

Land and Resource Management Plan

Final Environmental Impact Statement

Gifford Pinchot National Forest

Preface

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

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

Additional information about this Plan is available from:

Forest Supervisor
Gifford Pinchot National Forest
PO Box 8944
6926 E. Fourth Plain Blvd.
Vancouver, WA 98668-8944
(206) 696-7500

Chapter I

Forest Plan Introduction

Purpose of the Forest Plan

The Forest Plan guides all natural resource management activities and establishes management Standards/Guidelines for the Gifford Pinchot National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The Forest Plan:

1. Establishes Forest-wide multiple-use goals and objectives.
2. Establishes Forest-wide Standards/Guidelines applying to future activities.
3. Establishes management direction including Management Area Prescriptions and Standards/Guidelines applying to future management activities in that Management Area.
4. Establishes the allowable sale quantity for timber and identifies land suitable for timber management.
5. Establishes Monitoring and Evaluation requirements.
6. Establishes nonwilderness multiple-use allocations for the Wobbly Roadless Area that was reviewed under 36 CFR 219.17 and not recommended for Wilderness designation.

The Forest Plan embodies the provisions of the National Forest Management Act, the implementing regulations, and other guiding documents. Land use determinations, Prescriptions, and Standards/Guidelines constitute a statement of the Plan's management direction; however, the projected outputs, services, and rates of implementation are dependent upon the annual budgeting process.

The Plan will be revised on a 10-year cycle, or at least every 15 years.

Relationship of the Forest Plan to Other Documents

Relationship to the EIS and Record of Decision

This Forest Plan sets forth the direction for managing the land and resources of the Gifford Pinchot National Forest. The Plan results from extensive analysis and considerations addressed in the accompanying Final Environmental Impact Statement (FEIS) and Record of Decision (ROD). The planning process and the analysis procedures used to develop this Plan are described or referred to in the FEIS. The FEIS also describes other alternatives considered in the planning process.

Specific activities and projects will be planned and implemented to carry out the direction of this Plan. The Forest will perform environmental analyses on these projects and activities. Subsequent environmental analysis will use the data and evaluations in the Plan and Environmental Impact Statement as its basis. Environmental analysis of projects will be tiered to the FEIS accompanying this Forest Plan.

Relationship to the Regional Guide

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

Relationship to the Mount St. Helens National Volcanic Monument

The eruption of Mount St. Helens occurred in May of 1980. In August 1982, Congress passed an Act establishing the Mount St. Helens National Volcanic Monument. It required development of a detailed Comprehensive Management Plan (CMP) for the area. Prepared after extensive public involvement, the CMP was approved in October 1985, and is incorporated into this Forest Plan. This complies with 36 CFR 219.2(b) which states, "...in a particular case, special area authorities require the preparation of a separate special area plan, the direction of any such plan may be incorporated without modification in plans prepared under these regulations.

The CMP is incorporated as a part of the Forest Plan because it is a current and long-term plan, providing research, recreation, and other opportunities. In addition, the CMP provides for the construction of roads and recreational and other facilities expected to be worth more than \$60 million by the time they are completed.

All construction contracts related to the CMP are expected to be awarded by the end of 1991. To date, approximately \$40 million in contracts have been awarded. The May 1989 budget provided for an additional \$17.7 million in federal funds and \$5.9 million in state and county matching funds. Congress is expected to approve additional funding for the Coldwater Lake/Johnston Ridge Recreation Area, scheduled for completion in 1993/94.

Inasmuch as the design, construction, and funding of these projects requires a number of years for completion, it is desirable that the CMP remain in force for that period of time. When the Forest Plan is revised (scheduled for 10 - 15 years after approval), the CMP shall be integrated with, and periodically revised as a component of, the Forest Plan.

Relationship to the Columbia River Gorge National Scenic Area

The recently-created Columbia River Gorge National Scenic Area includes lands within and adjacent to both the Mt. Hood and Gifford Pinchot National Forests. Plans for the National Scenic Area will not be included in the Forest Plans presently being prepared for each Forest. When completed, these Forest Plans may be amended or revised to include all or portions of plans for the National Scenic Area, if the Regional Forester determines that such changes are desirable.

Relationship to the Vegetative Management Plan

The Forest Plan incorporates the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation. In implementing the Forest Plan through project activities, the Forest will comply with the Record of Decision issued by the Regional Forester dated December 8, 1988, and the Mediated Agreement of May, 1989. Use of vegetation treatment methods (biological, manual, technical, prescribed fire, and herbicides) is allowed only when other strategies (e.g., prevention) are ineffective or will unreasonably increase project costs.

Relationship to Other Plans

The Forest Plan serves as the single Land Management Plan for the Gifford Pinchot National Forest. This plan replaces the following land management plans:

Clear Creek Unit Plan	10/21/76
Upper Lewis Unit Plan	11/03/76
Trapper/Siouxon Unit Plan	09/20/77
Bear Creek Unit Plan	04/20/78
Upper Cispus Unit Plan	05/12/78
Lone Tree Unit Plan	05/16/78
Cowlitz Unit Plan	06/21/79
Mount St. Helens Land Management Plan	10/15/81
Multiple Use Plans on those portions of the Forest not covered by unit plans.	

In addition, this plan replaces the "Part One Land Management Plan" (11/01/79)

Upon implementation of this plan, all management activities must comply with it. In addition, all permits, contracts, and other instruments for the use and occupancy of National Forest System lands and resource uses must be made to conform with the Forest Plan as soon as possible (36 CFR 219.10(e)).

Certain implementation and action plans providing detailed direction are under the "umbrella" of this Forest Plan. They either conform to direction in the Forest Plan or will be brought into compliance. All other resource management plans are invalid upon approval of the Forest Plan.

Included under the umbrella of the Plan are:

- Plant and Wildlife Sensitive Species Management Guides
- Plant Association and Management Guides
- Five-Year Nursery Improvement and Development Plan
- Tree Improvement Plan
- Soil Management Guidelines
- Geologic Resource and Conditions Map
- Rock Resource Management Plan
- Road Management Plan
- Forest Travel Plan
- Peeled Cedar Management Plan
- Management Policy Statement for Bear Creek Watershed, 1967
- "1932 Handshake Agreement" between Chief Yallup and Forest Supervisor Bruckert granting Native American exclusive berrypicking rights to a portion of the Sawtooth Berryfields east of Forest Road 24.
- "Establishment Reports and Management Prescriptions for each Research Natural Area."

Plan Structure

The Forest Plan is organized into five chapters, a glossary, and appendix material. It includes:

Chapter I - An Introduction describes the purpose of the Forest Plan, summarizes its contents, describes the land to which it will be applied, and places it in the context of other planning documents and directives.

Chapter II - Summarizes the Analysis of the Management Situation (AMS). The potential supply of the key resources on the Forest is described and a brief socioeconomic overview of the Forest and related communities is given.

Chapter III - Shows how the Forest Plan responds to Issues, Concerns, and Opportunities (ICOs). ICOs were developed after lengthy consultation with the public. They have been the most important problems and expectations requiring attention and driving the planning process.

Chapter IV - Forest Management Direction. This chapter is the heart of the Plan. It presents the management goals, objectives, and Standards/Guidelines that will direct Forest resource management. The estimated outputs and activities are those that are anticipated as a result of Plan implementation. Standards/Guidelines establish how everyday on-the-ground projects will be performed.

Some of this direction is explicit and some provides general procedures to follow. Prescriptions for Management Areas indicate the types of activities that can occur in each portion of the Forest. Management Area locations are shown on the map of Alternative S, which is included in the FEIS.

Chapter V - Implementation Of The Forest Plan. This chapter explains how management direction will be implemented, monitored, evaluated, and updated in response to changing conditions.

Glossary - This section contains terms that require common understanding or which have special meanings.

Appendices - Appendix A presents detailed schedules for projected activities by resource. Appendix B provides additional Wilderness direction. Appendix C lists a number of small management areas assigned to a variety of MACs/Prescriptions, most of which are too small to be displayed on the primary map of the Preferred Alternative. These areas and sites are, however, shown on a secondary map which can overlay the map of Alternative S; Appendix C lists these sites by name and approximate size.

Appendix D, Trails, indicates which trails, existing and proposed, are assigned to each of the three Trail Management Levels. Also included in the user type or mix of user types for which each trail will be managed. As with the small sites in Appendix C, the trail system is shown on a separate map included with this Plan.

Forest Description

The Gifford Pinchot National Forest is located in southwest Washington. It stretches along the western slopes of the Cascades Mountains from the Columbia River of the south to Mt. Rainier National Park on the north. The Wenatchee National Forest and Yakima Indian Nation share a portion of the eastern boundary of the Forest. Access is provided by Interstate Highways 5 and 84 on the west and south, and US Highway 12 and State Highway 14 on the north and south sides.

