will include a few larger diameter mature or overmature trees, many smaller, younger and potentially more vigorous trees as well as growing space for new seedlings to become established in openings. Each harvest entry will remove trees from nearly all size classes within the stand. With each successive harvest activity, a better distribution can be developed where eventually, trees in most size classes are represented. Silvicultural systems described here for uneven-aged management are described in further detail by David M. Smith in The Practice of Silviculture, 7th edition, published in 1962.

Stand Conditions as Criteria for Uneven-Aged Management

In the Ponderosa pine and mixed conifer community types, uneven-aged management has application where the following stand conditions apply:

TM-18 Uneven-aged management is applicable in mature and overmature pure Ponderosa pine stands in the Ponderosa pine community types. From a biological standpoint, these community types are particularly well suited to uneven-aged management. Ponderosa pine is both the dominant successional and climax species. Shade tolerant or potentially less desirable conifer species do not invade and dominate these sites. In addition,

Ponderosa pine seedlings and saplings should respond well to release from overstory competition even after many years of suppression. Ponderosa pine are not highly susceptible to root and stem rots resulting from wounding associated with harvest activities. Lastly, pine is commonly found growing in irregular, multi-aged stands or in a mosiac of small even-aged groups which are particularly conducive to uneven-aged management.

Although uneven-aged management can be applied to all existing stand structures, the best candidates for uneven-aged management are those stands which already display an uneven or mixed size structure. They should contain multiple canopy layers including a manageable component of sapling and pole-size trees which are of crop tree quality as well as scattered mature or overmature trees of acceptable vigor and quality. The sapling and pole component is particularly important to the maintenance of acceptable yields over time. These trees will become the dominant and codominant overstory at the end of the 150 year planning period Although some stands appear to be good candidates based on stand structure, if crown ratios are poor, past rates of diameter growth are only fair, and saplings or poles are poorly represented, rates of volume production over time may not be acceptable.

Uneven-aged management can also be applied in even-aged mature and overmature stands although this prescription will require numerous periodic entries before the desired uneven-aged stand structure can begin to be developed. Through a series of two or three partial removal entries, stands with this structure are opened up and usually allowed to regenerate naturally. Here the best candidates for uneven-aged management are those stands and sites with a good potential for continued growth and for natural regeneration.

Uneven-aged management can also be applied in immature, even-aged stands in the Ponderosa pine community types, particularly where a remnant multi-story structure currently exists. In this case the transition to an uneven-aged structure would occur over two or more entry cycles. In these stands the silvicultural objective is to retain a remnant mature or overmature stand component of three to six trees which are free of disease and have good crowns, moderate vigor and which can contribute to the development of a multi-storied stand structure. It is not appropriate to retain slower growing or suppressed trees rather than the best growing trees of the same age as the dominant even-aged stand simply to increase the uneven-aged appearance. Following the final commercial thinning, natural regeneration can be encouraged to further the development of an uneven-aged structure. In this situation, consideration must be given to the competitive effects between the emerging understory and the commercially thinned stand. Wider spacing of the thinned stand would generally be recommended.

TM-19 Uneven-aged management is applicable to mature and overmature stands of mixed Ponderosa pine and lodgepole pine within the Ponderosa pine community types but only where silvicultural activities will result in stands dominated by Ponderosa pine. Dominance in these community types is achieved when stocking by Ponderosa pine can be maintained at or above 50 percent of the minimum stocking level established in the silvicultural prescription on 80 percent of the treated acres As an objective, dominance by Ponderosa pine should maintain the existing character of these stands as well as meet the long term needs for species diversity.

TM-20 Uneven-aged management can be applied in the mixed conifer community types but only where silvicultural treatments will result in a stand dominated by early successional species such as Ponderosa pine, Douglas-fir, western white pine and western larch. Dominance in these community types is established when stocking by early successional species can be maintained at or above 50 percent of the minimum stocking level established in the silvicultural prescription on 80 percent of the treated acres As an objective, dominance by early successional species should assure long term stand health and vigor as well as provide for the final harvest of preferred species as planned in the silvicultural prescription. Uneven-aged management is not generally applicable in mixed conifer stands where silvicultural treatments result in stands dominated by white fir or lodgepole pine In this situation, the potential for insect and disease depredation is high. In addition, this reduction in species diversity can potentially reduce the long term needs for habitat diversity by wildlife species. Dominance by acceptable early successional species can be maintained by selection of

seed trees when present in the stand, showing preference during precommercial and commercial harvest entries or by planting or interplanting stands with the early successional species listed above.

TM-21 Uneven-aged management is not appropriate in the lodgepole pine community types. Lodgepole pine should be managed using even-aged systems, and where possible, should be regenerated using seed trees and natural regeneration.

TM-22 The opportunities for uneven-aged management in the higher elevation true fir and mountain hemlock community types are not well understood. Attempts at uneven-aged management in these forest types should be made with great caution.

Site Conditions as Criteria for Uneven-Aged Management

Within the Ponderosa pine and mixed conifer forest types, uneven-aged management has application where the following site conditions apply:

TM-23 Uneven-aged management will generally be applied on slopes of less than 30 percent where tractors and rubber tired skidders normally operate. Uneven-aged management will generally not be applied where cable or skyline yarding systems are prescribed, unless this management technique is the best way to meet management objectives. There may be occasions where helicopter logging could be compatible with extensive management of uneven-aged stands

TM-24 Uneven-aged management can be applied where the total area impacted by detrimental soil compaction, erosion or displacement can be restricted to less than 20 percent of the stand.

TM-25 Uneven-aged management is particularly appropriate adjacent to streamside management units and other riparian areas where maintenance of forest cover is an important objective.

TM-26 Uneven-aged management is particularly appropriate on rocky soil areas where lava rock outcroppings and lava pressure ridges are a dominant feature and the objective is to minimize reforestation costs or manage with less intensity.

Standards for Silvicultural Prescriptions

Where stand and site conditions are applicable, the following standards/guidelines should be used for prescribing uneven-aged management:

TM-27 Silvicultural prescriptions should be designed to maintain or improve the existing stand diversity and uneven-aged structure. Emphasis, however,should be given to managing the existing growing stock rather than cutting against it to create the ultimately desired uneven-aged diameter distribution during one harvest entry. Of equal importance, trees of poor quality and high risk should not be retained simply to fill a need in the desired diameter distribution. The prescription should be designed to move the stand structure toward an uneven-aged diameter class distribution through an orderly sequence of harvest activities which occur during the next 20 to 60 years. Stand simulation models such as Prognosis should be used as the primary tool to evaluate optimum levels of growing stock and diameter distributions which best meet management objectives.

TM-28 Timber harvest and post sale activities should generally be planned on a 20 year entry cycle. Longer entry cycles may be necessary where site potential or current levels of growing stock will not produce a economical harvest entry within the twenty year period. Harvest entries should be prescribed which will result in residual levels of growing stock which will not require retreatment for 20 years. All post sale activities including fuels treatment, site preparation, planting, precommercial thinning and conifer release necessary for the 20 year entry cycle should occur no later than 5 years following the harvest entry. Stands should not be harvested at other than the prescribed entry times except to salvage fire killed trees, bark beetle related mortality which has occurred at epidemic levels, extensive mortality caused by other catastrophic events or where stand performance has fallen below acceptable levels and the stand has become high risk for bark beetles. It is not appropriate to make entries at other than the prescribed entry cycle to harvest scattered high risk or high value trees or mortality below epidemic levels which contribute to wildlife habitat needs.

TM-29 No minimum or maximum sized treatment area is specified where uneven-aged conditions can be maintained throughout the area. Where

group selection is prescribed, an individual harvest unit may contain even-aged groups of many tree sizes and accommodate prescriptions for precommercial thinning, commercial thinning, partial overstory removal, final overstory removal and site preparation for natural regeneration.

TM-30 Each silvicultural prescription should specify stand management criteria including the appropriate "Q" value or relationship between numbers of trees of different diameter classes, the appropriate residual basal area as well as the upper diameter limit or rotational size for trees to be harvested. These stand management criteria will vary depending on site quality and management emphasis. Within a classical, fully regulated, uneven-aged forest, at each entry cycle all trees, except those reserved for wildlife, in excess of the upper diameter limit would be harvested, allowing growing space for a new stand layer to develop. Within our typical unmanaged and irregular forest, unlike the classical and uneven-aged forest, the existing relationship between trees in all size classes as well as the condition of these trees should be considered. These factors should be used as a basis for developing marking guidelines rather than a strict desired diameter distribution or upper diameter limit.

Where the stand structure is dominated by mature and overmature trees and the understory is of poor quality or is poorly stocked with seedlings, saplings and pole-size trees, the initial silvicultural objective is to eliminate the undesirable understory, harvest the poorest quality and highest risk overstory trees, release thickets of saplings and poles from overstory competition, and initiate the regeneration and establishment of a new stand below the dominant overstory. This is achieved by first reducing the density of the overstory to allow growing space for newly regenerated seedlings. Between 50 and 75 percent of the trees of best quality and least risk which are greater than 20 inches will be retained following the initial entry. Trees greater than 20 inches will be retained in the stand without strong consideration for between-tree spacing Openings can be created for natural regeneration using either individual tree or group selection methods depending on the existing stand structure, site quality and the needs for fuel treatment and site preparation. Overstory trees should generally be harvested where they occur above regenerated thickets. Thickets should then be precommercial thinned. Sites for new seedlings can be prepared by prescribed burning or by mechanical means. These objectives should be tempered by the need to leave poor quality or high risk trees, particularly those with heart rot, for future wildlife trees. If at high risk, these trees can provide cavity dependent wildlife habitat through natural mortality. The second and subsequent entries will continue to reduce the density of mature and overmature trees, reallocate growing space to younger and more vigorous trees and provide growing space for additional seedlings to become established.

Where the stand structure is only partially dominated by mature and overmature trees and the understory is moderately stocked with seedlings, saplings and pole-size trees, between 25 and 50 percent of the best quality overstory trees should be retained. Trees which are harvested will provide added growing space for existing trees and allow more growing space for natural regeneration and the development of a new stand layer. Again, precommercial thinning and site preparation should occur where needed.

Where the understory is fully stocked with seedlings and saplings of crop tree quality and at least 20 percent of the stand structure consists of poles and small sawtimber, the majority of the mature and overmature trees may be harvested. At a minimum, the appropriate number of trees greater than 20 inches of best vigor and quality necessary to maintain the uneven-aged size class distribution will be retained in addition to the poles or small sawtimber and the understory of seedlings and saplings These larger trees will contribute to the uneven-aged structure and if located adjacent to non-stocked openings, they can serve as seed trees. At the time of this initial entry, poles and small sawtimber should be commercially thinned and saplings should be precommercially thinned. At the same time non-stocked openings should be treated to prepare sites for regeneration. Eventually, as pole and small sawtimber-sized trees grow to large size, these older trees can be considered for harvest or retained as wildlife trees.

TM-31 Within the General Forest emphasis area, timber marking guidelines should be developed which retain the best quality crop trees of the greatest vigor. First priority for leave trees are

those with demonstrated characteristics of good vigor. Second priority are those trees with characteristics which will produce high value products in the future. At each harvest entry the poorest quality trees of the highest risk should be removed. In some cases, wildlife trees may be retained which are of poor crop tree quality and high risk. Keen's (1943) risk rating system may be used to identify trees with the greatest vigor. Timber marking guidelines should not necessarily retain the largest or oldest trees but instead should focus on trees of best vigor and quality. Additional timber marking guidelines may be appropriate in management emphasis areas other than General Forest.

TM-32 Uneven-aged management is most applicable in stands free of dwarf mistletoe. Uneven-aged management should be restricted to stands where dwarf mistletoe can be stabilized indefinitely at a low infection level in the trees comprising the regulated stand. This will insure that no more than a 10% loss in productivity will occur. Maintaining mistletoe at low levels will be easiest where mistletoe occurs on species which are minor components of the stand. In single species stands, or stands where mistletoe infects the dominant species, stabilization will be more difficult both to accomplish and to predict.

TM-33 Consultation with the Zone Pathologist and careful record keeping is critical in these higher risk situations. In lightly infected stands where the mistletoe infected trees occur in patches, group selection may be an appropriate management technique; especially with good boundary design and follow up treatments of trees surrounding the cut area. Conifer species to plant include Ponderosa pine, western larch and western white pine which are tolerant or moderately tolerant to root rots.

TM-34 Uneven-aged management is also most applicable in stands free of root disease. Uneven-aged management should be restricted to stands where root rot centers can be stabilized to encompass 10%, at most, of the management area at regulation. Restricting the root disease to 10 percent levels insures that no more than a 10% loss in productivity will occur. In root diseased stands where Douglas-fir and true firs are dominant, and seral species do not constitute a significant portion of the stocking, regulating levels of root disease is extremely difficult and even-aged systems are most appropriate. Consultation with the Zone pathologist and careful record keeping are critical when considering uneven-aged prescriptions in stands with root disease. In stands where seral species (larch or pine) can be favored over Douglas-fir and true firs, maintenance of root disease at low levels will be possible in many cases.

TM-35 Following each commercial harvest entry, post sale activities should emphasize stocking level control in sapling sized stands. Spacing guidelines should take into consideration the growing space being utilized by the pole and saw-timber sized components within the stand. Stand simulations models such as Prognosis should be used here to evaluate the best spacing to meet management objectives.

TM-36 Timber harvest and fuels treatment activities should strive not to damage residual trees which are sapling sized which have been precommercially thinned or pole size and larger regardless of spacing. Damage typically occurs to trees by bole wounding or tipping Damage below ground can occur where soil displacement severs or compacts the fine surface root system necessary for primary nutrient absorbtion. In some cases damage to unthinned thickets of seedlings and saplings may be acceptable. These situations should be identified in advance of harvest operations.

TM-37 Following each commercial harvest entry where natural regeneration is a planned objective, fuel treatment and site preparation should be closely coordinated to produce disturbance of the litter and vegetation necessary for natural regeneration to occur. Emphasis should be given to the control of competitive grasses and brush including Idaho fescue, Ross's and long stolon sedge, bitterbrush, greenleaf manzanita, and evergreen ceanothus in openings larger than 1/4 acre which are not currently stocked with conifers.

TM-38 Uneven-aged management is most applicable where there is reasonable assurance that natural regeneration will occur within ten years. An abundant seed crop, a seedbed of bare mineral soil free of competitive vegetation, and a low population of seed-eating rodents are essential for natural regeneration to occur in the Ponderosa pine forest type. Planting or interplanting is also appropriate where natural regeneration cannot be assured and uneven-aged management is still the preferred silvicultural system. Planting may also be prescribed where the existing understory is dominated by crop trees which display genetically

undesirable characteristics or where the maintenance or enhancement of tree species diversity is an objective. Planting may also be necessary to maintain dominance by early successional species. Where there is reasonable assurance that brush species such as greenleaf manzinita and evergreen ceanothus or grasses and sedges will dominate sites prior to conifer establishment, planting may be appropriate to maintain conifer dominance and acceptable rates of growth. This may also be a good opportunity to introduce genetically improved planting stock

TM-39 The importance of animal damage to seedlings and saplings should decrease in most cases where uneven-aged management is prescribed. Stand conditions which produce favorable habitat conditions including the introduction of early successional grasses and forbs for pocket gophers will be restricted in size and natural regeneration should provide a reoccurring supply of seedlings to replace destroyed or damaged ones. Deer and elk browsing on natural regeneration should not be a significant problem except on winter range. Porcupine damage should continue to be an important problem in some locations where uneven-aged management is applied. Animal damage should be closely monitored in stands managed using uneven-aged systems until the actual impacts of pocket gophers, deer, elk and porcupines can be verified.

TM-40 In stands where soil compaction has been identified as a critical concern during the NEPA process, the use of several contract provisions will be necessary to meet the protection requirements for long term soil productivity. On soils that dry out during the summer, restrict the season of operation to the period of July 1 to October 31 and allow conventional skidding and tractor slash piling methods In stands where the soils remain moist throughout the year due to a high water table, use low ground pressure skidders operating from designated skidtrails where directional felling is required and winch line is pulled to the logs. At no time should the equipment be allowed to operate away from the main skidtrails on these moist soils. Fuels should not be tractor piled where soils remain moist throughout the year. Alternative fuels treatment methods such as leaving tops attached to the last log, yarding unmerchantable materials, lopping and scattering or hand piling should be used.

TM-41 In stands where the total area of detrimentally compacted or displaced soils occupied by skidtrails, landings and temporary roads exceed 20 percent, restoration is required. Restoration of the area exceeding 20 percent by tilling, ripping or discing should be done to the base of the compacted zone. The objective is to return these areas to a near-natural state of productive capacity. Soil mixing is not considered detrimental, but the occurrence of soil gouges, mounds or other deposits that have removed litter and topsoil is detrimental. On severely displaced lands, measures like back-blading or smoothing is required. Subsequent entries should be monitored closely to insure that stands are kept within these standards

Management of Advanced Regeneration

TM-42 Advanced regeneration is defined as conifers of less than merchantable or marketable size which are established in areas proposed for silvicultural activities. Advanced regeneration should be retained following silvicultural activities and managed as future crop trees if these trees are of acceptable condition. Timber harvest, fuels treatment and site preparation activities should be tailored to protect advanced regeneration from damage.

TM-43 Trees of acceptable condition will generally have the following characteristics:

* Minimum live crown ratio for trees is predicted to be 30 percent within a 20 year period except true firs where the minimum crown ratio is 50 percent

* There is reasonable expectation that trees will remain undamaged following proposed harvest activity, fuels treatment and site preparation.

* Trees are free of dwarf mistletoe bole infections and predicted to maintain a minimum of 10 inches of leader growth annually within a 20 year period.

* Trees are currently free of frost cracks, stem or root rots, or other diseases and there is reasonable expectation that they will remain disease free until rotation age.

* There is reasonable expectation that trees will increase in height and diameter growth when given increased growing space.

TM-44 Where more than 10 percent of the prescribed minimum stocking level can be met through the retention of advanced regeneration, the appropriate timber sale and service contract provisions should be used to insure protection of advanced regeneration.

TM-45 The preference given to one commercial conifer species over others should be based on the standards/guidelines developed for species preference and species diversity.

TM-46 The decision to interplant or apply additional site preparation to areas where overstory removal has been completed which are stocked at less than optimum levels by advanced regeneration should be based on stocking levels identified in accordance with the standards/guidelines developed for silvicultural prescriptions

Natural Regeneration

TM-47 Natural regeneration using the seed tree or shelterwood system generally provides the most economically efficient means for stand regeneration using even-aged systems. Opportunities for natural regeneration should be analyzed in each silvicultural prescription where even-aged systems are considered. Natural regeneration should be the preferred alternative where stand and site conditions are appropriate and where natural regeneration does not conflict with other resource objectives identified and documented during the project planing process. Species diversity should be an important consideration. Natural regeneration prescriptions should identify optimum and minimum stocking level, specified time period (regeneration time lag) and first time success as well as meet standards/guidelines for species preference and species diversity.

TM-48 Appropriate stand and site conditions for natural regeneration include:

* Seed trees display what appear to be acceptable genetic characteristics including growth, bole form and branching habit.

* Seed trees display evidence of past cone production to the extent necessary to meet minimum stocking levels within the specified time period.

* An acceptable number of seed trees can be retained on site in an acceptable condition following the harvest activity, fuels treatment and site preparation to insure natural regeneration within the specified time period.

* Seed trees can be dwarf mistletoe infected but in that case must be removed or girdled before regeneration reaches a height of 3 feet. If dwarf mistletoe infected trees are retained to meet wildlife habitat needs, they should be killed in place to avoid infecting the regeneration.

* The appropriate degree of site preparation can be accomplished while protecting the residual seed trees and advanced regeneration.

TM-49 The maximum specified time period (regeneration time lag) for natural regeneration to meet minimum stocking requirements in shelterwood seed tree harvest areas, where a later overstory removal is planned, is 10 years for the lodgepole pine forest type, 10 years for the mixed conifer forest type and 15 years for the Ponderosa pine forest type. All clearcut and final overstory removal harvest areas shall be regenerated, at least to minimum stocking requirements, within 5 years of final harvest.

TM-50 Natural regeneration shall be prescribed where it will meet the minimum stocking levels during the specified time period with a first time success of 80 percent or greater.

TM-51 The optimum and minimum stocking level for naturally regenerated stands should be documented in accordance with the standards/ guidelines for silvicultural prescriptions.

TM-52 Stands prescribed for natural regeneration can not be certified as satisfactorily reforested until the final harvest and postharvest activities are completed.

TM-53 Fuels treatment and site preparation should generally be carried out following the seed cut in a manner such that no fuels treatment is required following the final removal harvest. Where supplemental treatment is required, it should be carried out in a manner such that essentially no damage occurs to the advanced and natural regeneration.

Species Preference

TM-54 Many of the commercial conifer species common to the Forest have the ability to grow well on a variety of sites. The presence of a species on a particular site can be the result of natural ecological processes or past management practices. In determining which commercial conifer species to favor during the development of silvicultural prescriptions, consideration should be given to the following objectives: 1) economic efficiency based on the costs and values associated with timber management, 2) long term stand health and vigor and specifically those considerations that relate to insect and disease impacts, 3) the biological diversity needs for wildlife species, visual quality, or other resource needs in accordance with the standards/guidelines for diversity.

1. Species preference can be justified without economic basis when consideration is the maintenance of long term stand health or when management objectives identified and documented during the project planning process call for preference to be given to one species over others. At a minimum, the objectives for biological diversity developed in the standards/guidelines should be met.

2. In the mixed conifer community types, management activities governed predominately by economic considerations could inappropriately convert mixed conifer stands to stands dominated by true firs or lodgepole pine. Strong consideration should be given to maintenance of stands dominated by early successional species including Ponderosa pine, Douglas-fir, western white pine and western larch. Dominance in the mixed conifer community types is established when stocking be seral species can be maintained above the minimum stocking level defined in the silvicultural prescription In this forest type the potential for insect and disease depredation is high and the economic analysis should clearly recognize this potential for future damage. This potential for loss is generally not density dependent and stocking level control cannot provide adequate means to protect long term stand health and vigor. Because of this potential, species preference considerations based on long term stand health and vigor will generally exceed those for maintenance of biological diversity. In turn, because of concerns for economic efficiency and species diversity, management activities should not totally eliminate advanced or natural regeneration of lodgepole pine or climax species including true firs from consideration for management in the mixed conifer community types. Within an implementation compartment, regenerated stands of seedling, sapling and pole-sized lodgepole pine or true firs should dominate no more than 40 percent of the total acres within the mixed conifer community type.

3. In the Ponderosa pine community types where climatic conditions allow for the survival and growth of planted Ponderosa pine seedlings, and where lodgepole pine is a common associated species, natural regeneration of stands dominated by lodgepole pine generally provides the most economically efficient means of stand regeneration. Silvicultural prescriptions which feature planted Ponderosa pine rather than naturally regenerated lodgepole pine should be justified either by an economic analysis or by non-economic considerations which have been identified and documented in the project planning process. Long term stand health and vigor is generally density dependent in these community types and concerns can usually be met through stocking level control. Here, standards/guidelines for biological diversity should require the management of Ponderosa pine as well as other associated species at levels necessary for the maintenance of diversity needed for wildlife habitat

Diversity of Plant and Animal Communities

TM-55 Biological diversity is considered of primary importance to wildlife species Deer, elk, woodpeckers, and songbirds are species which can serve as indicators of the maintenance of biological diversity. Management activities should be tailored to provide habitat diversity including horizontal, vertical and vegetative species diversity necessary for the maintenance of these wildlife species at the appropriate population levels established in the standards/guidelines

TM-56 Maintenance of forest structural and species diversity provides numerous other less tangible benefits. These benefits include the maintenance of visual quality as well as an enhanced recreation experience. In addition, vegetative diversity commonly creates a diversity of forest fuel types, which may reduce the intensity and spread of wildfire. Maintenance of wildlife habitat serves as a surrogate for these less tangible values.

Horizontal diversity (harvest unit size)

TM-57 Horizontal diversity is of primary importance to deer and elk. Forage/cover ratios are one measure of this diversity. Even-aged management strategies (clearcutting, shelterwood and seed tree cutting) can have a positive effect on the development of large-scale horizontal diversity. In intermediate or mixed-age stands greater than 40 acres in size, harvest activities such as overstory removal, precommercial thinning, and commercial thinning should be prescribed in unit sizes and with between tree spacings that complement the eventual development of horizontal diversity. The needs for long term stand health and vigor achievable through stand density control should take precedence over the short term need for horizontal diversity beyond the minimums established in the standards/guidelines for deer and elk habitat diversity.

Here, strong consideration should also be given to the staggered regeneration of large even-aged areas to avoid the eventual problem of regenerating these large areas in one setting. In this case, some stands may be regenerated prior to the culmination of mean annual increment while others may be regenerated later. These adjustments in rotation age are the most effective method of creating horizontal diversity in the long run.

TM-58 The Forest will conform to the Regional guidelines on created forest openings. Forest openings created by even-aged silviculture should not exceed 40 acres in Ponderosa pine, mixed conifer, and mountain hemlock except for any of the four conditions which have been approved in the Regional Plan. Created openings can exceed 40 acres in lodgepole pine to treat the catastrophic situation created by the mountain pine beetle epidemic. Units will be shaped to blend with the natural terrain.

TM-59 Created openings will be separated by blocks of land generally not classed as created openings as described in these Standards/ Guidelines. The blocks of land between created openings shall vary in size and contain one or more logical logging units. These blocks of land shall be large enough and of a stand structure to meet resource requirements of the Forest Plan. Harvest units will no longer be considered openings when trees reach four and one-half feet tall.

TM-60 Openings to be created contiguous to natural openings should receive an exceptional level of attention during the analysis and prescription for treatment since natural openings are recognized as important or critical. The decision to create openings contiguous to natural openings shall be supported by prescriptions specific to individual natural openings or to a group of natural openings where their importance is diminished by more frequent occurrence. The created openings should generally not exceed 1/3 the size and/or be contiguous to more than 1/3 the edge of a natural opening where the natural opening exceeds 30 acres in size. Limitations for created openings contiguous to natural openings less than 30 acres in size will be subject to the Interdisciplinary decision making process and its review of land management objectives.

TM-61 Timber management activities that create essentially uniform structural conditions should generally not exceed 100 contiguous acres on >95% of each implementation unit. Harvest units larger than 100 acres, however, may be prescribed on <5% of each implementation compartment.

Vertical diversity

TM-62 Vertical diversity is of primary importance to cavity dependent wildlife species as well as songbirds which require a variety of tree sizes for nesting, perching and feeding Vertical structural diversity can best be maintained with uneven-aged management and it is the preferred prescription to meet this objective. Conversely, because even-aged forest management benefits certain wildlife species (e.g."edge" and early seral-stage species), it is desirable to apply a mix of both management strategies.

TM-63 Within forest types and management areas where both even and uneven-aged prescriptions are appropriate, each strategy should be represented on no less than 20 percent of an implementation unit.

Species diversity

TM-64 Maintaining the diversity of tree species is important for cavity dependent species and songbirds which require a variety of tree species for nesting, perching and feeding. Maintenance of species diversity is most important in stands which typically exhibit broad species diversity.

TM-65 In the mixed conifer community types, management practices which meet the objectives of long term stand health and vigor should maintain stands which provide the necessary species diversity for wildlife habitat needs.

TM-66 Within the Ponderosa pine community types where climatic conditions allow for the survival and growth of planted Ponderosa pine seedlings and where lodgepole pine is a common associated species, management activities governed predominately by economic considerations could inappropriately reduce species diversity, converting mixed stands of mixed Ponderosa pine and lodgepole pine to those dominated by lodgepole pine. The consequence is a reduction in habitat for some wildlife species, particularly the large tree habitat for woodpeckers and pine marten. Within these Ponderosa pine community types, silvicultural activities should emphasize the establishment and maintenance of Ponderosa pine to the extent necessary to provide for the long term needs for species diversity. Diversity should be measured by the habitat diversity requirements of the cavity dependent wildlife species and include the retention of large tree habitat necessary to meet the objectives for cavity dependent species population levels specified in the standards/guidelines.

TM-67 In single species stand types, including lodgepole pine community types, and pure Ponderosa pine community types where lodgepole pine is rare or non-existent, species diversity need not be strongly emphasized.

Utilization Standards

TM-68 Standard and Guide 4-2 of the Regional Guide for the Pacific Northwest Region will be followed for utilization standards Standards in timber sale contracts may vary depending on markets and costs of harvesting.

Range

Goals

To manage the forage resources for long-term sustained productivity through attainment of upward or stable vegetative trends, protection of the basic soil and water resources, and meet public needs for multiple resouce outputs.

Standards/Guidelines

Allotment Management Planning

RG-1 Allotment Management Plans (AMP's) will be developed on a priority basis under a schedule. Priorities will be based upon:

* Allotments where resource damage is occurring. (PC or PD).
* Allotments with identified need for an approved plan.
* Allotments with identified need for new or updated analysis.

RG-2 Allotment management plans will be developed to meet the specific needs of the allotment. Plans will include objectives which specify the desired future condition of the allotment based on existing and potential resource values and the planned management strategy. Plans will also include: a) a timetable for achieving stated objectives, b) range management prescriptions such as grazing systems, stocking levels, and structural and/or non structural improvements needed, c) a monitoring plan, and d) a cost effectiveness analysis.

RG-3 Allotment management plans will include measures needed to protect and enhance the survival of threatened, endangered, and sensitive species

RG-4 Vacant allotments will be analyzed as to economic viability, cost effectiveness, and compatibility with management areas and other resource objectives. This analysis will determine whether or not the allotment should be closed.

RG-5 Suitable range will be allocated by permit consistent with management area objectives.

Range Analysis

RG-6 Range analysis will be conducted on a priority basis to meet the AMP schedule established by the Forest Supervisor.

Range Administration

RG-7 Annual operating plans will be prepared with each permittee. They will identify specific permittee responsibilities and will schedule livestock distribution and use patterns to prevent or resolve resource conflicts.

RG-8 Grazing allotments will be administered through the Forest Service grazing permit system using inspections, monitoring, and permittee meetings.

RG-9 Activities such as noxious weed or predator control will be approved, as needed, to achieve desired future conditions in cooperation and coordination with the appropriate state and federal agencies.

RG-9 Improvements will be maintained as assigned and to the standards identified in the grazing permit and AMP.

Range Cooperation

RG-10 Range use of National Forest lands will be coordinated with use of associated private lands and with other local, state, and federal agencies.

Transitory Range

RG-11 Transitory range will be managed in coordination and cooperation with timber management. Forage may be enhanced where no conflict with reforestation goals will result.

Range Monitoring

RG-12 Allotment Management Plans will be monitored using allotment inspections, utilization studies/checks, and condition and trend studies.

RG-13 Utilization standards will be developed for each allotment based on the following guidelines. These standards will be included in the annual operating plans and in the monitoring plan of the AMP

PRIMARY RANGE (Except riparian)

Allowable use of available forage[1]

Maximum annual utilization (percent)[2]

Range Resource Management Level	Forest		Grassland		Shrub Lands	
	Satisf[3]	Unsat.	Satisf[3]	Unsat.	Satisf[3]	Unsat.
B. Livestock use managed within current grazing capacity by riding, herding and salting Cost-effective improvements used only to maintain stewardship of range.	40	0-30	50	0-30	40	0-25
C. Livestock managed to achieve full utilization of allocated forage. Management systems designed to obtain distribution and maintain plant vigor include fencing and water development.	45	0-35	55	0-35	45	0-30

D. Livestock managed to[4] optimize forage production and utilization Cost effective culture practices improving forage supply, forage use & livestock distribution may be combined with fencing and water development to implement complex grazing systems	50	0-40	60	0-40	50	0-35

[1]This will be incorporated in annual operating plans and Allotment Mgmt Plans At this time, these numbers may be adjusted, eg , by grass species and grazing system, with rationale to meet the numerical objectives stated above Includes cumulative annual use by big game and livestock

[2]Utilization based on percent removed by weight for grass, grasslike, and forbs

[3]Satisfactory condition - See glossary

[4]An Allotment Management Plan may include higher utilization standards associated with intensive grazing systems where specific resource objectives are identified

RG-14 Utilization studies/checks (production/ utilization, reconnaissance utilization, key area, etc.) will be conducted to monitor the success of the AMP's and firm up allotment carrying capacities.

RG-15 Condition and trend studies will be established on all permanent range. These studies will be conducted at permanent benchmarks to determine long term trend in range condition and the success of the AMP.

RG-16 Condition and trend studies will normally be completed concurrently with range analyses. Trend studies will be done or evaluated periodically, not exceeding 10 years, regardless of the need to update the range analysis
RG-17 Allotment Management Plans will identify quantified stream channel standards which will insure stream bank protection.

Implementation

The activity schedule for the Forest Range Program is presented in Appendix 12.

Wildlife

Goal

Provide habitat for viable populations of all vertebrate species, and maintain or enhance habitat for selected wildlife species.

More specific Goals, Objectives, and Activities are presented in the Wildlife Implementation Schedule in Appendix 15 of this Plan and in the Management Areas

Preferred Conditions

The following standards/guidelines are established as minimums which will be maintained and are not preferred conditions for wildlife. The accomplishment of higher levels of habitat management is anticipated where higher levels will not prohibit accomplishment of the management allocations primary objective.

Standards/Guidelines

Management Indicator Species

Bald Eagle and Northern Spotted Owl

WL-1 Management areas have been established for these species. Should one of these species be encountered outside of the Management Area, the following process will apply.

1. A Biological Evaluation will be conducted or reviewed by a journey-level wildlife biologist to determine if a species use of the area is incidental or essential.

2. If it is determined to be essential habitat, protect it from adverse modification through curtailment of conflicting activities, modification of activities, seasonal restriction of activities, or avoidence of the area. Request a formal consultation with the Endangered Species Branch of the USDI Fish and Wildlife Service on any proposed action which may affect the species.

3. For newly discovered essential habitat, conduct an environmental analysis under the NEPA process to determine if it is necessary to designate the area as essential habitat. If so, the Forest Plan will be amended and the essential habitat designation will supersede previous land allocations, or can be substituted for other habitat allocated to Threatened or Sensitive species.

Golden Eagles, Redtail Hawk, and Osprey (Outside Osprey Management Area 5)

WL-2 Active nest sites will be protected by maintaining the forested character of an area at least 300 feet in radius around the nest. While timber management may occur, maintain an average of at least four (4) dominant overstory trees per acre suitable for nest and perch trees--with Ponderosa pine favored, where available.

WL-3 Active nest sites should be protected from disturbing activities within 1/4 mile (1 mile for the use of explosives) of the nest by restricting site disturbing operations during the period of:

February 1 - July 31: Golden eagle
April 1 - August 31: Osprey
March 1 - August 31: Redtail hawk

WL-4 "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned activities, should a nest be encountered.

WL-5 If the specified restriction period must be compromised, project activity at the end of the period (e.g. the last month or two) is least likely to cause nest abandonment. A nest site may be considered inactive for the year if nesting activity is not evident by May 15.

Accipiter Hawks

Northern Goshawk

WL-6 Nesting habitat for at least 40 goshawk pairs will be provided in mixed conifer, mountain hemlock, and Ponderosa pine forests outside of Wilderness and the Oregon Cascades Recreation Area. Habitat for an additional 30 pairs in lodgepole pine forest, while potentially available, may not be suitable due to extensive tree mortality from the current mountain pine beetle epidemic.

WL-7 Nesting habitat is available in management areas emphasizing Old Growth (MA 15), Wilderness (MA 6), Undeveloped Recreation (MA 12), Research Natural Areas (MA 2), Spotted Owls (MA 4), Bend Municipal Watershed (MA 10), Winter Recreation (MA 13), the Oregon Cascades Recreation Area (MA 14), Metolius Wildlife-Primitive (MA 20), Metolius Special Forest (MA 22), Metolius Research Natural Areas (MA 24), Metolius Spotted Owl (MA 25), Metolius Old Growth (MA 27), Metolius Special Interest (MA 23), and Metolius Wild & Scenic River (MA 28).