Included among the 1,371,720 acres of National Forest land within the Forest's administrative boundary are 75,784 acres of the Snoqualmie National Forest. Unless otherwise indicated, resource data, costs, outputs, and environmental effects associated with these lands will be included in the Gifford Pinchot Forest Plan.

(Vicinity Map)

The Forest is internationally known as a result of events in the spring and summer of 1980. The eruption of Mount St. Helens devastated an area of 235 square miles and produced one of the most spectacular landmarks in the nation. In August 1982, the 110,330-acre Mount St. Helens National Volcanic Monument was created by Congress.

Portions of the headwaters of 12 significant rivers are within the Forest boundary. From north to south they are: the Nisqually, Cowlitz, Cispus, Green, Toutle, Kalama, Muddy, Lewis, E. Fork Lewis, Wind, Little White Salmon, and White Salmon rivers. At least eight smaller rivers also have their beginnings within the Forest. Most of these are found in the Mineral Block northwest of the town of Morton.

Several hundred lakes are scattered throughout the Forest. Most of them are less than 20 acres in size, but several are substantially larger. Three of these, Spirit Lake, 2,580 acres, Coldwater Lake, 805 acres, and Castle Lake, 315 acres, are within the National Volcanic Monument. Packwood Lake, 452 acres, and Walupt Lake, 384 acres, are on the western and southern edges of the Goat Rocks Wilderness.

Glacier-covered mountains mark the Cascade Range along the Forest's eastern border. The steepest, most rugged areas, primary habitat for mountain goats, are in the northeastern quarter of the Forest. Gentle to moderate slopes predominate in the southeastern portion where Big Lava Bed, the Indian Heaven Wilderness, and extensive berryfields are located. The topography along the western side of the Forest, including the Mount St. Helens area, is varied. The forces of glaciation and volcanic activity are evident throughout the Forest.

Recreation: The Forest contributes to the quality of life for over 3 million people who live within a 2-hour drive of the Forest. Outdoor recreation opportunities, ranging from primitive backpacking to highly-developed campground sites, are readily available. Old-growth trees provide aesthetic and recreational values. Scenery includes snow-capped mountains, glaciers, lakes, streams, waterfalls, and rock outcrops. Hiking trails offer an opportunity for people to get away from stressful conditions.

Vegetation: This Forest is one of the National Forest System's most prolific producers of timber. Stands of conifers occupy about 84 percent of the Forest. Below 3,500 feet, Douglas-fir is the predominant species. Other species commonly found in association with Douglas-fir are western hemlock and western redcedar.

Between 3,550 and 5,000 feet several true fir species are found, including Pacific silver fir, grand fir, and noble fir; smaller amounts of subalpine fir also occur. Mountain hemlock, Engelmann spruce, and lesser amounts of lodgepole pine grow here, as well as at higher elevations. A relatively small amount of ponderosa pine is found just south of Mt. Adams. Western white pine and western larch are sparsely scattered throughout the Forest. Both overstory and understory vegetation are affected by the transition from wet conditions in the west to a drier climate in the east.

Sixteen plants on the region 6 Sensitive Species List are known to occur on the Forest. They occur in a variety of habitats, including mature timber stands, small openings, and subalpine meadows. None is currently on the federal list as Endangered or Threatened.

Wildlife and Fisheries: The Forest has a diverse population of both game and nongame wildlife species common to the westside Cascades. The largest concentration of Roosevelt elk in the nation occupies the Forest. Mountain goats inhabit the northeastern portion of the Forest.

Resident fisheries are found throughout the Forest. Anadromous fish are limited to the Green River, East Fork of the Lewis River, and the Wind River. Record-size steelhead are produced in the East Fork Lewis River. Dams outside the Forest halt anadromous runs on most of the other streams.

Climate: The Forest's climate is influenced by the blocking effect of the Cascade Mountain Range on the moisture-laden marine air from the southwest. Precipitation and temperature are generally typical of a maritime climate, with wet, relatively mild winters and dry, cool summers.

Annual precipitation ranges from about 60 inches in the Cowlitz Valley to more than 120 inches at some of the higher elevations on the crest of the Cascades. The wet season begins in the fall and reaches a peak during the winter months.

Socioeconomic Situation: A large number of communities in south-central Washington and north-central Oregon have a stake in management of the Gifford Pinchot National Forest, but five counties are most significantly and directly affected -- Skamania, Lewis, Cowlitz, Clark, and the western portion Klickitat. This is considered to be the Forest's primary influence area.

The secondary sphere of influence includes the Portland metropolitan area, the Puget Sound metropolitan area, the northern Oregon communities in the Columbia River Gorge, and the Yakima Indian Reservation.

A large number of residents in the primary influence area depend on the Forest for their livelihood and "quality of life." This includes employment associated with the timber industry, trade and service jobs associated with recreation, tourism, and "subsistence" activities such as firewood gathering, hunting, fishing, and berry picking.

The 1980 census set the primary influence area population at 341,280 people. Approximately 55 percent reside in Clark County. At 42,800 residents, Vancouver (Clark County) is the largest community in the influence area.

Residents of the primary influence area will continue to be very dependent on Forest timber and recreation resources. The current increase in recreational visitation occasioned by the eruption of Mount St. Helens and construction of the I-205 bridge across the Columbia River is expected to continue.

A population of approximately 3 million lies just outside the primary zone of influence. Portland, Tacoma, and Seattle residents can drive to the Forest in 2 hours or less. While most of these residents do not rely on Forest products as a means of livelihood, the state of the economy for the larger metropolitan areas is influenced by the health of the timber industry. Many of these residents are also equally concerned about the environmental setting and recreational opportunities. This interest has increased notably in recent years.

Chapter II

Summary of the Analysis of the Management Situation

Introduction

The Analysis of the Management Situation (AMS) detailed the Forest's capabilities and public demand for its goods and services. This summary concentrates on key resources.

This AMS Summary is intended to acquaint managers implementing the Forest Plan with the context within which major decisions were made. In the future, there will be a need to reassess the decisions that were made in this Plan. The knowledge of that were made in this Plan. The knowledge of what previous managers used in making decisions will be useful.

Five resources were most critical in making resource management decisions:

1. Recreation
 - Semi-Primitive Receptions Opportunities and trails (ICO No. 4)
2. Wild and Scenic Rivers (ICO No. 11)
3. Old Growth (ICO No. 5)
4. Wildlife
 - Spotted Owls (ICO Nos. 2 and 5)
 - Cavity Excavators (ICO No. 2)
5. Timber (ICO No. 1)

Decisions regarding other resources and uses were also very important. Most are interwoven with the five issues listed above. For a complete description of all resources on the Forest, their interrelationships, and the Forest's social and economic setting, see Chapters II, III, IV, and Appendix B of the FEIS and the Analysis of the Management Situation document (April 1985).

Supply and Demand

Figure II-1 summarizes projected supply and anticipated demand for the five decision areas considered in this discussion, as well as what the potential is for production and the current direction level.

The supply of current resources was based on current Forest management. Production potential is a hypothetical increase in this supply, based on the largest amount of a commodity or service which could be provided while complying with the law and other fundamental requirements. Benchmarks were used to establish upper and lower bounds for the production of important resources. A complete display of benchmarks is contained in Appendix B of the FEIS.

Following Figure II-1 are written summaries of the five key resources followed by a listing of information which is needed to improve future planning.

FIGURE II-1 SUMMARY OF PROJECTED SUPPLY AND ANTICIPATED DEMAND						
	Units	First Decade	Second Decade	Third Decade	Fourth Decade	Fifth Decade
Semi-Primitive Recreation 1/						
Current Direction 2/	M Acres	140	140	140	140	140
Production Potential 3/		334	334	334	334	334
Forest Plan		179	179	179	179	179
Anticipated Demand		152	186	223	268	321
Recreation – Trails						
Current Direction	Miles	1,170	1,360	1,360	1,360	1,360
Production Potential				Varies by ROS Class		
Forest Plan		1,250	1,360	1,555	1,750	1,750
Anticipated Demand		1,750	1,750	1,750	1,750	1,750
Wild and Scenic Rivers						
Current Direction	Miles	0	0	0	0	0
Production Potential 4/	Within	232	232	232	232	232
Forest Plan	National	99	99	99	99	99
Anticipated Demand	Forest	232	232	232	232	232
Old Growth						
Current Direction	M Acres	186	175	162	151	140
Production Potential		198	198	198	198	198
Forest Plan		188	179	169	160	150
Anticipated Demand 5/		Varies from 23 to 198				
Spotted Owl						
Current Direction	No. of	92	84	67	58	58
Production Potential	Pairs	95	89	84	75	72
Forest Plan		92	84	67	58	58
Anticipated Demand 6/		95	89	84	78	72
Cavity Excavators						
Current Direction	% of	40	40	40	40	40
Production Potential	Potential	60	60	60	60	60
Forest Plan	Popult'n	40	40	40	40	40
Anticipated Demand 7/		60	60	60	60	60
Timber						
Current Direction	Volume	64.4	64.5	64.5	64.5	64.5
Production Potential 8/	Offered	83.0	83.0	83.0	83.0	83.0
Production Potential 9/	ASQ	79.0	79.0	79.0	79.0	79.0
Forest Plan	MMCF	61.2	61.2	61.2	61.2	61.2
Anticipated Demand 10/		9 – 129	129 – 191	191 – 291	191 – 291	191 – 291
1/ Non-Wilderness 2/ Source – Alternative A 3/ Source – Alternative J 4/ Total miles eligible 5/ Varies from 23,200 acres now in withdrawn areas to 198,000 acres, currently existing, depending on which public is commenting. 6/ Anticipated demand is the maximum number possible using 2,200 acre SOHAs. 7/ Demand is the maximum potential as a result of past timber harvesting activities. 8/ Source – Max. timber Benchmark (estimated) 9/ Source – Max. PNV Benchmark 10/ Figures represent a range of demand. See Chapter III, FEIS for more information.						

Semi-Primitive Recreation

Supply

The non-wilderness primitive opportunities on 10,020 acres within the Monument remain constant in all Alternatives. No additional opportunities exist on the Forest.

The supply of semi-primitive recreation has steadily declines as more of the Forest becomes substantially modified by roading and timber harvest.

The most semi-primitive opportunity (motorized plus non-motorized) possible would be in Alternative J. which serves as a Benchmark. Alternative D provides a minimum level benchmark with the semi-primitive opportunities only available within the Monument and Wilderness.

Demand

Semi-primitive recreation demand is currently less than the maximum and planned capacity. However, demand is expected to exceed capacity between 2000 and 2010.

Recreation - Trails

Supply

Trails provide principal opportunities for dispersed recreation (Primitive and semi-primitive) on the Forest. They are also important in Roaded Natural and Roaded Modified areas. There is potential to expand and upgrade the current trail system, outside wilderness, to meet recreation access needs for a variety of users, which will help reduce user conflicts.

Demand

Increased use of trails, more extensive timber management, and "new" uses such as mountain bikes and ATV's have put additional pressure of the Forest Trail System. Planned development of new trails and rehabilitation of existing trails is expected to meet demand through the next two decades. Demand is similar to that for dispersed unroaded recreation.

Wild and Scenic Rivers

Supply

The current potential supply of Wild and Scenic Rivers is the total of rivers that are eligible on the Forest, assuming they are found suitable. This includes a total of 232 miles on 16 rivers (including 100.5 miles already found suitable on 4 rivers in this plan).

Demand

Estimates of demand for Wild and Scenic River are difficult to access. Comments on the DEIS indicated preference for free-flowing river-related recreation. Many comments indicated moderate to high degree of support for rivers found eligible. This is consistent with high national demand for Wild and Scenic Rivers.

Old Growth

Supply

Old-growth stands on the Forest are distinguished by large individual trees mingled with a wide range of trees of other sizes and ages. They have a multilayered canopy and accumulations of large dead trees, both standing and fallen.

On this Forest most stands 250 years of age or older will meet most of the old-growth criteria; some old-growth criteria may not be met until much later in some stands.

About 198,000 acres of existing old growth were identified from available records as of December 1988. Approximately 23,000 acres are in Wilderness, Research Natural Area, and the National Volcanic Monument. Old-growth stands are not evenly distributed on the Forest. Most occur in the northern half.

Fires destroyed vast stands of old growth in the Yacolt, Siouxon, Lewis River, and Cispus areas in the early days of this century. This 1980 eruption of Mount St. Helens leveled 34,000 acres of mature and old-growth forest.

Considering the above, the maximum supply of old growth for this planning period is 198,000 acres and the minimum is 23,200 acres (areas withdrawn from timber management).

Demand

Old growth is a distinct and potentially unique ecosystem. As such, it has intrinsic value. Because the role of old growth on the complex of Forest ecosystems is imperfectly understood, enough should be retained to perpetuate the elements of biological diversity it contains.

Old-growth Douglas-fir stands provide optimum habitat for many plant and animal species. Large logs, which fall into streams, create pools and in-stream structural variety needed by fish.

To a number of people, the aesthetic and cultural value of old growth is high. Old-growth stands, particularly of western redcedar, are important to Native Americans.

Old-growth timber stands are in demand because of the high quality of their wood. Being slowly grown, it is close-grained and makes excellent plywood and lumber. The high volume of wood per acre and large log size makes old-growth stands more economical to log.

Wildlife

Spotted Owls

Supply

The Forest is required by the National Forest Management Act to maintain viable populations of wildlife species. More than 150 species of wildlife on the Forest require or use mature and old-growth habitat. The spotted owl is one species known to be dependent on old-growth forests and is an indicator species.

Most of the existing stands have been broken into old-growth stands interspersed with younger, managed stands. The spotted owl requires old-growth stand conditions, 2,200 acres in size or larger.

Figure II-2 shows minimum, present, and potential habitat capability for spotted owls.

FIGURE II-2 MINIMUM, CURRENT, AND MAXIMUM OWL POPULATIONS (Pairs of Owls)			
	Minimum Level	Current Level	Maximum Potential 1/
Pairs of Spotted Owls	50	101	101
1/ Based on current vegetation patterns.			

Demand

Spotted Owl Habitat Areas (SOHAs) are at least 2,200 acres in size and distributed in clusters of three or more that are up to 12 miles apart (USDA, 1988). Based on the supplement to the Spotted Owl FEIS, the Forest has identified a network of 50 areas. Of these 50 areas, two are in reserved lands (Wilderness and Mount St. Helens National Volcanic Monument.)

Cavity Excavators

Supply

Thirty-four species of birds and at least one mammal are dependent on snag habitat on the Forest (USDI, 1985). There are normally nine stages of decay in snag decomposition. Each stage is utilized in turn by its own collection of wildlife species (Mater et al., 1979). Studies of existing conditions indicate that snag habitat over the Forest is sufficient to support 60 percent of the maximum potential number of cavity nesters. Population levels of 40 percent are needed to maintain viable populations (Thomas, 1979). Harvest practices have reduced the snag level below the 40 percent population on many areas, however the overall snag level on suitable timberland, at this time, is estimated to be near the minimum requirement.

Demand

Twenty-five percent of the Forest has been clearcut, and snags have been removed from most logging units. The Forest will maintain a minimum cavity excavator population at the 40 percent level in timber harvest areas over the Forest. Standards/Guidelines (Chapter IV), identify the parameters necessary to maintain this minimum requirement over time.

Timber

Supply

The maximum amount of timber volume that could be offered for sale is 83 MMCF per year (Max. Timber Benchmark, estimated). This is 9 MMCF lower than the RPA target, and about 7 MMCF higher than the average annual volume sold from 1979 through 1988.

Demand

The demand for wood and wood products is expected to increase. Local industry is expected to rely on a greater volume from the National Forest to partially satisfy the increased demand until private land growing stock matures.

With an increasing scarcity the price of wood will increase over the next five decades.

Information Needs

This section lists the information, inventory and research needs that have been identified for the Gifford Pinchot 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.

This planning perspective has been used to develop a comprehensive framework for identifying and organizing information, inventory and research needs. This framework is intended to

encourage integrated research approaches that address interdisciplinary needs rather than the traditional functional approach. The system approach has been taken to meet planning needs, and should also help organize informational needs.

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

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

Interactions/Processes

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

Examples:

- Clarify the relationship between recreation settings, use opportunities and other resource uses.
- Determine wildlife and fish species reactions to patterns of habitat created or altered by management and natural succession.
- Further assess relationships between high-intensity storms, landslide rates, hydrologic recovery concepts, peak discharge, and channel response.
- Evaluate the effects of insects and pathogens on forest composition and the influence of forest composition on the population dynamics of insects and pathogens.
- Clarify the relationships between old growth characteristics and ecological and visual diversity, associated plant and wildlife species, and the maintenance of natural gene pools.
- Identify the ecological conditions required for growth of unwanted trees and brush to provide basic information for the prevention and effective control of these species. Develop information required for growth of desired native or non-indigenous species.
- Determine the response of management indicator species to patterns of habitat created by management and natural succession.
- Determine the effects of vertebrate species on other ecosystem components (e.g., effects of bears on plantations; effects of insectivorous birds on forest insect populations).
- Develop an understanding of ecosystem response to global atmospheric warming.
- Develop an understanding of atmospheric dispersion and deposition process.
- Determine the mechanisms of plant and animal dependence on fire.