WL-8 Suitable habitat may be available in management areas emphasizing Bald Eagles (MA 3), Osprey (MA 5), Wild & Scenic Rivers (MA 17), Metolius Heritage Area (MA 19), Front Country (MA 18), Metolius Black Butte Scenic (MA 21), and Metolius Scenic Views (MA 26)..

WL-9 Nest sites will be selected on the basis of present or past use whenever possible. Newly-found goshawk nest sites should be evaluated for inclusion into MR areas that have already been selected. Where nest sites are not known, the following physiographic and vegetative characteristics will be used:

* Mean canopy cover of 60 percent or greater;
* Tree density of at least 195 trees per acre;
* Stand age of 100 years or more;
* Stand size of at least 25 acres.

WL-10 Locating new roads within nest site stands will be avoided.

WL-11 "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned acitives, should a nest be encountered.

WL-12 If the specified restriction period must be compromised, project activity at the end of the period (e.g. the last month or two) is least likely to cause nest abandonment. A nest site may be considered inactive for the year if nesting activity is not evident by May 15

Cooper's Hawk

WL-13 Nesting habitat for at least 60 pairs of Cooper's hawk will be provided in mixed conifer and Ponderosa pine forests outside of Wilderness and the Oregon Cascades Recreation Area.

WL-14 The Cooper's hawk prefers 50 to 80 year-old conifer stands with a closed canopy. Nesting habitat is available in management areas emphasizing (MA 15), Wilderness (MA 6), Undeveloped Recreation (MA 12), Research Natural Areas (MA 2), Spotted Owls (MA 4), Bend Municipal Watershed (MA 10), Winter Recreation (MA 13), the Oregon Cascades Recreation Area (MA 14), Metolius Special Interest (MA 23), Metolius Research Natural Areas (MA 24), Metolius Spotted Owl (MA 25), Metolius Old Growth (MA 27), and Metolius Wild & Scenic Rivers (MA 28).

WL-15 Management areas emphasizing Bald Eagles (MA 3), Osprey (MA 5), Wild & Scenic Rivers (MA 17), and Metolius Wildlife-Primitive (MA 20) may be suitable. The General Forest Management Area (MA 8) may provide suitable habitat within big game thermal cover areas meeting the required vegetative structure.

WL-16 Prospective sites with appropriate vegetative structure and physiography will be identified before they have been pre-commercially or commercially thinned. In addition to opening a stand, thinning diminishes stand suitability for nesting by maintaining trees with a fuller crown ratio.

WL-17 Nest sites will be selected on the basis of present or past use whenever possible. Where nest sites are not known, the following physiographic and vegetative characteristics will be used:

* Mean canopy cover of 60 percent or greater;
* Tree density of a least 365 trees per acre;
* Stand age of 50 to 80 years;
* Stand size of at least 15 acres.

WL-18 Locating new roads within nest site stands will be avoided.

WL-19 "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned acitives, should a nest be encountered

WL-20 If the specified restriction period must be compromised, project activity at the end of the period (e.g the last month or two) is least likely to cause nest abandonment. A nest site may be considered inactive for the year if nesting activity is not evident by June 15.

Sharp-Shinned Hawk

WL-21 Nesting habitat for at least 60 pairs of sharp-shinned hawk will be provided in mixed conifer and Ponderosa pine forests outside of Wilderness and the Oregon Cascades Recreation Area.

WL-22 The sharp-shinned hawk prefers nest groves that are even-aged stands of 40 to 60 year-old conifers with a dense canopy. Nesting can occur in dense stands of second growth trees beneath an over-mature overstory.

WL-23 Nesting habitat is available in management areas emphasizing Old Growth (MA 15), Wilderness (MA 6), Undeveloped Recreation (MA 12), Research Natural Areas (MA 2), Spotted Owls (MA 4), Bend Municipal Watershed (MA 10), Winter Recreation (MA 13), the Oregon Cascades Recreation Area (MA 14), Metolius Special Interest (MA 23), Metolius Research Natural Areas (MA 24), Metolius Spotted Owl (MA 25), Metolius Old Growth (MA 27), and Metolius Wild & Scenic Rivers (MA 28).

WL-24 Management areas emphasizing Bald Eagles (MA 3), Osprey (MA 5), Wild & Scenic Rivers (MA 17), and Metolius Wildlife-Primitive may be suitable. The General Forest Management Area (MA 8) may provide suitable habitat within big game thermal cover areas meeting the required vegetative structure.

WL-25 Nest sites will be selected on the basis of present or past use whenever possible. Where nest sites are not known, the following physiographic and vegetative characteristics will be used:

* Mean canopy cover of 65 percent or greater;
* Tree density of at least 475 trees per acre;
* Stand age of 40 to 60 years;
* Stand size of at least 10 acres.

WL-26 Prospective sites with appropriate vegetative structure and physiography will be identified before they have been pre-commercially or commercially thinned. In addition to opening a stand, thinning diminishes stand suitability for nesting by maintaining trees with a fuller crown ratio.

WL-27 Locating new roads within nest site stands will be avoided.

WL-28 Active nest sites should be protected from disturbing activities within 1/4 mile (1 mile for the use of explosives) of the nest by restricting operations during the nesting period of April 15 - August 31. "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned acitives, should a nest be encountered.

WL-29 If the specified restriction period must be compromised, project activity at the end of the period (e.g. the last month or two) is least likely to cause nest abandonment. A nest site may be considered inactive for the year if nesting activity is not evident by June 15.

Great Gray Owl

WL-30 Habitat suitable for 8 great grey owl nesting pairs will be provided.

WL-31 Active nest sites will be protected by maintaining forested stand of at least 30 acres. Its configuration will include the area between the nest and adjacent forested riparian or meadow ecosystems, and maintain at least 300 feet of forest between the nest and an opening. Mean (and range of) nest stand conditions for three known nest sites in south-central Oregon (Forsman & Bryan, 1984) were found to be:

* Lodgepole pine-dominated overstory;
* Overstory tree density of 67 (56-72) trees per acre for trees 12" d.b.h. and greater;
* Canopy cover of 60% (50-70%);
* Distance to nearest meadow 440 (63-1,070) feet.

WL-32 To maintain the forested perimeter of meadows for long-term utility as overhead cover for the owl to travel through, up to than 1/3 of the area included in a strip--varying in width from at least 200 feet to 600 feet--around the meadow may be selectively harvested every other decade to facilitate the natural regeneration process.

WL-33 Active nest sites will be protected from disturbing activities within 1/4 mile (1 mile for the use of explosives) of the nest by restricting operations during the nesting period of March 1 - June 30. "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned acitives, should a nest be encountered.

WL-34 If the specified restriction period must be compromised, project activity at the end of the period (e.g. the last month or two) is least likely to cause nest abandonment. A nest site may be considered inactive for the year if nesting activity is not evident by May 15.

Great Blue Herons

WL-35 The vegetative character of rookeries will be protected, and seasonal restrictions on disturbing human activities should be in effect from March 1 through August 31 for a 1/4-mile radius around the nest tree(s). "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned acitives, should a nest be encountered.

WL-36 Future nesting trees for existing rookeries will be provided. Emphasis will be placed on providing large, mature, and over-mature Ponderosa pine within the general vicinity of existing rookeries.

Woodpeckers (Cavity Nesters)

WL-37 In coniferous forest, sufficient snags will be maintained to provide 40 percent of potential population levels of cavity nesting species within even-aged harvest units of the General Forest, visual areas (retention, partial retention, and middle ground), and Deer Management Area allocations. In uneven-aged harvest units, within the management areas noted above, live replacement trees will be left during any harvest to assure 60 percent of cavity nesting potential through the rotation, except where natural deficits occur in diameter classes In both even and uneven-aged management, groupings of green replacements will be the preferred implementation technique. Compliance will be based on the harvest unit area rather than an individual acre evaluation In all other management areas, at least 60 percent of cavity nesting species potential population needs will be provided.

WL-38 Specific guidance will be provided by the Deschutes National Forest Wildlife Tree Implementation Plan.

Waterfowl

WL-39 Waterfowl production will be increased where possible with appropriate habitat enhancement, and continue maintenance of waterfowl nesting boxes and platforms.

Peregrine Falcon and Wolverine

WL-40 Reported sightings will be evaluated for authenticity. In cooperation with the Oregon Department of Fish and Wildlife and the Endangered Species Branch of the USDI Fish and Wildlife Service, verification of the presence of the species will be pursued.

WL-41 In areas of suspected occupancy, the following process will apply.

A Biological Evaluation will be conducted or reviewed by a journey-level wildlife biologist to determine if species use of the area is incidental or essential.

If it is determined to be essential habitat, protect it from adverse modification through curtailment of conflicting activities, modification of activities, seasonal restriction of activities, or avoidance of the area. For peregrine falcon, request a formal consultation with the Endangered Species Branch of the Fish and Wildlife Service on any proposed action which may affect the species.

For newly discovered essential habitat, conduct environmental analysis under the NEPA process to determine if it is necessary to designate the area as essential habitat. If so, the Forest Plan will be amended and the essential habitat designation will supersede previous land allocations or can be substituted for other habitat allocated to threatened or sensitive species

Elk

WL-42 Elk management objectives were developed with the Oregon Department of Fish and Wildlife. The Department and Forest will cooperate in determining the level of habitat effectiveness needed to meet these objectives.

Management Unit	Summer Population	Winter Popul.
Upper Deschutes	950	150
Fort Rock	400	20
Metolius	100	30
Paulina	50	40
Total	**1,500**	**240**

WL-43 Elk are found in certain key habitat areas (Maps in Appendix 16). Within these areas, management will provide conditions needed to support at least 1,500 summering elk and 240 wintering elk. The following areas are considered key:

Clover Meadow	Upper Spruce Creek
Crane Prairie Res.	Davis Lake
Fall River	Hemlock Creek
Kiwa Butte	McCool Butte
Ryan Ranch	Metolius River
Tumalo Mountain	

WL-44 Elk also use riparian areas for calving. The management of riparian areas will incorporate elk calving needs to the extent they do not conflict with the needs or objectives of riparian-dependent resource management. Management of adjacent upland areas does not need to incorporate elk needs unless they are within a key area.

Recreation Management in Key Elk Areas

WL-45 Several of the key areas are within important recreation allocations. The following measures will be implemented to minimize conflicts:

Crane Prairie Reservoir

Public use will be encouraged on travel routes which will minimize conflicts with elk.

Motorized traffic routes and trails will be designated to minimize conflicts with elk.

Motorized traffic will be limited to designated routes.

New recreation developments will be limited to minimize conflict with critical elk needs.

Habitat improvements for elk must be compatible with recreation and visual objectives.

Fall River

Public use will be encouraged on travel routes which will minimize conflicts with elk.

Public use will not be restricted within the Deschutes Wild and Scenic River corridor during the elk calving season (May 1 to July 31).

Motorized traffic will be limited to designated routes.

Facilities will not be developed nor activities promoted which would encourage public use during the winter.

Elk habitat improvements must be compatible with recreation, visual, and Wild and Scenic River objectives.

Ryan Ranch

Public use will be encouraged on travel routes which will minimize conflicts with elk.

Public use will not be restricted within the Deschutes Wild and Scenic River during the calving season (May 1 to July 31).

Facilities will not be developed nor activities promoted which would encourage public use during the winter.

Motorized traffic will be limited to designated routes.

Elk habitat improvements must be compatible with recreation, visual objectives, and Wild and Scenic River objectives.

Davis Lake

Management will encourage public use of travel ways outside the area if a conflict with elk use occurs.

Public use will not be restricted during the calving season (May 1 to July 31).

Motorized traffic will be limited to designated routes.

Elk habitat improvements must be compatible with recreation and visual objectives.

Metolius River

Road No. 1499 will be maintained at Level 2 (access by 4-wheel drive vehicles) downstream of Bridge 99.

Public use will not be restricted during the calving season (May 1 to July 31).

Facilities will not be developed nor activities promoted which would encourage public use during the winter.

Motorized traffic will be limited to designated routes.

Elk habitat improvements must be compatible with recreation, visual, and Wild and Scenic River objectives.

Road Management in Key Areas

WL-46 Open road densities should not exceed an overall average between 0.5 - 1.5 miles per square mile within each key area, unless impacts on elk can be avoided or the proposed project would result in a net benefit to elk habitat. Where public use is heavy, the low end of the range should be the objective. Where public use is light, the high end of the density range would satisfy habitat effectiveness goals.

The density will be applied as an average over a key area and will be used as a threshold for further evaluation. The procedure described in the Transportation standards/guidelines will be used in implementing this guideline if existing or proposed open road densities would exceed the threshold target. The final judgement on open road density will be based on the further evaluation rather than the density guideline.

Vegetation Management for Elk

WL-47 Hiding areas must be present over at least 30 percent of National Forest lands in each key area Lakes and 50 to 80 year old Ponderosa pine stands ("black bark") should not be considered in evaluating conformance. "Black bark" stands will be managed under another set of guidelines. To be suitable as a hiding area a stand must meet one of the following conditions:

* Six acre or larger stand capable of hiding 90 percent of a standing adult elk from human view at a distance of 200 feet. (Thomas, 1979)

* Six acre or larger stand with an average height of 10 feet and which has not been thinned for 20 years.

* Residual clumps of two acre or larger stands within units with advanced regeneration (trees including "whips" up to 7-inch d.b.h.) and at least 12, greater than 7-inch diameter trees per acre remaining after timber harvest. Residual dead and down material meets the fuel loadings of photo series identifiers 2-LP-3PC and 2-PP-4-PC (Maxwell and Ward, 1976). Only the clumps will be considered to be hiding areas unless the larger unit meets the requirement of Thomas (1979) as noted above.

WL-48 Travel corridors may be provided by linking stands meeting the clump and unit conditions described above.

WL-49 Hiding areas will be dispersed throughout the key areas. If proposed and existing harvest units would create voids, the clump/unit conditions described above will be used to provide greater dispersal.

WL-50 Thermal cover must be present over at least 20 percent of National Forest land each key area. Lakes and 50 to 80 year old Ponderosa pine stands ("black bark") should not be considered in evaluating conformance. To be suitable a stand must be at least 10 acres, and have an average height of at least 40 feet. Canopy cover should be managed at the highest percentage that will maintain healthy stand conditions with a low risk of catastrophic damage due to insects or disease. As a minimum, canopy cover must be 40% to qualify as thermal cover, but higher canopy cover percentages will be preferred. Stands may provide both hiding area and thermal cover.

Black Bark Pine Management

WL-51 At least 30 percent of the key areas will be in clumps that will provide visual screening throughout the area and meet the following conditions:

* A minimum of 6 acres in size which has not been thinned or harvested for at least 20 years. Smaller stands may be used if a mountain pine beetle epidemic is a concern.

* Canopy cover at the highest percentage that will maintain healthy stand conditions with a low risk of catastrophic damage due to insects or disease. As a minimum canopy cover must be 40% to qualify as thermal cover, but higher canopy cover percentages will be preferred.

* Minimum height of 40 feet.

* Dispersed throughout the key area.

Mule Deer Outside of Deer Management Area 7 (Summer Range)

WL-52 Deer summer range includes the entire Forest outside Deer Habitat Management Areas (although some use during summer takes place in some transition/winter range areas). Herd management objectives have been established jointly with the Oregon Department of Fish and Wildlife. Management of deer habitat outside of Management Area 7 is designed to provide adequate habitat quantity and quality to meet these objectives. This requires a mosaic of forested conditions incorporating the concepts of security and thermal cover, travel corridors, visual screens, and harassment potential from other activities, e.g. roads, hunting pressure, and other recreation use.

Deer Management Unit objectives developed jointly with the Oregon Department of Fish and Wildlife are as follows:

Management Unit	Winter Population
Metolius	6,200
Upper Deschutes	2,200
North Paulina	5,500
South Paulina	11,000
Total	**24,900**

These numbers are for deer populations on winter ranges that include Deschutes National Forest, USDI Bureau of Land Management, and private lands. The proportion of deer actually wintering on Deschutes National Forest range is dependent on annual winter weather conditions.

Road Management in Summer Range

WL-53 Target open road densities are 2.5 miles per square mile to achieve deer summer range habitat effectiveness targets unless impacts on deer can be avoided or the proposed project would result in a net benefit to deer habitat. The density will be applied as an average for an implementation unit and will be used as a threshold requiring a further evaluation. The procedure described in the Transportation standards/ guidelines, contained in this Chapter, will be used if existing or proposed open road densities would exceed the threshold guideline. The final judgement on open road density will be based on the further evaluation rather than the density guideline.

Vegetation Management for Deer

WL-54 Hiding areas must be present over at least 30 percent of National Forest land in each implementation unit. Generally, this will result in 70 percent of each implementation unit existing either as a hiding area or within 600 feet of a hiding area. Lakes and 50 to 80 year old Ponderosa pine stands ("black bark") should not be considered in evaluating conformance. "Black bark" will be managed under another set of guidelines. To be suitable as a hiding area, a stand must meet one of the following sets of conditions:

* Six acres or larger stand capable of hiding 90 percent of a standing adult deer from view of a human at a distance of 200 feet. (Thomas, 1979)

* Six acres or larger stand with an average height of 6 feet and which has not been thinned in 15 years.

* Residual clumps of one half acre or larger stands within units with advanced regeneration (trees including "whips" up to 7" d.b.h.) and at least 12 greater than 7 inch trees per acre remaining after harvest. Residual dead and down material will be left to meet the fuel loadings of photo series identifiers 2-LP-3PC and 2-PP-4-PC (Maxwell and Ward, 1976). Clumps should be located away from roads. Only the clumps will be considered when quantifying hiding area.

WL-55 Hiding areas will be dispersed throughout the implementation unit. If existing and proposed harvest units would create voids, clump/unit

requirements described above will be used to provide greater dispersal.

WL-56 Travel corridors will be provided where needed by linking stands meeting the clump/unit conditions described above.

WL-57 Hiding areas are assumed to provide suitable thermal cover conditions on summer range.

WL-58 If possible, a narrow strip of trees should be left along roads to reduce view distances.

Black Bark Pine Management

WL-59 Approximately 10 percent of treated stands will be in clumps that will provide visual screening throughout the area and meet the following conditions:

* A minimum of one-half acre in size which have not been thinned or harvested for at least 20 years. Small clumps will be suitable in dense stands but larger (4 or 5 acre) clumps may be needed in more open stands.

* Dispersed throughout the unit so that visual screening is provided by the clumps in combination with topographic features.

WL-60 Site-specific habitat needs should be identified at the project level through the interdisciplinary process.

Pine Marten

WL-61 *Pine marten prefer extensive stands of* relatively dense lodgepole pine, mixed conifer, or mountain hemlock forest containing abundant dead woody material as habitat for rodent prey.

WL-62 Habitat will be available in management areas emphasizing Old Growth (MA 15), Wilderness (MA 6), Undeveloped Recreation (MA 12), Research Natural Areas (MA 2), Spotted Owls (MA 4), Bend Municipal Watershed (MA 10), and the Oregon Cascade Recreation Area (MA 14), Metolius Special Interest (MA 23), Research Natural Areas (MA 24), Metolius Spotted Owl (MA 25), Metolius Old Growth (MA 27), and Metolius Wild & Scenic Rivers (MA 28). Some Special Interest Areas (MA 1), Bald Eagle (MA 3), Osprey (MA 5), Winter Recreation (MA 13), Wild & Scenic Rivers (MA 17), Metolius Wildlife-Primitive (MA 20), and big game cover areas located within management areas not mentioned above may also provide suitable habitat.

WL-63 In preferred forest types, concentrations of down woody material (logging slash, cull logs, fallen trees, etc.) will be left at an average rate of approximately one per acre after any timber harvest. Concentrations incorporating high tree stumps, logs, or snags are especially desirable. This structure will simulate naturally-occuring leaning trees, large fallen logs, and other debris protruding above winter snow in an uncut forest Such structure provides resting-site locations, an entry-*point for foraging below crusted snow, and habitat* for rodent prey as the stand returns to suitability for marten occupancy.

Townsend's Big-eared Bat

WL-64 This Sensitive species will be protected by: (1) maintaining human presence below disturbance levels during periods of use by bats at hibernacula (shelter occupied during winter dormancy) and nursery colonies (shelter occupied during the rearing of young); (2) restricting public knowledge of - and access to - these locations; (3) maintaining the character of forest vegetation at the entrance of important caves; and (4) enhancement of habitat conditions.

WL-65 At caves already known to be important to this species, monitoring will occur to determine the character of human visitation and the status of bat occupation and productivity. Caves to be monitored are identified in Forest records.

WL-66 If monitoring determines that human disturbance is having a detrimental effect on significant numbers of this species, restrictions will be imposed on human visitation to reduce disturbance to an acceptable level. These restrictions may require an entrance-closing structure permeable to bats. The critical period for use as hibernacula is November 1 - April 15; for nursery colonies it is April 15 - October 31.

WL-67 Surveys will be completed to determine the distribution of the Townsend's big-eared bat within the Forest. These surveys will help establish the importance of individual caves to the viability of the species.

WL-68 Campfires will be prohibited in important caves, and posted accordingly.

WL-69 Knowledge about the location of--and ease of access to--important caves should be restricted to discourage public visitation. Forest publications will be amended accordingly. The Forest will discourage use of this information in external publications. The continuation of destination-signing to these caves, and closing roads or trails accessing them, will be evaluated on a case-by-case basis.

WL-70 Because most lava-tube caves have air movement that could be significantly influenced by their entrance environment, the character of existing forest vegetation will be maintained at these openings.

WL-71 Artificial watering devices near day-roost or nursery colony caves are beneficial to the Townsend's big-eared bat--as well as other bat species. Planning and design of watering structures proposed there should allow for use by bats.

Species Associated with Logs and Downed Woody Debris

WL-72 Fallen trees and other woody debris will be retained in sufficient quantity, distribution, and physical characteristics to provide habitat for viable populations of dependent wildlife species over time.

An average of at least 3 cull logs-per-acre, plus 3 additional logs-per-acre in more advanced stages of decomposition, will be retained after timber management activities. Minimum qualifying sizes are 10 inches in diameter at the small end and 15 feet long, but larger sizes should be selected if present. Charring of logs should be minimized.

WL-73 Where logs of the recommended size and density are not available, an average of 1 slash pile (approximately 100 square feet) or concentration (approximately 200 square feet) per acre will be retained to supplement qualifying logs.

Species Associated with Various Plant Communities and Successional Stages

WL-74 Diversity will be provided by having various successional stages represented in an area through time. Large homogeneous areas of the same species and/or successional stages will be avoided.

Species with Special or Unique Habitats

WL-75 Habitat for species associated with springs, seeps, cliffs, and talus slopes will be protected during project development.

Threatened, Endangered, and Sensitive Plant Species

Goal

To protect and manage habitat for the perpetuation of plants which are listed as Threatened, Endangered, or Sensitive.

Standards/Guidelines

TE-1 During environmental analysis of each project activity, available habitat, location records, and other information will be reviewed to determine whether known or suspected locations of Sensitive plant species or their habitat occur.

TE-2 If no suitable habitat or reported locations of Sensitive plants are identified, these findings will be documented, and no further investigation is required. However, personnel should continue to watch for the occurrence of previously unknown populations. Where local conditions warrant, field reconnaissance will be preformed even though available records do not indicate the presence of Sensitive plant species.

TE-3 When suitable habitats or reported locations are suspected to occur in the area of influence of the project, a field reconnaissance will be performed to more precisely verify the presence, abundance, and distribution of the Sensitive species. If the search is conducted during a season of the year

when positive identification is probable and no listed species are found, this fact will be documented and no further investigation is needed. Again, project personnel will remain alert to the possibility of overlooked populations.

TE-4 If listed plant species are found in the project influence area, their actual distribution and current status will be determined. Informal consultation with the Endangered Species Branch of the USDI Fish and Wildlife Service will be initiated if the species is Federally listed. If the proposed project would jeopardize the existence of the species, it would be modified or curtailed. If this is accomplished, a no-effect situation exists and will be documented. Identified safeguards will be clearly spelled out in the environmental analysis and project plan and project personnel will be fully responsible for being aware of and implementing them. Supervision of the activity will assure that actions which jeopardize the listed species do not occur.

TE-5 If actions which may affect habitat for Federally listed Endangered or Threatened species cannot be avoided, the activity will be deferred until a formal consultation with the Endangered Species Branch of the USDI Fish and Wildlife Service is completed to determine a course of action

TE-6 Field surveys, ecological studies, and management recommendations will be completed for Sensitive plants as described in the implementation schedule of the Forest Threatened, Endangered, and Sensitive Plant Program presented in Appendix 13.

TE-7 Where possible, opportunities to enhance the propagation of Sensitive plants will be pursued.

Riparian Areas/ Wetlands, Streamside Management Units, and Flood Plains

Riparian areas occur along the interface between aquatic and terrestrial ecosystems. These water oriented ecosystems are surrounded by drier upslope ecosystems. They make up a minor portion of the landscape but are extremely important in regard to land management and land use. The riparian area is composed of two distinct ecosystems (Kovalchik 1987):

* The **riparian ecosystem** is that land, next to water, where plants that are dependent on a perpetual source of water occur. Riparian sites include fluvial surfaces such as stream banks, stream channels, active channel shelves, active floodplains, and overflow channels

* The **transitional ecosystem** occurs on subirrigated sites that lie between the riparian and upland. It does not have true riparian vegetation such as sedges and willows yet is uniquely different from uplands. Transition sites include inactive floodplains, terraces, toe-slopes, and meadows which have seasonably high water that recedes to below the rooting zone in mid to late summer

Goal

To manage riparian areas to maintain or enhance riparian dependent resources such as water quality, water quantity, fish habitat, and wildlife and vegetation that owe their existence to riparian areas.

Standards/Guidelines

RP-1 Riparian areas will be managed in the context of the environment in which they are located. Specifically, Forest policy shall be based on the following guidelines:

RP-2 Maintain or enhance riparian areas and the riparian dependent resources (water quality and quantity, fish, and certain wildlife and vegetation that owe their existence to riparian areas) associated with these areas.

RP-3 Give preference to riparian area dependent resources over other resources.

RP-4 Manage riparian areas under the principles of multiple use and sustained yield, while emphasizing protection of riparian dependent resources. Outputs of non-riparian dependent resources (timber harvest, grazing, recreation, special uses) can be pursued as long as they do not conflict with the objectives and needs of riparian dependent resources.

RP-5 Identify and pursue opportunities in riparian areas for enhancement of fisheries and wildlife habitat

RP-6 Manage water temperatures to support benefiting resources. Evaluate the effects of proposed projects on water temperature and make adjustments where impacts to benefiting resources are predicted.

RP-7 Meet or exceed water quality standards for the State of Oregon (Oregon Administrative Rules, Chapter 340-41) through application of Best Management Practices (BMP's).

RP-8 Evaluate the cumulative effects of proposed projects on water quality, runoff, stream channel conditions, and fish habitat and adopt measures to avoid adverse effects to these resources. Cumulative effects will include lands of all ownership in the watershed.

RP-9 Protect instream flow on National Forest System Lands through NEPA analysis of proposed water uses, diversions, and transmission applications and renewal of permits. Protection of instream flows needed to achieve resource objectives may be accomplished through filing protests with the State of Oregon, Water Resources Department if applications are made that would adversely affect National Forest resources, asserting claims for water needs under Federal or state laws where applicable, inserting protection measures into special use permits, or reaching formal agreements over use. Purchase of water rights and impoundments are other means which may be used to secure needed water.

RP-10 Manage woody debris and riparian vegetation to: 1) maintain or enhance stream channel and bank structure, and 2) provide structural fish habitat to meet the objectives for resident fish populations provided for in the Forest Plan.

Timber/Silviculture

RP-11 There will be no scheduled timber harvest in the Riparian Zones, which includes:

Riparian areas/wetlands.

For approximately 100 feet from the mean high water mark of all perennial streams, lakes and other bodies of water.

For approximately 100 feet from the mean high water mark of all Class I, II and III streams.

Any vegetative management activity within a riparian area will meet the following standards/ guidelines:

RP-12 The disturbance of ground cover should be minimized to prevent degradation of water quality.

RP-13 The need for special contract provisions to protect channel conditions and water quality (e.g., directional or cable-assist falling) will be assessed through environmental analysis under the NEPA process.

RP-14 An adequate supply of large organic material for present and future input to the stream will be maintained.

RP-15 Provide the amount of shade necessary to meet stream temperature requirements of benefitting resources.

RP-16 Maintain upper streambanks in a condition benefiting riparian dependent resource objectives.

Transportation

Roads and Trails

RP-17 Roads and trails will be at the lowest density which meets long-term resource needs. Where existing roads or trails are inhibiting the achievement of fisheries or water quality objectives, measures shall be taken to eliminate the problem.

Design and Construction

RP-18 Roads will not be constructed through the length of a riparian area. The length of roads crossing a riparian area will be minimized to avoid impacts to vegetative, soil, and water characteristics above and below the roads.

RP-19 Road drainage shall be designed to eliminate any influx of sediment from road runoff

that is inhibiting achievement of riparian-dependent resources objectives.

RP-20 Heavy equipment may be used in the riparian ecosystem if their use would maintain or improve riparian dependent resources The use of heavy equipment may be allowed in the transition ecosystems if achievement of vegetative, soil, and water objectives are met. New timber landings will not be placed in riparian areas and existing landings which are impacting or could impact vegetation, soils, or water quality, shall be restored.

RP-21 Culverts will be removed from roads which will be closed for long periods if failure of the culvert would result in sediment additions to the stream that would be harmful to riparian dependant resources.

Maintenance

RP-22 Road and trail maintenance shall be performed on a frequency necessary to maintain drainage efficiency at all runoff control and drainage structures (dips and culverts).

RP-23 Road management objectives shall include direction to minimize soil erosion in accordance.

RP-24 Opportunities to relocate, close, or obliterate existing roads in riparian areas shall be pursued

Stream Crossings

RP-25 The transportation system will be designed and constructed to minimize the number of stream crossings.

RP-26 Stream crossings and the approach alignment will be located to minimize stream damage.

RP-27 Bridge approach fills will be riprap and/or protected by wing walls, as needed, to minimize erosion.

RP-28 The size and type of crossing structures will be adequate to accommodate anticipated high streamflows and to allow fish passage, where needed

RP-29 Stream crossing construction will be scheduled during low streamflow and/or outside fish spawning periods.

Range Allotments

RP-30 Range allotment management plans will identify quantified vegetative and stream channel standards which will ensure the protection of stream channel integrity Corrective action will be taken if satisfactory channel conditions (see glossary) are not achieved or the following utilization standards are exceeded

Allowable Use of Available Forage[1]

Range Resource Management Level	Maximum Annual Utilization (percent) Grass & Grasslike[2] Sat.[4]	Unsatisf.	Shrubs[3] Sat.[4]	Unsatisf.
B - Livestock use managed within grazing capacity by riding, herding, salting, as cost-effective improvements used only to maintain stewardship of range.	40	0-30	30	0-25
C - Livestock managed to achieve full utilization of allocated forage. Management systems designed to obtain distribution and maintain plan vigor include fencing and water development.	45	0-35	40	0-30
D - Livestock managed to optimize forage production and utilization. Cost-effective culture practices improving forage supply, forage use and livestock distribution may be combined with fencing and water development to implement complex grazing systems.	50	0-40	50	0-35

[1]This will be incorporated in annual operating plans and Allotment Management Plans Allotment Management Plans may include utilization standards which vary from those associated with intensive grazing systems or specific vegetation management objectives which will meet objectives for riparian dependent resources Includes cumulative annual use by big game and livestock

[2]Utilization based on percent removed by weight

[3]*Utilization based on incidence of use. Example: if 50 leaders out of 100 are browsed, utilization is 50 percent*

[4]Satisfactory Condition - See Glossary.

RP-31 Allotments with riparian areas will have an updated Allotment Management Plan prepared by the end of FY 1995.

RP-32 Range allotment management plans will include a strategy for managing riparian areas for a mix of resource uses. A measurable desired future riparian condition will be established based on existing and potential vegetative conditions.

When the current riparian condition is less than desired, objectives will include a schedule for improvement. The allotment management plans will identify management actions needed to meet riparian objectives within the specific time frame. Measurable objectives will be set for key parameters, such as stream surface shaded, streambank stability, and shrub cover. The plan will address the monitoring needed to determine if the desired rate of improvement is occurring. When current conditions ar less than the desired future conditions, the objectives in item 3 will include a schedule for improvement. Allotment management plans will identify those actions needed to meet riparian objectives within the specified time frame. The plan will include a cost-benefit analysisand will address the condition analysis and monitoring needed to determine if the desired rate of improvement is occuring. Allotment management plans currently not consistent with this direction will be developed or revised on a priority basis under a schedule established by the Forest Supervisor.

Fire

RP-33 For fuel treatment in riparian areas:

Hand piling and burning or low intensity broadcast burns will be the preferred treatment methods Residual material less than 5 inches in diameter needed to meet fire protection objectives will be removed or treated. Residual material larger than 5 inches in diameter will be preserved in quantities needed to provide for achievement of desired stream bank conditions, fisheries and wildlife habitat diversity, and long term site productivity.

Slash piles should be burned within one year after piling unless needed for wildlife purposes.

RP-34 For fuel treatment in transitional ecosystems:

The preferred fuel treatment methods are low intensity prescribed burning, lopping and scattering or small hand piles.

Residual material less than 5 inches in diameter, needed to meet fire protection objectives, will be removed or treated. Residual material larger than 5 inches in diameter will be preserved if needed desired for stream bank condition, fisheries and wildlife habitat diversity, and long term site productivity.

Mechanical treatment would be suitable only if it will not cause soil compaction and soil disturbance

Fine material, less than 3 inches in diameter and 3 feet long, will be disposed of so it will not reach stream courses.

RP-35 For fuel treatment in uplands adjacent to riparian areas·

Water diversions on fire lines will be constructed to drain water into areas with sufficient ground cover to avoid sediment transport to stream channels.

A protective strip of undisturbed ground surface will be provided between prescribed burn areas and riparian transitional areas if sediment movement to stream channels is likely.

Recreation

RP-36 Recreation activities will be managed to prevent site deterioration within riparian areas. In areas of concentrated use, trails, and dispersed and non-dispersed recreation sites will be designed, managed and maintained to minimize impacts on riparian ecosystems.

RP-37 Opportunities to restore riparian values in campgrounds (developed and nondeveloped), along trails, and on special use summer home sites (refer to River Corridor Management S&Gs) will be pursued.

Special Uses

RP-38 Summer home permits - will require that riparian resources be maintained. Native streamside and lakeside deciduous and conifer vegetation will be maintained or established which will enhance riparian resources Permits will prohibit the manipulation of riparian vegetation. Where this vegetation has been altered, every effort will be made to reestablish riparian vegetation that will benefit riparian dependent resources.

RP-39 Large organic material which is beneficial to fish, wildlife or water quality will be preserved in riparian areas, stream or river channels, and lakes adjacent to summer homes. Stream bank erosion or esthetic enhancement are not adequate reasons for its removal. The material may be altered if it creates a safety hazard, however its contribution to riparian resources will be preserved

RP-40 Public access to riparian areas adjacent to summer homes will not be restricted except where riparian resource objectives are threatened.

RP-41 Special Use permits - will include measures to protect riparian resources.

RP-42 Small Hydropower Development - Recommendations or requirements for small hydropower development will include:

Development will provide for adequate minimum instream flow requirements for the protection and maintenance of existing fish populations.

Adequate instream flow requirements will be maintained for the total length of stream between the diversion and discharge point.

Intake screens will be provided to prevent entrainment of fish into the diversion flow. The screen size and intake approach will conform to Oregon Department of Fish and Wildlife criteria.

The powerplant outflow will be designed so that fish will not be attracted to the powerplant turbine(s).

Project construction should be timed to coinicide with the low flow summer period and construction will not be made during spawning periods.

Excess removal material from the project site will be hauled to an upland site for disposal.

All of the disturbed riparian and streambed area at the project area will be restored immediately after construction has been completed.

The powerplant and penstock will be located where they will not interfere with big game migration routes.

RP-43 Streamside Management Units (SMU's) - are riparian areas and adjacent uplands along streams, rivers, and lakes where forest management practices directly affect riparian dependent resource values. Management practices within the SMU's will be developed to meet riparian dependent resource goals. All standards/guidelines listed under riparian apply to Stream Management Units.