- Determine Research Natural Area cell or element needs that could be filled on the Gifford Pinchot National Forest and inventory to locate suitable sites for RNA recommendation.
- Assess the effects of landscape patterns of timber harvest and road construction on plant and animal diversity (including management indicator species) and stability of special habitat areas such as Research Natural Areas.
- Improve knowledge of the distribution and habitat requirements of spotted owls and other wildlife associated with old-growth forests.
- Improve total tree biomass information that is needed to evaluate whole-tree harvesting practices.
- Develop silvicultural techniques for minor tree species such as western redcedar, red alder, black cottonwood, and big leaf maple.

Long-Term Productivity

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

- Determine the amount of in-stream woody debris necessary to maintain the productivity of fish habitat.
- Identify the current productivity levels of resources such as timber, wildlife, and fish habitats to establish baseline levels of productivity, including current deer and elk population levels. Test and validate the deer and elk habitat capacity model.
- Establish baseline information on nutrient levels and their distribution by major soil groups and forest associations.
- Evaluate progress toward optimally balanced timber age class structure and its relationship to growth.
- Determine more precisely the effects of burning on soils and long-term site productivity.
- Determine the effects of management practices on the incidence and severity of pathogens and insects as they affect long-term productivity. Of special concern is the effect of root diseases, especially *Phellinus weirii*.
- Determine the effects of forest fragmentation on ecosystem integrity and function, including viability of vertebrate species, and habitat diversity.
- Determine the effects of fertilization on all tree species.

Cumulative Effects

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

Examples:

- Understands the cumulative effect of various management practices on resource outputs.
- Improve knowledge of the cumulative effects of timber management activities (timber harvest, road construction, and site preparation) on water quality and stream stability.

- Develop indicators or criteria to predict when recreation user patterns may change as a result of intensive forestry practices.
- Evaluate the effects of fire exclusion on the structure and function of ecosystems.
- Determine the effects of human disturbance and livestock competition on wildlife species.
- Develop strategies to maintain levels of genetic diversity.

Management Strategies and Techniques

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

Examples:

- Develop strategies that minimize soil disturbance and compaction during harvesting.
- Evaluate the effects of planting genetically-selected stock on such items as stand growth and yield, pathogen and insect population dynamics, and forage nutritional quality for wildlife.
- Compile data needed to determine genetic gains or losses.
- Develop effective methods of uneven-aged management to produce optimized resource benefits.
- Assess the effects of alternative timber management strategies and volumes harvested on such items as water runoff amounts and quality recreational use patterns, public perception of landscape quality (VQOS), insect and pathogen population dynamics, and soil mass-movement potential.
- Assess the relationship of human presence on recreation areas. Wilderness, and habitat use by wildlife.
- Assess the effect of stream enhancement and rehabilitation projects on fish population dynamics, public perception of landscape and recreation quality, and stream hydrology.
- Evaluate the effects of timber harvest unit size on protection of soil, water, aesthetics, and insect and disease activity.
- Evaluate long-term effects of abrupt boundaries between different stand ages and management areas.
- Develop short and long-term pest population monitoring techniques for Integrated Pest Management (IPM) decision systems.
- Develop silvicultural techniques for managing pathogen and insect populations.
- Identify specific sites and situations where natural regeneration can be a successful management option, economically and effectively.
- Predict the changes in air quality that will result from alternative management strategies.
- Evaluate decision processes that can compare market and nonmarket benefits.

- Improve the efficiency of fire and mechanical methods for vegetation management and as an alternative to herbicide use.
- Evaluate the costs and benefits (both monetary and non-monetary) of alternative logging residue treatments.
- Integrate insect and disease models into forest planning models.
- Develop and enhance safe pest control materials such as B.t., viruses, and other bio-control agents.
- Develop effective techniques for reforesting areas with harsh climates, steep terrains, and/or competing vegetation.
- Further assess alternatives for managing old-growth forests and for maintaining habitat characteristics such as snags and down logs in young, managed forests.
- Develop and refine monitoring techniques, including:
 - techniques used to assess habitat conditions and trends,
 - methods of assessing population density and reproductive success,
 - procedures for using habitat information to make inferences about populations, cost-effective sampling designs that provide information about both habitats and populations with appropriate reliability.
- Review the utility of the ecological indicator species concept as a framework for wildlife planning, and investigate alternatives.
- Determine ways to manage riparian areas to increase levels of large woody debris in streams.
- Improve timber yield predictions with ability to incorporate local growth assessments. Give emphasis to upper forest types. Improve ability to predict effects of other resource goals on timber yields and multiple species.

Social and Economic Analyses

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

Examples:

- Measure and predict the effects of changes to wildland landscapes on recreational values, both in economic and social terms.
- Understand the effects of long-term changes in site productivity for a range of resources on local and regional economics.
- Evaluate the social and economic impacts of various alternative harvest plans and the aggregate implications of the harvest plans for larger areas.
- Determine the demand for, and the practical maximum capacity for use of wilderness or recreation settings.

- Evaluate the relative costs of strategies aimed at managing the effects of pathogens and insects on stand growth and yield, recreation values, water quality, etc.
- Evaluate the change in productivity that will result from a cessation in fire use.
- Evaluate recreation demand for specific activities and ROS classes.
- Determine the relative net value recovered for a variety of products from trees grown under a full range of timber strategies.

Wildland-Community Relations

The relations and interactions between wildlands and the human communities within and around them need to be better understood.

Examples:

- Evaluate the patterns of resource theft and develop techniques for reducing such losses to acceptable levels.
- Understand the effects of prescribed fires on nearby communities.
- Determine potential effects of increased human densities in and near National Forests on recreational use, water quality, timing and location of harvesting operations, road construction and use, cultural resource protections, etc., and develop strategies to respond to these relationships.
- Develop vegetative strategies that reduce risk of wildfire and recognize adjacent community values and concerns.
- Assess the risk to public and occupational health from exposure to smoke from prescribed fires.
- Investigate social attitudes and decision-making processes that drive wildland management.

Chapter III

Response to Issues, Concerns, and Opportunities

Introduction

The previous chapter established the supply and demand relationships that exist for certain resources found on the Gifford Pinchot National Forest. The supply and demand information was necessary to understand the Issues, Concerns, and Opportunities (ICOs) that the Forest Plan needs to resolve.

In this chapter, the major issues are presented and a brief account of how the Forest Plan responds to them is given. The reader is encouraged to read Appendix A of the Final Environmental Impact Statement for a detailed description of the process used in developing ICOs. The key Issues and Concerns included:

1. How much and where should timber be harvested?
2. How will wildlife and fish habitats be managed?
3. How will Roadless Areas be managed?
4. How much and what kinds of recreation will be accommodated?
5. How much and where should old growth be maintained?
6. Over what portion of the Forest and to what degree will scenic quality be emphasized?
7. How can lands adjoining Mt. Rainier National Park be managed to compliment objectives of the Park?
8. How should the transportation system be managed?
9. How will the Forest manage its potential to produce energy?
10. How will management activities be implemented to meet or exceed state and federal water quality standards?
11. What river segments will be recommended for classification in the Wild and Scenic Rivers System?
12. At what level will air quality be protected?
13. What is the best landownership pattern for meeting long-term Forest goals?
14. Are there portions of the Forest which require protection to maintain examples of important native plant communities?
15. How should Wilderness be managed to allow for public use and enjoyment while protecting the Wilderness character and resource?

Response

1. How much and where should timber be harvested?

The wood products industry is important to the economy of southwest Washington. High harvest levels provide more employment in logging and manufacturing. They also produce higher returns to the counties (25 percent of timber sale receipts in lieu of taxes).

The timber harvest level also has a more significant impact on other resources than anything else which occurs on the Forest. It affects wildlife habitat, recreation settings, scenery, transportation systems, water quality, and soil. The need to protect these resources limits how much timber can be harvested in certain areas.

Other constraints include the need to retain big trees for recreation and to sustain mature and old-growth-dependent wildlife. Large trees are also required to provide thermal cover for deer, elk, and mountain goats. Snags are needed as habitat for nongame species, such as cavity excavators.

The biological potential of the Forest to produce timber on a long-term sustained-yield is 132 MMCF (692 MMBF) annually. When lands in Wilderness, Research Natural Areas, the National Volcanic Monument, and those required to meet Management Requirements are removed from the timber base, the level drops to 79 MMCF (435 MMBF).

This Plan schedules harvest on 676,500 acres, or 71 percent of the tentatively suitable timber-producing land. From this area, an allowable timber sale quantity of 61.2 MMCF (334 MMBF) would be sold annually. This amount is somewhat lower than the 1979-88 Forest average of 76 MMCF (397 MMBF). However, this level of harvest is 9 MMCF (46 MMBF) above the average harvest level of 58 MMCF (303 MMBF) for the same 10-year period.

The Forest has historically provided approximately 40 percent of the timber utilized by local mills. Projections indicate that between 9 and 191 MMCF (47 and 998 MMBF) per year will be needed during the next 50 years to continue this contribution. The harvest level of 61.2 MMCF (334 MMBF) per year will meet the low projection. The Forest would have to increase its sale level to meet the medium/high forecast.

2. How will wildlife and fish habitat be managed?

The Forest Plan goal is to maintain population viability for all fish and wildlife species. Regional Management Requirements were set for the northern spotted owl, the pileated woodpecker, the pine marten, the cavity excavator group, and the mountain goat (USDA 1985, 1986) to meet NFMA standards. The Forest Plan objective for elk is to maintain numbers close to current levels, and for deer the objective is to increase numbers by about 10 percent. For mountain goats, the objective is to manage habitat to maintain the current population. The Forest Plan objective for fish is maintain fish or enhance fish habitat and to provide for anadromous fish habitat and production consistent with Northwest Power Planning Council Columbia River Basin Anadromous Fish Restoration Goals. Animal habitat requirements on the Forest are the responsibility of the Forest Service, and hunting, fishing, and other forms of population management are the responsibility of the Washington Department of Fisheries and Wildlife. The two jobs are very closely related. Because the Forest manages the habitat, rather than populations, Forest Plan outputs are expressed in terms of habitat capability; that is, the capability of the habitat to support a certain number of pairs or individuals of a species.

Habitat management is addressed by dividing animals into groups of species with similar habitat requirements. A management indicator species is selected to represent each group. When habitat is provided for the indicator species, it will also be provided for other species in the group, and changes in habitat capability numbers for that species will also indicate how well other species in that group are doing. Species which are of management concern due to

public demand for hunting, viewing, or for other reasons may also be management indicator species. Figure III-1 shows the Forest Plan indicator species and the reason each was designated as an indicator.

FIGURE III-1 FOREST PLAN MANAGEMENT INDICATOR SPECIES	
Species	Reason Selected
Spotted owl	Represents species requiring large areas (2,200 acres) of mature and old-growth forest.
Pileated woodpecker	Represents species requiring moderate-sized areas (300 acres) of mature and old-growth forest.
Pine marten	Represents species requiring smaller areas (160 acres) of mature and old-growth forest.
Cavity excavators	Represents species which use or require dead tree (snag) and down log habitat.
Roosevelt elk and black-tailed deer	There is a high level of demand for these species for hunting and viewing.
Mountain goat	Popular species for hunting and viewing. Populations are small and decreasing. Sensitive to timber and fire management and disturbance from roads, recreation, and illegal hunting.
Wood duck	Indicator for mature riparian hardwood habitat.
Goldeneye duck	Indicator for mature and old-growth coniferous riparian habitat.
Bald eagle and peregrine falcon	Federally-listed Threatened and Endangered Species.
Cutthroat/Steelhead	A combined indicator species generally representing trout, steelhead, and salmon habitat.
Bull Trout	Indicator for cold water species.

Management for the last three species is addressed through Riparian and Forest-wide Standards/Guidelines. Following are descriptions of habitat capability levels for indicator species:

Old-growth and mature-forest indicator species (spotted owl, pileated woodpecker, and pine marten)

The northern spotted owl is a Region 6 sensitive species and is the indicator for mature and old-growth species which require large habitat areas and whose young can disperse fairly large distances (up to 12 miles) to find new habitat areas. Timber harvest has historically reduced spotted owl habitat through the removal of mature and old-growth stands and fragmentation of habitat areas.

Currently, the habitat capability for northern spotted owls on the Forest is estimated at 101 pairs. The Management Requirement (MR) results in 50 habitat areas. Under this Plan, the owl habitat capability will decrease to a level of 58 pairs by the fifth decade. This is 8 above the MR level; however, these pairs are included in the 50 network areas. This level does not leave the margin considered necessary in order to take into account the possible loss of habitat due to fire, insects, disease, or windthrow, and possible unsuitability of some habitat areas due to factors not known at this time.

The pileated woodpecker represents the group of species which can use mature and older forest habitat and requires moderately large habitat areas which can be intermediate distances apart. The pine marten is the indicator for species which use the same type of habitat, but

require smaller areas closer together. The current pileated woodpecker habitat is about 648 pairs. The Management Requirement level is 82 pairs. Under this Plan, the habitat capability would decrease to 167 pairs in about 50 years. Similarly, the pine marten habitat capability is currently 1,321 females and would decrease in 50 years to 364 females. The margin in excess of the MR is not as critical for these species as it is for the spotted owl, because mature forest stands can develop more quickly than old-growth.

Cavity excavators

The cavity excavator group represents a large group of species which use or require dead trees (snags) and down logs. For the purposes of calculating habitat capability, the hairy woodpecker was selected as a representative cavity excavator. Its habitat requirements also meet the requirements of the other species in the group (the pileated woodpecker is provided for separately). Habitat capability for the guild of woodpeckers is currently at 60 percent of habitat potential. The MR level is 40 percent. This Plan will maintain the MR level, assuming that Forest-wide direction for snags is met. Close monitoring of snag and wildlife tree retention will be necessary.

Deer and Elk

Wintering deer and elk populations on this Forest are currently estimated to be 20,830 and 5,230 animals, respectively. No minimum management levels have been established other than the maintenance of viable population levels. The Washington Department of Wildlife's strategic plan calls for maintaining elk at current levels and increasing deer numbers by 10 percent. This Plan will provide winter habitat for 20,530, 19,963, and 19,400 deer for the first, second, and fifth decades. Winter elk populations are projected at 5,132, 4,991, and 4,850 for the first, second, and fifth decades.

On this Forest, winter range is the limiting factor for big game. Forage in these areas is presently at a high level due to timber harvest activities. In the future, more timber will be scheduled for harvest on higher-elevation lands, reducing the carrying capacity on lower-elevation winter rangelands. To offset this reduction, palatable browse will be seeded and fertilized on up to 75 percent of timber harvest units; in addition, timber harvest unit size will be reduced and thermal cover provided.

Mountain Goats

The current mountain goat habitat capability is 230 goats. Because the goat population has been declining for some time, this was also set as the MR level. This Plan will provide habitat for 228, 222, and 280 goats in the first, second, and fifth decades. This will be accomplished by limiting timber harvest in goat winter range and restricting access and providing optimal thermal cover for snow intercept, thermal protection, and food source when openings are snow covered.

Wood Duck/Goldeneye Duck

These species are indicators for mature riparian hardwood habitat and mature- and old-growth coniferous habitat, respectively. Protection of riparian areas (through Standards/Guidelines) will maintain the current population level.

Bald Eagle/Peregrine Falcon

These species are federally listed as Threatened and Endangered, respectively. Standards/Guidelines provide protection for these species and maintain populations at current levels.

Fish

Cutthroat/Steelhead

The cutthroat/steelhead indicator represents habitat capability for resident and anadromous fish species which are sensitive to instream habitat modifications and angling pressure, are economically important, and require relatively high-quality habitat.

Resident fish presently occupy approximately 1,240 miles of stream; anadromous fish occupy 120 miles. The Forest Plan will meet fish habitat requirements with direction calling for special management in riparian areas.

Resident fish harvest levels are expected to increase from the current level of 287,000 to 290,000, 295,000, and 297,000 in the first, second, and fifth decades because of an annual investment of \$25,000 in habitat improvement. A \$50,000 investment and the application of enhanced riparian management should increase anadromous fish by 800, 5,600, and 11,200 in the first, second, and fifth decades.

Bull Trout

Bull trout are known to presently occupy 6.5 miles of stream in the Lewis River above Swift Reservoir. This trout has been selected as an indicator for cold water species. Streams known to be occupied by bull trout will be managed at the "Enhanced Management Level." Monitoring of this trout and its habitat will be necessary.

3. How will Roadless Areas be managed?

There are currently 30 areas on the Forest, a total of 208,220 acres, which meet the Roadless Area criteria. This Plan assigns 81,710 acres, 38 percent, of these Roadless Areas to Prescriptions which preclude road construction and timber harvesting. An additional 4,290 acres are likely to retain their roadless character during this planning period for economic reasons. The areas which have attracted the most interest from the public, and exhibit high levels of roadless/wilderness values will remain roadless: Dark Divide, Silver Star, Gotchen Creek, Pompey, Big Lava Bed, Blue Lake, and Siouxon.

4. How much and what kinds of recreation will be accommodated?

In 1984, the Forest received approximately 2,062,500 Recreation Visitor Days (RVDs) of use. Of these, 745,000 RVDs (36 percent) occurred in developed sites; 1,317,500 RVDs (64 percent) were dispersed recreation.

The present developed recreation capacity is expected to meet demands until about the turn of the century. Development called for in the Comprehensive Management Plan for the Mount St. Helens National Volcanic Monument, which is part of this Plan, is expected to accommodate expected increases in visitation there. Developed recreation capacity can be increased if the need arises.