RP-44 If project areas include SMU's, specific objectives, opportunities, and management practices for the SMU's will be developed during the NEPA process. The NEPA document will display the project's effects on the SMU objectives. These objectives and management practices will be based on:

Stream channel conditions and riparian zone plant associations.

Stream classification and fish habitat objectives.

Site-specific topographic, soil, channel, and vegetative characteristics.

Water quality standards and goals.

Other riparian resource objectives, as appropriate.

Opportunities for enhancement.

RP-45 SMU management objectives will be described for a specific zone along the river or stream's length within the proposed project area. As a minimum, a distance of 100 feet horizontal from each side of all water bodies, will be evaluated during the development of the SMU objectives. The evaluated area should include 100 feet from the edges of active floodplains.

RP-46 Tree stands within SMU's will be managed to maintain or enhance the vegetative characteristics needed for water quality and quantity, fish habitat, and other riparian dependent resources. The need for vegetative treatment within an SMU will be determined on a case-by-case basis through the project's environmental analysis. Special prescriptions will be developed during project planning to protect or enhance riparian dependent resources. The prescription will feature riparian area objectives over the management area's objectives if a conflict arises.

100-Year Floodplains (high risk)

RP-47 Floodplains are the nearly level alluvial plains that border a stream or river. They are usually composed of sediment deposited during overflow and lateral migration of the stream or river and generally include most of the riparian area. One hundred year floodplains are high risk areas flooded by major storm events (e g., rain or snow, or high intensity-short duration thunderstorms, etc.).

Investments in major structures, roads, or other facilities within floodplain zones may be made only if no feasible alternative site outside the floodplain exists.

Floodplain and wetland development or construction projects will be avoided when there is an adverse impact on the natural and beneficial values and where practicable alternatives exist. This includes the rehabilitation of unused structures or significant enlargement of existing

facilities. Normal maintenance and rehabilitation of functioning structures are not excluded.

Activities, which could have short-term impacts on floodplain values will incorporate mitigation measures designed to minimize impacts Natural floodplain characteristics will be restored shortly after the activity has been completed.

Land acquisition or exchange applications to acquire property in floodplains or wetlands for undeveloped recreational facilities normally are permissible.

The public will be given an opportunity for early review of any projects proposed in floodplains or wetlands. In all cases, a press notice will be published in the local news media briefly describing the proposed action and urging members of the public to provide their views

A notice will be circulated through appropriate State and Federal agencies, and public input will be solicited for projects or actions that are located in floodplains or wetlands

Fisheries

The goal and implementation schedule of the Forest Fishery Program are presented in Appendix 11.

Goal

To manage stream, river and lake resources to achieve a broad variety of fishing experiences which are responsive to public needs, resource capabilities, and supportive of cooperative targets established with the Oregon Department of Fish and Wildlife.

Standards/Guidelines

FI-1 Streams, rivers, and lakes will be classified based upon public use and their potential contribution to achieving cooperative fishing targets, (angler success and quality of fishery) with the Oregon Department of Fish and Wildlife. Stream classification will be based upon the fishery objective that will be managed for. Fishery objectives will include the value for the fishery and the type of recreational fishing use.

Appendix 11 identifies the streams, rivers, and lakes providing habitat supporting fishery resources on the Forest. Habitat capacity targets will be identified for each of these waters as a result of habitat surveys. These targets will be reevaluated during project development.

FI-2 Quantified habitat surveys will be completed prior to the pursuit of projects which could affect fish habitat quality on important (listed) streams, rivers and lakes. The data will be analyzed to.

Assess present conditions and the ability to contribute to fishery resource objectives.

Determine habitat capacity targets for the rivers, streams, and lakes.

Quantify changes in fishery outputs from past and proposed project activities which could significantly affect fish resource targets or objectives positively or negatively. (Effects such as improved cover, increased sediment, reduced log recruitment, altered water temperatures will be considered)

Identify work that would enhance the potential productivity of the fishery or provide protection from potential negative effects.

Monitor changes in habitat conditions over time.

FI-3 Stream and lake survey information will be updated every ten years Stream, river, and lake implementation plans which consider watered and riparian areas will be prepared or updated based on those surveys.

FI-4 Habitat improvement work will be pursued based on the contribution of the work to fishery objectives and targets. Improvement work will adopt measures to protect other resources as needed.

FI-5 Site-specific riparian prescriptions will be developed to enhance the contribution of riparian vegetation to fish habitat quality. Prescriptions will be developed to enhance the recruitment of large organic material and to optimize water temperatures for fish production.

FI-6 Stream crossing structures on fishery streams will provide for fish passage. Existing crossings will be evaluated for their suitability and corrected if needed.

FI-7 Management practices which will significantly reduce the potential production of the Forest's Fishery resources will be corrected to eliminate the impact.

FI-8 Range plans for allotments which include fishing streams will identify quantified stream channel standards that will preserve fish habitat quality. The standards will be based upon the results of a stream survey. Where standards are exceeded corrective actions will be taken.

FI-9 A recreation/fishing management implementation plan will be developed to preserve the diversity and quality of fishing opportunities on the Forest. The plan will be used to evaluate the suitability of fishery resources for alternative recreational use, to identify cooperative targets, and to guide future management.

FI-10 Information will be collected to identify minimum flows necessary to preserve fish habitat on fishery streams. The Forest will cooperate with the State Department of Fish and Wildlife and the Department of Water Resources in legally establishing these flows.

FI-11 The Forest will cooperate with the Oregon Department of Fish and Wildlife to insure that the quality of the recreational crayfish fishery is maintained at a high level.

FI-12 Fishing Guides Special Use Permits will be issued in accordance with standards/guidelines listed under Recreation Special Use Permits.

FI-13 Work with the Oregon Department of Fish and Wildlife, the Oregon Department of Water Resources and local irrigation districts to establish acceptable flows for fish survival in Tumalo and Squaw Creeks, and the Deschutes River below Wickiup. All legal avenues should be pursued.

Minerals

Goal

To provide for exploration, development, and production of a variety of minerals on the Forest.

Standards and Guidelines

Salable Mineral Materials

MN-1 A limited supply of material is available in some areas of the Forest.

In areas where mineral resources are known to be scarce, the Forest should intensify exploration to determine if new "proven" material reserves can be identified.

MN-2 Use of existing materials sources will be given priority over undeveloped sources. Exceptions could be made when existing sources are unable to economically supply the quantity and quality of materials needed or when conflicts with other resource uses are found to be unacceptable. Borrow, cinder, hard rock, gravel, and clay sources available for use during the planning period are shown on the Materials Source Map and identified in the Material Source Inventory. If undeveloped sources are proposed for use the decision to develop these sources will be made through the NEPA process.

MN-3 Guidelines for who has priority of use in material sources are:

1. Forest Service and Forest Service contractors, 2. Other Federal and State Agencies, 3. Local Government Agencies, and 4. Private Sector.

Gravel or hard rock material will not be sold to the private sector during the planning period. However, gravel and hard rock will be available to Forest Service permittees and easment holders on a case-by-case basis.

MN-4 Management plans will be developed for each existing and new mineral materials source used during the planning period.

MN-5 Capital investments will not be made when there are conflicts with the use of a known mineral

material deposit except under the following conditions:

The need for the investment is greater than the value of the mineral resource.

The investment cannot be located anywhere else.

The investment can be amortized before the mineral resource is to be utilized.

Locatable Minerals

Mining Claims

MN-6 The Forest is generally open to mineral entry under the 1872 Mining Law. Some exceptions are wilderness, power sites, and other specific areas that have been withdrawn from appropriation or entry under the mining laws

MN-7 In accordance with Federal regulations (36 CFR 228), mining claimants and prospectors are required to file notices of intent or operating plans for mining activities that involve significant disturbance to surface resources. The Forest's review will be directed toward minimizing adverse environmental impacts on the surface resource and toward reclaiming the site.

Conflicts.

MN-8 The normal approach to deal with potential conflicts between mineral activities and other resources is to use the 36 CFR 228 Subpart A regulations for locatable minerals or the Secretary's discretionary authority on leasable and salable minerals.

Withdrawals:

MN-9 In the event conflicts between minerals and other resources cannot be resolved the land can be withdrawn from appropriation or Entry Under The Mining Laws.

MN-10 The authority to withdraw lands from mineral entry rests with the United Department of the Interior Bureau of Land Management (BLM). Forest Service recommendations to the BLM for withdrawal must be preceded by mineral potential evaluations and NEPA compliance. The BLM must concur with the Forest Service recommendation before lands are formally withdrawn.

Withdrawals from mineral entry may be recommended to the BLM if an established or anticipated use is not compatible with, and cannot be mitigated as part of the mineral entry. Proposed withdrawal areas may include all or portions of Experimental Forests, Research Natural Areas, Special Interest Areas, Intensive Recreation Areas, and administrative sites and special use areas that have major investments

Water - Best Management Practices

Standards/Guidelines

WT-1 State requirements will be followed in accordance with the Clean Water Act for protection of waters of the State of Oregon (Oregon Administrative Rules, Chapter 340-41) through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with the Clean Water Act, regulations, and federal guidance issued thereto

WT-2 In cooperation with the State of Oregon, the Forest will use the following process

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

2 Implement and enforce BMPs.

3. Monitor to ensure that practices are correctly applied as designed.

4. Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards.

5. Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected.

6. Adjust BMP design standards and application when it is found that beneficial uses are not

being protected and water quality standards are not being achieved to the desired level. Evaluate the appropriateness of water quality criteria for reasonably assuring protection of beneficial uses. Consider recommending adjustment of water quality standards.

WT-3 Use the existing agreed to process to implement the State Water Quality Management Plan on lands administered by the USFS as described in Memoranda of Understanding between the Oregon Department of Environmental Quality and U S. Department of Agriculture, Forest Service (2/12/79 and 12/7/82), and "Attachments A and B" referred to in this MOU (Implementation Plan for Water Quality Planning on National Forest Lands in the Pacific Northwest 12/78 and Best Management Practices for Range and Grazing Activities on Federal Lands, respectively).

WT-4 For a more complete explanation of the above, refer to Appendix H in the Appendix to the FEIS, "Best Management Practices".

WT-5 Individual, general Best Management Practices are described in *General Water Quality Best Management Practices*, Pacific Northwest Region, 11/88. This provides guidance but is not a direction document. Also included in this document is a description of the process, and limitations and use of these BMPs. Each BMP listed includes the Title, Objectives, Explanation, Implementation and Responsibility, and Monitoring. Evaluations of ability to implement and estimated effectiveness are made at the project level.

WT-6 Not all of the general BMPs listed will normally apply to a given project, and there may be specific BMPs which are not represented by a general BMP in this document.

WT-7 The sensitivity of the project determines whether the site-specific BMP prescriptions are included in the EA/EIS or in the sale/project plan, or in the analysis files.

Soils

Goal

To maintain or enhance long-term soil productivity.

Standards/Guidelines

SL-1 Management activities will be prescribed to promote maintenance or enhancement of soil productivity. The potential for detrimental soil damages will be specifically addressed through project environmental analysis. Alternative management practices will be developed and mitigating measures implemented when activities will result in detrimental soil compaction, puddling, displacement, or soils with severely burned surfaces or those with accelerated erosion.

SL-2 The Forest will have and use appropriate contract and permit language to meet the following standards/guidelines:

Soil Compaction , Displacement, Puddling, Severely Burned.

SL-3 Leave a minimum of 80 percent of an activity area in a condition of acceptable productivity potential for trees and other managed vegetation following land management activities. Include all system roads, landings, spur roads, and skid roads or trails to evaluate impacts. Soil monitoring, to include statistical methods, will be required on all sensitive soil areas.

SL-4 Any sites where this direction cannot be met will require rehabilitation Measures may include tillage, smoothing, fertilizing or spreading of biological rich organic materials.

SL-5 The use of mechanical equipment in sensitive soil areas will be regulated to protect the soil resource. Operations will be restricted to existing trails and roads whenever feasible.

Surface Soil Erosion

SL-6 In order to minimize soil erosion by water and wind, the following ground cover objectives should be met within the first 2 years after an activity is completed. (See Table 4-30).

Table 4-30 Surface Soil Erosion

Surface Soil Erosion Potential[2]	Minimum Percent Effective Ground Cover[3]	
	1st Year	2nd Year
Low	20 - 30	31 - 45
Moderate	31 - 45	46 - 60
High	46 - 60	61 - 75
Severe	61 - 75	76 - 90

[1]Activity area is the total area of ground impacted activity and is a feasible unit for sampling and evaluating The area would include the unit of timber sale, slash disposal project or grazing allotment pasture and include transportation systems within and directly adjacent to the project.

[2]Erosion potential can be obtained by using the Erosion Hazard Rating Form or by referencing the Soil Resource Inventory, Deschutes National Forest, Pacific Northwest region, (D M Larsen, 1976).

[3]Effective ground cover includes all living or dead herbaceous or woody materials and rock fragments greater than three-fourths of an inch in diameter in contact with the ground surface. Includes tree or shrub seedlings, grass, forbs, litter, woody biomass, chips, and so forth

Soil Mass Wasting

SL-7 When a project could result in an increased potential for mass wasting, alternative project proposals will be developed and evaluated through the projects environmental analysis.

Implementation

SL-8 The implementation schedule for the Forest Soils Program is presented in Appendix 14 of this Forest Plan.

Fuelwood

Goal

To provide fuelwood as a renewable energy resource for personal and commercial uses in management areas where gathering is permitted.

Standards/Guidelines

Personal Use Fuelwood:

FL-1 Personal use fuelwood will be provided for individuals who wish to cut or gather their own.

FL-2 Personal use fuelwood will be available to those who, because of age, infirmity, or economic considerations, are unable to cut or gather their own.

FL-3 Slash and other unmerchantable material will be considered a potentially useful commodity; and all reasonable efforts will be made to make such material available for public use. Slash and residue material will normally be made available in a Free-Use program

Commercial Use Firewood:

FL-4 The Forest will continue to make fuelwood available for commercial use.

FL-5 High bidders will pay the entire stumpage price, performance bond, and any required deposits, as a condition of contract or permit award.

FL-6 The Forest will emphasize the commercial fuelwood program over personal use in contract areas where heavy equipment may be required for removal, in remote areas where large loads are more economical to haul than small loads, or where environmental constraints require special controls.

FL-7 Timber Sale Contracts, and other contracts such as for slash disposal, thinning, and site preparation, will be designed to encourage the utilization of fuelwood that results from these operations.

Transportation System

Goal

To plan, design, operate and maintain a safe and economical transportation system providing efficient access for the movement of people and materials involved in the use and protection of National Forest lands.

Standards/Guidelines

TS-1 Adequate access to and within the Forest will be provided and will include travel by foot, horse, aircraft, watercraft, and motorized vehicles of all types. A process for access and travel management is defined in the Forest Service Handbook on transportation planning. The process will utilize an interdisciplinary approach which considers the standards/guidelines of all resource areas, will involve Forest visitors and interest groups, and will focus on the positive aspects and opportunities provided by access and travel management. The partnership will demonstrate that both resources and people are better accommodated through a spectrum of carefully planned an implemented strategies.

TS-2 The transportation system will be planned to serve long-term multiple resource needs rather than individual project proposals. In addition, the planning for primary routes will be consistent with Regional direction to ensure uniformity with the transportation systems of adjacent Forests and state and county agencies.

Road Construction and Reconstruction

TS-3 Transportation planning decisions will be developed from the Forest Plan Implementation process in which all resource needs will be concurrently assessed and will be consistent with the prescriptions for each management area. The area analysis will consider alternatives for road access based on resource impacts and the long-term economics of the investment.

TS-4 New roads will be located and designed to the lowest standard necessary to meet resource objectives. Long-term economics will be considered during the selection of the standard to minimize the possibility of repeated reconstruction. The economic life selected for analysis will vary with the type of facility (road, culvert, bridge) and will consider investment risk.

TS-5 Non-system (temporary) roads may be constructed for short-term use where the risk for resource impact is low, or can be mitigated, and where analysis has shown they are cost effective. Temporary roads will be obliterated when their intended use no longer exists and must be revegetated within 10 years of completion of the contract, lease, or permit through which they were constructed (RPA as amended by NFMA, Section 10 (b)).

Road Management

TS-6 The road system will be managed to meet the stated goal. When a conflict occurs between safety, impact on resources, investment protection, administrative access, or public access, the traffic restrictions will be utilized to mitigate the conflict.

TS-7 Operation plans will use one or more of the following road management strategies for use to accomplish the management objectives for the area:

Encourage - The objective is to influence certain user groups in specific types of vehicles to use this road. This is done by use of information techniques such as maps or signing The road will be actively maintained and operated at the standard appropriate to the use experienced. The roads will meet the requirements of the Highway Safety Act.

Accept - The objective is to allow use but not to advertise or invite passage on a road that meets design and maintenance standards for full public use. Continued use is not encouraged and will be discouraged or eliminated if the road condition deteriorates or resource impacts develop. Use could be specified for one user group ie. four wheel drive vehicles or high clearance vehicles.

Discourage - Passage appears feasible, but entrance information is designed to persuade some user groups or vehicle types not to use the road. Entrance management can be accomplished by using advisory or warning signs and/or barriers.

Eliminate - Intermittent use, on a ten year cycle or less, would call for a gate, a guard rail barrier, a log, or an earth berm. Permanent closure would call for entrance obliteration and/or road obliteration

Prohibit - Some user groups or all users are informed not to use this road and this is actively enforced under a regulatory order. There would be some need for this road for administrative or seasonal use to keep it on the system.

TS-8 Roads will be closed through the most economical method that is effective in meeting the management objectives for the area. These include seasonal administrative closures, sign restrictions, barriers, gates, and road obliteration. The preferred method of closing roads will be by obscuring the road entrance to discourage vehicle access. When formal (legal) closures are needed, the orders will be consistent with the Code of Federal Regulations.

TS-9 Road maintenance activities will be planned on a priority basis and will be consistent with the management objectives for each road The method of accomplishment may vary depending on specific prescriptions particular to a management area. The priority for maintenance work is as follows: (1) Safety, (2) Resource and investment protection and wildfire access, (3) Developed recreation and administrative access, and (4) Dispersed recreation access.

TS-10 All commercial users of Forest roads will be financially responsible for maintenance activities resulting from their use of the Forest road system. Commercial users having products from private lands may be responsible for cost recovery on the road investment as well as maintenance.

Open Road Density

TS-11 To achieve the Forest's wildlife objectives, open road density must be managed. Density guidelines are not intended to be objectives in themselves, but are means to accomplish wildlife resource objectives. Therefore, open road densities will be evaluated in relation to the needs and sensitivity of site specific wildlife habitats and populations.

TS-12 Some management areas include open road density guidelines If not included in the management area direction, the deer summer range guideline of 2.5 miles per square mile, as an average over the entire implementation unit, is assumed. Guideline densities will be used as thresholds for a further evaluation and will not serve as the basis for assessing conformance with the Forest Plan.

TS-13 If a preferred project alternative would exceed these guidelines, a detailed further evaluation by a wildlife biologist would be required. The evaluation would include the biologist's best professional judgement on the effects of proposed projects open road density on wildlife habitat use, site-specific factors supporting this judgement, and possible mitigation measures. If the evaluation concludes that the net effect of the project is compatible with Forest Plan wildlife objectives as proposed or with mitigation measures, or significantly enhances the conformance of the Implementation Unit with wildlife objectives, the project will be considered compatible with Forest Plan direction.

TS-14 The biologist's evaluation would be used by the project ID Team and line officer in deciding on a plan which best satisfies multiresource needs, and in preparing the NEPA document and Decision Notice. The line officer may select an open-road density that exceeds the biologist's evaluation. Selection of project alternatives, which the further evaluation finds are not compatible with Forest Plan wildlife objectives or will not significantly enhance conformance of the Implementation Unit with wildlife objectives, will require an amendment of the Plan.

Trails and Other Access

TS-15 The S&Gs for trail, ATV, and OHV access are included in the Recreation and Trail sections of this Chapter. The S&Gs for airstrips and helispots are included in the Fire section for each management area.

Fire and Fuels Management

Goal

To provide a well managed fire protection and prescribed fire program that is cost efficient, responsive to land stewardship needs, and resource management goals and objectives

Standards/Guidelines (Specifics are contained within the individual management areas.)

FF-1 Prevention of human caused wildfires will focus on areas of high use and high risk. Identified areas of high use and high risk are:

* Recreation use along major travelways and bodies of water during the summer period.

* Personal use firewood cutting during late spring and early summer.

* Large numbers of deer hunters during the fall.

* Large areas of Beetle Killed pine adjacent to subdivisions and private developments.

* Industrial operations on National Forest Land during summer.

FF-2 A successful annual fire prevention program will have less than the following numbers of human caused fires:

Bend Ranger District	15
Crescent Ranger Dist.	9
Fort Rock Ranger Dist.	12
Sisters Ranger Dist.	16
Forest Total	53

(Arson fires are not included in the prevention goals.)

FF-3 The Ranger Districts will prepare a fire prevention plan annually to assist in meeting these goals.

FF-4 Wildfire detection will be primarily by lookout: Black Butte, Lava Butte, Round Mountain, Odell Butte, Spring Butte and East Butte.

The Lookouts will be supplemented with aerial detection after lightning storms, on high risk or extreme fire danger days and during periods of reduced visibility.

FF-5 All wildfires will receive a timely and energetic suppression response that minimizes suppression costs plus resource losses, and best meets multiple use standards/guidelines for each management area. Those fires that threaten life, private property, public and fire fighter safety, improvements or investments shall be given high priority and suppressed to minimize losses.

FF-6 All wildfires will require an appropriate suppression response. Appropriate suppression strategies are identified in the Fire Management Action Plan.

FF-7 Objectives for burned acres and constraints are identified for each management area. This identification does not mean that fires will be allowed to burn to these sizes prior to suppression. Rather, it is a tool to measure the fire suppression organizational needs. The fire suppression organization shall strive to keep the resource losses caused by wildfire to a level that will not adversely affect resource outputs.

FF-8 If a wildfire escapes initial action, an escaped fire situation analysis shall be prepared. The objective of this analysis is to identify a suppression alternative that minimizes suppression cost plus resource loss and best meets multiple use standards/guidelines for each management area.

FF-9 Burning plans will be prepared in advance of ignition and approved by the appropriate line officer for each prescribed fire. Prescribed burning will conform to air quality guidelines. Burning plans will define an escaped fire. A fire that escapes will be declared a wildfire and an escaped fire situation analysis will be prepared.

FF-10 Unplanned ignitions may be used as prescribed fires if (1) a prescribed fire plan has been prepared and approved and (2) the fire is burning within prescription. Normally, prescribed burning will be by planned ignition.

FF-11 Levels and methods of fuels treatment will be guided by the resource objectives within the management area.

Special Uses

Goal

To provide for the use and occupancy of the National Forest system by individuals or Federal, State, and local Governments when such use will not detract from specific management area direction, is in the public interest, and cannot reasonably be served by development on non-National Forest System land.

Standards/Guidelines

Nonrecreation Special Uses

Utility Corridors

SU-1 Existing utility corridors are listed and shown on the Electronic sites and Major Utility Corridors Map.

SU-2 When applications for rights-of-way for utilities are received, the Forest's first priority will be to utilize residual capacity in existing corridors.

SU-3 When residual capacity is not available, consider expansion of existing corridors. Expansions may require a site-specific analysis in accordance with NEPA

SU-4 All existing utilities will conduct hazard tree analysis on aerial powerline corridors in accordance with the Deschutes National Forest Hazard Tree Handbook. The utility will refer to the handbook for identification and removal procedures.

SU-5 Three windows for future energy transmission corridors have been identified. (Refer to the Utility Corridor and Electronic Site map) Following are the guidelines that will apply to future evaluations of these areas should the need for a corridor arise.

SU-6 All evaluation and analysis will be done in accordance with the NEPA process and with procedures set forth in the Regional Guide.

A lead agency will be determined prior to the start of any analysis. Analysis will be coordinated with other Forests and land management agencies and a study plan developed and agreed upon prior to starting the analysis.

SU-7 Alternatives will be based on environmental, cultural, social and economic issues, in consideration of powerline features, such as engineering specification and clearing standards.

Alternatives will be developed that include moving energy through existing corridors.

Each window could be considered as an alternative itself for any east/west corridors that are proposed.

Within each window, alternative routes will be fully evaluated.

SU-8 Compatibility of each alternative with the management areas affected will be determined. If a route is not compatible with the management area direction and other alternatives are not feasible, an amendment to the Forest Plan could be pursued through the appropriate NEPA process.

Dams and Reservoirs

SU-9 Applications for licenses or grants associated with dams and reservoirs may be recommended for approval if they do not detract from management area direction and do meet State of Oregon requirements Such applications will be subject to an environmental analysis pursuant to NEPA.

Electronic Sites

SU-10 Developed, planned, and denied electronic sites are listed and shown on the Electronic Sites and Major Utilities Corridor Map.

SU-11 Develop site plans for developed sites and planned sites in accordance with FSM 2728.1 (3) and other Forest Service handbooks (See Appendix 7 on Electronic Sites for listing of developed and planned sites.)

SU-12 Site plans for planned sites must be completed prior to installation of facilities. Plans must be compatible with the Recreation Opportunity Spectrum (ROS) and visual classification of the area

SU-13 Applicants for electronic facilities will be directed toward use of the developed sites before use of planned sites is considered.

SU-14 Application for sites not identified as developed, planned, or denied (in Appendix 7) must be evaluated through the NEPA process before approval could be granted.

Other Uses

SU-15 The Forest will consider applications for other uses as they are received, pursuant to the NEPA process.

Recreation Special Uses

General

SU-16 Prior to authorizing recreation activities, uses, or development of new sites, prepare a site-specific study, including the appropriate environmental analysis (FSM 2341.21).

SU-17 Authorize special-use permits for concession developments only where there is a demonstrated public need. Examples include lodging and overnight accommodations, stores, restaurants, RV sites, outfitter and guides, etc. (FSM 2340).

SU-18 The recreation opportunity provided by a permit must be compatible with the ROS classification of the area. All facilities, including resorts, will be adequate to provide reasonable comfort and convenience, but with no elaboration which would be out of keeping with the Forest environment.

SU-19 Do not issue a special-use permit either solely for the purpose of establishing a profit-making commercial enterprise or where satisfactory public service is or could be provided on nearby private or other public lands (FSM 2343.03).

SU-20 Incorporate as many needed public services as possible under existing special-use permits (eg., fishing-guide permits under a resort permit).

SU-21 Commercial operators may be assessed charges for the use of roads and trails to cover maintenance or other resource damage caused by their operations. The operators hauling products from private lands may be responsible for cost recovery of the road investment as well as road maintenance.

SU-22 A cash-flow analysis will be required of all purchasers of existing businesses under special-use permit. These analyses will include the cost of bringing the facilities or equipment up to standard if necessary (FSM 2712.1).

SU-23 New special-use permits should be issued through a prospectus process when a competitive interest has been identified (FSM 2712.2).

SU-24 Applicants will be required to furnish a market assessment which will indicate the demand and profitability for any new use. If unable to demonstrate that the business would be profitable, no permit will be issued.

SU-25 In general, no new permits for commercial services will be issued in campgrounds or any other developed sites. This includes all types of food services, selling fishing equipment, worms, etc. Selling firewood in campgrounds may be appropriate in some circumstances. An exception to this policy exists on the lower Metolius River near Lake Billy Chinook where a small store may be needed to meet the needs of recreationists.

Outfitter and Guide Permits

SU-26 The base of operation for special-uses should be on private land when possible. Destination resorts located on private land should supply the base area for permittees providing service for their guests or residences (FSM 2703 & 2740.3).

SU-27 Commercial rafting will be restricted to the section of the Deschutes River where it is currently permitted. No commercial rafting will be permitted on the Metolius River.

SU-28 Outfitter/guide services in Wilderness will be permitted until local limits of acceptable change and carrying capacity estimates are met or exceeded (see Wilderness Management Area discussion for more information). At that point outfitter/guide services in Wilderness will be reduced or eliminated in those areas.

SU-29 No new permits will be issued for providing outfitter/guide operations in Wilderness.

SU-30 Expansion of use by existing outfitter/guides will be authorized only for areas outside Wilderness.

SU-31 (Additional direction on outfitter/guide operations in Wilderness is contained in the Wilderness Management Area section and in the Wilderness Management Plans.)

SU-32 Specify locations for outfitter/guide uses in the operating plan

SU-33 No new outfitter/guide permits will be issued for fishing or horse packing unless (1) changes in demand are demonstrated, and (2) existing outfitter/guide operations cannot expand to service demonstrated needs.

SU-34 The number of special-use permits for a specific use will be limited as much as possible to create economical operations which provide a high quality of public service.

Recreation Events

SU-35 Permits for established recreation events will be issued for a period of five years with yearly updates to an operating plan to reduce the administrative costs of the permit.

SU-36 Limits may be placed on the number of new permits issued each year, with priorities established using the following criteria: number of years an activity has been under permit, demand, and service to the public.

Recreation Residences

SU-37 Existing recreational resident special-use permits will be continued unless existing sites are needed for a higher value of public use (FSM 2347.12). Such a determination will be made following current policy. No new sites will be designated.

SU-38 An operation and maintenance plan will be developed for each recreation residence lot. This plan shall contain, but not be limited to the following information:

SU-39 Where appropriate or useful complete a management plan/management objectives for each recreation resident tract. This plan will outline both short and long-term objectives for the tract.

Resorts

SU-40 All resorts will be designed to furnish services to those seeking Forest recreation.

SU-41 A Management and Development Plan will be developed for each resort. This plan will establish current and future direction for the resort, outline required and desired improvements, specify conditions for resource protection (such as cultural resources), and estimate costs and schedules for project(s) completion.

SU-42 Inspections will be made using the standard Forest inspection contained in the Forest Resort Administration Handbook. This will include the state and county code requirements.

SU-43 Hazard trees at resort sites will be administered through the guidelines established in the Forest Hazard Tree Handbook.

SU-44 With the exception of Suttle Lake Resort, existing resorts will not significantly expand beyond their permit boundaries. While some new facilities will be built, most construction will be in accordance with existing site plans or involve repair and replacement of existing structures.

SU-45 No new resorts will be authorized, with two possible exceptions: (1) Skyliner Lodge and (2) a backcountry "hut" system.

SU-46 Partnership agreements between the Forest and permitees for shared services should be considered (eg , roads and trails, equipment use, vegetation management, and recreation opportunity information, etc) as outlined in the Resort Administration Handbook.

Energy Resources

Oil, Gas, and Geothermal

Goal

To provide for exploration, development, and production of energy resources on the Forest.

Leasing Background

Geothermal leasing has occurred on approximately 350,000 acres. Standards/guidelines for these leasing decisions were developed through Environmental Assessments which were prepared for Fort Rock Ranger District, Sisters Ranger District, Bend and Crescent Ranger Districts combined, and the Belknap-Foley Environmental Impact Statement

The notices and stipulations in leases issued prior to implementation of this Plan take precedent over standards/guidelines developed in this Plan. These existing leases will continue and have prior rights. Proposals to explore, develop, and produce electricity on all leases, past and future, will be evaluated through the NEPA process. To the extent possible, consistent with existing lease rights, standards/guidelines will be followed.

There has been minimal leasing for oil and gas on the Forest. All leases and lease applications have been either withdrawn or terminated. There has been no leasing for other leasable materials.

Standards/Guidelines

EN-1 Leasing applications will be subject S&Gs in this section, and in the management areas.

Oil and Gas

EN-2 Surface use restrictions and notices outlined for geothermal leasing in this Plan are to be applied to oil and gas leases.

EN-3 Permits for drilling on oil and gas lease areas, cannot be granted without an analysis and approval of a surface use plan (operating plan) by the appropriate Forest Service official.

Geothermal

EN-4 The authorized Forest Service officer will consent to or recommend that the Bureau of Land Management deny leasing of geothermal resources on National Forest System lands. Notices and Special Stipulations will be incorporated in geothermal leases to protect resource values.

EN-5 The following direction will be followed when consenting to or recommending that leases be denied.

Leasing with No Surface Occupancy (NSO) Stipulation

EN-6 There will be no occupancy of the surface of the land in management areas listed below. This stipulation can only be modified or eliminated through a separate NEPA review.

Special Interest Areas (Management Area 1).

Research Natural Areas, when leasing is approved by the Experiment Station Director (Management Area 2).

Northern Spotted Owl (Management Area 4).

Undeveloped Recreation (Management Area 12).

Old Growth (Management Area 15).

Experimental Forests, when leasing is approved by the Experiment Station Director (Management Area 16).

Wild and Scenic Rivers (Management Area 17)

Metolius Wildlife-Primitive (Management Area 20)

Metolius Black Butte Scenic (Management Area 21)

Metolius Special Interest (Management Area 23)

Metolius Research Natural Area (Management Area 24)

Metolius Spotted Owl (Managment Area 25)

Metolius Old Growth (Management Area 27)

Leasing with Conditional Surface Use Stipulation

EN-7 Areas in this category can be leased with limits placed on the use of the surface. The lease will contain restrictions limiting geothermal exploration and development activities in order to mitigate effects and to protect resource values within the management areas. Following are management areas that are included in this category.

Bald Eagle, and Osprey Areas (Management Areas 3 and 5)

Deer Habitat (Management Area 7)

General Forest (Management Area 8) - Use when necessary to protect wildlife habitat and recreation areas.

Scenic Views (Management Area 9)

Intensive Recreation (Management Area 11)

Winter Recreation (Management Area 13)

Front Country (Management Area 18)

Metolius Special Forest (Management Area 22)

Metolius Scenic Views (Management Area 26)

Leasing with Seasonal Restrictions

EN-8 Seasonal restrictions will be placed on leasing activities in management areas that are included in this category. This Stipulation may be used in other management areas when it is necessary to limit periods of activities.

Bald Eagle and Osprey Areas (Management Areas 3 and 5).

Deer Habitat (Management Area 7).

Intensive Recreation (Management Area 11).

General Forest (Management Area 8) - Use when necessary to protect wildlife, scenic, and recreation areas

Scenic Views (Management Area 9) - Use when necessary to protect seasonal scenic views

Winter Recreation (Management Area 13) - Use when necessary to protect winter recreation.

Metolius Special Forest (Management Area 22)

Metolius Scenic Views (Management Area 26) - Use when necessary to protect scenic views.

Leasing Denied

EN-9 Leases will not be issued within these management areas.

Wilderness (Management Area 6) - Denied by Wilderness Act of 1984

Bend Municipal Watershed (Management Area 10) - Denied by agreement with City of Bend

Oregon Cascade Recreation Area (Management Area 14) - Denied by Wilderness Act of 1984

Metolius Heritage (Management Area 19)

Metolius Wildlife/Primitive (Management Area 20)

Metolius Black Butte Scenic (Management Area 21)

Metolius Special Interest (Management Area 23)

Metolius Research Natural Area (Management Area 24)

Metolius Old Growth (Management Area 27)

Metolius Wild & Scenic Rivers (Management Area 28)

Other Areas

Newberry Crater (not a management area by itself)

EN-10 Leasing is denied for Newberry Crater because of steep slopes and potential conflicts with Intensive Recreation and Undeveloped Recreation Management Areas. Newberry Crater is defined here as the large depression (caldera) at the top of Newberry Volcano. The boundary of Newberry Crater is the hydrological boundary between drainage into the Crater and drainage onto the flanks of Newberry Volcano.

Leasing Notices and Stipulations

EN-11 Following are examples of notices and stipulations which are available to protect or mitigate certain resource concerns. By Memorandum of Understanding between the Forest Service and the Bureau of Land Management, notices and stipulations may be periodically reviewed and revised or amended as agreed. Major changes will have public involvement through the NEPA process. Those notices and stipulations approved for use at the time lease recommendations are prepared will be used provided that essential resource coordination objectives can be met.

NOTICES
Deschutes National Forest

1. The Bureau of Land Management (BLM) has responsibility for approvals of post lease activities. The Forest Service must review and concur with these approvals. The responsibilities of each agency are identified in the Interagency Agreement between the Forest Service and the BLM.