The capability of the Forest to supply dispersed recreation under this Plan is illustrated in Figure III-2.

FIGURE III-2 DISPERSED RECREATION CAPACITY		
ROS Class 1/	Acres Assigned 2/	Annual Capacity (MRVDs)
P + SPNM	344,380	407
SPM	29,590	23
Total Unroaded	373,980	430
RN	331,440	1,243
RM + R	667,500	2,503
Total Roaded	998,940	3,746
1/ P = Primitive; SPNM = Semi-Primitive Non-Motorized; SPM = Semi-Primitive Motorized; RN = Roaded Natural; RM = Roaded Modified; R = Rural.		
2/ All National Forest lands, including Wilderness and the National Volcanic Monument.		

Projected demand for total unroaded recreation is 326,00 RVDs for the first decade, 390,000 RVDs for the second decade, and 673,000 RVDs for the fifth decade (includes Wilderness and Volcanic Monument visitation). Overall, this demand should be met beyond the second decade.

This should not be interpreted to mean that capacity will be adequate in every specific location on the Forest. Popular areas may become overcrowded and demand for Primitive and Semi-Primitive Non-Motorized recreational opportunities may exceed supply.

The same can be said for roaded recreation. Recreation Visitor Days during the first, second, and fifth decades are expected to total 1,222,000, 1,476,000, and 2,532,000 RVDs respectively. Overall, this demand is expected to be met during the next 50 years.

Trail users have a serious concern about the severing of hiking trails by timber harvest and road construction. Of the 1,068 miles of trail on the Forest, nearly 300 mile are in Wilderness and would not be subject to road crossings. Another 340 miles of existing trails and 174 miles of proposed trails are assigned to Management Level I with no timber harvest up to 500 feet either side and no new road crossings. Approximately 120 miles of trail are proposed for construction in the Mount St. Helens Comprehensive Management Plan.

Motorized use of trails is another concern expressed by some visitors. In the proposed trail plan, motor vehicles are allowed on 27 percent of the trails outside Wilderness.

5. How much and where should old growth be maintained?

Currently there are approximately 198,00 acres of old-growth trees on the Forest. Timber harvest over the past 10 years has removed approximately 60,000 acres of mature and old-growth forest stands. There is concern about retaining an adequate amount of old growth for wildlife, recreational, and genetic purposes. Timber harvest will not be scheduled on 94,220 acres, or 46 percent, of existing old-growth stands. Additional old-growth forest will eventually develop as stands mature within Management Areas which preclude harvest. At the same time, other stands will probably cease to be old growth due to fire, insects, and other causes.

Old-growth forest will be maintained in readily-accessible areas along major travel routes, Roads 25 and 90, the Wind River Road, and Highway 12. Twenty-three thousand acres are within Wilderness, Research Natural Areas, and the National Volcanic Monument.

6. Over what portion of the Forest and to what degree will scenic quality be emphasized?

The Gifford Pinchot National Forest contains outstanding scenery. It includes snow-capped peaks, spectacular rivers, waterfalls, lakes, huge trees, and a volcano. The eruption of Mount St. Helens has created a surge in recreational visitation.

Visitors to the National Volcanic Monument are attracted by accounts of devastation and recovery in an area which presents unusual conditions for visual quality management.

Demand for scenery is difficult to measure, but is closely associated with recreation. Natural scenic quality will be maintained along the most heavily-used recreation routes and attractions. This involves changing the frequency, amount, type, and cost of timber harvest.

Currently, approximately 40 percent of the Forest has been altered, moderately to heavily, by management activities.

The Forest Plan calls for Preservation, Retention, or Partial Retention VQOs on approximately 704,200 acres. This compares with 818,800 acres in current management direction.

The Modification Visual Quality Objective has been assigned to the middleground of these visual corridors: Swift Creek/Muddy River, Cispus River, Pacific Crest Trail, South Prairie Road, and the Sawtooth Berryfields. The foreground of these areas will remain natural or will be altered only slightly. Both the foreground and middleground along Roads 25 and 99, Highway 12, and Wind River Highway have been assigned the Retention or Partial Retention VQOs.

Prescriptions such as Unroaded Recreation, spotted owl, Research Natural Area, and Special Interest may contribute to scenic quality, even though their primary emphasis may be for some other purpose.

7. How can lands adjoining Mt. Rainier National Park be managed to complement objectives of the Park?

National Park Service and Forest Service administration will not change. Road and trail management, including new construction, within 1/2 mile of the Park boundary will be negotiated with the Park Service. Activities, including harvest and road construction in most foreground and middleground areas would not be evident from the Park. Some activities in the Carlton and Summit Creek drainages, or Lookout Mountain, and on the upper slopes of Dixon Mountain would be evident.

8. How will the transportation system be managed?

There are approximately 4,300 miles of road on the Forest. More than 2,00 miles are arterial or collector-type roads which are used by the general public. Approximately 2,300 miles are local roads, which are principally used for timber hauling. New road construction will primarily be local.

Approximately 12 miles of arterial and collector roads are scheduled for construction annually for the next 10 years. Fifty-six miles of local road will be constructed annually during the same period.

Timber haul roads could be built to a level that accepts only high-clearance vehicles. This would reduce construction and maintenance costs.

Highway-type vehicles will be accommodated on 1,620 miles and high-clearance vehicles on 2,120 miles at the end of the first decade. Generally, all arterial and most collector roads will remain open to public use.

Road closures limit access to the Forest by the general public using passenger-carrying vehicles. To reduce road maintenance costs and protect wildlife, the Plan calls for closing 1,230 miles of road.

9. How will the Forest manage its potential to produce energy?

Fifty-two percent or 558,00 acres of the Forest has few restrictions on the development of potential geothermal, oil, and gas energy sources. All exploration extraction operations must meet applicable state, other federal, and National Forest standards, laws, and policies.

Approximately 67 percent of Class I and II streams have few restrictions on hydropower development. Section 4(e) of any license granted by the Federal Energy Regulatory Commission (FERC) will include conditions that the Forest Service has determined through environmental analysis are necessary to protect National Forest resources. Also, special use permits for investigation and/or construction will include appropriate mitigation provisions.

Firewood will be made available to the public by permit. It is estimated that about 107,000 cords of firewood will be available annually.

10. How will management activities be implemented to meet or exceed State and Federal water quality standards?

Water quality will continue to meet state and federal water quality standards. Application of the Maintained Management Level Standards/Guidelines (Chapter IV) for riparian areas, and application of Best Management Practices (see FEIS Appendix O), provide the tools for maintaining water quality. Other Standards/Guidelines found under Water, Soil, and Air are also applicable. Monitoring will provide a means for identifying potential problems. A Memorandum of Understanding (MOU) with the Washington State Department of Ecology requires the Forest Service to keep the state apprised of water quality levels.

11. What river segments will be recommended for Wild and Scenic Rivers System?

Beginning in 1983, all rivers on the Forest were studied for possible addition to the National Wild and Scenic Rivers System. Sixteen rivers, or river segments, within the National Forest boundary have been determined to meet the criteria for eligibility. These include: Lewis River, Cispus River, Muddy Fork Cowlitz River, Clear Fork Cowlitz River, Clear Creek, Green River, Ohanapecosh River, Quartz Creek, Siouxon Creek, Smith/Muddy, Toutle River, White Salmon, Yellowjacket Creek, Cowlitz River, East Fork Lewis River, and Wind River. For a description of these rivers, see Appendix E of the FEIS.

Four of the eligible rivers, the Cispus (52 miles), the Muddy Fork Cowlitz River (11.5 miles), the Clear Fork Cowlitz River (15 miles), and the North Fork Lewis River (34.5 miles) tentatively meet the Act's suitability criteria for designation. These rivers are recommended for addition to the Wild and Scenic Rivers System. Outside the Goat Rocks and Mt. Adams Wildernesses, each meet the classification criteria for Scenic Rivers. Those segments of rivers within Wildernesses are recommended for Wild River status.

12. At what level will air quality be maintained?

Forest management activities (e.g., slash burning) will not raise levels of total suspended particulate (TSP) above the State of Washington Smoke Implementation Plan goal of 13,000 tons per year. Standards/Guidelines define timeframes and procedures for minimizing impacts on air quality.

13. What is the best landownership pattern for meeting long-term Forest goals?

Currently, the Forest has a reasonably contiguous landownership pattern. If a few exceptions are corrected, public use would be enhanced, as would resource capability and administrative efficiency.

Many of the opportunities to improve administration are in the Mineral Block, near the town of Morton. The Forest Plan calls for disposal of National Forest lands in the Bear Canyon, Deschutes River, West Fork Tilton River, and Connelly Creek areas. Private lands would be acquired, as they become available, in the North Fork Tilton, Little Nisqually River, and East Creek areas.