Prior to submission of a plan of operation for surface disturbing operations, the lessee shall meet with the authorized representative of the Forest Service, to be appraised of specific requirements, restrictions, administrative rules and regulations; e.g., timber sales, special use permits, experimental studies, contracts, grazing, other mineral activities, water use, and resource closures. This meeting will be waved if the lessee is sufficiently aware of local problems and ground rules of the area involved in the proposed operation.

2. All surface disturbing operations, other than "casual use" as defined by 43 CFR 3209.0-5(d), must be culturally cleared by the authorized representative of the Forest Service. When the lessee prepares a cultural report to comply with standard lease term No. 6, it must be signed and certified by a qualified archaeologist acceptable to the authorized representative of the Forest Service.

3. The leased lands may be in an area suitable for the habitat of threatened or endangered plant or animal species. All known viable habitat of these species will be identified for the lessee by the authorized officer of the BLM or the authorized representative of the Forest Service at the pre-operational conference or field inspection with recommended mitigation measures. These may include (1) on-site biological and/or botanical surveys by authorities acceptable to the surface manager, (2) avoidance, or (3) lessee recommendation of programs complying with the provisions of the Endangered Species Act of 1973 as amended.

4. No occupancy or other surface disturbance will be allowed on slopes in excess of 50 percent or on designated unstable/very unstable land types without written permission from the Deputy State Director for Mineral Resources, BLM with the concurrence of the authorized representative of the Forest Service.

5. Operations adjacent to any surface water or wet soil areas, such as streams, springs, seeps, reservoirs, or meadows, will require a buffer zone. The size will be specifically identified by the Deputy State Director for Mineral Resources, BLM and the authorized representative of the Forest Service.

6. All post leasing activities on areas containing caves will be restricted to protect the cave formations.

SPECIAL STIPULATIONS
Deschutes National Forest

The lessee shall comply with the following special conditions and stipulations unless they are modified by mutual agreement of the lessee, the authorized officer of the Bureau of Land Management and the authorized representative of the United States Department of Agriculture, Forest Service.

1. No Surface Occupancy (NSO)

In order to protect _____
the lessee shall not occupy or use the surface of the following described lands except for casual use activities as defined in 43 CFR 3209 unless this stipulation is modified or eliminated. Modification or elimination of this stipulation will require evaluation through the NEPA process and may require a change to the Forest Plan.

Willamette Meridian, _____

2 Conditional Surface Use

In order to protect _____,
lessee shall not occupy or use the surface of the following described lands for the following activities

_____

_____
unless the lessee can demonstrate, by appropriate plan of operation to the satisfaction of the Deputy State Director for Mineral Resources, BLM and the authorized representative of the the Forest Service, that this area will not be adversely affected by the proposed activities.

Willamette Meridian, _____

3. Seasonal Restrictions

On the following described lands, _____, exploration and development operations, such as drilling and associated activities, will not be allowed except from _____ to _____ unless specifically approved in writing. Routine inspection, maintenance, and servicing of producing wells and facilities may be excepted.

Willamette Meridian, _____

USE OF NOTICES AND STIPULATIONS FOR EACH MANAGEMENT AREA

	NSO[1]	Conditional Surface Use[2]	Seasonal Restriction[3]	Deny Leasin	No-tices
1. Special Interest Areas	X				X
2. Research Natural Areas	X				X
3 & 5. Eagle, Osprey		X	X		X
4 Spotted Owl	X				X
6. Wilderness				X	
7 Deer Habitat		X	X		X
8 General Forest		0	0		X
9. Scenic Views		X	0		X
10 Bend Municipal Watershed				X	
11 Intensive Recreation		X	X		X
12. Undeveloped Recreation	X				X
13. Winter Recreation		X	0		X
14 Oregon Cascade Rec Area				X	
15 Old Growth	X				X
16 Experimental Forest	X				X
17 Wild and Scenic Rivers	X				X
18 Front Country		X			
19 Metolius Heritage				X[4]	
20. Metolius Wildlife/Primitive	X				
21 Metolius Black Butte Scenic	X				
22 Metolius Special Forest		X	O		X
23 Metolius Special Interest	X			X[3 4]	
24 Metolius Research Nat Area	X				X
25 Metolius Spotted Owl	X				X
26 Metolius Scenic Views		X	0		X
27 Metolius Old Growth	X				X
28 Metolius Wild & Scenic Rivers				X	X

X - Mandatory use
0 - Optional use
[1]Use when applicable to protect resources.
[2]Stipulation No 3 (Seasonal Restrictions) may be used in any Management Areas when it is necessary to limit periods or activity
[3]Leasing is denied in the Black Butte special interest area portion of the Metolius Special Interest Area.
[4]Existing can continue, but not reissued if relinquished

Energy Resources

Newberry Caldera Known Geothermal Resource Area (KGRA)

Goal

To provide for exploration, development, and production of energy resources within the portions of the Newberry Caldera KGRA where development of the geothermal resource is compatible with other resource values.

Standards/Guidelines

EN-12 In preparing proposals for leasing, the following assumptions were made:

The production stage would not likely be entered during the period of the plan Therefore, consideration puts more emphasis on the effects of exploration and testing than development.

Exploration will require ground or vegetative disturbance

If exploration shows that a viable resource exists in the areas being leased, development of that resource will be allowed and controlled through further site specific environmental analysis.

EN-13 Three general zones have been identified within the 49 square mile area of the KGRA: The interior of the Crater from the edge of the rim down, the top rim area of the Crater, and the slopes beyond the Crater. The following apply to these areas:

Interior of the Crater: No leases will be issued because of steep slopes and potential conflicts with Intensive Recreation and Undeveloped Recreation Management Areas. Limited exploratory drilling, the results of which will be public information, would be permitted on a case-by-case basis. Drilling would be covered by prospecting permits and would be located and conducted within the overall direction for the Management Areas. (The boundary of Newberry Crater is the hydrologic boundary between drainage into the Crater and drainage onto the flanks of Newberry Volcano)

Rim Area of the Crater: This area could be leased following compliance with the NEPA process. Leasing, prospecting, exploration, and development would have to be in compliance with management area objectives that are involved. Some restrictions will likely apply.

Slopes Beyond the Crater: This area could be leased following compliance with the NEPA process. Leasing, prospecting, exploration and development would have to be in accordance with the direction for the Scenic Views and General Forest Management Areas.

Human Rights

Goal

To provide all persons equal opportunity regardless of race, color, creed, sex, marital status, age, handicap, religion, or national origin

Standards/Guidelines

HM-1 The Forest lands will be managed to minimize social and administrative barriers to legitimate uses of the Forest

HM-2 The Forest will coordinate resource activities where common boundaries exist with the Confederated Tribes of the Warm Springs Indian Reservation lands

HM-3 The Forest will maintain and implement an Affirmative Action Plan.

HM-4 The needs of the handicapped will be considered in employment opportunities, in the design of Forest facilities, and when providing public services.

HM-5 The Forest will conduct compliance reviews as required by Title VI of the Civil Rights Action of

1964, within standards established by the Forest Service.

HM-6 Special efforts will be made to inform the general public, including minorities and the underprivileged, of benefits they are eligible to receive from Forest programs. Techniques and the media best suited to increase awareness and participation will be used.

HM-7 The Forest will strive to protect and preserve for American Indians access to sites, use, and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Appropriate management protection of these areas will be coordinated with the religious leaders of the Confederated Tribes of the Warm Springs Reservation and the Klamath Tribe.

Law Enforcement

Goal

To provide a law enforcement program that is responsive to the Forest resource base and proportionate to the type, kind, and amount of violations occurring on the Deschutes National Forest

Standards/Guidelines

LE-1 The Law Enforcement program will establish priorities and provide for visitor and employee safety. The basic document that governs law enforcement will be the Annual Forest Operational Agreement (AFOA), which will meet the direction in the Forest Plan. The AFOA will be an elastic document that will be reviewed and updated annually.

LE-2 In general, the program will be based on a three E concept; Education, Engineering and Enforcement.

LE-3 Education deals with the prevention of violations through visibility, information, media releases and signing.

LE-4 Engineering means limiting opportunities for either inadvertently or deliberately violating rules or regulations through facility design, physical barriers, prevention patrols, analyzing violation data and developing clearer terminology or a more effective communication process with Forest users to prevent future infractions

LE-5 Enforcement is the internal and external legal system and Federal judicial process that is applied when prevention measures have failed It involves citations, complaints, investigations and the Federal and local court systems.

LE-6 The basic test of the Forest Law Enforcement program's effectiveness is, "The public, that is, the Forest users, should feel secure in using public lands and at the same time feel comfortable with the degree of law enforcement they encounter while using the Forest."

Cultural Resources

LE-7 Prevent Violations: Increase security of inventory and site location data collected by the Forest. Increase public education efforts, through media and personal contacts. Work toward the protection of archaeological resources through public support.

LE-8 Site Protection: For sites identified as major or key sites by Forest Archaeologist; use monitoring devices, site visits, and patrols to prevent vandalism until the site can be researched and information and artifacts permanently protected

LE-9 Enforcement: Emphasis on illegal commercial collectors rather than the casual Forest visitor. Emphasis on sites identified as important, major, key sites by the Forest Archaeologist.

Firewood

LE-10 Prevention: Public education through efforts such as the Animal Inn program in an effort to achieve maximum compliance with regulations Compliance checks by all employees as they encounter woodcutters, and by way of organized check stations.

LE-11 Enforcement: Emphasis on repeat violators, those who demonstrate an attitude of lack of respect for Forest Service regulations, management practices, and other law-abiding woodcutters. For example, people who attempt a commercial operation for personal gain using a Personal-use Permit or those who deliberately fail to properly mark a load or punch load tickets in an effort to illegally remove firewood Forest Officers will use discretion when making contacts with the casual firewood cutter, to emphasize compliance with regulations.

Off-Highway Vehicle Use

LE-12 Prevention: Signing to identify resource management objectives; and Forest orders governing off-highway vehicle use. Forest Officer contacts with individuals and OHV user groups to educate these people about OHV impacts on Forest resources

LE-13 Enforcement: Occasional patrols during peak use periods of most commonly used OHV areas, and key sensitive Forest areas restricted from OHV use. Forest Officer contacts with casual OHV users encountered on the Forest with emphasis on public education and gaining compliance Forest Officer discretion is important in efforts to achieve public support and compliance with Forest regulations and protection of resources

Recreation

(Vandalism, user protection, fee violations, stay limitation, theft of user fees and personal property)

LE-14 Prevention: Place signing to effectively advise users of regulations that apply to the particular site. Maintain a high visibility of both Forest Officers and cooperative law enforcement agencies in and around developed recreation sites. To present a helpful, host-oriented approach with those visitors who have questions or appear to misunderstand our procedures will be a standard applied by both Forest Service personnel and cooperating agencies

LE-15 Enforcement: In both developed and dispersed sites where problems either persist or periodically surface the Forest and District will develop individual action plans to deal with the problem areas. Techniques such as late evening patrols, task force approaches, undercover operations, and surveillances will be used in those persistent problem areas.

LE-16 A "problem" in a recreation setting is defined as. site vandalism by individuals or groups. Theft of user fees, complaints by site users of continuing noise or violence on the part of other campers, theft or damage to personal property.

Nonpermitted Commercial Use of the Forest

(Covers activities such as outfitter guides, rafting, fishing, hunting, mushroom gathering, seedling transplanting, cone collecting, common variety mineral collecting, etc.)

LE-17 Prevention: Emphasis will be placed on identifying which nonpermitted commercial activities are being conducted on the Forest and to what degree. Where applicable, signing will be used to advise Forest users of permit requirements, field contacts to gain compliance will be used as an initial step in all cases

LE-18 General letters will be sent to local nursery outlets advising business people of our permit requirements and cautioning against purchasing transplant material without knowing the origin of the items.

LE-19 Enforcement: Those permit problems that surface as an issue with Resource Managers on a District and are viewed as a priority by the Forest Management Team will be handled by developing an action plan which will become a temporary, issue-specific appendix to the Annual Forest Operational Agreement

General Guidelines:

LE-20 Local and State Law Enforcement Agencies will maintain separate jurisdictional authorities (concurrent jurisdiction). The Forest, within funding constraints, will continue to support a cooperative law enforcement program with involved counties,

Jefferson and Deschutes. The intent of the formal agreements are to allow the counties the flexibility to continue to enforce state and local laws on public lands and protect the interests of citizens using the National Forest system. Additionally the county jurisdictions are the lead agencies in all search and rescue operations, the Forest will assist when requested. During search and rescue the Forest will maintain a visible liaison and encourage the use of a unified command, incorporating principles of the Incident Command System.

Timber Theft

LE-21 Prevention: Law enforcement training will be incorporated into Timber Sale Officer training sessions and workshops. Additionally the Forest will secure a two-hour Timber Theft Prevention and Accountability program to present to all timber and law enforcement personnel.

LE-22 Timber Sale Officer scheduling has been identified as a problem; that is, there are periods of time during which a sale goes unsupervised. To compensate for these periods Districts will coordinate with law enforcement personnel to establish random coverage on weekends and those days the Timber Sale Officer is not present.

LE-23 Enforcement: District Timber and Law Enforcement personnel will schedule accountability check points during the harvest season to monitor load receipts, branding and contract compliance.

Administrative Buildings and Sites

Goal

To provide cost-effective, safe, functionally efficient buildings and related improvements needed for conducting the work of the Forest.

Facilities Management: Provide and manage administrative facilities sufficient to accomplish land and resource management and protection objectives of the Forest. Prepare a Facility Master Plan and administrative site development plans for all Forest administrative sites. Long-term development and maintenance costs will be a consideration in facilities planning.

Standards/Guidelines

AD-1 A Forest-wide study and action plan will direct the acquisition, continued use, and disposal of facilities. The action plan will include the following as a minimum:

Current volume of business and workforce projections for the future.

The best locations for needed skills to perform program work.

Existing administrative sites and proposed locations for new sites.

Short- and long-term management strategies concerning unit consolidation and/or sharing services between units.

AD-2 Remaining consistent with the above stated goal, capital improvement proposals will be developed and updated on an annual basis. Projects qualifying for Regional Programs will be submitted for funding accordingly.

AD-3 Each year a survey of all administrative facilities will be conducted to identify safety and maintenance needs. Priority for funding is as follows:

* Health and Safety
- Investment Protection
- Deferrable Maintenance

Land Adjustments

Goal

To provide the optimum pattern of landownership within the National Forest considering resource goals and efficiency of managing the forest.

Standards/Guidelines

Landownership Adjustments

LA-1 Landownership adjustments involve changing ownership through (1) purchases, (2) exchanges, and (3) donations with private landowners, State and local Government agencies, and transfer with other Federal agencies.

LA-2 Public and private lands in and around Deschutes National Forest have been classified and prioritized to encourage the best land pattern the Forest can seek. All lands have been placed in one of the following groups:

Group 1. These are lands where Congress has either directly or indirectly instructed the Forest Service to retain ownership and acquire nonfederal lands for a designated purpose (Creation of a wilderness is an example of the indirect approach)

In most situations the objective is to retain existing ownership and acquire remaining land. Acquisition of less than fee title will be considered if land management objectives can be met in that way.

Group 2. These lands are needed for a special type of management and allocated for that purpose. These land-use allocations include, but are not limited to, Special Interest Areas; unroaded areas; and recreation, visual, soils, watershed, wildlife, range, and timber.

In most situations the objective is to retain National Forest ownership and acquire private land.

Acquisition of less than fee title will be considered if land management planning objectives can be met in this way.

Group 3. These lands are in the General Forest Management Area and are divided into four subgroups:

3-A Consolidated areas of National Forest lands that are generally solid blocks. The contiguous blocks will not normally be breached (creating a gap destroys the consolidated character) for land adjustment unless the area is designated as a retraction area.

3-B. This includes land identified as being in deer migration routes The integrity of the migration route will be maintained through ownership by public agencies and large timber companies or protection through county zoning regulations. National Forest lands may be retained or exchanged to large timber companies or other entities that would provide for continuation of migration routes.

3-C. This includes areas of mixed private and Federal ownership The objective is to rearrange ownership patterns to benefit commodity production goals for public and private lands and to utilize National Forest lands to acquire higher priority lands for National Forest use

3-D. These are isolated parcels that can best be managed by the Forest Service or some other public agency A parcel may be transferred or exchanged to another public agency.

Group 4: These lands include small isolated tracts of National Forest land situated away from contiguous blocks of National Forest land and private lands that are managed for intensive uses such as agriculture, residential subdivision, industrial development, ditch lines, State and County highways, etc.

Federal lands in this group will normally be made available for disposal in land exchanges to acquire land in Groups 1, 2, or 3.

Private lands in this group are generally not available and will normally not be acquired by the Forest Service.

Group 5: These are lands which need more intensive study and planning before landownership decisions can be made.

Land acquisition and disposal decisions will be deferred until the needed studies have been completed.

See Appendix 1 of the Forest Plan for a tabular presentation showing acreage by group within the Management Areas. Also refer to the Land Status map.

Land Adjustment Priorities

LA-3 Lands which should be acquired to meet essential National Forest management or resource conservation needs are assigned the following priority

Priority	Land Ownership Planning Groups
Priority 1	Group 1 lands
Priority 2	Group 2 lands
Priority 3	Group 3 lands

LA-4 National Forest lands that will be made available to use in land exchanges are assigned the following priority.

Priority	Land Ownership Planning Groups
Priority 1	Group 4 lands
Priority 2	Group 3 lands
Priority 3	Group 2 lands

LA-5 The above guidelines should normally be followed; however, it may be necessary to deviate from this ranking to take advantage of opportunities as they arise.

Management Areas and Prescriptions

A management area is a unit of land with similar capabilities and common management prescriptions Each management area describes a goal to be achieved. Management practices and the prescription are implemented within the previously described standards/guidelines. If a conflict arises between the particular goal of a management area and another resource, such as wildlife, the direction provided by the Forest-wide standards/guidelines will be used to determine what action to take. The Management Areas together with the accompanying Alternative E map identify what activities will take place and where, during implementation of the Forest Plan A more detailed larger scale map will be developed to implement and monitor the Forest Plan. These maps will be available at the Deschutes National Forest Office when the final Plan is approved.

Table 4-31 displays management areas and their acreages.

Table 4-31 Management Areas by Acres

Management Area	Acres
1. Special Interest Areas	16,900
2. Research Natural Areas	5,700
3. Bald Eagle	19,100
4 Spotted Owl	12,000
5 Osprey	8,100
6. Wilderness	181,300
7. Deer Habitat	208,900
8. General Forest	626,300
9. Scenic Views	171,700
10. Bend Municipal Watershed	3,700
11 Intensive Recreation	67,100
12. Dispersed Recreation	48,400
13. Winter Recreation	32,200
14 Oregon Cascade Recreation Area	42,700
15. Old Growth Allocated Areas	32,800
16. Experimental Forest	9,000
17. Wild and Scenic Rivers*	19,800
18. Front Country	34,700
19. Metolius Heritage Area	24,300
20 Metolius Wildlife - Primitive	13,100
21. Metolius Black Butte Scenic	10,600
22. Metolius Special Forest	18,400
23 Metolius Special Interest	1,700
24 Metolius Research Natural Areas	1,300
25. Metolius Spotted Owl	5,400
26. Metolius Scenic Views	4,800
27 Metolius Old Growth	1,800
28. Metolius Wild & Scenic Rivers	4,600
Private/Other	247,300

*- Contains 5,500 acres that are duplicated in the OCRA Mgmt Area

Management Area 1 Special Interest Areas

Goal

To preserve and provide interpretation of unique geological, biological, and cultural areas for education, scientific, and public enjoyment purposes.

General Theme and Objectives

Unusual geological or biological sites and areas are preserved and managed for education, research, and to protect their unique character. Facilities and opportunities may be provided for public interpretation and enjoyment of the unique values of these sites and areas. The primary benefiting uses of these areas will be for developed and dispersed recreation, research, and educational opportunities. These areas will be designated by Regional Forester authority.

This Management Area contains a total of 16.9 M acres. 16 8 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 16.9 M acres were identified as not appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M1-1 Visitor use and activities will be managed to prevent degradation of the special interest resource.

M1-2 Facilities may be provided for protection of resource values, visitor use, environmental interpretation, or safety of visitors.

M1-3 Off-highway vehicles may be allowed on designated routes or within areas where their use is compatible with the purpose of the special areas Snowmobiles will be permitted where the depth of continuous snowcover is adequate to protect other resources from adverse impacts from this activity.

M1-4 Special Interest Management Areas will provide the recreation activity, setting, and experience opportunities of the Recreation Opportunity Spectrum category of either Roaded-Natural or Rural in the vicinity of interpretive complexes and access developments. All other lands within this Management Area will be managed to provide opportunities that are normally Roaded-Natural but can be Semiprimitive nonmotorized, whichever is appropriate to interpretation or maintenance of the character of the area.

Timber

M1-5 There will be no programmed timber harvest. Firewood cutting is normally not permitted but may be allowed as directed in individual special area plans.

M1-6 Timber harvesting and vegetative management will be allowed in catastrophic situations and when necessary to meet objectives of the Special Interest Management Area.

M1-7 Unneeded roads and skid trails will be closed and returned to a natural vegetative condition.

Range

M1-8 Where a special interest area is within an active allotment, domestic livestock may be permitted to utilize existing forage where this will not change the overall natural characteristics or conflict with the purpose of the area. Structural range improvements and vegetative manipulation will be permitted if they are consistent with the goals of the area.

Wildlife

M1-9 Manipulation of the game and fish habitat will be allowed as long as it maintains a natural appearance and does not conflict with the purpose or objectives of the area.

M1-10 Emphasis will be on habitat improvement for watchable wildlife.

Minerals

M1-11 Areas will be recommended for withdrawal from mineral entry for mining claims when it is determined that mining will not be compatible and cannot be mitigated to preserve special interest areas.

M1-12 Geothermal leases will be issued with No Surface Occupancy (NSO) Stipulations to protect the special interest area values.

Visual

M1-13 To the extent possible, the visual quality level indicated on the Visual Quality Objective Map will be met.

Transportation

M1-14 Trails can be provided Roads will be constructed only as needed to serve the management objectives of the Special Interest Management Area. Some roads may be closed to protect resource values Helispots are not normally compatible.

Fire Management

M1-15 *Special Interest Areas are divided into two* groups. (1) those in which protecting the vegetation is important and (2) those that are primarily geologic in nature and in which the vegetation may be treated the same as in the surrounding area. They are listed below:

Group 1: Lava Butte, Wake Butte, Moffitt Butte, Hosmer Lake, Davis Lake.

Group 2: Balancing Rocks, Lava Cast Forest, Lavacicle Cave, Katati Butte, Big Hole, Hole-in-the-Ground, Lava River Caves.

Wildfire

M1-16 All suppression entries should use low impact methods that are consistent with the Management Area direction.

Group 1:

These areas should receive aggressive suppression in all areas except the low visibility area in the lava at Lava Butte.

Group 2:

These areas should receive suppression emphasis which is compatible with the adjacent Management Area.

Prescribed Fire (Groups 1 & 2)

M1-17 Prescribed fire may be used to attain the *desired characteristics of the Special Interest* Management Area and to reduce fuels to their natural conditions. Any burning would be designed to create minimum impacts on the appearance or use of the area for its intended purpose.

Fuel Treatment Other Than Prescribed Fire (Groups 1 & 2)

M1-18 Fuels treatment methods should emphasize maintenance of the natural characteristics of the area.

Fuel loadings should be low enough to eliminate the possibility of high intensity fires while maintaining the natural characteristics of the area

Special Uses

M1-19 *Special uses may be authorized if they do* not detract from the values for which a special interest area is managed.

Forest Health

M1-20 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 2 Research Natural Areas

Goal

To preserve examples of naturally occurring ecosystems in an unmodified condition for nonmanipulative research and education.

General Theme and Objectives

Research Natural Areas (RNAs) are managed to preserve the natural ecological succession. All Establishment Reports for these areas must be approved by the Chief of the Forest Service.

Research on Research Natural Areas must be essentially nondestructive in character; destructive analysis of vegetation is generally not allowed nor are studies requiring extensive forest floor modification or extensive soil excavation. Collection of plant and animal specimens should be restricted to the minimum necessary for provision of vouchers and other research needs and in no case to a degree which significantly reduces species population levels. Such collection must also be carried out in accordance with applicable State and Federal agency regulations. In consultation with Forest Supervisors and District Rangers, the Director of the Pacific Northwest Forest and Range Experiment Station is responsible for approving management implementation plans and for overseeing and coordinating approved research on all research natural areas. District Rangers administer, protect, and manage established research natural areas and report through the Forest Supervisors to the Station Director any planned activities on, or immediately adjacent to, research natural areas.

The purpose of RNAs is to provide:

1. Baseline areas against which effects of human activities can be measured.

2. Sites for study of natural processes in undisturbed ecosystems.

3. Gene pool preserves for all types of organisms.

This Management Area contains a total of 5.7 M acres. 5.7 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a).

Standards and Guidelines

Recreation

M2-1 No physical improvements for recreation purposes such as campgrounds or buildings will be permitted.

M2-2 Picnicking, camping, collecting plants, gathering cones and herbs, picking berries, and other public uses will be allowed, though not encouraged, as long as they do not modify the area to the extent that such uses threaten impairment of research or educational values.

M2-3 The area will be closed to all off-highway motorized vehicle use if use of these vehicles threatens natural conditions.

Timber

M2-4 Timber harvesting is not allowed in a Research Natural Area. No control of insect or disease should be instituted.

M2-5 Firewood cutting is not permitted

M2-6 Timber harvesting will not be allowed in catastrophic situations.

Range

M2-7 Grazing will only be allowed when the Regional Forester and Director of the Pacific Northwest Forest and Range Experiment Station authorize such a management practice to preserve some representation of the vegetation for which the natural area was originally created.

M2-8 Where Research Natural Areas are located adjacent to or within grazing allotments, the boundaries will be marked and physical barriers constructed around the area to prohibit livestock entry, if needed.

M2-9 Vegetative manipulation will not be allowed in catastrophic situations.

Wildlife

M2-10 The Regional Forester and the Director of the Pacific Northwest Forest and Range Experiment Station may authorize management practices to control excessive non-game animal populations. This would only be done in cases where these populations threaten the preservation of some representation of vegetation for which the natural area was originally created

Minerals

M2-11 Areas are to be withdrawn for mineral entry for mining claims

M2-12 Geothermal leases will be issued with No Surface Occupancy Stipulations. Leases must be approved by the Experiment Station Director.

M2-13 Pits and quarries will require approval of the Experiment Station Director and the Forest Supervisor.

Visual

M2-14 Management activities and research facilities should meet the visual quality level on the Visual Quality Objective Map.

Transportation

M2-15 No new roads or trails will be permitted within these areas, except those considered essential to research, protection, or educational uses.

M2-16 Any transportation facilities such as roads and trails provided for in this Management Area will have minimum impacts on the area ecosystems and must be located and managed to best fulfill the area's management objectives. Management of the transportation facilities could include closing facilities to all but the designated research personnel. Helispots and special uses such as telephone lines are not allowed.

Fire Management

Wildfire

M2-17 Unless plans approved by the Station Director provide for letting natural fires burn, aggressive containment using low impact methods should be used. High impact methods will be used only to prevent a total loss of the Research Natural Area Mop up should be minimized with natural burnout being the preferred method.

Prescribed Fire

M2-18 Prescribed fire will be used only as specified in approved Research Natural Area management goals.

Fuel Loading

M2-19 Fuels will be allowed to accumulate at natural rates.

Special Uses

M2-20 Special Uses will be allowed if they they support the management objectives of the Area and are approved by the Experiment Station Director and the Forest Supervisor.

Forest Health

M2-21 Monitor the areas to detect pest problems which could destroy the Research Natural Areas or cause damage to adjacent lands Reintroduction of fire should be considered to reduce possible insect epidemic conditions.

M2-22 Action should be taken when the damage has the potential to modify ecological processes to the point that the area has little value for observation and research.

M2-23 Follow Forest-wide standards/guidelines for Forest Health

Management Area 3 Bald Eagle

Goal

Manage habitat to enhance the carrying capacity of bald eagles

General Theme and Objectives

Nesting habitat and foraging areas will be protected and enhanced. Suitable nesting sites will be provided on a continuing basis Old growth stands with large trees will be emphasized Human disturbance will be minimal during the nesting season.

This Management Area contains a total of 19.1 M acres. 1.6 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 17.5 M acres were identified as appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M3-1 Areas will be managed to provide dispersed recreation opportunities such as hiking, bird watching, and hunting that are compatible with maintaining desired populations of these wildlife species.

M3-2 Seasonal restrictions on recreational activities such as hunting, boating, and off-highway vehicles may be needed, but will be determined on a case-by- case basis. Developed recreation, such as campgrounds and resorts, is not compatible with the goals of this Management Area, and will not be authorized.

M3-3 This Management Area will generally provide the recreation opportunities of the Recreation Opportunity Spectrum category of the major adjacent Management Area. The appropriate category will be limited to either Semiprimitive Nonmotorized, Semiprimitive Motorized, or Roaded-Natural. (See Appendix 2 for an explanation of the categories.)

Timber

M3-4 Programed Timber harvest is allowed in this Management Area.

M3-5 Emphasis will be on maintaining forest stands dominated by Ponderosa pine and/or Douglas-fir. While some timber harvest is scheduled in this Management Area, it is only for the purpose of initiating long-term stand management to achieve eagle habitat objectives, and must be analyzed with a biological evaluation in a long-range management plan. Depending on site-specific conditions, either uneven-aged or even-aged timber management may be appropriate to maintain desirable tree species or stand structure composition

M3-6 Precommercial thinning under existing, and selected future, nest trees is an acceptable practice in maintaining tree vigor or reducing the threat of unacceptable bark-beetle damage. These actions may take place only after thorough analysis and long-range management planning within the NEPA process.

M3-7 Timber harvest will be allowed in catastrophic situations, and all efforts will be made to protect or create suitable eagle habitat during any harvest activities.

Range

M3-8 Range management practices (except predator control using baited traps or poison) can implemented in this Management Area.

M3-9 Vegetative manipulation will not be allowed in catastrophic situations.

Wildlife

M3-10 The area will be managed to maintain or establish habitat for the various species to meet the criteria outlined below.

M3-11 Protect all existing nest, roost, and perch trees. Provide large overmature trees that are potentially useable as nest sites and perch trees. Suitable trees should be available at any point in time to provide for the needs of the desired population, and widely distributed through the area to minimize territorial competition

M3-12 Suitable nest and perch trees should exceed 110 feet in height and be 40 inches or greater diameter at breast height (dbh). An average density of 3 such trees per acre is satisfactory. Preferred trees have an open, flat-topped form of large limbs, and are usually Ponderosa pine or Douglas fir. Sufficient smaller-sized trees of various diameters will be needed to perpetuate these larger trees

M3-13 Snags, and the live trees needed for future snags, will be maintained for 60 percent of the maximum potential population of primary cavity-nesting birds, except where eagle management goals would be jeopardized. This would be accomplished using the Deschutes National Forest Wildlife Tree Implementation Plan Large-diameter snags are especially desirable as both nesting habitat for cavity-nesting animals and perch trees for eagles.

M3-14 Active nest sites will be protected from disturbing human activities during the nesting season, and key feeding areas or roosts may also require activity restrictions.

M3-15 Disturbing activities within 1/4 mile (1 mile for the use of explosives) of an active nest will be restricted between January 1 and August 31.

M3-16 A nest site will be considered inactive if not occupied by May 15

Minerals

M3-17 These areas are open to mineral entry for mining claims.

M3-18 Eagle areas will be issued with Conditional Surface Use and Seasonal Restriction Stipulations.

M3-19 Seasonal operation restrictions may be placed on mining activities in pits and quarries

Visual

M3-20 Management activities will meet Modification or a higher objective. Activities may include timber harvest, trail construction, prescribed burning or artificial nest construction Activities will be visible, but will blend in with the natural surroundings

Water

M3-21 During extended and severe drought the U S F.S. will work closely with the Water Master to maintain minimum pool levels in Crane Prairie and Wickiup Reservoirs which are important nesting and food sources for bald eagles.

Fuelwood

M3-22 No fuelwood gathering is permitted during active nesting season Down material may be gathered out of nesting season.

Transportation

M3-23 Road networks will be designed to facilitate easy control of access during nesting season. Road closures can be used to limit disturbing human activity. Transmission corridors requiring significant right-of-way clearing will not be permitted

M3-24 Road management will minimize public disturbances within 1/4 mile of active nests from 1/1 through 8/31, to prevent disruption of nesting activities. Additional measures may be needed to prevent disturbance to juveniles from 9/1 to winter departure Road closures (gates or blockage/ obliteration) are needed to restrict public access to the feeding area along Browns Creek at the Sheep Bridge fall kokanee spawning stream and along the west side of Wickiup Reservoir from 9/15 until freeze over (Purpose: to allow full use of food supplies).

M3-25 During the period in late winter and early spring when eagles are present at the nest, snowmobile use should be discouraged within 1/4 mile of the nest Snowmobile trails should be located at least 1/4 mile away from nests or where visibility of the nest is reduced Explanatory signing

of closures should refer generically to "wildlife" rather than specifically to eagles.

Fire Management

Wildfire

M3-26 Protection of nest trees and adjacent snags will be the highest priority in this area. Suppression efforts, if within 1/4 mile of an active nest during the nesting season (January 1-August 31), will be based on minimizing the disturbance time to the nesting eagles. The use of mechanized equipment such as chainsaws and pumps to reduce the exposure time is acceptable, however, the use of helicopters and aerial retardants should be undertaken with caution near active nest sites.

M3-27 Low intensity fires outside the nesting season do not conflict with the habitat objectives. In high intensity fire situations the objective will be *to minimize acres burned. The use of heavy* equipment and retardant aircraft is acceptable. Fire camps should be located at least 1 mile from active nests.

M3-28 Standard suppression efforts may be used during the non-nesting season but with increased emphasis on saving large snags.

M3-29 Maximum low intensity burn acre objectives are 10 acres/year and 1 acre per occurrence.

M3-30 Maximum high intensity burn acre objectives are 5 acres/year and 1 acre per occurrence.

Prescribed Fire

M3-31 The use of prescribed fire will be appropriate in Ponderosa pine stands. Burns during the nesting season should be restricted to areas at least one quarter mile away from active nests.

M3-32 In Eagle Management Areas that are not *in Ponderosa pine stands, prescribed fire will not* improve eagle habitat.

Fuels Management

M3-33 No fuels management projects should be conducted within 1/4 mile of active nests during the nesting season.

Fuel Loading

M3-34 Fuel loading should be kept at a level or arranged to minimize the chances of a large *catastrophic fire. Loading will usually be the same* as for the General Forest Management Area or the surrounding Management Area, if there is a conflict. Preserve all snags, which have a d.b.h of over 20 inches, within 1/4 mile of any nest.

Optimum fuel loading will be guided by the following photo series.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC	2-LP-3-PC	2-MC-4-PC
	2-LP-3-PC		2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Special Uses

M3-35 Special Uses will be allowed if the bald eagle can be protected.

Forest Health

M3-37 *Suppress forest pests when they have the* potential to, or are, impacting that component of the vegetation which is essential for nesting and rearing habitat

M3-38 *Follow Forest-wide standards/guidelines* for Forest Health.

Management Area 4 Spotted Owl

Goal

Manage habitat to enhance the carrying capacity for Northern Spotted Owls

General Theme and Objectives

Nesting habitat and foraging areas will be protected and enhanced. Suitable nesting sites will be provided on a continuing basis and spaced to prevent territorial competition. Old growth stands with large trees will be emphasized. Human disturbance will be minimal during the nesting season.

This Management Area contains 10 spotted owl habitat areas. Four SOHAs, which are also part of the Forest Network, are addressed in Management Area 25, Metolius Spotted Owl.

This Management Area contains a total of 12 0 M acres 5 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 12.0 M acres were identified as not appropriate for timber production for this Management Area Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M4-1 Areas will be managed to provide dispersed recreation opportunities such as hiking, bird watching, and hunting that are compatible with maintaining desired populations of these wildlife species

M4-2 Seasonal restrictions on recreational activities such as hunting, boating, and off-highway vehicles may be needed, but will be determined on a case-by-case basis Developed recreation, such as campgrounds and resorts, is not compatible with the goals of this Management Area, and will not be authorized. Existing sites may continue operation, but will not be expanded.

M4-3 This Management Area will generally provide the recreation opportunities of the Recreation Opportunity Spectrum category of the major adjacent Management Area. The appropriate category will be limited to either Semiprimitive Nonmotorized, Semiprimitive Motorized, or Roaded-Natural. *(See Appendix 2 for an explanation of the categories)*

Timber

M4-4 There will be no programed timber harvest. Timber harvesting will be allowed as a result of catastrophic situations as long as spotted owl habitat is the primary consideration in carrying out such activities.

Range

M4-5 Vegetative manipulation for livestock forage improvement will not be allowed in these areas

M4-6 Grazing, which is currently allowed due to existing allotments, will be allowed as long as it remains compatible with the primary objectives of the Spotted Owl Habitat Areas (SOHAs). The use of existing allotments is minimal because the forage characteristics found in the SOHAs are not of high value to livestock.

Wildlife

M4-7 For each of 8 locations managed for spotted owls, an area containing approximately 1,500 acres of suitable old growth forest habitat will be reserved to provide an owl pair with the resources required for breeding, feeding, and resting throughout the year Collectively, these areas are designated the Spotted Owl Habitat Area Network. Some SOHAs contain significantly more than 1,500 acres because they are key links, in terms of their location or above-average owl reproduction rate, in the Network.

M4-8 This habitat is delineated within a 1.5 mile radius of the known or suspected nest site, or center of activity if the nest site is unknown. Some Spotted Owl Habitat Areas include suitable habitat

outside the 1.5 mile radius because insufficient suitable habitat exists to provide 1,500 acres within this limitation.

M4-9 Modifications to the Spotted Owl Habitat Area Network may be considered on a case-by-case basis after consultation with the Regional Office.

M4-10 A network of 8 areas suitable for spotted owl occupancy is established. This network provides habitat for the continued existence of well-distributed breeding pairs throughout their existing range and over time. A large percentage of these 8 areas is intended for occupancy by breeding pairs, with the remaining areas, presumably containing insufficient habitat for successful breeding, being available for juvenile dispersal or adult recruitment from adjacent areas.

M4-11 One additional pair of spotted owls included in the Forest Network is found within the Mt. Jefferson Wilderness (Appendix 4). Yet another pair is located in the Oregon Cascades Recreation Area (Management Area 14). Four SOHAs are located in Metolius Management Area 25. The Forest Network totals 14 pairs.

M4-12 Stand structure identified as providing habitat for spotted owls contains: (1) multiple layers of trees with an overstory, midstory, and understory of moderate to high canopy cover; and (2) large trees with cavities, broken-tops, and platforms of branches holding accumulated organic matter suitable for nesting; and (3) standing dead trees and fallen decayed trees providing habitat for an abundance of prey animals like flying squirrels and wood rats. Vegetation types may include mixed conifer forest (CW, CD, & CR), Engelmann spruce bottomlands (CW-S9-11), and mountain hemlock forest (CM).

M4-13 Studies should be initiated to validate the extent and importance of habitat actually used by owl pairs. Research should evaluate what management actions are necessary to maintain habitat suitability over the very long-term.

Minerals

M4-14 These areas should be recommended for withdrawal for mineral entry for mining claims.

M4-15 Geothermal leases in spotted owl habitat areas will be issued with No Surface Occupancy (NSO) stipulations.

M4-16 No pits or quarries will be allowed in this Management Area

Visual

M4-17 Management activities will meet Modification or a higher objective. Activities may include timber harvest, trail construction, prescribed burning or artificial nest construction. Activities will be visible, but will blend in with the natural surroundings.

Fuelwood

M4-18 No fuelwood gathering is permitted.

Transportation

M4-19 Road networks will be designed to facilitate easy control of access during nesting season. Road closures can be used to limit disturbing human activity.

M4-20 Existing roads at the boundaries of Spotted Owl Management Areas, and State Highway 242 and Forest Road 2022 which are within Spotted Owl Management Areas, may be cleared up to 200 feet from the centerline of the road

M4-21 Road management to restrict public access within 1/4 mile of active nests during 3/1 through 7/31 may be needed (Purpose: to prevent disruption of nesting activities).

Fire Management

Wildfire

M4-22 Fire suppression activities will meet the following burn objectives.

M4-23 Maximum annual low intensity burn acre objectives for each area are 1 percent.

M4-24 Maximum annual high intensity burn acre objectives for each area are .3 percent.

M4-25 Selection of appropriate suppression techniques for use in designated Wilderness must weigh the sovereignty of Wilderness values against the long-term viability of the spotted owl habitat area network, and should be evaluated in the Escaped Fire Situation Analysis.

Prescribed Fire

M4-26 Prescribed burning may be used to treat unacceptably hazardous fuel loading.

Fuel Treatment Other Than Prescribed Fire

M4-27 All methods are acceptable.

Special Uses

M4-28 Special Uses will be allowed if the spotted owl can be protected.

Forest Health

M4-29 Suppress forest pests when they have the potential to, or are, impacting that component of the vegetation which is essential for nesting and rearing habitat.

M3-30 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 5 Osprey

Goal

Manage the habitat to enhance the carrying capacity for osprey.

General Theme and Objectives

Nesting areas and foraging areas will be protected and enhanced. Osprey habitat will contain numerous trees and snags suitable for nesting. Stands will be managed so that suitable nesting sites are available on a continuing basis and spaced to minimize territorial competition. Human disturbance will be minimal during the nesting season.

This Management Area contains a total of 8.1 M acres. 4.4 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 4.4 M acres were identified as not appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M5-1 Area will be managed to provide dispersed recreation opportunities such as hiking, bird watching, and hunting that are compatible with maintaining desired populations of these wildlife species.

M5-2 Seasonal restrictions (April 1 - August 31) on recreational activities such as hunting, boating, and off-highway vehicles may be needed, but will be determined on a case-by-case basis. Developed recreation, such as campgrounds and resorts, is not compatible with the goals of this Management Area, and will not be authorized. Existing sites may continue operation, but will not be expanded.

M5-3 This Management Area will generally provide the recreation opportunities of the Recreation Opportunity Spectrum category of the major adjacent Management Area. The appropriate category will be limited to either Semiprimitive Nonmotorized, Semiprimitive Motorized, or Roaded-Natural. (See Appendix 2 for an explanation of the categories.)

Timber

M5-4 While some timber harvest is scheduled in this Management Area, it is only for the purpose of initiating long-term stand management to achieve osprey habitat objectives. Uneven-aged timber management will be the normal silvicultural system, except in lodgepole pine forest where even-aged management may be more appropriate. Prescriptions should provide for future nesting sites and trees.

M5-5 Active nest sites will be protected from disturbing human activities during the nesting season. Disturbing human activities within 1/4 mile (1 mile for the use of explosives) of an active nest should be restricted between April 1 and August 31. A nest site may be considered inactive for the year if nesting activity is not evident by May 15.

M5-6 Timber harvesting will be allowed in catastrophic situations.

Range

M5-7 Range management practices (except predator control using baited traps or poison) can implemented in this Management Area.

M5-8 Vegetative manipulation will be allowed in catastrophic situations.

Wildlife

M5-9 Protect all existing nest sites and associated perch trees Manage forested stands to maintain the character of a forest with relatively open overstory and fully-stocked understory. Single-aged stands are acceptable in lodgepole pine forest. Provide some trees (Ponderosa pine is the preferred species) with dead or dying tops. Such trees should be provided at an average rate of 2

per acre. Allow enough nesting sites to provide for the population being managed.

M5-10 With many nest sites being lost to natural causes, an artificial nesting structure program may be required.

M5-11 Snags, and the live trees needed for future snags, will be maintained for 60 percent of the maximum potential population of primary cavity-nesting birds, except where osprey management goals would be jeopardized. This will be accomplished using the Deschutes National Forest Wildlife Tree Implementation Plan.

M5-12 Active nest sites will be protected from disturbing human activities during the nesting season. Disturbing human activities within 1/4 mile (1 mile for the use of explosives) of an active nest should be restricted between April 1 and August 31. A nest site may be considered inactive for the year if nesting activity is not evident by May 15

Minerals

M5-13 These areas are open to mineral entry for mining claims.

M5-14 Osprey areas will be issued with Conditional Surface Use and Seasonal Restriction Stipulations.

M5-15 Seasonal operation restrictions may be placed on mining activities in pits and quarries.

Visual

M5-16 Management activities will meet Modification or a higher objective. Activities may include timber harvest, trail construction, prescribed burning or artificial nest construction. Management activities will meet the mapped Visual Quality Objective for the Preferred Alternative.

Water

M-17 During extended and severe drought the U.S.F.S. will work closely with the Water Master to maintain minimum pool levels in Crane Prairie and Wickiup Reservoirs which are important nesting and food sources for osprey.

Fuelwood

M5-18 No fuelwood gathering is permitted during active nesting season. Down material may be gathered out of nesting season

Transportation

M5-19 Road networks will be designed to facilitate easy control of access during nesting season. Road closures can be used to limit disturbing human activity. Transmission corridors requiring significant right-of-way clearing will not be permitted.

M5-20 Road management may be needed to restrict public access to nesting areas during 4/1 through 8/31 (Purpose: to prevent disruption of nesting activities).

Fire Management

Wildfire

M5-21 Protection of nest trees and adjacent perch trees will be the highest priority.

M5-22 During the nesting season (April 1 to August 31) suppression efforts will minimize the time the osprey may be forced away from the nest. The use of powersaws and pumps is compatible with the objective of rapid suppression and removal of distractions from the area. Outside of the nesting season suppression efforts can be conducted in a standard manner.

M5-23 High intensity fires should be aggressively controlled. The objective is to minimize the acres burned and to protect the nest and perch trees. Fire camps should be located at least 1 mile outside active nesting areas

M5-24 Maximum low intensity burn acre objectives are 10 acres per year and 5 acres per occurrence.

M5-25 Maximum high intensity burn acre objectives are 1 acre per year and 1 acre per occurrence.

Prescribed Fire

M5-26 Prescribed fire will not normally benefit this resource. Fuels reduction may be better handled by silvicultural entries and slash cleanup.

Fuels Management Practices

M5-27 Fuels management activities may be conducted from September through March.

Fuel Loading

M5-28 Fuel loading should be kept at a level or arranged to minimize the chances of a large catastrophic fire. Loading will usually be the same as for the General Forest Management Area or the surrounding Management Area, if there is a conflict.

The following photo series will be used.

	PP	LP	MC-MH
Thinning	1-MC-3-PC	1-MC-3-PC	1-MC-3-PC
	4-PP-1-TH	1-PP-1-TH	1-PP-1-TH
Partial Cut	4-TF-4-RC	2-LP-3-PC	2-MC-4-PC
	2-LP-3-PC		2-TF-4-RC
Clearcut	2-MC-4-RC	1-LP-3-CC	3-TF-4-RC
	1-LP-3-PC		2-MC-4-RC

They are found in "Photo Series for Quantifying Forest Residues", a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Special Uses

M5-29 Special Uses will be allowed if the osprey can be protected.

Forest Health

M5-30 Suppress forest pests when they have the potential to, or are, impacting that component of the vegetation which is essential for nesting and rearing habitat.

M5-31 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 6 Wilderness

Goal

To feature naturalness, opportunities for solitude, challenge, and inspiration, and within these constraints to provide for recreational, scenic, scientific, educational, conservation and historical uses

Permitted but nonconforming uses specified in the Wilderness Act of 1964, will be carried out under restrictions designed to minimize their impact on the Wilderness. The decisive criteria in all conflicts will be to preserve and protect the Wilderness character of the resource.

General Theme and Objectives

Wilderness exemplifies freedom, but is defined more by the absence of human impact than by an absence of human control. Management therefore will seek to minimize the impact of use A high priority, however, will be placed on permitting as much freedom from regimentation as possible while preserving the naturalness of the Wilderness resource and the opportunity for solitude, primitive recreation, scenic, scientific, and historical values

In working towards this goal, a nondegradation policy of management shall be followed. The nondegradation policy recognizes that in Wilderness one can find a range of natural and social settings from the most pristine to those where naturalness and opportunities for solitude have been diminished by established uses. It is the intent of this policy to assure that appropriate diversity and existing Wilderness character are maintained. Furthermore, the wildest areas of a Wilderness will not be allowed to deteriorate to a lesser standard of naturalness to disperse and accommodate more use. Management will seek to maintain each Wilderness in at least as wild a condition as it was at the time of its classification. Certain areas may need rehabilitation to reestablish basic wilderness values.

Wilderness areas shall be managed to enhance the Wilderness resource This includes the opportunity for solitude, physical and mental challenge, inspiration, experiencing a distinctive environment, and maintaining the Wilderness characteristics of the lands including wildlife habitat for species preferring isolation from human disturbance (e.g. wolverine), or undisturbed mature forest for old growth associated species (e.g. spotted owl).

This Management Area contains a total of 181.3 M acres. 181 3 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a).

Prescription

Wilderness standards/guidelines contained in this section are general and apply to all Wilderness on the Forest. More specific direction is contained in individual Wilderness management plans in Appendix 4.

Wilderness Resource Spectrum (WRS)

This Plan recognizes that different areas within Wilderness can and should provide different opportunities and experiences Therefore, each Wilderness has been divided into zones called Wilderness Resource Spectrum (WRS) Zones. Each zone has its own definition and set of management objectives that will make it distinct from the other zones. The WRS zones are:

Semi-Primitive Zones:

Area Characteristics· This area is characterized by predominately unmodified natural environment of moderate 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 may be present but are subtle Facilities are only provided for the protection of Wilderness resource values rather than visitor comfort or convenience Materials should be natural or natural appearing

Some relatively small transition zones may also exist adjacent to the semi-primitive zone. These areas are usually near heavily used trailheads and receive predominantly day use at a level slightly greater than that within the semi-primitive zone. The transition zone is not intended to be a permanent part of the WRS. The long term objective

is to manage these areas so that they regain the characteristics of the semi-primitive zone.

Experience Opportunity: Moderate opportunities for exploring and experiencing isolation (from the sights and sounds of people); independence; closeness to nature; tranquility and self-reliance through the application of no-trace and primitive skills in a natural environment that offers a moderate to high degree of challenge and risk.

Primitive Zone:

Area Characteristics: This area is characterized by essentially unmodified natural environment. Concentration of users is low and evidence of human use is minimal.

The area is managed to be essentially free from evidence of human-induced restrictions and controls. Only essential facilities for resource protection and safety are used and are constructed of native or natural appearing materials. No facilities for comfort or convenience of the user are provided. Visitors are encouraged to disperse to desirable existing sites to minimize contacts with other groups.

Experience Opportunity: High opportunity for exploring and experiencing considerable isolation, solitude, and self-reliance through application of primitive recreation skills in an environment that offers a high degree of challenge and risk.

Pristine Zone:

Area Characteristics: This area is characterized by an extensive unmodified natural environment. Natural processes and conditions have not and will not be measurably affected by the actions of users. The area is managed to be as free as possible from the influence of human activities. People are only brief visitors. Essentially no facilities are required to protect the Wilderness resource. Terrain and vegetation allow extensive and challenging cross-country travel.

Experience Opportunity: Provides the most outstanding opportunity for isolation and solitude, free from evidence of past human activities and with very infrequent encounters with other users. The user has outstanding opportunities to travel cross-country utilizing a maximum degree of primitive skills, often in an environment that offers a high degree of challenge and risk.

Standards and Guidelines

Social Setting Objectives

M6-1 Each WROS Zone is to be managed for different social objectives.

M6-2 Encounters. Encounters with other groups should be limited to no more than 10 encounters per day in the Semiprimitive (Transition) Zone, 7 encounters per day in the Primitive Zone, and 1 encounter per day in the Pristine Zone. These standards should be met 80 percent of the time.

M6-3 Group Size. Group size should be limited to no more than 12 people and 12 head of stock. Larger groups of up to 12 people and 18 head of stock may be allowed by permit in areas specified in Wilderness Plans. LAC data for areas designated for larger parties should show an ability to withstand the additional impacts. Twelve person party size will be the maximum in pristine areas.

M6-4 Campsites. Camps should be separated from other campsites and set back from trails, meadows, lakes, and streams at least 100 feet. No more than two other camps should be visible in the Semiprimitive (Transition) Zone, one in the Primitive Zone, and no other camps should be visible in the Pristine Zone.

Regulations

M6-5 Only the minimum regulation necessary to achieve Wilderness management objectives will be applied.

Motorized and Mechanized Equipment

M6-6 Use of motors or mechanized equipment is 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 limited situations.

Administrative Use

M6-7 Administrative groups, such as Forest Service personnel, will generally conform to the same standards and regulations established for other user groups.

State Laws

M6-8 The Forest will use air quality, water pollution, noise, and other standards established in State of Oregon law for Wilderness (Memorandum of Agreement between the U.S Forest Service, PNW Region, and the State of Oregon Department of Environmental Quality of October 18, 1972)

Information and Education

M6-9 Information and Education efforts will be oriented towards enhancing a visitors wilderness experience but will de-emphasize Wilderness *areas or attractions that are receiving use that* threatens their Wilderness values.

M6-10 Priorities for information and education efforts are to:

Encourage behavior which protects Wilderness resources such as the "no-trace" message.

Inform visitors of alternate areas to visit that will satisfy their needs

Inform users of Wilderness management goals and objectives

Explain various management actions (i.e., sign removal, trail construction, trail maintenance standards, etc)

M6-11 Visitor Contacts: Most personal contacts of Wilderness users will be outside the Wilderness. When contacts are made inside the Wilderness they will be to emphasize specific resource needs, or visitor conduct problems.

M6-12 Signs and Maps: Wilderness signing will be reduced by providing high quality maps, or assisting the private sector in producing accurate maps of each Wilderness. Trailhead information centers will also provide important educational and management information.

M6-13 Scientific and Research Programs: 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.

Administrative Coordination

M6-14 Forest Service Coordination: Each Wilderness will be managed as a single unit regardless of administrative boundaries

M6-15 Periodically, at least on an annual basis, meetings will be held between adjacent Forests administering the same Wilderness The purpose will be to:

* Maintain continuity and consistency in Wilderness management decisions
* Review and discuss priorities for the use of *available resources, both money and people.*
* Review trail maintenance schedules.
* Review outfitter/guide permit administration.
* Coordinate joint training of Wilderness management personnel to achieve consistency in public contact, program accomplishment, and law enforcement

M6-16 Cooperation with Other Agencies The Forest Service will develop a cooperative process which allows other agencies, such as the Oregon Department of Fish and Wildlife, to meet their responsibilities within Wilderness while meeting the management objectives of the area.

M6-17 Search and Rescue. The County Sheriff's have the responsibility for search and rescue of lost or injured visitors. The Forest will provide assistance, within its capacity, when requested by the County Sheriff The use of motorized equipment for search and rescue operations within Wilderness must be approved in advance by the Forest Supervisor Approval is normally given on a case-by-case basis.

M6-18 Structures: Construction of facilities will be avoided. Facilities may be allowed only when needed to attain Wilderness objectives and after

rigorous analysis. They will be designed and placed to minimize their intrusion upon the Wilderness setting and will not be for the comfort or convenience of the users.

M6-19 Toilets: Toilets, generally of the primitive type may be provided but only for the protection of Wilderness values and where there is a distinct hazard to health and safety, and other management techniques have proved ineffective. Toilets should not be used in the primitive WROS zone.

Activities

M6-20 Wilderness Dependent Activities: When conflicts develop between Wilderness activities they will be resolved in favor of those activities (1) that will least alter the Wilderness environment, and (2) that are most dependent upon the Wilderness environment. Some activities may be restricted or controlled to preserve the opportunities for solitude and primitive recreation experiences.

M6-21 Contests, races, promotions, or fund raisers of any kind will not be permitted in Wilderness. This includes foot races, competitive trail rides, survival contests, military exercises, and other similar activities.

Capacity

M6-22 Regulations, 36 CFR 219.18 (a), require that Wilderness management plans will "provide for limiting and distributing visitor use of specific areas in accord with periodic estimates of maximum levels of use that allow natural processes to operate freely and that do not impair the values for which wilderness areas were created."

M6-23 Capacity estimates for each Wilderness have been developed and they are contained in the Wilderness Plans (Appendix 4). These figures represent the best estimates available at this time. The numbers, however, will be modified according to Limits of Acceptable Change data trends.

Limits of Acceptable Change: Forest Service Researchers and managers have developed a system for establishing Wilderness capacity called the Limits of Acceptable Change (LAC). (The Limits of Acceptable Change system for Wilderness planning, Intermountain Forest and Range Experiment Station, 507 25th Street, Ogden, Utah., George H. Stankey. Also: Limits of Acceptable Change: A new Framework for Managing the Bob Marshall Wilderness Complex," George H Stankey, Stephen F. McCool, Gerald L. Stokes, from Western Wildlands, Fall 1984). This concept recognizes that change is natural and seeks to ask the question "how much change is acceptable". The system also recognizes that much of the impact of Wilderness use is not simply the result of too many people, but rather the kind of use, human behavior, the timing and distribution of use.

The number of users is not always directly related to the amount of impact. A little use in a previously undisturbed area may cause significant changes, while a lot more use in an already disturbed area often causes only a little more impact.

M6-24 The Forest will continue to utilize an LAC approach in establishing Wilderness capacity. Physical/Biological, social,and managerial standards and guidelines are provided in Regional Supplements under FSM 2322, in individual area management plans, the appendix to this plan, and in the Land Management Plan for the Willamette National Forest for Wilderness which extends across the National Forest boundaries.

M6-25 When wilderness use results in impacts which exceed Wilderness LAC Standards and Guidelines or the numbers established in Appendix 4, the following corrective actions or sequence of actions will be taken.

First Level Action - Public Information and Education

M6-26 This level of action will be accomplished by the following methods:

Deemphasize attraction of excessively used areas, promote use of alternative non-wilderness areas

Inform public (public service media messages, portal notices, personal contact) of the type of campsite and the characteristics of sites they want to avoid or, to be more positive, the types of sites they should seek.

Adjust or remove administrative and informational signing.

Emphasize "no-trace camping".

Remove or reduce any facilities contributing to concentration of use beyond capacity.

Decrease or reduce accessibility.

If fishing is attracting excessive use to an area, coordinate with Oregon Department of Fish and Wildlife to determine if adjustments in the fish management program could reduce impacts.

Restrict commercial outfitter guide use of area.

Second Level Action - Use of Regulations and Site Restoration

M6-27 If the first level actions are unsuccessful, restrict activities by regulation. Possible additional actions:

Limit or ban campfires

Limit group size.

Designate campsites, restrict use at undesignated sites.

Require minimum spacing between campsites.

Impose a distance setback of campsites from water and trails.

Restrict types of use in the area or on trails leading to it, i.e., restrict overnight or horse use.

Limit length of stay.

Close revegetated campsites.

Close the area to overnight use by commercial outfitter guides, and limit their day use.

Limit the number of entries into the wilderness, including day use and overnight use.

Require permits for entry.

Restrict camping.

Second level actions may require approval of the Forest Supervisor or Regional Forester. There should be agreement on these actions between Forests if the area is influenced by people from both Forests.

Vegetation

M6-28 Natural ecological processes of plant succession will be emphasized. This includes those ecological systems dependent on the natural role of fire.

M6-29 Live trees may be utilized for administrative purposes such as trail bridges. Location of cut trees will be out of sight from common travelways or camping areas.

M6-30 Wood fires or firewood gathering may be prohibited in areas where demand for firewood is exceeding local supply and noticeable impacts from firewood gathering are degrading the Wilderness resource.

M6-31 Dead standing and down vegetation shall be managed to approximate natural conditions.

M6-32 Revegetation of impacted areas will be as follows:

M6-33 Revegetation projects shall be undertaken only where the use patterns which caused the loss of vegetation can be modified This is essential to assure success of the rehabilitation work.

M6-34 Only native species will be used for site revegetation.

M6-35 Areas to be revegetated may be closed until they are considered reestablished. Temporary signing or fencing may be used if absolutely needed.

M6-36 Revegetation work should be achieved in a manner which best meets the needs of an individual site. Work can be accomplished using the following procedures singly or in combination:

Rest only (eliminating use for a period allowing natural revegetation to occur)

Rest, seedbed preparation, natural revegetation (seedbed preparation by disturbing the ground surface, i e., spading).

Rest, seedbed preparation, planting (use only native species).

Fertilizer may be used on a limited basis to stimulate initial growth.

Livestock

M6-37 Domestic Livestock: Grazing of domestic livestock, other than for recreation purposes, will be permitted in only those portions of the Wilderness where grazing was established prior to the area's Wilderness designation.

M6-38 Range allotment plans will specify requirements and actions needed to meet Wilderness objectives.

M6-39 Permittees will be encouraged to install and replace range improvement and range management facilities by utilizing native material when practical.

M6-40 Recreation Livestock: Grazing of recreational stock is permitted. Tied, picketed, hitched, or otherwise confined stock must be at least 200 feet from ponds, lakes, springs, streams, trails camps, and other high interest areas. Use of pelletized feed and tethering of stock away from water, travel routes, and critical areas are actions that may be required.

M6-41 Dogs: Dogs should be under reliable voice control and/or physical restraint to protect both people and wildlife.

Soil and Water

M6-42 Naturally occurring erosion processes will be allowed to continue unless they intolerably impact other Wilderness resources or resources outside the Wilderness.

M6-43 Accelerated loss of surface soils due to visitor use should be corrected using native materials and vegetation and then limited to a rate that approximates the natural process.

M6-44 New trails will be located, and existing trails may be relocated, to avoid sensitive and wet soil areas, such as in meadows, lake shorelines, and riparian areas.

M6-45 Soil compaction shall not exceed limits which will prevent natural plant establishment and growth except at designated camps, administrative sites, and trails.

M6-46 Wilderness use which is impacting water quality will be controlled or eliminated.

M6-47 No efforts to increase natural water yields by modifying plant cover or the soil mantle will be permitted.

M6-48 There are no dams under special-use permit or other authority in any Wilderness on the Deschutes National Forest and no permits are pending. No dams will be permitted unless approved by the President of the United States.

Roads and Helispots

M6-49 Roads are not permitted within the Wilderness. Existing roads will remain closed and be allowed to return to their natural condition.

M6-50 Construction of new roads or upgrading of existing roads outside the Wilderness may alter existing wilderness use patterns. Appropriate actions will be included in project plans to mitigate any adverse impact on the Wilderness.

M6-51 Permanent helispots utilizing natural openings may be permitted when approved by the Forest Supervisor. These helispots will not be shown on recreation maps or marked on the ground. They may however, be shown on District maps intended primarily for in-house use.

Trails

M6-52 Trails will provide users with opportunities to test skills, experience physical exertion and accomplishment.

M6-53 Trails may be constructed and maintained:

For safety of visitors,

To minimize or prevent resource damage, and

As legislatively directed.

M6-54 Trails will be designed, constructed, or relocated to the minimum standard needed to achieve their purpose. Trails will be located so they take the greatest advantage of environmental features the area has to offer. Most trails will receive Level II maintenance The Pacific Crest National Scenic Trail will be maintained at Level III.

M6-55 The adequacy of each trail system within each Wilderness will be assessed to determine its effectiveness in meeting Wilderness objectives. Corrective action will be implemented when any impact is intolerable or beyond that necessary to accomplish the purpose of the trail system.

M6-56 Trail systems will normally not be expanded into currently untrailed areas that are providing opportunities for solitude and primitive recreation. Exceptions must be approved by the Forest Supervisor.

M6-57 A range of trail travel opportunities for horse and hiker will be maintained as necessary to accommodate the acceptable use. Parallel hiker/horse trails will not be provided.

M6-58 Use of native, local materials will be emphasized in trail construction and maintenance.

M6-59 Bridges and culverts will not be installed for visitor convenience, but may be installed for safety or resource protection needs.

M6-60 Trails should follow the natural contours of the land to the extent feasible, and result in minimum disturbance to soil and ground cover.

M6-61 Trailside snags will normally not be felled unless they present a definite and immediate safety hazard.

Pacific Crest National Scenic Trail Management (Wilderness Segments):

M6-62 The Pacific Crest National Scenic Trail (PCNST) will be managed to meet Wilderness objectives where it traverses Wilderness areas.

M6-63 Carrying Capacity: Carrying Capacity will be estimated and monitored to determine if resource objectives are being met. (Refer to specific Wilderness management plans within the Forest Plan.)

M6-64 Overuse: As use levels approach or exceed LAC Standards or carrying capacity estimates the Forest will consider the need for specific controls.

M6-65 The goal will be to apply the minimum level of regulation needed to accomplish the objectives for the area.

M6-66 Winter Use: Cross-country skiing and snowshoeing will be accommodated where practical and feasible.

M6-67 Trail Relocation: All permanent trail location must be approved by the Chief of the Forest Service

M6-68 Additional Pacific Crest Trail management guidelines can be found in the Pacific Crest National Scenic Trail Comprehensive Plan (1/18/82).

Signs

M6-69 Signing will not be provided for visitor convenience or for interpretation within Wilderness boundaries. Such signing may be appropriate at trailheads or on routes leading into the Wilderness. The information may also be provided on maps or in other printed materials

M6-70 Directional signing may be placed at trail intersections. This signing with minimal exceptions will indicate a destination point such as a landmark or special attraction such as a lake. Wherever possible, excessively used areas will not be indicated Distances to destination points will not be included on signs within the Wilderness, but may be indicated on signs at locations outside of the Wilderness A maximum of two directional signs with the two destinations each will be placed at trail junctions.

M6-71 Regulatory or informational signs may be used in situations where control of excessive resource damage is needed and other corrective actions are unsuccessful Only the minimum number of signs needed will be installed

M6-72 The Regional standard for sign motif (color, lettering, and design) for Wilderness will be used for all Wilderness signs

M6-73 Sign backboards will be mounted on trees whenever possible.

Fire Management

M6-74 Fire, or its absence, has been a major influence on natural life systems. Natural fire has been a part of the ecology of the Wilderness since creation, and man's efforts to ban this agent may have resulted in significant ecological changes in the flora and fauna of some areas. To assure that fire plays a more natural role in the ecology of the area, all fires accidentally started by human activity will be declared a wildfire and suppressed However, lightning caused fires that meet pre-planned prescription parameters, outlined in the Fire Management Action Plan, may be managed as a prescribed fire.

M6-75 Fire management activities within Wilderness will be compatible with overall Wilderness management objectives. Preference will be given to methods and equipment that cause the least:

Alteration of the Wilderness landscape.
Disturbance of the land surface.
Disturbance to visitor solitude.
Reduction of visibility during periods of visitor use.
Adverse effects on other air quality related values.
Disturbance to spotted owl nest sites.

Prescribed Fire

M6-76 The Wilderness will be evaluated to determine if prescribed burning is needed to maintain or reestablish natural ecosystems particularly those dependent on the occurrence of fire.

M6-77 Fuel accumulations should be allowed to develop at naturally occurring levels for each individual ecosystem. This will allow for varying fuel levels over time due to the effects and recovery from fire. Where fuel accumulations exceed naturally occurring levels prescribed fire will be considered to reduce them to a more natural level.

Commercial Use

M6-78 In addition to the direction contained in the "Forest-wide standards/guidelines for Recreation Special Uses", the following direction applies specifically to 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."

Wilderness will be managed to offer recreationists the maximum contrast to their everyday civilized environment. Further, wilderness offers outstanding opportunities for challenge, for taking risks, to recreate in an uncontrolled environment and for discovering more about the natural environment and about oneself.

Choices are required when electing to recreate in wilderness. One can acquire the equipment and skills to travel on ones own or take the option of employing an outfitter-guide to provide equipment and services to facilitate wilderness travel. Very few people, except for age or health reasons are not able to make this choice. By its nature good outfitting and guiding services provide convenience and a degree of insulation from the wilderness environment.

Outfitter-guide services will be permitted until local limits of acceptable change and carrying capacity estimates are met. Outfitter-guide services will be modified or eliminated in those areas where unacceptable impacts are occurring.

Existing summer Outfitter-Guide use in Wilderness managed by the
Forest is at an adequate and maximum level.

A base or reference level of commercial use in Wilderness has been established in 1988. No additional Outfitter-Guide Permits authorizing wilderness and use will be issued. Service day authorizations specified in these 1988 permits will not be increased.

Additional direction for commercial use in Wilderness is listed below:

M6-79 If an existing Outfitter-Guide Permit is sold or the permittee goes out of business the FS will evaluate the following options for the service days authorized by that permit:

Allocate the service days to one or more of the remaining Outfitter-Guide Permittees if it would strengthen their business, improve the quality of customer service and/or benefit the Wilderness resource.

Do not re-allocate the service days if non-outfitted use levels and LAC date show that the thresholds of unacceptable change/impacts are being approached or exceeded.

Consider allocation of the service days to a new permittee **only** if an acceptable trend in impacts from use is reasonably clear and can be expected to last for several years into the future New permittees must be identified through issuance of a prospectus and subsequent competitive selection.

M6-80 Of the summer and winter outfitted use in the Forest's Wilderness some potential for growth exists:

Winter use is at a very low level and may have many years to expand before limits on numbers are necessary.

Some potential may exist for expanding non-livestock supported educational programs. These must be evaluated on a case by case basis.

M6-81 Other factors which could favorably influence the decision to provide additional opportunities·

Use of lightly used areas which are not being managed for higher quality wilderness experiences depending on few social encounters.

Concentrated recreation use, such as that occurring at campsites, will be discouraged within 1/4 mile of known spotted owl nest trees

Programs which can demonstrate minimum impact use.

M6-82 Minimum impact practices will be strongly encouraged among commercial operators.

M6-83 Efforts will be made to manage commercial use so that those who remain in business will be economical operations that provide a high quality public service.

M6-84 Existing permittees may be expected to provide services in other areas of the Forest, outside their normal operating area.

M6-85 Commercial operators will be expected to pay or contribute their fair share of trail maintenance and other resource damage costs caused by their operations. This will become a condition of the special-use permit.

M6-86 All commercial use permits will be evaluated annually for quality of service and impact on wilderness resources.

Fish and Wildlife

M6-87 Stocking may continue at lakes and streams where it has historically occurred Stocking will not be expanded to barren waters unless it would help achieve Wilderness management goals.

M6-88 Native species will normally be favored in the stocking program.

M6-89 Aircraft stocking will only be permitted on those lakes stocked by aircraft prior to 1964 No landing of aircraft is permitted. Stocking should be done before and after the visitor season if possible The effects of stocking wilderness lakes on recreation use levels will be carefully assessed

M6-90 Chemical treatment of waters is permitted, with Regional Forester approval, for the reestablishment of native species or establishment of threatened and endangered aquatic species or to correct undesirable conditions resulting from the influence of human activity.

M6-91 Management activities and decisions will emphasize maintaining native species with particular emphasis on habitat requirements of Threatened, Endangered and Sensitive species. Indigenous species may be reestablished. Threatened and Endangered species may be established to correct the undesirable influences of human activities

M6-92 Visitor activity may be regulated on a seasonal basis to minimize the impact to wildlife.

Forest Health

M6-93 Pest populations will be monitored so that early detection of problems is possible.

M6-94 No action will be taken to control naturally occurring insect or disease populations within Wilderness, unless adjacent areas outside Wilderness are threatened. In that case an environmental analysis using the NEPA process will be conducted to determine what, if any, suppression actions will be taken. Any control measures will be designed to have the least adverse impact possible on the Wilderness resource.

M6-95 Timber harvest and vegetative manipulation will not be allowed in catastrophic situations involving insects, disease, or fire except as outlined in the paragraph above.

Minerals

M6-96 Effective Jan. 1, 1984, the minerals in Wilderness are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and all amendments there to.

M6-97 Where valid leases or locatable mineral interests exist, any proposed mining activity will be reviewed by the Forest with the proponent. The Forest's review and approval will be directed toward minimizing, mitigating, preventing, or repairing adverse environmental impacts on Wilderness values and in restoring the site. The Forest may impose reasonable conditions which will not interfere with the mining operation or the statutory rights of the claimant.

M6-98 No pits or quarries will be permitted in Wilderness Areas for common materials.