The acquisitions within the Mount St. Helens National Volcanic Monument are expected to be completed by 1991. Elsewhere, scattered lands in other ownerships within the National Forest boundary would be considered for acquisition to improve administration and for resource enhancement. If Congress adds either the North Fork Lewis or the Cispus River to the National Wild and Scenic River System, it may be necessary to acquire scenic easements along portions of their shorelines.

14. Are there portions of the Forest which require protection to maintain examples of important native plant communities?

Thirty-three areas on the Forest were identified and evaluated for their botanical values. Three are designated Special Interest Areas (36 CFR 294.1) in this Plan:

- Grassy Knoll
- Quartz Creek Big Trees
- Weigle Hill

In addition, many other areas containing botanical features were given Management Area Category Code 9L (see Appendix C), which would not allow timber harvesting.

There are currently six Research Natural Areas on the Forest including:

- Butter Creek
- Goat Marsh
- Thornton T. Munger
- Sisters Rock
- Cedar Flats
- Steamboat Mountain

Four areas are currently being evaluated for addition. They are:

- Big Lava
- Weigle Hill-Jimmy Creek
- Monte Cristo
- Smith Butte

15. How should Wildernesses be managed to allow for public use and enjoyment while protecting the Wilderness character and resource?

The Wilderness Act of 1964 is very restrictive about what activities can and cannot occur within Wildernesses. It requires planning and direction for recreation, outfitter and guide services, cultural sites, and fish stocking programs.

The Forest currently has 180,600 acres of Wilderness in 7 Wilderness Areas. Five Wildernesses were added by Congress with the Washington Wilderness Act of 1984. The capacity of Wildernesses in the Forest is an estimated 181,000 RVDs, and current use is approximately 120,000 RVDs. Snowgrass Flats in the Goat Rocks Wilderness and the south climb in the Mt. Adams Wilderness are heavily used.

The Forest Plan assigns Wilderness acreage to different Wilderness Recreation Opportunity Spectrum (WROS) categories. The Dedicated Trailless category, which erases even inadvertent trails, is applied to 13,690 acres. There are 141,150 acres in the General Trailless category, 16,450 acres are Trailed, and 8,750 acres are Transition.

Outfitter guides may acquire permits if a need is demonstrated. These operations must be compatible with the activities of unguided visitors and established capacity limitations must be observed. Cultural structures will be evaluated for eligibility for the National Register of Historic Places.

Fish stocking may continue where it is an established practice. A lake stocking plan will be prepared in cooperation with the Washington Department of Wildlife and Fisheries.

Where appropriate, fire will be allowed to play a natural role. Naturally-occurring fires will be permitted to burn in specific areas if parameters established for that practice are met.

Insects and disease will be controlled only if a significant threat is posed to resources outside the Wildernesses. Biological control methods will be favored.

Additional Wilderness direction is described in Chapter IV, Wilderness Management Area Category.

Chapter IV

Forest Management Direction

Introduction

This chapter provides resource management direction for the his Forest. All portions of this chapter are considered Management Direction and programs, projects, and activities are expected to conform to it. Direction varies from large-scale unquantified goals to site-specific Management Area Prescriptions. The following defines the purpose of each section:

Forest Management Goals

This section provides broad direction for the entire Gifford Pinchot National Forest. This direction was developed as a result of the process of selecting the Preferred Alternative. The resource program goals provide coordinated direction for specific resource areas.

Desired Future Condition of the Forest

This section describes what the Forest should be like as Management Direction is implemented. It summarizes the physical and biological changes, resulting from carrying out planned management practices, at the end of 10 and 50 years. This description should be helpful in monitoring the overall condition of the Forest.

Forest Management Objectives

This section displays quantified outputs and effects that the Forest is expected to produce. These outputs are estimated levels of goods and services which should be achieved as the Plan is fully implemented. In addition, the resource summaries describe the objectives in narrative form, and summarize the various resource programs needed to accomplish those outputs.

Management Prescriptions

These contain a set of Forest-wide Standards/Guidelines and Standards/Guidelines which apply to individual goals and objectives. A Management Area is a distinct, physically-contiguous area, to which a particular Prescription is assigned, for example: Midway/High Lakes. The combination of all Management Areas to which Prescriptions within a particular MAC are assigned represents the total of that MAC. Forest-wide Standards/Guidelines applicable to a particular Management Area are considered to be an integral part of the direction for the area, along with the Standards/Guidelines included in the MAC.

Forest-wide Standards/Guidelines

This section identifies the bounds within which all activities will be accomplished on all Gifford Pinchot National Forest lands. These Standards/Guidelines provide measurable, coordinated direction for resource management activities across the Forest.

Management Area Category Standards/Guidelines

These provide direction for specific portions of the Forest. Each Management Area Category (MAC) identifies a goal, or management emphasis, and the desired future condition of the land. Each MAC includes one or more Management Prescriptions.

Forest Management Goals

Forest management goals are the conditions which this Plan is intended to bring about. They assist planners in selecting the most appropriate locations on the Forest for providing various outputs and services. These are both general and specific goals.

General Goals

1. Resolve as many issues as possible. To achieve the highest net public benefit, no single issue can be resolved to everyone's satisfaction. This is because resources are highly interrelated and emphasis on one is often at the expense of others. The goal is to provide balanced management.
2. Incorporate necessary changes to existing Forest programs in such a manner as to cause the least amount of disruption to the current social and economic situation (jobs, income).
3. Provide for stability in resource outputs and services over time. Radical changes from one decade to the next should be avoided.
4. Operate within all laws, regulations, and rules, in addition to the Management Requirements required by the National Forest Management Act. Whenever possible, Management Requirements should be exceeded.

Specific Resource Program Goals

Recreation

5. Provide a diverse range of dispersed recreational, interpretive, and educational opportunities.
6. Provide a full range of trail experiences and difficulty levels, for a variety of users.
7. Provide safe, well-maintained facilities for developed recreation within a range of developed levels.

Wild and Scenic Rivers

8. Maintain the Wild, Scenic, or Recreation River character of streams recommended for Wild and Scenic Rivers designation.

Wilderness

9. Manage Wilderness to preserve and protect Wilderness character in accordance with the Wilderness Act of 1964 and the Washington State Wilderness Act of 1984.
10. Preserve naturalness and provide opportunities for solitude, challenge, and inspiration. Recreational, scenic, scientific, educational, and historical uses will be encouraged consistent with the need to maintain these attributes. Conflicts will be resolved in favor of preserving and protecting Wilderness values.
11. Permit natural fires to influence Wilderness vegetation through a least-cost fire suppression strategy that is compatible with Wilderness resource management goals.

Scenery

12. Provide natural-appearing scenery from the high use (most important) recreation travel routes and use areas. On other areas of the Forest management activities may be visible, but should blend with the natural conditions to the extent practicable.

Cultural Resources

13. Protect and manage archaeological and historic sites, peeled cedar, historic travel routes (roads/trails), caves, and cultural landscapes for research, interpretation, or adaptive reuse as applicable.
14. Maintain a diversity of cultural resource sites by in-place preservation.

Native Americans

15. Provide for the integration of Native American activities authorized by treaties, the American Indian Religious Freedom Act, and the Sawtooth Berryfields Handshake Agreement of 1932.

Wildlife

16. Maintain a diversity of wildlife habitat and viable wildlife populations.
17. Provide special management for fish and wildlife habitat in riparian areas.
18. Maintain or enhance habitat for populations of Threatened, Endangered, and Sensitive species.
19. Maintain habitat for about the current (1990) population level for elk, and an increase of about 10 percent for deer, by providing a good mix of required habitats and enhancing forage production over the biological winter range. Manage big-game habitat to avoid fluctuations in habitat capability of greater than 10 percent between decades.
20. Provide, over time, at least the minimum management level of snags and down log habitat.
21. Maintain at least the minimum number of Spotted Owl Habitat Areas.
22. Manage habitat for the current (1990) population level of mountain goats.

Fish

23. Maintain and/or enhance fish habitat. Increase the capability of this habitat over time with improvement projects.
24. Provide for anadromous fish habitat management and production consistent with Columbia River Basin Anadromous Fish Restoration Goals.

Timber

25. Manage timber to produce a continuing supply of wood products.
26. Maintain a non-declining evenflow harvest level throughout the planning period.
27. Provide a positive economic return.

Vegetation

28. Make firewood available to the public.
29. Manage representative areas to maintain sensitive and unique plant communities.
30. Maintain all riparian areas in a condition which enhances riparian-dependent resource values.

Diversity

31. Maintain or enhance the diversity and viability of native plant and animal species and communities by providing for their ecologically-sound distribution at the stand, basin and Forest levels.