Visual

M6-99 The Visual Quality Objective will be Preservation.

Special Uses

M6-100 Special use permits may be issued if they do not detract from the Wilderness values.

Cultural Resources

M6-101 Cultural and historic resources shall be inventoried by a qualified professional.

M6-102 All structures will be evaluated for their historical significance.

M6-103 After evaluation, any decision to maintain or abandon but not remove structures which meet the criteria for the National Register shall be preceded by the process outlined in 36 CFR 800 for comment by the Advisory Council on Historic Preservation. Abandoned structures will be allowed to deteriorate naturally after following procedures outlined in 36 CFR 800. Any retained or maintained structure will be managed to have a minimum impact on the Wilderness resource.

M6-104 If it is determined, after historical evaluation, that a structure is not of significance, it will be removed by a practical method compatible with the goals of this plan and the site will be restored to as natural a condition as is practical.

M6-105 If, after evaluation of the significance of the cultural resource and the impact on the Wilderness resource, a decision is made to maintain a structure, a management prescription will be developed to mitigate the structures impact on Wilderness and to guide its management.

Management Area 7 Deer Habitat

Goal

To manage vegetation to provide optimum habitat conditions on deer winter and transition ranges while providing some domestic livestock forage, wood products, visual quality and recreation opportunities.

General Theme and Objectives

Vegetation will be managed to provide optimum habitat considering the inherent productivity of the land Herbaceous vegetation will be managed to provide a vigorous forage base with a variety of forage species available Forage conditions may be improved where conditions are poor. Foraging areas will be created where forage is lacking, maintained when in proper balance, or reduced when overabundant and more foraging areas are needed.

Long-term tree or shrub cover to moderate cold weather conditions is equally important Ideally, cover and forage areas should be in close proximity for optimum use by big game, with cover making up 40 percent of the land area. Approximately three-quarters of cover areas should be thermal cover with the remainder being hiding areas. Some stand conditions may satisfy both kinds of cover.

Livestock grazing, both sheep and cattle, will be permitted with associated range improvements such as fences and water developments.

This Management Area contains a total of 208.9 M acres. 95 4 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219 14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 113.5 M acres were identified as appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d)

Standards and Guidelines

Recreation

M7-1 The area will provide various dispersed recreation opportunities primarily for the activities of viewing wildlife, hunting, gathering forest products, and roaded camping. Restrictions on motorized and OHV recreation could be implemented on a seasonal basis between December 1 and March 31 and during hunting seasons. Closures and restrictions can be imposed on OHV activity where it threatens or damages other resource values, such as plantations, wildlife-use, and soils. Provisions will be made in the silvicultural and grazing prescriptions for maintaining amenities around developed campsites and areas where traditional concentrated recreation use occurs. Rustic facilities constructed of native materials may be provided for the convenience of the user as well as for safety and resource protection.

M7-2 Providing the recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum category of Roaded-Natural will be an objective in Recreation Management. (See Appendix 2 for an explanation of the categories.)

Timber

M7-3 Generally, programed timber harvest is appropriate when required to regenerate new cover stands, maintain tree vigor for resistance to stand-threatening insect damage, or encourage desirable forage in deficient areas

Ponderosa Pine - Suitable Timber Lands:

M7-4 The timber harvest will be programed.

M7-5 Even and uneven-aged management will be applied and may include precommercial and commercial thinnings. Stocking levels will be based on site-specific conditions A crown cover greater than 40 percent with trees 30 feet high is recommended for thermal cover.

Relatively low site productivity for tree-growth, coupled with recent cycles of drought, increase the risk of insect-pest epidemics killing or severely damaging tree-stands valuable for cover. Thus,

tree canopy-cover conditions for optimum thermal protection may need to be compromised somewhat in order to moderate the risk of future catastrophic pine beetle damage. Canopy cover should be managed at the highest percentage that will maintain healthy stand conditions with a low risk of catastrophic damage due to insects or disease. As a minimum canopy cover must be 40 percent, but a greater canopy cover percentage is preferred.

M7-6 Prescribed burning is recommended for site preparation where soil conditions and fuels permit.

M7-7 Silvicultural prescriptions will be based on the Timber Management standards/guidelines and Deer Habitat objectives.

Range

M7-8 Forage utilization by livestock will be maintained at a level so that sufficient forage is available to support the desired number of deer. Grazing systems, stocking levels, forage use standards, and range improvement projects will be designed to be compatible with or complementary to the habitat objectives for deer.

M7-9 Allotment management plans will be written to reflect the management direction for this Management Area. They will include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed, and forage production and utilization standards

Wildlife

M7-10 Habitat management will be designed to provide a mosaic of forested conditions which incorporates the concepts of escape and hiding cover, thermal cover, travel corridors, visual screens, and harassment potential.

M7-11 The analysis area used for habitat management planning should be large enough so that meaningful habitat conditions can be determined. Normally this would be greater than 3000 acres in size and may include other ownerships.

M7-12 Snags, and the live trees needed for future snags, will be managed based on the direction in the Forest-wide Wildlife S&Gs.

Fallen-tree wildlife habitat is especially difficult to replace within these dry, marginal forestlands. Fuel-treatment and fuelwood collection policies must provide and maintain necessary deadwood habitat as described in the Forest-wide S&Gs.

Cover:

M7-13 A crown cover greater than 40 percent with trees 30 feet tall is recommended for thermal cover.

Forage:

M7-14 Forage conditions will be maintained or improved with emphasis on increasing the variety of plants available for forage and a mixture of age classes of shrubs. Variety in areas which are dominated by poor vigor shrubs will be created. Species will be established so that a variety of shrubs, grasses, and forbs are available.

M7-15 Where forage improvement activities which are not directly associated with manipulation of the tree stands (crushing, prescribed burning) are planned, the size of the treatment units normally will be 300 to 500 acres including unmanipulated islands If more than one unit is treated in a single year, treatment units should be 600 to 1,200 feet apart. The untreated portion of the area involved can be improved after the treated areas provide a good quality of forage.

Arrangement:

M7-16 If foraging areas are created through timber harvesting, units will be designed to be irregularly shaped Thermal cover will be maintained immediately adjacent to the foraging site. The stands providing cover can be in different age classes. The long-term situation would be an irregular mosaic of openings intermingled within tree stands. As an opening is reestablished with trees and qualifies as cover, adjacent areas may be harvested to maintain forage-producing areas where forage is deficient.

Minerals

M7-17 These areas are open to mineral entry for mining claims.

M7-18 Geothermal leases will be issued with conditional surface use and seasonal restriction stipulations.

M7-19 Seasonal operation restrictions may be placed on mining activities in pits and quarries

Visual

M7-20 Along roads with high traffic volume, wildlife habitat projects will be located, designed and timed to meet Modification or a higher objective. Activities may dominate the surrounding landscape but will appear natural

Fuelwood

M7-21 Fuelwood gathering will be coordinated with winter road closures, and seasonal restrictions may apply during the winter and spring. Fuelwood gathering by both commercial and personal use permits will be allowed in conjunction with timber management activities or in designated fuelwood gathering areas.

Transportation

M7-22 Target open road densities shall average 1.0 - 2 5 miles per square mile in each Implementation Unit, unless impacts to deer can be avoided or the proposed project would result in a net benefit to deer habitat. The target open road density will be used as a threshold requiring a further evaluation, rather than an absolute standard. The procedure described in the Transportation standards/guidelines will be used if existing or proposed road densities would exceed the threshold guideline The judgement on open road density will be based on the further evaluation rather than the density guideline

M7-23 To minimize animal disturbance or protect ecologically sensitive habitats (sites containing plants susceptible to damage from vehicle travel), local roads may be administratively closed 12/1 through 3/31, with the option to extend this time period as needed. Hunting season administrative closures, from a few days before to the day after the season, are also appropriate to enhance hunting quality. Road closures will be coordinated with the Oregon Department of Fish and Wildlife.

Fire Management

Wildfire

M7-24 High and low intensity burns can help maintain diversity. Fires within 300 feet of guzzlers shall be extinguished and the improvements protected. Snags that do not present a hazard to life or a threat to successful suppression action should not be felled.

M7-25 Annual low and intensity burn acre objectives will be developed as a part of the Fire Management Action Plan.

Prescribed Burning

M7-26 The prescribed use of fire will be necessary to maintain diversity within the plant communities Burning prescriptions will provide for the reestablishment of bitterbrush within 20 years. Approximately 2 0 - 2 5 percent of this Management Area could be burned annually.

Fuel Treatment Other Than Prescribed Burning

M7-27 In that portion of the Management Area designated nonsuitable for timber, the preferred slash treatment method is to lop and scatter In areas of heavy slash, machine piling and burning may be necessary Crushing is the least preferred method for treating slash

Fuel Loading

M7-28 Optimum fuel loadings will be guided by the following photo series.

Natural fuels 8PP4, 3PP3
Thinning fuels 4PP1TH, 1MC3PC
Partial cut 1MC3PC
Clearcut 1LP3PC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S Department of Agriculture, Forest Service, Portland, Oregon.

These fuel loadings will be revised when new data, methods, or research indicate that a new profile would improve resource management programs.

Special Uses

M7-29 Special uses which do not create constant human activities will be acceptable. Use which results in constant activity would have to be evaluated on a case-by-case basis.

Forest Health

M7-30 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 8 General Forest

Goal

To emphasize timber production while providing forage production, visual quality, wildlife habitat and recreational opportunities for public use and enjoyment.

General Theme and Objectives

The objective of timber management in this Management Area is to continue to convert unmanaged stands to managed stands. The aim of a managed forest is to have stands in a variety of age classes with all stands utilizing the site growth potential. This is achieved through stand treatments which include (but are not limited to) controlling stocking levels; maintaining satisfactory growth rates, protecting stands from insects, disease, and damage; controlling species composition; and regenerating stands that are no longer capable of optimum growth performance.

Forage within this Management Area will be available for use by cattle, sheep, and big game. Some lands have no available forage so there will be no grazing. On other lands there will be need for coordination between timber and range management. On some areas grazing will be the emphasized use Range structural improvements such as fences and water troughs may be constructed and maintained to meet range and timber management objectives Range improvement projects such as prescribed burning or seeding may be utilized to improve the forage base.

There are opportunities for dispersed recreation activities, particularly those associated with roads Informal camping and hunter camps are important uses of the area. Developed site recreation opportunities such as camping or picnicking occur on a limited basis throughout the area

This Management Area contains a total of 626 3 M acres. 49.8 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 576.5 M acres were identified as appropriate for timber production for this Management Area Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M8-1 The majority of campgrounds and picnic areas will be managed at development Level 2 (See Appendix 3 for a description of the various levels.) Some will be managed at Level 3, but none will exceed Level 3 Stands on these sites will be treated to retain the character that contributes to the value of the site for recreation.

M8-2 Traditional informal campsites, hunter camps, or areas where concentrated recreation use occurs will be recognized as being significant in producing and utilizing dispersed recreation opportunities. Prescriptions for harvesting, cleanup, site preparation, and thinning will consider the environmental setting that contributes to the attraction of these sites for recreation purposes. The attempt will be made to retain this attractive character during and after treatments

M8-3 Recreation use can be discouraged or prohibited:

In areas where timber harvesting activities are occurring

Where public safety is being threatened

Where resource damage from recreation activity is occurring or may occur.

M8-4 Generally, off-highway vehicle use is allowed. Closures and restrictions will be established where off road vehicle use will threaten or damage other resource values, such as plantations, soils, and wildlife Over-the-snow vehicles may be permitted when the depth of continuous snow cover is adequate to protect other resources from adverse impacts Some roads, trails, or areas may be designated for nonmotorized winter activities such as cross country skiing to the exclusion of over the snow vehicles and other motorized equipment.

M8-5 This Management Area will be managed to provide the recreation activity, setting, and experience of the Recreation Opportunity Spectrum category of Roaded-Natural or Roaded Modified (See Appendix 2 for an explanation of the categories.)

Timber

M8-6 Standards/guidelines developed for the timber management resource area (Forest-wide S&Gs, Chapter 4 of the Forest Plan) are applicable to this General Forest Management Area.

M8-7 Uneven-aged management is the preferred silviculture system in the General Forest Management Area and should be prescribed within the mature and overmature Ponderosa pine and mixed conifer community types where stand and site conditions are appropriate and no other resource objectives which preclude the use of uneven-aged management have been identified and documented during the project planning process.

M8-8 Management Standard and Guideline 2-1 in Pacific Northwest Regional Guide of May 1984 which permits exceptions to the created Forest opening size of 40 acres when natural catastrophic situations occur will apply. Created openings can exceed 40 acres in size in the lodgepole pine working group if stands have been impacted by the mountain pine beetle or other catastrophic conditions.

M8-9 Timber harvesting and postharvesting activities, particularly tree planting on suitable lands, should be scheduled to accommodate grazing systems. Timber management and range conflicts must be resolved so there is enough forage available to prevent overgrazing, so young trees can be protected from damage, and the number of Animal Unit Months (AUMs) will not be reduced because of harvest scheduling.

Range

M8-10 Allotments will be managed to achieve or maintain a forage condition rating of fair or better or to the site's capability.

M8-11 Range allotment management plans will be written to reflect the management direction for all range lands within this Management Area. They will include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed, and forage production and utilization rates.

M8-12 Annual permittee plans will provide for livestock distribution and use patterns to protect newly established tree plantations. Plantations can be further protected by fencing, caging trees, or use of repellents. Salt and water should be placed one half to one mile away from new plantations. Where conflicts cannot be resolved using the above techniques, establishment of new allotments and relocation of livestock should be considered.

M8-13 Vegetative manipulation will be allowed in catastrophic situations.

M8-14 Transitory range will be managed in conjunction with timber management to achieve higher levels of forage production and the desired level of forage utilization. Livestock grazing on transitory ranges will take place under the following situations:

Where forage occurs as a result of site disturbance and/or timber canopy removal on a continuing basis.

Where disturbed sites and/or areas under timber management can be seeded with species which improve forage production and do not restrict tree establishment and growth.

On forest plantations when livestock will not damage the young trees Success will require close and continuous coordination between grazing and reforestation to integrate these two activities.

Wildlife

M8-15 Minimum standards for wildlife habitat will be the Forest-wide standards/guidelines Higher levels of wildlife habitat will be pursued as long as they will not conflict with timber management objectives.

Minerals

M8-16 In general the entire area is open for mineral entry for mining claims for locatable minerals.

M8-17 Geothermal leases will be issued. Conditional Surface Use and Seasonal Restrictions Stipulations will be used to protect wildlife habitat and recreation areas that are included in the General Forest Area.

M8-18 Mining activities for common materials are permitted in pits and quarries.

Visual

M8-19 To the extent possible, the highest visual quality level will be provided unless it requires a reduction of timber outputs. In that case, the minimum allowable visual quality objective is Modification. Created openings will be shaped and blended to the natural terrain, to the extent practical.

Transportation

M8-20 Roads constructed within this Management Area will generally be planned to serve a larger timber volume than in other areas.

M8-21 Long-term local roads for timber access will be planned, constructed, maintained and operated to be economically efficient. During commercial hauling activities, public access will be discouraged or prohibited on some roads through appropriate signing. High clearance vehicles may be accepted during post sale activities

Fire Management

Wildfire

M8-22 Suppression practices will be designed to protect the investment in managed tree stands and to prevent losses of large acreages to wildfire

M8-23 Snags that do not present a hazard to life or a threat to successful suppression action should not be felled.

M8-24 In Ponderosa pine stands (except for reproduction stands) emphasis should be placed on burning out from existing roads and natural barriers rather than constructing new firelines

Prescribed Fire

M8-25 Prescribed fire may be used to protect, maintain, and enhance timber and forage production. The broadest application of prescribed fire will occur in the Ponderosa pine type. Criteria for utilizing fire are as follows:

To reduce risk of conflagration fire

To increase soil productivity by cycling bound nutrients.

To prevent encroachment of less desirable, competing tree species.

To increase palatability and cover of desirable forage species.

To prepare sites for reforestation.

Fuel Treatment Other Than Prescribed Fire

M8-26 The lowest cost option which meets the silvicultural, soil, water, and fire objectives should be selected.

Fuel Loadings

M8-27 Slash will be treated to reduce the chances of fire starts and rates of spread to acceptable levels, but will not be cleared to the point that the forest floor is devoid of all slash and logs Some slash and larger dead material will be left for ground cover for soil protection, microclimates for establishment of trees, and small mammal habitat.

Optimum fuel loadings should be guided by the following photo series.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC	2-LP-3-PC	2-MC-4-PC
	2-LP-3-PC		2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon. These fuel loadings will be revised when new data, methods or research indicate that a new profile would improve resource management programs.

Special Uses

M8-28 Special Use permits will be allowed if they are compatible with other uses in the area.

Forest Health

M8-29 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 9 Scenic Views

Goal

To provide Forest visitors with high quality scenery that represents the natural character of Central Oregon.

General Theme and Objectives

Landscapes seen from selected travel routes and use areas will be managed to maintain or enhance their appearance. To the casual observer, results of activities either will not be evident or will be visually subordinate to the natural landscape

Landscapes will be enhanced by opening views to distant peaks, unique rock forms, unusual vegetation, or other features of interest. Timber harvest is permitted, but only to protect and improve the visual quality of the stands both now and in the future. Timber stands, which have remained unmanaged in the past because of their visual sensitivity, will begin receiving treatment to avoid loss of the stand to natural causes. Landscapes containing negative visual elements, such as skid roads, activity residue, or cable corridors, will be rehabilitated.

The desired condition for Ponderosa pine is to achieve and maintain visual diversity through variations of stand densities and size classes Large, old-growth pine will remain an important constituent, with trees achieving 30 inches in diameter or larger and having deeply furrowed, yellowbark characteristics.

For other species, the desired condition requires obtaining visual variety through either spatial distribution of age classes and species mixes, through density manipulation, or through a mixture of age classes within a stand

This Management Area contains a total of 171.7 M acres. 12 3 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 159 4 M acres were identified as appropriate for timber production for this Management Area Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Description

Scenic Views

Scenic Views management areas are classified as Retention or Partial Retention based on the Visual Management System, as explained in **National Forest Landscape Management, Vol.2, Agriculture Handbook Number 462.** Retention and Partial Retention classifications are further subdivided into Foreground and Middleground and Background distance zones S&Gs differ for each distance zone.

The S&Gs for the Scenic Views Management Area are oriented primarily towards vegetation management because the visual resource is most often affected by timber management activities For this reason, the majority of S&Gs deal with vegetative changes in the landscape.

Standards and Guidelines

Recreation

M9-1 New recreational developments and changes to existing developments are permitted as long as they are consistent with the desired visual condition. When viewed from significant viewer locations, recreational facilities will meet the established visual quality standards For viewer locations within the recreational development being viewed, established visual quality standards may not always be met

M9-2 Parking facilities, structures and other recreational facilities will normally be placed where they are not visible from significant viewer locations Where it is not possible to screen recreational facilities, they will be designed to blend with the elements found in the natural landscape and will remain subordinate to the overall visual strength of the surrounding landscape.

M9-3 The Recreation Opportunity Spectrum (ROS) standard in the Scenic Views Management Area will normally be Roaded Natural, but may also include Primitive, Semi-primitive Non-motorized,

Semi-primitive Motorized and Semi-primitive Motorized Winter Only standards.

Timber

The following standards/guidelines are designed to respond to the Desired Visual Condition for each timber type, as described below.

Timber/Ponderosa Pine-Foregrounds

Desired Visual Condition

M9-4 Ponderosa pine in Foreground Scenic Views MA areas will be managed to maintain or create a visual mosaic of numerous, large diameter, yellow-barked trees with stands of younger trees offering visual diversity and a sense of depth in landscapes viewed from travel routes, recreation use areas and other sensitive viewer locations.

Old growth characteristics, such as yellow, deeply-fissured bark are desirable.

Diversity in species, where biologically possible, is desirable. Species such as vine maple, aspen and occasional stands of fir or lodgepole pine are desirable for added visual interest. Shrubs and groundcover species are also a desirable visual component.

Small, natural-appearing open spaces help provide a sense of depth and are a desirable visual component in these landscapes.

In Retention areas visual changes will not be noticeable to the casual forest visitor. The casual forest visitor is the recreation-oriented person or motorist traveling through a portion of the Forest. The casual forest visitor relates to the visual environment based on the context of a landscape viewed, rather than focusing on an individual acre within a landscape. For the occasional pedestrian who wanders off a designated trail and views an individual acre where a management activity has recently taken place, visual changes will be noticeable, even in Retention areas.

In Partial Retention areas management activities may be noticeable to the casual forest visitor. However, visual changes will not be so obvious as to dominate a particular portion of a landscape

Any area that does not meet the desired visual condition because of past management activities should be reviewed by a landscape architect to determine management strategies needed to achieve the desired visual condition.

Vegetative Management

M9-5 Where there is an existing mosaic of tree sizes, size class diversity will be perpetuated by managing some of the trees within each size class. Where visual diversity is lacking, diversity will be gradually introduced to ultimately produce the desired mosaic. Although the numbers of trees will change through time, those stands that currently have a large number of large-diameter, yellow-barked trees will continue to have large numbers of the same trees. In order to accomplish this, trees may be removed where necessary to:

Perpetuate the desired visual condition

Control insect and disease problems.

Create vista points or enhance a unique landscape feature, such as a rock outcrop or unique vegetation.

Provide for safety along travel routes and in recreation use areas.

Provide access for special uses, mineral activities, and administrative purposes.

M9-6 Management emphasis will focus on leaving the largest diameter trees and the healthiest crowns and forms in every stand. Visual variety will be provided by leaving occasional gnarly, old, overmature "character trees".

M9-7 Any proposed activity in Foregrounds will be reviewed by a landscape architect. An analysis will be developed by the landscape architect to determine:

What treatment is necessary to achieve or retain the desired visual condition.

If cleanup activities can realistically be completed within the specified time limits.

Where existing pockets of dead and dying trees should be enlarged to produce the desired

visual condition of small, natural-appearing open spaces.

What measures may be necessary to meet the desired visual condition, such as winter logging, special slash treatment, etc

What the predicted visual condition will be following the activity.

M9-8 Timing of Cleanup Activities:

In Retention areas, slash from a thinning or tree removal activity, or other visible results of management activities, will not be visible to the casual forest visitor one year after the work has been completed.

In Partial Retention areas, logging residue or other results of management activities will not be obvious to the casual forest visitor two years following the activity.

M9-9 Stand Densities for Immature Trees:

In Retention Foregrounds, management practices will normally not focus on maximum growth, due to the emphasis on visual quality. As a result, stand densities may be heavier or lighter than what would be considered necessary for optimum growth.

In Partial Retention Foregrounds, biologically optimal stand densities may be appropriate In some areas, this means that tree densities will be lower than they presently are.

M9-10 Openings

In Retention areas visual openings will result from management activities which harvest natural mortality (dying or severely diseased trees which occur in scattered pockets.) Some of these pockets may be enlarged by removing overstory trees, including large trees, where necessary to permit Ponderosa pine regeneration where understory is lacking, or to release existing reproduction where it is suppressed In Retention Foregrounds, these openings will range from 1/4 acre to 2 acres. An opening is visually in an "open" or untimbered condition until trees are an average of 10 feet tall on slopes less than 30 percent, and an average of 15 feet tall on slopes greater than 30 percent.

In Partial Retention areas openings will range from 1/4 acre to 5 acres, and may include additional openings where size class diversity is visually insufficient.

M9-11 Large diameter trees (24 inches diameter at breast height, or greater) will not be harvested in Retention Foregrounds unless there is a need to remove them for any of the following reasons:

There is a significant insect or disease problem

They have off-color or fading crowns

They are already dead.

There is a visual need to provide additional size-class diversity.

There is a need to provide additional visual diversity by releasing pockets of reproduction through activities such as group selection and overstory removal.

They pose a safety threat to forest users.

M9-12 In Partial Retention Foregrounds, large diameter trees (24 inches d.b.h., or greater) will not be removed unless they meet one of the requirements above, or when:

Trees are considered a "high risk", and would probably die within the next decade. Use the Oregon/ Washington Risk Rating System (R-6-5220-45, 12/11/63). High risk, (8 point or higher), are the only trees to be removed.

M9-13 Adequate snags and replacements will be left to meet wildlife requirements, as long as they contribute to the landscapes' visual quality.

M9-14 Thin immature trees in Retention and Partial Retention Foregrounds to maintain acceptable health and vigor of stands, with the objective of eventually producing replacement trees of 24 inch diameter and larger. In Retention Foregrounds, thin to slightly closer than normal spacing in order to provide full crowns and some screening In Partial Retention foregrounds, normal silviculturally prescribed spacings are acceptable

Timber/Ponderosa Pine-Middlegrounds and Backgrounds

Desired Visual Condition

M9-15 Ponderosa pine landscapes viewed as middlegrounds and backgrounds will be managed so that they provide a strong textural element when viewed as middleground or background. Many of the middlegrounds and backgrounds on the Deschutes National Forest are buttes that are viewed for long duration. For this reason, the presence of a few individual large trees with full crowns is an important part of the desired visual condition. Immature stands are also important in middleground and background areas because they have a dramatic effect on color contrasts, and they eventually become replacements for the larger, old-growth trees that perpetuate the desired coarsely-textured character.

Visible untimbered openings in middleground and background areas are desirable where the natural landscape contains similar openings, or where natural-appearing openings can provide additional diversity in landscapes where diversity is visually lacking.

Immature trees, groundcover vegetation and mature overstory trees will remain important elements in these landscapes.

Vegetative Management

M9-16 Vegetative management activities will be applied in middleground and background Ponderosa pine landscapes to:

Perpetuate the desired visual condition,

Control insect and disease problems, or to

Enhance a special landscape feature.

M9-17 For management activities other than routine sanitation/salvage treatments, a landscape architect will develop a similar analysis required for Foregrounds. In addition to the items listed for Foreground analyses, the middleground and background analysis will also determine:

Whether openings in the tree canopy are a component of the natural landscape, and, if so, how large, how many and where they should be introduced through management activities.

M9-18 Timing of Cleanup Activities

In Retention middlegrounds and backgrounds, slash from a thinning or tree removal activity, or other visible results of management activities, will not be visible to the casual forest visitor one year after the work has been completed.

In Partial Retention middlegrounds and backgrounds, logging residue or other results of management activities will not be obvious to the casual forest visitor two years following the activity.

M9-19 Openings

In Retention middleground and background areas, the scale of man-caused openings must be similar to naturally-occurring openings. If natural openings do not exist, and there is a need to create openings, the openings will be designed to be as small as possible (considering the biological condition, technical feasibility, economics, etc.), and be designed to appear as naturally-occurring openings.

In Partial Retention middlegrounds and backgrounds, man-caused openings, where visually appropriate, will normally range from 1/4 acre to 20 acres.

Timber/Mixed Conifers-Foregrounds

Desired Visual Condition

M9-20 Mixed conifer stands in Foreground Scenic Views MA areas will be managed to perpetuate or enhance the characteristic (or natural) landscape The characteristic landscape normally contains stands that are visually dense, though not necessarily continuous. Diversity in tree and shrub species and in diameter classes produces the desired visual character when viewed from travel routes, recreation use areas and other sensitive viewer locations.

Small, natural appearing openings are desirable, and are an important visual element of the characteristic landscape in mixed conifer stands.

Large diameter old growth characteristics are an important visual component in these landscapes. Ponderosa pine is a desirable component of these stands, where it either exists or could be introduced.

Vegetative Management

M9-21 To produce or perpetuate the desired visual condition through time, mixed conifer stands require more frequent management treatment than Ponderosa pine stands. Thinnings and other tree removal practices will be done to maintain species diversity, and to promote the health and visibility of larger old growth trees.

M9-22 Where visual diversity is lacking, diversity will be gradually introduced through tree removal, thinnings, creating planned openings and by planting desirable tree and shrub species to ultimately produce the desired visual condition.

M9-23 In many of the mixed conifer stands on the forest, mature and over-mature trees are in poor condition. For this reason, the number of large-diameter, old growth trees in mixed conifer foregrounds will gradually decline through the years However, the presence of large-diameter trees in these areas will continue to be a major visual component, but not at all times on every acre. Replacement large-diameter trees will be provided through actively managing existing younger, more healthy trees.

M9-24 Trees may be removed from mixed conifer foregrounds where necessary to:

Perpetuate the desired visual condition.

Control or prevent major insect and disease problems.

Create vistas or enhance unique landscape features.

Provide for safety along travel routes and in recreation use areas.

Provide access for special uses, mineral activities, and administrative purposes.

M9-25 Management emphasis will focus on leaving trees with the healthiest crowns, deep green foliage (as viewed in the summer months), and that offer the greatest species and size class diversity.

M9-26 Any proposed activity in Foregrounds will be reviewed by a landscape architect. An analysis will be developed by the landscape architect to determine:

What treatment is necessary to achieve or retain the desired visual condition.

If cleanup activities can realistically be completed within the specified time limits.

What mitigation measures may be necessary to meet the desired visual condition, such as winter logging, special slash treatment, etc.

What the predicted visual condition will be following the activity.

M9-27 Timing of Cleanup Activities

In Retention foregrounds, slash from a thinning or tree removal activity, or other visible results of management activities, will not be visible to the casual forest visitor one year after the work has been completed

In Partial Retention foregrounds, logging residue or other results of management activities will not be obvious to the casual forest visitor two years following the activity.

M9-28 In mixed conifer foregrounds, management practices will normally not focus on maximum growth. As a result, stand densities will normally be heavier than what would be considered necessary for optimum growth.

M9-29 Create small, natural-appearing openings, where they are lacking, to achieve the desired visual character. Plant these openings with species that will result in visual variety. Species offering fall color are especially desirable Large diameter trees (24 inches d.b h or greater) can be removed in these openings.

In Retention foregounds, these openings will range from less than 1/4 acre to 2 acres.

In Partial Retention foregrounds, openings will range from less than 1/4 acre to 5 acres.

M9-30 Where the opportunity exists, manage for a variety of species,including Ponderosa pine, Douglas fir, true firs, incense cedar, western larch, western white pine, lodgepole, aspen, vine maple and various shrub species.

M9-31 When Ponderosa pine can biologically be a component of the stand, design treatments to

maintain or improve the Ponderosa pine component, but not to the exclusion of other species.

M9-32 Large diameter trees (24 inches d.b.h., or greater) will not be harvested in mixed conifer foregrounds unless there is a need to remove them for the following reasons:

There is a significant insect, root rot or disease problem.

They have off-color or fading crowns.

They are already dead.

There is a visual need to provide additional size-class diversity.

There is a need to provide additional visual diversity by releasing pockets of reproduction or other species which will add visual diversity through activities such as group selection and overstory removal.

They pose a safety threat to forest users.

Trees are considered a "high risk", and would probably die within the next decade.

M9-33 Adequate snags and replacements will be left to meet wildlife requirements, as long as they contribute to the landscapes' visual quality.

Timber/Mixed Conifer-Middlegrounds and Backgrounds

Desired Visual Condition

M9-34 Mixed conifer stands viewed as middlegrounds and backgrounds will be managed to maintain or create a mosaic of stands with essentially continuous tree canopies with visual diversity provided by occasional natural-appearing openings which resemble those openings found in the natural landscape. From these viewing distances, immature trees are visually more important than larger old-growth trees, because the crowns of the younger trees are normally fuller and contribute to the overall textural element when viewed from a distance. However, some scattered larger trees will provide textural diversity and are sometimes discernible as individual forms on these landscape.

Species and size class diversity is also important in these viewing distances, but only when viewed as relatively small, natural appearing patches on the landscape, rather than isolated, individual trees or shrubs. These patches create a visual mosaic that may provide additional visual variety through the changing seasons.

Vegetative Management

M9-35 Uneven-aged management is the preferred treatment method. However, it is recognized that the opportunities for uneven-aged management are limited. Therefore, even-aged management will be more commonly practiced in these middleground and background landscapes.

M9-36 Even-aged management may be practiced where appropriate for insect and disease control.

M9-37 Uneven-aged management will be accomplished through group selection techniques, where relatively small, natural-appearing openings will result, ultimately resulting in a mosaic of even-aged groups that, when viewed from a distance, appear to be a consistent, coarsely-textured, tree covered landscape.

M9-38 Where slopes, condition of vegetation, or other factors indicate that uneven-aged management is not feasible, small regeneration units will be utilized.

M9-39 Thinnings and other tree removal practices will be done to maintain species diversity, and to promote the health and visibility of larger old growth trees.

M9-40 Where visual diversity is lacking, diversity will be gradually introduced through tree removal, thinnings, creating planned openings and by planting desirable tree and shrub species to ultimately produce the desired visual condition.

M9-41 Trees of all sizes may be removed from mixed conifer middlegrounds and backgrounds where necessary to:

Perpetuate the desired visual condition.

Control or prevent major insect and disease problems.

Enhance unique landscape features

Provide access for recreation, special uses, mineral activities, and administrative purposes.

M9-42 The management emphasis in middlegrounds and backgrounds will focus on maintaining or creating a continuous tree canopy while providing species and size class diversity.

M9-43 Except for routine sanitation/salvage treatments, proposed activities in middlegrounds and backgrounds will be reviewed by a landscape architect. An analysis will be developed by the landscape architect similar to the analysis required for foregrounds. In addition to the items listed for foreground analyses, middleground and background analyses will also determine:

Whether openings in the tree canopy are a desirable component of the landscape, and, if so, how large, how many and where they should be introduced through management activities.

M9-44 Timing of Cleanup Activities

In Retention, slash from a thinning or tree removal activity, or other visible results of management activities, will not be visible to the casual forest visitor one year after the work has been completed.

In Partial Retention, logging residue or other results of management activities will not be obvious to the casual forest visitor two years following the activity.

M9-45 In mixed conifer middlegrounds and backgrounds, management practices will focus on providing mid-level stands with healthy, full crowns and scattered larger old-growth trees and snags for textural diversity. Stand densities normally applicable to the General Forest Management Area may be appropriate to accomplish this objective This will mean that tree densities in some areas may be lower than they presently are. Thinning some stands to the desired lower density may take more than one entry in some areas.

M9-46 Use group selection or regeneration techniques to create small, natural-appearing openings to achieve the desired visual character. Plant these openings with species that will result in visual variety. Species offering fall color are especially desirable, but only where they can be planted in large enough masses to be visually effective when viewed from middleground or background distances. Individual trees or shrubs, or even small groups of them are not visually effective at these distances.

In Retention middlegrounds and backgrounds, created openings will be of an appropriate scale to simulate naturally-occurring openings. If natural openings do not exist, and there is a need to create openings, initial openings will be as small as possible (considering the biological condition, technical feasibility, economics, etc.), and will be designed to appear as naturally-occurring openings.

In Partial Retention middlegrounds and backgrounds, man-caused openings, where visually appropriate, will normally range from 1/4 acre to 20 acres

M9-47 Where the opportunity exists, manage for a variety of species, including Ponderosa pine, Douglas fir, true firs, incense cedar, western larch, western white pine, lodgepole, aspen, vine maple and various shrub species.

M9-48 When Ponderosa pine can biologically be a component of the stand, design treatments to maintain or improve the Ponderosa pine component, but not to the exclusion of other species.

M9-49 Large diameter trees (24 inches d b h , or greater) will remain a significant component in mixed conifer middlegrounds and backgrounds.

M9-50 Adequate snags and large trees will be left to provide textural diversity and to meet wildlife requirements.

Timber/Lodgepole Pine-Foregrounds

Desired Visual Condition

M9-51 On this Forest, older lodgepole pine stands normally lack visual diversity. They do not have diversity in size class, and rarely have other species growing among the older lodgepole pines. Because their crowns are relatively small, and the older trees tend to have a deteriorating appearance, management emphasis in lodgepole pine foregrounds will not be to produce large diameter,

older trees Instead, the emphasis will be on managing healthier, fuller crowned, younger trees.

The desired visual condition is a mosaic of even-aged stands with additional visual diversity provided by occasional groups of other tree and shrub species. Natural-appearing openings of varying sizes are desirable. Wherever biologically feasible, the re-introduction of Ponderosa pine in stands that have reverted to pure lodgepole pine is also desirable.

The forest floor is often open and park-like with ground litter, shrubs and grasses providing additional variety.

Diversity in size classes, and the presence of natural-appearing openings that appear to rotate through time as younger stands grow up, will permit "depth" in these foreground landscapes. Instead of the traditional "wall" of mature lodgepole along travel routes and adjacent to recreation use areas, younger lodgepole stands will eventually replace the older mature trees to create a transitional effect. The viewer will be able to see back into the forest without having the feeling of driving through an unsightly clearcut.

Many of the mature and overmature lodgepole stands on the Forest have been heavily impacted by the ongoing mountain pine beetle epidemic Some landscapes have been severely changed as a result of catastrophic losses due to mountain pine beetles.

Vegetative Management

M9-52 In mature stands of pure lodgepole pine it will not be possible to meet the Retention visual quality standard during all phases of treatment.

M9-53 To produce or perpetuate the desired visual condition through time, lodgepole pine stands may require frequent treatment. Pre-commercial thinnings and other tree removal practices will be done to achieve size class and species diversity, and to promote full, healthy crowns in younger trees and to provide larger-scale diversity through a mosaic of size classes throughout a landscape.

M9-54 Even-aged management will be the normal management technique in foregrounds. Regeneration will be done using shelterwood, seed tree, or small clearcut techniques. Modifications of these techniques may be considered on an individual stand basis.

M9-55 Trees may be removed from lodgepole pine foregrounds where necessary to:

Perpetuate the desired visual condition.

Control or reduce major insect and disease problems.

Create vistas or to enhance unique landscape features.

Provide for safety along travel routes and in recreation use areas.

Provide access for special uses, mineral activities, and administrative purposes.

M9-56 Management emphasis will focus on achieving and maintaining a condition where trees have healthy crowns and natural forest debris is controlled

M9-57 Any proposed activity in Foregrounds will be reviewed by a landscape architect An analysis will be developed by the landscape architect to determine:

What treatment is necessary to achieve or retain the desired visual condition.

If cleanup activities can realistically be completed within the specified time limits.

What measures may be necessary to meet the desired visual condition, such as winter logging, special slash treatment, etc

What the predicted visual condition will be following the activity.

M9-58 Timing of Cleanup Activities

In Retention foregrounds, slash from a thinning or tree removal activity, or other visible results of management activities, will not be visible to the casual forest visitor one year after the work has been completed

In Partial Retention foregrounds, logging residue or other results of management activities will not be obvious to the casual forest visitor two years following the activity.

M9-59 In lodgepole foregrounds, management practices will normally not focus on maximum growth. As a result, stand densities may differ from what would be considered necessary for optimum growth.

M9-60 Create natural-appearing openings where they are lacking, to achieve the desired visual character.

M9-61 Where the opportunity exists, manage for a variety of species,including Ponderosa pine, Douglas fir, true firs, incense cedar, western larch, western white pine, lodgepole, aspen, vine maple and various shrub species

M9-62 When Ponderosa pine can biologically be a component of the stand, design treatments to maintain or improve the Ponderosa pine component, but not to the exclusion of other species.

M9-63 Adequate cull logs, snags and replacements will be left to meet wildlife requirements, as long as they contribute to the landscapes' visual quality

Timber/Lodgepole Pine-Middlegrounds and Backgrounds

Desired Visual Condition

M9-64 Lodgepole pine in middleground and background viewing distances provides a primarily textural landscape element Individual trees and the size of trees are not visually as important as the constant and often uniform texture and color the trees provide. For this reason, the desired visual condition in these viewing distances is a mosaic of relatively uniform textures created by maintaining canopy closure and healthy crowns Variety is provided by the overall affect of the mosaic.

On the Forest, options to manage lodgepole stands for long periods of time are limited By the time lodgepole stands reach about 80 to 100 years of age, increased susceptibility to insects and diseases normally requires a regeneration treatment to maintain these landscapes in a healthy appearance Because the life expectancy for these trees is relatively short, more acres will be in a recently-regenerated appearance at any single point in time.

Natural-appearing openings in the forest canopy are desirable as long as they are shaped so that soil color contrasts do not dominate the landscape when viewed from significant viewer locations.

Meeting the Retention visual quality standard will be extremely difficult on steep ground, such as on sensitive buttes. Therefore, the visual quality standard for these landscapes will normally be Partial Retention.

Partial Retention will be met where regeneration openings appear to be natural, follow the horizontal character of the landscape and are of a proper scale as to not dominate the landscape. These natural-appearing openings will appear to rotate through time as younger stands mature.

Many of the mature and overmature lodgepole stands on the Forest have been heavily impacted by the ongoing mountain pine beetle epidemic. Some landscapes have been severely changed as a result of catastrophic losses due to mountain pine beetles, and may require many years to meet the desired visual condition.

Vegetative Management

M9-65 To produce or perpetuate the desired visual condition through time, lodgepole pine stands will require thinnings, regeneration and other tree removal practices to promote full, healthy crowns and to provide larger-scale diversity through a mosaic of size classes throughout a landscape.

M9-66 Although there may be an occasional opportunity for overstory removal or thinning a lodgepole stand, even-aged management will be the normal management technique in middlegrounds and backgrounds Regeneration will be done using shelterwood or small clearcut techniques

M9-67 Trees may be removed from lodgepole pine middlegrounds and backgrounds to:

Perpetuate the desired visual condition

Control or prevent major insect and disease problems.

Provide access for special uses, mineral activities, and administrative purposes.

M9-68 Management emphasis will focus on achieving and maintaining a condition where trees are healthy and provide a mosaic of stands

M9-69 In middlegrounds and backgrounds, discordant elements resulting from management activities will not be visible to the casual forest visitor two years after the work has been completed

M9-70 In lodgepole middlegrounds and backgrounds, management practices will focus on healthy, full-crowned trees. As a result, stand densities may be lighter than they presently are.

M9-71 Openings will result from regeneration activities in background and middleground lodgepole landscapes. In middlegrounds and backgrounds, openings will normally range from 3 acres to 40 acres. Larger openings may be necessary to deal with mountain pine beetle problems.

M9-72 Adequate snags and replacements will be left to meet wildlife requirements, as long as they contribute to the landscapes' visual quality.

Range

M9-73 Livestock grazing is permitted when it is consistent with the Desired Visual Condition. In some cases, grazing may be encouraged to provide added scenic variety.

M9-74 Structural range improvements such as fences, water developments and access roads may be visible from sensitive viewer locations, but will remain subordinate to the overall strength of the landscape viewed, or designed to compliment scenic quality.

M9-75 Utilization standards will be established to avoid an over-used appearance.

M9-76 Salt blocks, water developments, or other improvements which attract livestock and result in a trampled appearing setting should be avoided in highly sensitive scenic areas. New corrals and loading chutes will be made of native materials and will be designed to be visually pleasing.

M9-77 Vegetation manipulation such as brush removal, reseeding and prescribed burning will be designed to meet visual objectives.

M9-78 Allotment management plans will be written to reflect the management direction for this Management Area. They will include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed and forage production and utilization standards.

Wildlife

M9-79 In foreground areas, wildlife snags and snag replacement trees will be maintained only where they contribute toward the Desired Visual Condition for the tree species. Where snags and snag replacement trees do not contribute towards the Desired Visual Condition, the number, sizes and placement of wildlife trees will be changed in the Scenic Views Management Area.

M9-80 Snags determined to be safety hazards in areas of concentrated public use will be topped or removed. Grouping snags is generally preferable over even-distribution.

M9-81 Where consistent with the Desired Visual Condition, wildlife habitat improvements will focus on watchable wildlife

M9-82 When managing vegetation along major highways which have deer migration routes crossing them, consideration will be given to minimizing risks of vehicular-deer collisions.

Minerals and Special Uses

M9-83 Mineral developments, utilities, and electronic sites may be located in these areas if the facilities and associated improvements are located, designed, and maintained to blend with the characteristic landscape Visual quality objectives may not always be met when the viewer is within the special use site itself, due to the usual large scale of these facilities However, when viewed from travel routes, recreation areas, and other sensitive viewer locations, Visual Quality Objectives should be met.

M9-84 Trees may be removed within the Scenic Views Management Area where necessary to permit access to geothermal sites, mineral development, electronic sites, utilities and other special use sites.

Fuelwood

M9-85 Fuelwood gathering is permitted when it is consistent with the Desired Visual Condition for the species.

Transportation

M9-86 New roads will be located and designed to meet the Visual Quality Objectives for the area. Routes likely to be popular with Forest visitors will be designed and maintained to enhanced the Forest's scenic qualities

M9-87 Road alignments should fit the Forest landscape with a minimum of landform modifications and should present a cross-section of the area's landscape character. Road alignments should capitalize on opportunities that will create pleasant visual experiences.

M9-88 Signs should only be used where necessary for the user's safety and enjoyment of the Forest. They should be located and designed to blend with the elements found in the characteristic landscape wherever possible.

M9-89 Helispots, new gravel pits, disposal sites and borrow areas will be located out of site from sensitive viewer locations.

Fire Management

M9-90 Low intensity prescribed fires will be used to meet and promote the Desired Visual Condition within each stand type. Prescribed fire and other fuel management techniques will be used to minimize the hazard of a large high intensity fire In foreground areas, prescribed fires will be small, normally less than 5 acres, and shaped to appear as natural occurrences. If burning conditions cannot be met such that scorching cannot be limited to the lower 1/3 of the forest canopy, then other fuel management techniques should be considered.

M9-91 If at any time during the course of the prescribed burn it appears that the objectives for the burn are not being met, all burning will cease.

Wildfire

M9-92 The primary objective in foreground areas is to suppress any wildfires that could potentially become high intensity fires as quickly as possible. Standard suppression techniques may be applied in foreground areas. The method used to suppress wildfires should have the least impact on vegetation and soils possible. Restoration efforts will be made where fire suppression activities do not meet the desired visual condition.

M9-93 In middleground and background areas, wildfires can be suppressed using standard techniques. Control strategies will be developed to minimize impacts from suppression activities on the landscape. Visual contrasts will not be created through suppression techniques unless absolutely necessary.

M9-94 Recommended burn acre objectives will be developed as a part of the Fire Management Action Plan.

M9-95 A landscape architect should be consulted for recommended restoration measures following wildfire suppression activities in the Scenic Views Management Area

Forest Health

M9-96 Monitoring and vegetative management will emphasize the control or prevention of major insect and disease problems Minor insect infestations or root rot centers may not require immediate treatment, as long as they are consistent with the desired visual condition for the species in which they occur Insect and disease problems in the Scenic Views Management Area will be monitored to determine their rate of spread and degree of risk to the visual resource. (Also see Forest-wide standards/guidelines for Forest Health)

Management Area 10 Bend Municipal Watershed

Goal

To provide water at a level of quantity and quality which will, with adequate treatment, result in a satisfactory and safe domestic water supply.

To manage the Bend Municipal Watershed for multiple uses by balancing present and future resource use with domestic water supply needs.

General Theme and Objectives

The Bend Municipal Watershed will be managed to provide healthy timber stands that are growing at a moderate rate Stands will be in a condition which provides a minimum threat for catastrophic fire and which will retard insect infestation. Existing water quality will be maintained. Stream channels will be in stable conditions throughout the watershed. Access into the watershed for administrative and dispersed recreational activities will be allowed at a level which is compatible with the water quality goals of the Management Area

This Management Area contains a total of 3.7 M acres. .6 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 3.7 M acres were identified as not appropriate for timber production for this Management Area Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M10-1 Nonmotorized, dispersed recreation is permitted. Camping may be prohibited as necessary to meet the objectives of this Management Area. Entry permits may be required.

M10-2 Developed recreation facilities will not be constructed except to meet the goals of this Management Area Over-the-snow vehicles will be permitted only on designated routes and designated areas when the depth of continuous snowcover is adequate to protect other resources from adverse impact of this activity. Non-motorized vehicles may be restricted or prohibited in Management Area 10.

M10-3 The Bend Watershed Management Area will be managed to the Recreation Opportunity Spectrum standard of Semiprimitive Nonmotorized Semiprimitive Motorized standards can be applied to designated routes and areas where seasonal motorized use routes may be located. (See Appendix 2 for an explanation of the categories.)

M10-4 Saddle, draft, pack animals and domestic pets may be excluded in the future to meet the emphasis of this Management Area.

M10-5 Campfires and stove fires will not be permitted in this Management Area.

Timber

M10-6 Timber may be harvested (1) in the event of a catastrophe, (2) to reduce fuels, and (3) to create vigorous stands which contribute to the overall health and stability of the watershed. Timber harvesting will be on an nonprogrammed basis

M10-7 In the event of a catastrophe (i.e., insect epidemic or fire) timber will be harvested in a manner which will protect water quality and allow for rapid reforestation.

M10-8 Except in the case of a catastrophe, no more than 15 percent of the area within the Bend Municipal Watershed will be in managed stands with ages less than 20 years.

M10-9 Implications to the following items will be considered when developing proposals for timber management activities: (1) increases in annual flow, (2) increases in peak flow, (3) changes in water yield timing, (4) channel stability, and (5) impacts to the soil and water resources.

Range

M10-10 No grazing by domestic livestock will be allowed. Recreation livestock will not be permitted within Management Area 10.

M10-11 Vegetative manipulation will be allowed in catastrophic situations.

Wildlife

M10-12 Planned activities associated with human disturbance will be restricted between April 1 and July 31 in the upper portions of the watershed. Fuel or silvicultural treatments should consider improving overall plant community diversity. Natural meadows and openings will be protected with few ground disturbing activities permitted.

Minerals

M10-13 The area will be recommended for withdrawal from mineral entry for mining claims for locatable minerals.

M10-14 Geothermal leasing is denied.

M10-15 Pits and quarries for common materials will not be developed in the watershed.

Visual Quality

M10-16 Management activities are expected to be minimal. Activities to enhance or protect water quality will meet Modification or a higher objective

Watershed Management

M10-17 Where feasible, channels will be treated to enhance water quality.

Transportation

M10-18 Helispots will be strategically located and constructed to provide rapid access in the event of fire.

M10-19 Existing trails and any new trails which are needed will be located, designed, and constructed in a manner which protects water quality.

M10-20 If roads are constructed, they will be located, designed, constructed/reconstructed, and maintained to protect water quality and will be closed to the motorized public.

M10-21 Logging equipment which results in a minimum of ground disturbance will be used

M10-22 Transmission corridors may be allowed in this area. Construction, maintenance, and access will be strictly controlled in order to protect water quality.

Fire Management

Wildfire

M10-23 Protection of the municipal watershed will be a high priority. Fires within, or which threaten, the watershed will be aggressively controlled and mopped up Appropriate suppression action must do less watershed damage than the potential wildfire

M10-24 On small or low intensity fires, utilize existing fire barriers and appropriately constructed and rehabilitated hand firelines.

M10-25 On high intensity fires following an escaped fire situation analysis, heavy equipment to construct firelines and reduce potential acres burned may be used if it results in less total impact on the watershed A resource advisor should be appointed in all such situations to approve the location and standard of equipment work

M10-26 Only approved retardants will be used in the watershed. The City Water Department will be notified immediately of any planned use of retardant in the watershed.

M10-27 Recommended burn acre objectives will be developed as a part of the Fire Management Action Plan.

Prescribed Fire

M10-28 An aggressive low intensity prescribed fire program will be necessary in portions of the

watershed to treat the natural fuels accumulation. Prescribed burning with the objective of preventing the occurrence of large high intensity fires is permitted when soil and water quality objectives can be met.

Fuels Treatment Other Than Prescribed Fire

M10-29 The Bend Municipal Watershed will be given high priority for fuel treatment to keep fuel loadings at levels which will minimize the risk of catastrophic fires. Presuppression facilities such as helispots should be planned and constructed in a manner compatible with soil and water quality objectives.

Fuel Loadings

M10-30 Silvicultural entries should reduce the fuel loadings so that no less than 60 percent of the ground area is covered by duff, litter, residue, or vegetation. Optimum fuel loadings, exemplified by the following photo series, should be used. These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon These fuel loadings will be revised when new data, methods, or research indicate that a new profile would improve resource management programs.

	PP	*LP*	*MC*
Natural fuels	8-PP-4	1-LP-3	2-PP&A-4
Thinning	1-MC-3-PC	1-MC-3-PC	1-MC-3-PC
Partial Cut	2-PP-4-PC	2-LP-3-PC	3-TF-4-RC
Clearcut	1-LP-3-CC	1-LP-3-CC	2-MC-4-RC

Special Uses

M10-31 Special Uses permits will be allowed if they do not degrade the water quality.

Forest Health

M10-32 The emphasis will be to minimize conditions which are conducive to disease or insect attack Pest management will be incorporated into silvicultural fuel treatment prescriptions. Emphasis will also be placed on preventing insects or disease *movement into this Management Area from* adjacent lands. (Also see Forest-wide standards/ guidelines for Forest Health.)

Management Area 11
Intensive Recreation

Goal

To provide a wide variety of quality outdoor recreation opportunities within a Forest environment where the localized settings may be modified to accommodate large numbers of visitors. (Undeveloped recreation opportunities may occur in this Management Area.)

General Theme and Objectives

This Management Area will provide a wide variety of recreation opportunities including, but not limited to, activities dependent on various intensities of development Sophisticated facilities and sights and sounds of humans will be evident and often essential to provide the desired recreation experience. Generally, high concentrations of visitors will occur around developments. Fewer numbers will occur outside developments, but encounters between visitors can be frequent. Visitors with little knowledge of outdoor skills will be able to enjoy the area.

Opportunities for participation in a broad range of outdoor recreation activities will be available. Activities will often require support facilities and often, but not always, involve widespread use of motorized vehicles and boats.

This Management Area contains a total of 67 1 M acres. 32 5 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a) During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 67.1 M acres were identified as not appropriate for timber production for this Management Area Review and reconsideration of these findings must be done in accordance with CFR 219.14(d)

Standards and Guidelines

Recreation

ROS Category

M11-1 The recreation setting and opportunities provided include the Recreation Opportunity Spectrum Categories of Rural and Roaded Natural. (See Appendix 2 for an explanation of these categories)

Publicly Managed Recreation Opportunities

M11-2 Campgrounds where a fee is charged will receive maintenance and services that reflect the fees collected. These sites will contain the large investments in facilities. Nonfee campgrounds and day use sites, other than those associated with fee campgrounds, will receive minimum services and maintenance.

M11-3 Additional campground capacity will be constructed to meet projected demand. Occupancy rates of 40 to 45 percent will indicate the need to assess expanding facilities. This will involve expanding some existing sites and adding some new sites In addition, there will be a continued emphasis on rehabilitation and heavy maintenance of existing sites

M11-4 Day use facilities such as boat ramps, picnic areas, and interpretive sites may also be increased or expanded to meet a projected increase in the number of Forest visitors The type of day use facilities will also change over time to reflect the changing recreation need of the public.

M11-5 Paulina Peak is planned as an interpretive site. Parking will be expanded and toilet facilities will be added. Interpretive signing will also be added An electronic site is not compatible with this use and will not be permitted.

M11-6 Facility complexes will be constructed and maintained to Development Levels 3 through 5. (See Appendix 3 for an explanation of the levels) Complementary developments at Levels 1 and 2 can be provided in minor numbers and in proportion of capacity if essential to best utilize the recreation experience available within the area.

Privately Provided Recreation Opportunities

M11-7 The private sector may be encouraged to participate in campground construction and operation. This includes the construction and operation of new campgrounds, as well as the operation of some existing campgrounds. Existing resorts operating under special-use permits will also be encouraged to provide a share of the new camping facilities where possible.

M11-8 The number of resorts on the Forest providing summertime overnight accommodations will not increase. The quality of facilities will improve *through increased efforts at permit compliance.* All new facilities will be compatible with a Forest environment. The experiences provided will also be compatible with ROS classifications of the area. Operations in the winter season will be encouraged, as well as the summer, to meet the needs of winter recreation.

M11-9 Mt. Bachelor Ski Area will continue to expand to its approved capacity of approximately 26,000 people each day. In reaching this capacity, the following principles will be maintained:

No public overnight accommodations on the mountain

A balance between lift, lodge, run, and parking capacity will be maintained.

Parking capacity will be tied to the highway capacity.

Water use from Todd Creek should result in no modifications of the water level in Todd Lake and no significant depletion of water needed by the riparian plants along Todd Creek.

Use of mass transit will increase.

The road system serving the mountain will be upgraded so that 90% of the users will be able to reach the ski area within one hour travel time from Bend.

The mountain will be a center for both alpine and nordic skiing.

Skier densities will be no more than 4-8 skiers/acre in order to maintain the uncrowded feeling for which the area is known.

M11-10 The experience provided at Mt. Bachelor will be compatible with a ROS category of Rural or Roaded Natural. Specifically this will include a diversity of winter recreation activities that emphasize the Forest setting and provide an introduction to the more rustic natural resource-based recreation opportunities

M11-11 Year-round recreation activities will be encouraged. Summer facilities that are compatible with or enhance natural resource-based facilities will be permitted.

M11-12 Mt Bachelor will continue to grow as an international destination for both alpine and nordic skiing. Emphasis will be placed on building up the summer program to make Mt Bachelor a year round resort. No additional regional or destination alpine areas will be built on the Forest until Mt Bachelor has been developed to near the capacity of the Master Plan. Nordic areas and local alpine areas, however, may be added elsewhere on the Forest as the need develops.

M11-13 Skyliner Lodge has the potential to serve *as a hub for both summer and winter dispersed* recreation. The Lodge may be developed for group use with limited overnight accommodations. Any development of the Lodge must consider its historic value and integrity. Water and sanitation facilities need to be developed before the lodge can be effectively used. Other facilities could be developed on the site to supplement the Lodge

M11-14 Public services such as stores, resorts, and guided activities provided by private enterprise may be needed. The number, type, and extent of development will be determined by the recreation capacity of this Management Area and individual local areas being served.

Trails

M11-15 New trails constructed in this Management Area will emphasize walking, bicycle riding and hiking opportunities. Loop trails adjacent to campgrounds will be a priority. Horse trails will generally not be constructed in heavily used areas (except for facilities specifically built for horse use.)

Timber

M11-16 There will be no programmed harvest in this Management Area.

Ponderosa Pine:

M11-17 Ponderosa pine will be managed to maintain or create a visual mosaic of numerous, large diameter, yellow-barked trees with stands of younger trees offering visual diversity and a sense of depth in landscapes viewed from recreation use areas.

M11-18 Old growth characteristics, such as yellow, deeply-fissured bark, are desirable.

M11-19 Diversity in species, where biologically possible, is desirable. Species such and vine maple, aspen and occasional stands of fir or lodgepole pine are desirable for added visual interest. Shrubs and groundcover species are also a desirable visual component.

M11-20 Small, natural-appearing open spaces help provide a sense of depth and are a desirable visual component.

Mixed Conifers:

M11-21 Mixed conifer stands will be managed to perpetuate or enhance the characteristic (or natural) landscape. The characteristic landscape normally contains stands that are visually dense, though not necessarily continuous Diversity in tree and shrub species and in diameter classes produces the desired visual character when viewed from recreation use areas.

M11-22 Small, natural appearing openings are desirable, and are an important visual element of the characteristic landscape in mixed conifer stands

M11-23 Large diameter old growth characteristics are an important visual component. Ponderosa pine is a desirable component of these stands, where it either exists or could be introduced.

Lodgepole Pine:

M11-24 Lodgepole Pine will be managed to provide a mosaic of even-aged stands with additional visual diversity provided by occasional groups of other tree and shrub species Natural-appearing opening of varying sizes are desirable. Wherever biologically feasible, the reintroduction of Ponderosa pine in stands that have reverted to pure lodgepole pine is also desirable.

M11-25 The forest floor should be open and park-like with ground litter, shrubs and grasses providing additional variety

M11-26 Diversity in size classes, and the presence of natural-appearing openings that appear to rotate through time as younger stands grow up, will permit "depth" in these landscapes Instead of the traditional "wall" of mature lodgepole adjacent to recreation use areas, younger lodgepole stands will eventually replace the older mature trees to create a transitional effect. The viewer will be able to see back into the forest.

Range

M11-27 Grazing allotments included in this Management Area will exclude livestock use from developed sites Small pasture allotments for individually owned recreation stock will not be allowed in this Management Area except where use predates this allocation and the use is compatible.

M11-28 Range allotment management plans will specify practices which will meet the objectives of this Management Area.

Wildlife

M11-29 Emphasis will be on habitat improvement for watchable wildlife and maintaining or improving fish habitat. If significant changes in recreation use are planned because of changes in facilities or access, they will be coordinated with the Oregon Department of Fish and Wildlife.

M11-30 Should an osprey establishes a nest in, or immediately adjacent to, an established recreation facility (campground, resort, etc) no special precautions will be necessary since suitable habitat is available in other management areas If a bald eagle nest becomes established in the above situation, refer to the Forest Plan standards/ guidelines for Wildlife/Management Indicator Species to resolve the situation.

M11-31 Snags, and the live trees needed for future snags, will be maintained at 60 percent of the maximum potential population of cavity-nesting species, except where the objectives of this Management Area would be jeopardized. Snags determined to be safety hazards should be topped or removed. Nestboxes should be placed in campgrounds and other places of concentrated public use to allow observation opportunities of cavity-nesting wildlife.

Minerals

M11-32 These areas are currently open to mineral entry for mining claims for locatable minerals. Areas will be withdrawn from mineral entry for mining claims when it is determined that mining will not be compatible and cannot be mitigated to protect the Intensive Recreation Areas.

M11-33 Geothermal leases will be issued with Conditional Surface Use and Seasonal Restriction stipulations.

M11-34 Pits and quarries for common variety materials are not permitted.

Visual

M11-35 Within existing or future developed areas, management activities and facilities will meet Modification or a higher objective.

M11-36 Areas outside of developed areas will be managed so they meet the inventoried visual quality standards.

Fuelwood

M11-37 Fuelwood gathering will normally be limited to cleaning up residual wood materials resulting from management activities. Wood will be available first for use in public recreation facilities. On a case-by-case basis, commercial firewood cutters may be used where time and performance can be controlled to accomplish specific recreation objectives.

Transportation

M11-38 Roads to developed recreation sites will be reconstructed, operated and maintained to encourage passenger car access. To maintain compatibility, emphasis will be placed on matching the road design and maintenance standard with the service level of the developed site and will be in accordance with the Highway Safety Act.

M11-39 Commercial timber hauling will be restricted (limitations on haul during weekends, holidays, etc) as needed to reduce conflict with recreation activities; however, when restrictions are not practical, short term closures of public access may be necessary to meet the timber objectives of this Management Area.

M11-40 Off-highway vehicles will normally not be encouraged in this Management Area, especially in areas where recreation use is concentrated

Fire Management

Wildfire

M11-41 All wildfires should be aggressively controlled by using low impact methods as much

as practicable. Firelines constructed by hand will be favored over firelines constructed by heavy equipment except where high intensity fire situations may exist.

Prescribed Fire

M11-42 Prescribed fire may be used to reduce hazardous fuel concentrations and to form fuelbreaks adjacent to the high use, high fire occurrence areas such as the Lower Metolius, Upper Metolius, Twin Lakes, Pringle Falls, and Deschutes River. Prescribed burning can be done to enhance the recreation experience. Burning will be planned to have the minimum impact on recreation use or appearance of the area.

Fuel Treatment Options Other Than Prescribed Fire

M11-43 Treatment methods that will not be visible over a long period of time should be emphasized. Treatment should occur outside the normal recreation season.

Fuel Loadings

M11-44 Fuel loadings will normally vary. Areas within sight of campgrounds and other high-use areas should have almost 100 percent cleanup of activity fuels. Maintenance of natural fuels for appearance and leaving activity fuels for firewood is acceptable. Those areas further away from the high-use areas may receive treatment similar to General Forest. The following photos represent some acceptable situations adjacent to high-use areas.

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon. These fuel loadings will be revised when new data, methods, or research indicate a new profile would improve resource management programs.

	PP	***LP***	***MC-MH***
Natural Fuels	I-PP-2 1-PP-4	1-LP-2	1-MC-3

Thinning--All thinning photos contain too much slash.

Partial Cut	1-PP-4-PC	2-LP-3-PC	1-DF-4-PC 1-MC-4-PC
Clear Cut	1-PP&A-4-PC	1-LP-3-PC	3-TF-4-RC

M11-45 Fuel will be treated quickly and to a level commensurate with the increased risk and protection of recreation values.

Special Uses

M11-46 Special uses may be authorized where they complement objectives of this Management Area.

Forest Health

M11-47 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 12 Dispersed Recreation

Goal

To provide a range of quality recreation opportunities in an undeveloped forest environment. (Some recreational development may occur in this Management Area)

General Theme and Objectives

This Management Area will provide an environmental setting producing the kinds of recreation experiences that are attainable in large undeveloped areas. It will provide a feeling of vastness and remoteness and will have no irreversible evidence of humans. It will be in a predominantly unmodified or natural state. The environmental setting will often include a wide diversification of vegetation, terrain, and visible landform.

It will be managed to provide limited social contact and interaction among visitors. Primitive facilities, such as shelters and small camps, signing, and a transportation system for visitor access and use may be established Management will provide recreation opportunities that occur in a primitive environment, but restrictions will be less than in Wilderness areas. Motorized activities could be permitted in some areas. Low standard roads and trails could be utilized for motorized activities.

This Management Area contains a total of 48.4 M acres. 8 1 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 48.4 M acres were identified as not appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

Facilities

M12-1 Any sites where facilities are installed will be managed at Development Level 1 or 2 (See Appendix 3.)

M12-2 Primitive facilities may be installed to protect resources, provide for user safety, distribute use, and to meet Management Area goals.

M12-3 Facilities will be constructed of native materials whenever possible.

M12-4 Recreation facilities will be limited to primitive toilets, shelters, campfire rings, and recreation stock control devices. Signing for informational, directional, and safety purposes will be kept to a minimum.

ROS Category

M12-5 The recreation setting and opportunities provided include the Recreation Opportunity Spectrum categories of Roaded Natural, Semiprimitive Motorized and Semiprimitive Nonmotorized. (See Appendix 2 for an explanation of the categories.)

Vehicle Use

M12-6 Use of motorized vehicles will be restricted to designated roads and designated trails. However, over-the-snow vehicles will be allowed to travel cross-country when the depth of continuous snowcover is adequate to protect other resources from adverse impacts. The Pacific Crest Trail is closed to motorized use.

Trails

M12-7 The summer trail system for horses and hikers will be maintained. New hiker and horse trails may be added where market surveys demonstrate a need. Missing sections will be constructed and substandard sections will be reconstructed. Mountain bicycle trail systems will be developed.

M12-8 Trails in both SPNM and SPM should be constructed to provide a variety of difficulty levels in accordance with the Trails Handbook.

Timber

M12-9 There will be no programmed timber harvest Timber harvesting will be allowed in catastrophic situations such as fire or insect salvage and to prevent the spread of insects and disease to areas managed for other purposes or to meet this Management Area's objectives. Restoration of such an area will be designed to return it to a natural-appearing state

M12-10 Fuelwood gathering will be designed to take advantage of available fuel while providing for safe and aesthetically pleasing undeveloped recreation experiences. Opportunities will be limited to existing or designed access ways. New access for fuelwood gathering in SPM areas will be carefully designed, will meet recreation resource needs, and will normally be done only to salvage or prevent catastrophic losses of timber.

Range

M12-11 Outfitter guides using recreation stock will be allowed permits Grazing of domestic livestock will be permitted to utilize existing forage if the overall character of the area will remain unchanged. Structural range improvements such as fences and water will be allowed and will be constructed of native materials whenever possible.

Wildlife

M12-12 Fish stocking is permitted.

M12-13 Snags, and the live trees needed for future snags, will be maintained at 100 percent of the maximum potential population of cavity-nesting species, except where the objectives of this Management Area would be jeopardized. Snags determined to be safety hazards in areas of concentrated public use should be topped or removed.

Minerals

M12-14 These areas are open to mineral entry for mining claims for locatable minerals

M12-15 Geothermal leases will be issued with a No Surface Occupancy (NSO) stipulation.

M12-16 Pits and quarries for common materials are permitted if they do not detract from the Undeveloped Recreation Areas.

Visual

M12-17 Management activities and facilities will meet Partial Retention or a higher objective in Ponderosa pine and mixed conifer stands and Modification or a higher objective in lodgepole pine stands. These activities and facilities may include trailheads, trails, bulletin board and sign construction and vegetative management.

Transportation

M12-18 Trails and roads will be designed, constructed, and maintained to the minimum standard needed to achieve objectives and goals of this Management Area. A limited number of helispots may be constructed where natural openings are unavailable.

M12-19 No roads may be constructed in SPNM portions except for reasonable access for mineral exploration and development (Regional direction). In SPM portions, low density primitive roads may be constructed to encourage and provide challenge

to trail bikes and four-wheel drive vehicles but discourage standard vehicles.

M12-20 Roads management strategies will generally be "accept" or "encourage" use by dispersed recreationists. On some logging roads dispersed recreational use may be "discouraged" or "eliminated" (See Forest Wide S&Gs for an explanation of road management strategies). Some roads will be closed to meet resource objectives.

Fire Management

Wildfire

M12-21 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 Fire

M12-22 Prescribed burning may be used to return the area to natural conditions.

Fuel Treatment Other Than Prescribed Fire

M12-23 Fuel treatment methods that cause minimal impacts to the natural vegetation and are compatible with the resource management objectives will be used.

Fuel Loadings

M12-24 Fuel will be treated to a level commensurate with the protection of the resource values

Special Uses

M12-25 Permits may be allowed for structures if they existed prior to allocation of lands where they meet other management objectives. New permits for small devices and structures may be allowed. Such structures must blend with the unmodified environment.

M12-26 Special uses may be authorized if they do not detract from the values of the Undeveloped Recreation Areas.

Forest Health

M12-27 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 13 Winter Recreation

Goal

To provide quality winter recreation opportunities within a forest environment that can be modified for visitor use and satisfaction.

General Theme and Objectives

This Management Area will provide opportunities for winter recreation activities. Facilities and evidence of man will be present Roads, vegetation management, and other development activities are permitted but only as necessary to enhance the winter recreation opportunities. Social contact will vary but high social contact could be expected in some areas and during some portions of the winter use season Facilities for tubing and sledding can be developed. Some areas will be closed to motorized use. This area is available for geothermal leasing.

This Management Area contains a total of 32 2 M acres 3.2 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 32.2 M acres were identified as not appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

Standards and Guidelines

Recreation

M13-1 The emphasis is to manage the area for dispersed, winter-type, recreational activities. Dispersed recreation use in the summer is compatible but not emphasized

M13-2 Cross-country skiing and over the snow vehicle trails will be provided but will be located and designed to separate motorized and non-motorized use in order to minimize conflict and to keep hazards to a minimum. Parking lots, shelters, and visibly signed routes are necessary to support the recreational activity. This Management Area can be zoned to minimize conflicts between motorized winter activities and nonmotorized activities. Individual roads or trails can be designated for separate uses. Areas closed to motorized activities will be shown in the Off-Highway Vehicle (OHV) Plan. Areas closed to motorized activity could change as use patterns change. The OHV Plan would be amended to show such changes.

ROS Category

M13-3 The recreation setting activity and experience opportunities for the Recreation Opportunity Spectrum (ROS) category of Semiprimitive Nonmotorized, Semiprimitive Motorized, and Roaded Natural will be provided in the winter season (see Appendix 2 for an explanation of the categories). For summer recreation the ROS category of Roaded Modified may also be present.

Timber

M13-4 There is no programmed harvest in this Management Area.

M13-5 Timber management will be designed to provide suitable conditions for winter recreation, however, timber will not be scheduled as part of the chargeable program. Rotation ages and silvicultural prescription can vary to meet recreation objectives. Clearcuts are acceptable to provide openings for snowplay areas or to open up vistas for visual purposes Firewood cutting is permissible. Timber harvesting activities will normally be conducted outside of the winter recreation season. Timber harvesting is also permitted to address catastrophic situations such as fire or insect and disease damage but the primary objective even in these situations will be to improve winter recreation opportunities.

Range

M13-6 Allotments established in this Management Area will be managed to provide for a forage condition rating of fair or better. Transitory range that results from vegetative manipulation can be

used. Structures such as fences must be designed and located so they do not interfere with, or present a hazard to, winter recreation activities.

Wildlife

M13-7 Snags, and the live trees needed for future snags, will be maintained at 100 percent of the maximum potential population of cavity-nesting species, except where the objectives of this Management Area would be jeopardized. Snags determined to be safety hazards in areas of concentrated public use should be topped or removed.

Minerals

M13-8 These areas are open to mineral entry for mining claims for locatable minerals.

M13-9 Geothermal leases will be issued with Conditional Surface Use and Seasonal Restrictions Stipulations.

M13-10 Pits and quarries for common materials are permitted

Visual

M13-11 Management activities will meet Modification or a higher objective. Activities may include snoparks, shelters, signs, bulletin boards, and vegetative openings for play areas or for views.

Transportation

M13-12 Local and low standard roads needed to support winter recreation activities will be designed and maintained to serve as winter travel routes. Some roads may be closed for resource protection.

Fire Management

Wildfire

M13-13 Suppression practices will be designed to prevent losses of large acreages to wildfire. Snags that do not present a hazard to life or a threat to successful suppression activities should not be felled.

Prescribed Fire

M13-14 Prescribed fire may be used to remove concentrations of material that hinder winter recreation activities and to reduce the risk of conflagration fires.

Fuel Treatment Other Than Prescribed Fire

M13-15 The lowest cost option which meets the recreation, soil, water, and fire objectives should be used.

Fuel Loadings

M13-16 Slash will be treated to minimize chances of large wildfires but will not be cleared to the point that the forest floor is devoid of all slash and logs. Some slash and larger dead material will be left for ground cover for soil protection, microclimates for establishment of trees, and small mammal habitat.

Optimum fuel loadings should be guided by the following photo series.

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon. These fuel loadings will be revised when new data, methods, or research indicate a new profile would improve resource management programs.

	PP	*LP*	*MC-MH*
Thinning (PCT)	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut (SH, OR, CT)	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC 2-TF-4-RC	2-MC-4-PC
Clearcut (CC)	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC 2-MC-4-RC	TF-4-RC

Special Uses

M13-17 Special uses may be authorized if they do not detract from the values of the Winter Recreation Areas.

Forest Health

M13-18 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 14 Oregon Cascade Recreation Area

Goal

To conserve, protect, and manage in a substantially undeveloped condition the unique values associated with the Oregon Cascade Recreation Area (OCRA).

To feature dispersed recreation opportunities and wildlife, fish, and scenic resources...including nesting habitat for spotted owls.

General Theme and Objectives

The emphasis of this Management Area will be to provide opportunity to enjoy scenic, wildlife recreation values in a setting that is not dominated by human activities but where some motorized use could be permitted along with some recreation related facilities.

This Management Area contains a total of 42.7 M acres 42.7 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a).

Standards and Guidelines

Recreation

Vehicle Use

M14-1 Local and low standard roads needed to support the winter recreation activities and vegetation management will be located to serve as winter travel routes Some roads may be closed for resource protection.

Facilities

M14-2 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 of the OCRA. Development within OCRA will be limited to that necessary to manage use within the area.

M14-3 Primitive facilities may be provided for visitor enjoyment, to protect resources, provide for visitor safety, and distribute use throughout the area.

M14-4 Facilities will be constructed of native materials whenever possible.

M14-5 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.

ROS Category

M14-6 The recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum Category of Semiprimitive Motorized will be provided.

Wilderness

M14-7 That area in the OCRA classified as Wilderness will be managed in accordance with the Wilderness Act and Wilderness Management Standards and Guidelines and Plans.

Coordination

M14-8 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.

Timber

M14-9 There will be no programmed 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 objectives of this Management Area. 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.

M14-10 Commercial or personal use fuelwood gathering may be permitted when needed to meet the recreation and wildlife objectives.

Range

M14-11 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.

Wildlife

M14-12 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

Minerals and Geothermal

M14-13 The area will be withdrawn from entry for locatable minerals and for all mineral leasing on January 1, 1989. Geothermal leasing will be denied.

M14-14 Common variety materials use will not be permitted.

Visual Quality

M14-15 Management activities will meet Partial 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.

Watershed

M14-16 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.

Transportation

M14-17 Trails and 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.

Fire Management

Wildfire

M14-18 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.

M14-19 Protection of spotted owl nest sites will be given very high priority

Prescribed Fire

M14-20 Prescribed burning may be used to meet the recreation and wildlife objectives.

Fuel Treatment

M14-21 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

M14-22 Fuel loadings will consist of natural accumulations except as modified by prescribed burnings.

Special Uses

M14-23 New permits for small devices and structures may be allowed where necessary for resource protection and management or visitor safety and comfort.

M14-24 *Transmission corridors are not compatible* with the objectives of the OCRA and normally will not be permitted unless there is no feasible alternative location.

M14-25 Special uses may be authorized if they complement the values of the Oregon Cascade Recreation Area.

Forest Health

M14-26 Follow Forest-wide standards/guidelines for Forest Health.

Management Area 15 Old Growth

Goal

To provide naturally evolved old growth forest ecosystems for (1) habitat for plant and animal species associated with old growth forest ecosystems, (2) representations of landscape ecology, (3) public enjoyment of large, old-tree environments, and (4) the needs of the public from an aesthetic spiritual sense.

Old growth areas will also contribute to the biodiversity of the Forest.

General Theme and Objectives

An old growth forest will be managed to provide (1) large trees, (2) abundant standing and downed dead trees, and (3) vertical structure (multiple vegetative canopy heights), except in lodgepole pine types where a single canopy level is common Such stands would vary in size and be located so that a wide variety of conditions are represented.

This Management Area contains a total of 32.8 M acres. 6.3 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 32.8 M acres were identified as not appropriate for timber production for this Management Area Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

The distribution and minimum size of old growth areas were based upon the habitat requirements of the following indicator species:

Pine Martens in the mixed conifer forest,
Goshawk in the Ponderosa pine forest, and
Three toed woodpecker in the lodgepole pine forest.

These species were selected because they are endemic to the Forest, and their habitat requirements are similar to or exceed those of other endemic, old growth, associated species.

Some other management areas (e.g Spotted Owl, Research Natural Areas, etc.) also provide suitable habitat for old growth associated wildlife and plants. Designated old growth management areas fill gaps between these other areas.

Some old growth areas are also representatives of "landscape ecology" and provide areas to study old growth plant succession. Three areas have been established in each geologic providence for each species group There are two geologic providences on the Forest and five species groups. The geologic providence was used as the basis for establishing landscape ecology areas because they were also used as the basis for the Reseach Natural Area (RNA) network that has been established nationwide for scientific research The choice of three representative areas per providence per species group is to allow for three replications of experiments, which is common in the biological sciences.

This Old Growth Management Area does not contain all the areas needed for landscape ecology studies because some areas are already protected in other management areas.

Many Ponderosa pine and mixed conifer old growth areas provide for the public's desire for large old-tree environments that may not be adequately provided for in other management areas such as Wilderness, Dispersed Recreation, RNAs etc

Some of the old growth areas are intended to provide for more than one of the objectives to occur on the area at the same time. Although, it may be necessary to restrict public use of some key areas for certain periods of time, to protect animal populations, the objective is to keep these areas open to the public

Standards and Guidelines

Recreation

M15-1 Concentrated human activity is not compatible in this Management Area but dispersed recreation is generally acceptable.

M15-2 Vegetative manipulation to maintain the old growth character of some areas may conflict with recreation use but such occurrences should be limited in size and number. Restriction of recreation use in some key areas for certain periods of time to protect animal populations may be necessary.

M15-3 Concentrated use by off-highway vehicles *and snowmobiles will not be permitted but* incidental use of OHVs and snowmobiles will generally be permitted.

Timber

M15-4 There will be no programmed harvest or wood removal in these areas during this planning period, however, vegetative manipulation including removal may occur to perpetuate or enhance old growth characteristics.

M15-5 If the structure of an old growth area is significantly altered through a catastrophic event such as a fire, windstorm, or insect epidemic, another stand would be substituted that meets *the minimum requirements for the indicator species.* The original area could then be salvaged and reforested.

An old growth area will be considered significantly altered if it no longer meets the minimum habitat needs for the indicator species.

M15-6 Firewood cutting and gathering is not permitted.

Range

M15-7 Livestock grazing is generally not compatible with old growth areas.

M15-8 Exotic plants will not be introduced. Vegetative manipulation to enhance forage production or species composition for livestock consumption is not permitted.

Wildlife

M15-9 Snags, and the live trees needed for future snags, will be maintained at 100 percent of the maximum potential population of primary cavity-nesting birds using the Deschutes National Forest *Wildlife Tree Implementation Plan. Live trees in* lodgepole pine stands may not be available over the next few decades due to existing and predicted bark beetle-caused mortality. Dead, down trees *will be managed to maximized biological diversity.*

Minerals

M15-10 Old Growth areas are open to mineral entry for mining claims for locatable minerals.

M15-11 Geothermal leases will be issued with No Surface Occupancy (NSO) stipulations.

M15-12 Pits and quarries for common materials are not permitted.

Visual

M15-13 Management activities will meet or exceed the inventoried visual quality objective.

Transportation

M15-14 Access by road or trail will be limited to the minimum standard and density that meets the objectives of this Management Area. Roads no longer needed will be closed and allowed to revegetate naturally. Helispots and transmission corridors will not be allowed.

Fire Management

Wildfire

M15-15 In mountain hemlock, mixed conifer, and lodgepole pine forest types, aggressive suppression which uses a minimum of heavy equipment *wherever possible will be emphasized.*

M15-16 In Ponderosa pine forest, when existing and predicted burning conditions favor low intensity

fires, containment suppression tactics are appropriate. This may include burning out from existing barriers and scratch lines.

M15-17 High intensity fires will be suppressed

M15-18 The low intensity burn acre objective for each old growth area will be the same as the adjacent management area with the lowest burn acre objective.

Prescribed Fire

M15-19 Prescribed fire is not appropriate in lodgepole pine stands. In Ponderosa pine and mixed conifer stands, prescribed fire may be used to achieve desired old growth characteristics. It may also be used there to reduce unacceptable fuel loadings that potentially could result in high intensity wildfire.

Fuel Treatment Other Than Prescribed Fire

M15-20 Prescribed fire is the preferred method of fuel treatment. However, if prescribed fire cannot reduce unacceptable fuel loadings, other methods will be considered.

Fuel Loadings

M15-21 Natural fuel loading will normally be the standard.

Special Uses

M15-22 Special uses may be authorized if they do not detract from the values of the Old Growth Areas Transmission corridors and helispots will not be permitted

Forest Health

M15-23 Monitor pests normally associated with old growth ecosystems to prevent unacceptable damage to adjacent areas

M15-24 See Forest-wide standards/guidelines for Forest Health. Only practices which are compatible with the Old Growth objectives will be adopted when considering treatment of insects and diseases

Management Area 16 Experimental Forest

Goal

To provide an area where field research activities are conducted while considering other resource values. Administrative coordination between the National Forest System and Research within the Forest Service will provide for long-term protection of the Forest Environment to assure future research needs are met. Lands within one quarter mile of the Deschutes Wild and Scenic River will be managed according to Wild and Scenic River standards/guidelines.

General Theme and Objectives

The Pringle Falls Experimental Forest is within the Forest boundary and is administered by the Pacific Northwest Research Station. The Experimental Forest serves as a field laboratory for research. Experiments are conducted to evaluate the effects of silvicultural practices on growth and yield of Ponderosa and lodgepole pine. The effects of harvesting on soil moisture and other resources are also being evaluated. The role of fire in natural ecosystems is being investigated.

This Management Area contains a total of 9.0 M acres. 9.0 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a).

Standards and Guidelines

Recreation

M16-1 The area along the Deschutes River between Roads 44 and 4370 will provide opportunities for onsite recreation research and provide the following types of recreation: dispersed area camping, developed site camping, fishing and hunting, boating (primarily canoe and low horsepower), floating (rafting), interpretation of environment and Experimental Forest activity, and hiking.

The area will be managed so as not to exceed area PAOT capacity determined by site capability and desired recreation experience.

Developed sites will be maintained and managed at Development Levels 2 and 3 (mostly Level 2) (See Appendix 3 for a description of the Levels.) Level 3 will apply to the more heavily used and consistently attractive areas.

The current administrative site will be managed to exclude recreation use and provide support and administrative facilities for the Experimental Forest.

Areas of concentrated or dispersed camping use will be managed to prevent or rehabilitate site degradation and damage. When excessive site damage is occurring, management action will be implemented to correct this condition.

OHV use is allowed (primarily for dispersed area camping access). When such use causes intolerable deterioration or degradation, action will be implemented to correct this condition or limit the OHV use.

The area will be managed to assure a Recreation Opportunity Spectrum experience of Roaded-Natural.

M16-2 The remainder of the Experimental Forest will be managed to provide recreation opportunities appropriate and commensurate with Forest Research The following activities will be emphasized:

Casual observation and interpretation of Experimental Forest activities

Environmental education.

Hunting.

M16-3 OHV activity will be prohibited, except for over-the-snow vehicle use which can continue as long as it does not adversely impact a resource. Over-the-snow vehicles can be excluded from specific areas to prevent interference or damage to research projects in progress. This will normally be accomplished by signing and posting these areas.

Timber

M16-4 There will be no programmed timber harvest in this Management Area.

M16-5 Timber harvest and vegetative manipulation may be allowed in catastrophic situations if determined as necessary by the Station Director's Representative.

Wildlife

Threatened and Endangered Species

M16-6 Should a species listed as threatened or endangered be encountered, the following process will apply:

Determine if the area is essential habitat for the species (nesting habitat, winter roosts) or if species' use of the area is incidental.

Protect essential habitat from adverse modification through curtailment of conflicting activities, modification of activities, seasonal restriction of activities, or avoiding the area. Should this result in a possible conflict with established research activities, initiate consultations in accordance with existing regulations.

Raptors

M16-7 Where possible, research activities will protect active nests of raptors (species other than T&E) such as goshawks, red-tailed hawks, owls, and golden eagles, during the nesting season (March 1 to August 31) by establishing a zone around the nest and restricting activities within that zone. The zone could range up to 1/4 mile depending on the species and conditions at the site.

Cavity Nesters

M16-8 Snags, and the live trees needed for future snags, will be maintained at 60 percent of the maximum potential population of cavity-nesting species, except where the objectives of this Management Area would be jeopardized.

Downed Logs

M16-9 Two dead and downed logs per acre are recommended to be left after research activities are completed. Such trees or logs should be greater than 12 inches in diameter on the small end and a minimum of 20 feet long

Minerals

M16-10 Areas are to be withdrawn for mineral entry for mining claims for locatable minerals.

M16-11 Geothermal leases will be issued with No Surface Occupancy stipulations. Leases must be approved by the Station Director.

M16-12 Common material may be mined from the Cruiser Butte Cinder pit for use within the Experimental Forest. Additional pits and quarries may be developed with approval of the Station Director.

Visual

M16-13 Inventoried visual quality objectives will be met in Ponderosa pine stands in the foreground areas along the Deschutes River and Forest Roads 43, 44 and 4410. In lodgepole pine stands in these areas, Modification or a higher objective will be met

Watershed

M16-14 Attempts to control bank erosion using native plant species on the Deschutes Wild and Scenic River can be implemented within this Management Area

Fuelwood

M16-15 Fuelwood gathering may be allowed upon determination by the Station Director's Representative.

Threatened and Endangered Plants

M16-16 *Use the same procedure for threatened* and endangered wildlife.

Transportation

M16-17 Roads will be constructed and maintained to meet the access needs of the Experimental Forest. Maintenance plans will be coordinated with the Laboratory Leader on a recurring basis

Fire

Wildfire

M16-18 Suppression should be aggressive and *aimed at minimizing acres burned and trees* damaged. Suppression should emphasize low impact methods such as handline, use of water, *and helitack wherever the methods can meet the* acreage constraints. Because they are fertilizers, retardants may adversely affect research plots and are normally discouraged; however, in extreme fire situations their use may be appropriate.

M16-19 The Pacific Northwest Research Station in Bend should be notified of a fire immediately after the initial dispatch so they can be available to assist, monitor, and advise on suppression *practices.*

Prescribed Fire

M16-20 Prescribed fire will be used only with the approval of the Bend Silviculture Lab Project Leader. Initial prescribed fire projects should be located along the perimeter of the Experimental Forest to protect it from external fires.

Fuel Treatment Other Then Prescribed Fire

M16-21 Fuel treatment methods other than prescribed fire will be dictated by the needs of the individual research project

Fuel Loadings

M16-22 Fuel loadings will be dependent on the research project.

Special Uses

M16-23 Special uses will be allowed if they do not detract from the Area and are approved by the Station Director.

Management Area 17 Wild and Scenic Rivers

Goal

To protect and enhance those outstandingly remarkable values that qualified segments of the Deschutes, Little Deschutes, Big Marsh, Crescent, and Squaw Creeks for inclusion in the National Wild and Scenic Rivers System.

The following S&Gs will ensure that the values which qualified each river or stream segment for inclusion in the National Wild and Scenic River System are preserved until the management planning is completed for each designated waterway. These S&Gs will serve as an interim management direction until formal river corridor management plans are completed and the Forest Plan is amended to include the appropriate direction. Refer to Table 4-12 for description of sections of rivers covered by these standards/ guidelines.

General Theme and Objectives

The primary objectives for managing waterways which are components of the National Wild and Scenic Rivers System will be to protect the outstandingly remarkable values identified for each and for maintaining the free-flowing nature of the river. The difference between a wild, scenic, or recreational section of river is measured by the degree of development, appropriate types of land use and ease of accessibility by roads and trails

An important objective of management for the Deschutes River is to provide recreation settings close to Bend that feature a relatively natural environment emphasizing day use and minimal development.

This Management Area contains a total of 14.3 M acres. 5.1 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a). During the analysis of alternatives using the criteria in 36 CFR 219 14(c), 14.3 M acres were identified as not appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219 14(d).

Standards and Guidelines

M17-1 The following guidelines set forth standards for Deschutes National Forest rivers by classification (wild, scenic, or recreational). These guidelines should be applied to the extent of the Forest Service's jurisdiction over Federal lands, Federal scenic or access easements, and other interests. They do not apply to privately owned lands.

M17-2 Forest-wide standards/guidelines in Chapter 4 also contain important direction to be implemented within the following river classifications.

M17-3 Standards for Wild Rivers include:

Vegetation Managment: The intent is to limit man-caused vegetation changes such that they mimic ecological changes. Cutting of trees will not be permitted except when needed in association with a primitive recreation experience (such as clearing for trails and protection of users), to protect the environment (such as control of fire) or to maintain or enhance riparian dependent resources. Vegetation outside the boundary, but within the visual corridors, will be managed and harvested in a manner to provide special emphasis to visual quality.

Water Supply: All water supply dams and major diversions are prohibited.

Hydroelectric Power: No development of hydroelectric power facilities would be permitted.

Flood Control: No flood control dams, levees, or other works are allowed in the channel or river corridor. The natural appearance and essentially primitive character of the river area must be maintained

Mining: New mining claims and mineral leases are prohibited within 1/4 mile of the river. Valid claims would not be abrogated Subject to

regulations (36 CFR 228) that the Secretaries of Agriculture and Interior may prescribe to protect the rivers included in the National System, other existing mining activity would be allowed to continue. Existing mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation, and visual impairment. Reasonable access will be permitted.

Geothermal: Leasing will not be permitted.

Road Construction: New road construction will not be permitted.

Recreation Development: Refer to Management Area 6, Wilderness.

Structure: Refer to Management Area 6, Wilderness.

Utilities: New transmission lines, gas lines, water lines, etc are not permitted

Motorized travel: Motorized travel on land or water will not be permitted.

M17-4 Standards for Scenic Rivers include:

Vegetation Management: Vegetation will be managed to appear natural and emphsize protection of riparian plant communities. A wide range of silvicultural practices could be allowed provided that such practices are carried on in such a way that there is no adverse effect on the river and its immediate environment. The river area should be maintained or restored to it's near natural environment Vegetation outside the boundary but within the visual scene area should be managed and harvested in a manner which provides special emphasis on visual quality.

Harvest of trees in scenic segments will be oriented towards enhancement of scenic, recreational and/or wildlife, fisheries or hydrologic values and not solely for the commercial value of the timber. Over the long-term the appearance of the river corridor should remain near-natural with the impacts of management activities apparent for only the short-term. Cleanup after activities shall be completed within one year. Dead or dying trees adjacent to the river and associated recreation facilities should be evaluated for their scenic, hydrologic, wildlife and fisheries (should they fall in the river) values as well as for any safety and disease control risks they may pose Salvage for commercial timber value should not be automatic.

Additional measures designed to mitigate impacts such as flush cutting stumps in visually sensitive areas and falling trees away from the river will be employed.

Water Supply: All water supply dams and major diversions are prohibited.

Hydroelectric Power: No development of hydroelectric power facilities would be allowed.

Flood Control: Flood control dams and levees would be prohibited on all designated streams with the exception of Squaw Creek. Facilities necessary for emergency protection for the town of Sisters relative to a rapid discharge of Carver Lake would be permitted on Squaw Creek if no other reasonable flood warning or control alternative exists.

Mining: Subject to regulations at 36 CFR 228 that the Secretaries of Agriculture and the Interior may prescribe to protect the values of rivers included in the National System, new mining claims and mineral leases could be allowed and existing operations allowed to continue. However, mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment.

Geothermal: Leasing and development could be permitted with conditional use restrictions that protect or enhance the rivers outstanding resource values.

Road Construction: Roads may occasionally bridge the river area and short stretches of conspicuous or longer stretches of inconspicuous and well-screened roads or screened railroads could 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.

Agriculture: A wide range of agricultural uses is permitted to the extent currently practiced. Row crops are not considered as an intrusion of the "largely primitive" nature of scenic corridors as

long as there is not a substantial adverse effect on the natural-like appearance of the river area.

Recreation Development: Larger scale public use facilities, such as moderate size campgrounds, public information centers, and administrative headquarters are allowed if such structures are screened from the river.

Structures: Any concentrations of habitations are limited to relatively short reaches of the river corridor. New structures that would have a direct and adverse effect on river values would not be allowed

Utilities: 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. Where new rights-of-way are indicated, they will be required to protect or enhance the resource values indentified for the river.

Motorized Travel: Motorized travel on land or water may be permitted, prohibited or restricted as necessary to protect the river values

M17-5 Standards for Recreational Rivers include:

Vegetation Management: Vegetation management activities would be allowed under standard restrictions to protect the immediate river environment, water quality, scenic quality, fish and wildlife, riparian plant communities, and other values.

Harvest of trees in recreational segments will be oriented towards enhancement of scenic, hydrologic, fisheries, recreational and/or wildlife values Over the long-term the appearance of the river corridor should remain near-natural with the impacts of project activities apparent but subordinate to the natural character of the landscape. Cleanup after project activities shall be completed within one year. Dead or dying trees adjacent to the river and associated recreation facilities should be evaluated for their scenic, hydrologic, wildlife and fisheries (should they fall in the river) values as well as for any safety and disease control risks they may pose. Salvage for commercial timber value should not be automatic.

Additional measures designed to mitigate impacts such as flush cutting stumps in visually sensitive areas and falling trees away from the river will be employed.

Water Supply: Existing low dams, diversion works, rip rap and other minor structures are allowed provided the waterway remains generally natural in appearance. New structures are prohibited.

Hydroelectric Power: No development of hydroelectric power facilities is allowed.

Flood Control: Existing flood control works may be maintained. New structures are prohibited.

Mining: Subject to regulations (36 CFR 228) that the Secretaries of Agriculture and the Interior may prescribe to protect values of rivers included in the National System, new mining claims and mineral leases are allowed and existing operations are allowed to continue Mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment.

Geothermal: Leasing and development would be permitted with No Surface Occupancy. The situation will be reviewed as river management plans are developed

Road Construction: Paralleling roads or railroads could be constructed on one or both river banks There can be several bridge crossings and numerous river access points.

Agriculture: Lands may be managed for a full range of agricultural uses, to the extent currently practiced.

Recreation Development: Campgrounds and picnic areas may be established in close proximity to the river However, recreational classification does not require extensive recreation development.

Structures: Small communities as well as dispersed or cluster residential developments are allowed New structures are allowed for both habitation and for intensive recreation use.

Utilities: This is the same as for the scenic river classifications.

Motorized Travel: Motorized travel on land or water may be permitted, prohibited or restricted. Controls will usually be similar to surrounding lands and waters.

M17-6 Deschutes River Carrying Capacity: A carrying capacity has been established for the segment of river from Aspen Camp to the Lava Island takeout. Launches have been limited to four boats per hour per operater. Permits have been limited to three Outfitter-Guide Permittees per year. The estimated maximum capacity reflects a 75% to 25% split between commercial and non-commercial floaters, the latter being unregulated at this time. Non-outfitted river use has been increasing at such a slow rate that regulation of this use is not anticipated.

The desired maximum level of social encounters will be obtained if no more than four boats per hour per operator are launched. The desired environmental protection is also provided below this level.

Recreational carrying capacities for the remainder of the river corridors will be determined during the development of river management plans.

Opportunities for OHV use on other than system roads will not be provided in areas of concentrated recreation use or where sensitive resource values would be adversely affected. Future planning will define areas where OHV's may be used and the necessary management requirements for their use within the river corridors.

Additional Standards/Guidelines for River Classifications

Wildlife and Fish

M17-7 Management will emphasize maintenance or enhancement of habitat for watchable wildlife especially in the riparian zone. Retention of snags will be emphasized for dependent species habitat and as a source of large organic debris for the river. Snags which may be a hazard in recreation sites will receive careful scrutiny and will be removed only if they pose a hazard.

M17-8 Work with the Oregon Department of Fish and Wildlife and local irrigation districts to establish acceptable flows for fish survival and to reestablish important spawning gravels on the Deschutes River.

M17-9 Fish and wildlife habitat improvement projects should be natural appearing and be compatible with other values of the riverine setting.

M17-10 Also, refer to elk habitat management standards and guidelines for additional direction which may affect management of certain river corridors.

Visual

M17-11 The following visual management standards will be used for each river classification.

River Class	Visual Standard
Wild River	Preservation
Scenic River	Retention
Recreation River	Partial Retention

Administration

M17-12 A variety of County, State, and Federal government entities have responsibilities and interests in the management of these river and stream corridors Each has a unique area of expertise and authority and each can make a contribution in protecting these river systems. Working cooperatively with these organizations will be an essential part of the Forest Service management effort

Management Area 18 Front Country

Goal

To provide and maintain a natural appearing forested landscape on the slopes northeast of the Three Sisters and Tam MacArthur Rim while providing high and sustainable levels of timber production.

General Theme

This Management Area occupies a place between Scenic Views and General Forest. While it calls for a greater emphasis on timber production than the former, the Visual Quality Objective is Partial Retention for view areas, compared with Modification in General Forest Modification may apply to areas which cannot be seen from the viewing locations discussed in the next paragraph.

Certain viewer locations are considered important towards maintaining the desired visual appearance of this Management Area. These **significant viewer locations** are along the Three Creeks Road, west from Hwy 20 between Bend and Sisters, Awbrey Butte, the Redmond-Sisters Highways (126), and to the south from the Old McKenzie Hwy. (242) just west of Sisters.

Objectives

Visual Quality

The lower slopes of the viewed area are predominately Ponderosa pine and the upper portion ranges from Ponderosa pine overstory with dense white fir to pure lodgepole pine understory. Viewer distance to these areas ranges from 6 to 20 miles, making individual trees and tree sizes indistinguishable These stands are visually important because they provide a strong textural element that forefronts the dramatic Three Sisters.

The desired visual condition is a landscape where color contrasts are minimal and the full crowns of younger trees create a visually uniform, primarily dark green, gently rolling landscape. Management activities should not result in shapes or lines that are visible from significant viewer locations. Openings and textural changes are, and should be, generally small and remain subordinate in this landscape except during the winter months, when snow, weather and lighting conditions exaggerate color contrasts making openings more evident.

Timber Production

This Management Area contains a total of 34 7 M acres. 1.7 M acres were identified as not suitable for timber production during the analysis of the management situation in accordance with CFR 219.14(a) During the analysis of alternatives using the criteria in 36 CFR 219.14(c), 1.7 M acres were identified as not appropriate for timber production for this Management Area. Review and reconsideration of these findings must be done in accordance with CFR 219.14(d).

This area is highly productive timberland and portions of it have been intensively managed during the past 50 years. A portion is under private ownership and is managed primarily for timber

Forest Service management will be based on the silvicultural and ecological characteristics of stands within this Management Area. The majority of the area is relatively flat and occupied by stands of Ponderosa pine. Uneven-age management of these and mixed conifer stands will be compatible with the area's scenic objectives and will be the preferred treatment wherever feasible. On highly visible, steep slopes, stand management may have to be precluded.

Timber harvesting and postharvesting activities, particularly tree planting on suitable lands, should be coordinated with the grazing program to minimize conflicts

Standards and Guidelines

Scenic Views

M18-1 In areas visible from significant viewer locations, management emphasis will focus on maintaining a uniform tree canopy. Openings are acceptable but should not dominate the landscape

when uniform tree canopies cannot be maintained because of biological or topographic conditions.

M18-2 Openings resulting from vegetative management activities in areas viewed from significant viewer locations will be designed to follow natural topographic features, to avoid geometric shapes and straight lines, and to be sized to simulate naturally occurring openings. For management activities which may result in visible openings in the forest canopy, a landscape architect will be consulted on the location, size and configuration for treatment units.

M18-3 Portions of the area which cannot be seen from the significant viewer locations will be managed similarly to land in General Forest.

Timber

M18-4 Two years after management activities are concluded, they will not be obvious when viewed from significant viewer locations.

M18-5 Due to the mountain pine beetle epidemic created openings can exceed 40 acres in the lodgepole pine working group. (See Management Standard and Guideline 2-1 in the Pacific Northwest Regional Guide of May 1984). However, mitigation measures such as feathering, scalloping and other edge treatments will be employed.

M18-6 Timber production from this Management Area will be monitored and the contribution to the ASQ will be adjusted to meet visual objectives.

Range

M18-7 Livestock grazing will be allowed. Structural range improvements such as fences, water developments and access roads, will be located so they are not visible from significant viewer locations.

M18-8 Allotments will be managed to achieve or maintain a forage condition rating of fair or better or to the site's capability.

M18-9 Transitory range will be managed in conjunction with timber management to achieve higher levels of forage production and the desired level of forage utilization. Livestock grazing on transitory ranges may take place under the following situations:

* Where forage occurs as a result of site disturbance and/or timber canopy removal on a continuing basis.

* Where disturbed sites and/or areas under timber management can be seeded with species which improve forage production and do not restrict tree establishment and growth.

* On forest plantations when livestock will not damage the young trees. Success will require close and continuous coordination between grazing and reforestation to integrate these two activities.

M18-10 Range allotment management plans will be revised to reflect the objectives of this Management Area. Factors include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed, and forage production and utilization rates.

M18-11 Annual permittee plans will provide for livestock distribution and use patterns to protect newly established tree plantations. Plantations can be further protected by fencing, caging trees, or use of repellents. Salt and water should be placed one-half to one mile away from new plantations. Where conflicts cannot be resolved using the above techniques, establishment of new allotments and relocation of livestock should be considered.

Wildlife

M18-12 The standards/guidelines for Mule Deer Outside of Deer Management Area 7, Chapter 4, will apply to the Front Country Management Area. In foreground portions of areas seen from significant viewer locations, and in other areas where the Mule Deer standards/guidelines are not consistent with the desired visual condition, the Visual Quality Objectives for Front Country will be considered the overriding direction.

M18-13 In all areas seen from sensitive viewer locations, grouping snags is preferred over even-distribution

M18-14 In foreground portions of areas seen from sensitive viewer locations, and where consistent with the Desired Visual Condition, wildlife habitat improvements will focus on watchable wildlife

Minerals

M18-15 The area is open for mineral entry. Conditional surface use and seasonal restrictions for geothermal leasing will be used to protect wildlife habitat and recreation areas

M18-16 Mining activities for common variety materials are permitted in pits and quarries as long as the Visual Quality Objective, in long-term pit management operations, is met.

Fuelwood

M18-17 Fuelwood gathering is permitted when not in conflict with visual and wildlife objectives.

Recreation

M18-18 New recreational developments and changes to existing developments are permitted as long as they are consistent with the desired visual condition.

M18-19 The Recreation Opportunity Spectrum (ROS) standard in the Front Country Management Area is mostly Roaded Natural, but also includes smaller areas of Semi-primitive Non-motorized, Semi-primitive Motorized, and Semi-primitive Motorized Winter Only.

M18-20 The majority of campgrounds and picnic areas will be managed at development Level 2. (See Appendix 3 for a description of the various levels) Some will be managed at Level 3, but none will exceed Level 3. Stands on these sites will be treated to retain the character that contributes to the value of the site for visual quality.

M18-21 Traditional informal campsites, hunter camps, or areas where concentrated recreation use occurs will be recognized as being significant in producing and utilizing dispersed recreation opportunities. Prescriptions for harvesting, cleanup, site preparation, and thinning will consider the environmental setting that contributes to the attraction of these sites for recreation purposes The attempt will be made to retain this attractive character during and after treatments.

M18-22 Recreation use can be discouraged or prohibited:

1. In areas where timber harvesting activities are occurring.

2 Where public safety is being threatened.

3 Where resource damage from recreation activity is occurring or may occur.

M18-23 Generally, off-highway vehicle use is allowed, but closures and restrictions will be established where use will threaten or damage other resource values, such as plantations, soils, and wildlife. Over-the-snow vehicles may be permitted when the depth of continuous snow cover is adequate to protect other resources from adverse impacts Some roads, trails, or areas may be designated for nonmotorized winter activities such as cross country skiing.

M18-24 This Management Area will be managed to provide the recreation activity, setting, and experience of the Recreation Opportunity Spectrum category of Roaded-Natural or Roaded Modified. (See Appendix 2 for an explanation of the categories)

Transportation

M18-25 Future management will attempt to make existing roads and landings fit the desired visual objective of this area

M18-26 New roads will be located and designed to meet Partial Retention as seen from significant viewer locations. New landings, helispots, cinder pits, disposal sites and borrow sites will be located and designed to remain visually subordinate.

Fire

M18-27 Low intensity prescribed fires will be used to meet and promote the visual objective. This and other fuel management techniques will be used to minimize the hazard of a large high-intensity fire. If at any time during the course of the prescribed burn it appears that the objectives for the burn are not being met, all burning will cease.

M18-28 Wildfires can be suppressed using standard techniques. Control strategies will be developed to minimize impacts from suppression activities on the landscape. Visual contrasts will not be created through suppression techniques unless absolutely necessary.

M18-29 Recommended burn acre objectives will be developed as a part of the Fire Management Action Plan.

M18-30 A landscape architect shall be consulted for recommended restoration measures following wildfire suppression activities in this Management Area.

M18-31 Suppression practices will be designed to protect the investment in managed tree stands and to prevent losses of large acreages to wildfire.

M18-32 Snags that do not present a hazard to life or a threat to successful suppression action should not be felled.

M18-33 In Ponderosa pine stands (except for reproduction stands) emphasis should be placed on burning out from existing roads and natural barriers rather than constructing new firelines.

Prescribed Fire

M18-34 Prescribed fire may be used to protect, maintain, and enhance timber and forage production. The broadest application of prescribed fire will occur in the Ponderosa pine type. Criteria for utilizing fire are as follows:

1. To reduce risk of conflagration fire.
2. To increase soil productivity by cycling bound nutrients.
3. To prevent encroachment of less desirable, competing tree species.
4. To increase palatability and cover of desirable forage species.
5. To prepare sites for reforestation.

Fuel Treatment Other Than Prescribed Fire

M18-35 The lowest cost option which meets the silvicultural, soil, water, visual and fire objectives should be selected.

Fuel Loadings

M18-36 Slash will be treated to minimize chances of large wildfires but will not be cleared to the point that the forest floor is devoid of all slash and logs. Some slash and larger dead material will be left for ground cover for soil protection, microclimates for establishment of trees, and small mammal habitat.