Old Growth

32. Maintain sufficient old-growth stands to meet legislative and regulatory direction for ecological diversity, and to maintain viable populations of old-growth-dependent species. In addition, provide easily-accessible stands for recreational enjoyment.

Air

33. Manage logging slash and other prescribed burning to meet the Washington State Smoke Implementation Plan. This includes air quality standards for Class I airsheds over the Goat Rocks and Mt. Adams Wildernesses.

Soils and Water

34. Maintain or enhance existing soil productivity and water quality, quantity, and timing of runoff.

Geology

35. Manage caves and other sensitive geologic features on the Forest to protect wildlife, cultural, recreational, interpretive, and educational values.
36. Manage the Forest rock resource to ensure adequate long-term supply at a minimum cost and acceptable impact on other resources.

Transportation

37. 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.
38. Manage roads to reduce maintenance costs, protect soil and water resources, avoid wildlife harassment, and provide quality hunting and dispersed recreation opportunities.

Landownership

39. Pursue landownership adjustments when they help obtain Management Area Objectives.

Minerals

40. Encourage and facilitate the orderly exploration, development, and production of mineral and energy resources within the National Forest System in order to maintain a viable, healthy minerals industry and to promote self-sufficiency in those mineral and energy resources necessary for economic growth and national defense.
41. Manage RNAs to preserve representative samples of ecological communities, primarily for scientific and educational purposes in accordance with the Establishment Reports and Management Prescriptions prepared for each RNA.
42. Determine RNA cell or element needs that could be filled on the Forest and inventory to locate suitable sites for RNA recommendation.

Desired Future Condition of the Forest

The current condition of the Forest will change as this Forest Plan is implemented. This section summarizes changes which can be expected in 10 and 50 years, assuming funds are available to implement the Plan.

This description of future conditions includes only the most notable changes. It is important that readers recognize that these projections are only estimations based on a number of modeling assumptions. They show relative general changes from existing situations. The desired future condition for each Management Area Category is also given later in this chapter.

The Forest in 10 Years

Recreation

The Forest provides slightly more developed recreation sites overall. A fee is charged for the use of most campgrounds. Many sites have been rehabilitated to improve sanitation and satisfy visitor expectations. Smaller non-fee camping and picnic sites are available, but with fewer facilities. Demand for developed recreation is expected to be met. In the Mount St. Helens National Volcanic Monument, significant development has occurred and all planned development has been completed.

No additions to Forest Wildernesses have been made. At least 81,710 acres (38 percent) of the 214,900-acre roadless inventory retain their undeveloped character. Additional areas which have not yet been roaded may meet the roadless area criteria. Demand for Primitive and Semi-Primitive recreation is expected to be met, although some overcrowding is expected at popular attractions during summer weekends.

The principal access roads are readily identifiable. They have paved or gravel surfaces and are suitable for passenger car use. Signs assist travelers in finding their destination. The other roads appear less inviting. They look rough or primitive, but most are available for use by the more experienced traveler. About 26 percent of the Forest's road system is closed. Some of these closures enhance Primitive and Semi-Primitive recreation when they occur adjacent to Wildernesses or other undeveloped areas.

Roaded recreation demand has increased moderately during the first decade and it is being met. Contributing to the supply are the following double-lane paved roads: a north-south route consisting of Roads 25, 51, 90, and 30 (Carson-Randle), Road 23 (Randle-Trout Lake), and an east-west route along Road 90 (Lewis River). These routes provide improved access to recreation destinations, and scenic loop opportunities for motorists. Viewpoints have been constructed to take advantage of scenic views and interpretive opportunities.

The trail system consists of 1,251 miles, approximately 183 miles of which were built in the last 10 years. It will include more loop trails for all users. Trails will have been reconstructed to accommodate motorized use. Trail construction within the National Volcanic Monument will have been completed. All trails will have designated uses and some will have use restrictions. User conflicts are reduced and the experience matched more clearly with the expectations of visitors, and minimize resource impacts.

Scenery

The visibility of management activities as a result of intensive timber management has decreased in response to new emphasis on protection of such resources as old growth and the spotted owl. Approximately 667,500 acres are managed in such a manner that management activities may dominate the natural landscape character. Viewshed corridors contain a significant amount of old growth retained for spotted owl habitat. The view from major scenic travelways appears natural except where some timber clearcuts are still visible from past activities. By the end of the second decade, these will blend with the natural landscape.

Wildlife and Fish

Population changes in wildlife indicator species followed expected habitat changes. The woodpecker guild, indicator for cavity nesters, requires snags and down logs. Old-growth indicator species include pileated woodpeckers, pine marten, and northern spotted owls. Mountain goats have specific needs for habitat, as do deer and elk.

Habitat capability for cavity excavators has been maintained at a minimum of 40 percent of their potential population levels on timber harvest areas. Snags, scattered or in groups, green wildlife trees, and down logs within timber harvest areas provide habitat for these species.

Habitat capability for northern spotted owls has decreased from 101 to 92 pairs during the first decade.

Mountain goat habitat capability has decreased by about 2 percent during the first decade of the plan, with a 5-percent reduction in the amount of optimal goat habitat.

Deer and elk habitat capability decreased slightly during the first decade.

Resident fish populations increased slightly and anadromous fish populations increased by about 700 percent, largely as a result of passage for salmon and steelhead around Condit Dam onto National Forest lands. About 48 miles of anadromous habitat was added by this passage.

Vegetation, Including Old Growth

Over most of the Forest there is not a significant difference in the vegetation 10 years after implementation of the Plan. About one-half of the Forest is not scheduled for timber harvest; included are Wildernesses, the Mount St. Helens National Volcanic Monument, RNAs, some Wild/Scenic Rivers, and certain wildlife habitat and recreation areas. In these areas particularly, there is little or no discernible difference in the vegetation. On the 676,500 acres suitable for timber harvest, vegetative changes vary from slight, in areas such as those managed for mountain goats and some riparian areas, to significant in some areas managed for deer and elk and full timber production. About 8 percent of the suitable timberlands (55,800 acres) has been regeneration harvested, mostly using clearcutting. Depending upon the resource values and management emphasis, these harvest acres vary from about 2-3 acres in size to sixty acres in most cases. About 188,400 acres, or 95 percent of the Old Growth existing when the Plan was implemented, is retained after 10 years.

Soil and Water

Forest soil productivity is maintained. Water yield, timing, and quality have also been maintained. There has been localized improvement in water quality and site productivity as a result of watershed improvement projects.

Transportation

The arterial-collector road system is essentially in place; most new construction will be for local roads. Approximately 120 miles of arterial and collector roads have been constructed in the first 10 years of Plan implementation. Local roads have increased by about 560 miles. Total mileage of the road system has increased by 16 percent. About 26 percent of the road system (primarily local roads), will be closed.

Pacific Northwest Strategy

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

Recreation

The overall management of the Forest is strongly influenced by the recreation demands and needs being placed on it as the National Forests, in general, play a much-expanded role in the national recreation

The economic benefits related to recreation have considerable influence on regional and local economics. There is a wide diversity of both developed and dispersed recreation opportunities as described by the Recreation Opportunity Spectrum Classes. There is a balance of opportunities based on recreation demand.

Additional developed recreation sites have been added and existing sites expanded to meet growing needs of the public for outdoor recreation. There is a wide variety of levels of development provided, based on changes in recreation activities and increased sophistication of public desires and expectations. The PAOT capacity of developed recreation sites has more than doubled since the first decade.

Winter recreation sites are being constructed to meet increased demand for more developed winter recreation opportunities.

Dispersed recreation sites and areas continue to provide the greatest capacity for recreation use of the Forest, and play a more significant role in the recreation program. Visitor use has reached, or is reaching, carrying capacity in many areas. Rationing of use, through people-at-one-time quotas, entry permits, controlled entry stations, and reservation systems, is much more common. Special programs have been developed to assist users in obtaining reservations and to help them find a location for the recreation experience they desire. Marketing studies and analysis are an integral part of recreation planning and management.

Unroaded areas will be more important in the spectrum of recreation opportunities as a result of their gradual decrease in size due to roading for management activities.

The Forest's trail system has been completed since the third decade, and is 60 percent longer than in the first decade. Trail opportunities are available for a range of uses and are adjusted periodically to meet changing demands.

The Forest is used by a greater cross-section of the American people and foreign visitors. The biggest increase has been in people living in urban centers of large cities as they learn more about their National Forests. The Forest receives proportionately less use from local users and is much more a national resource.

Commercial enterprises and private investment provide a greater portion of the developed recreation sites and facilities. User fees are a primary means to support administration and maintenance of recreation sites.

Reservation sites and increased facilities for group recreation will be developed to improve public service.

New technologies and improved equipment generate new recreation activities. These, in turn, generate a need for more intensive management of people and activities, as well as much more complex administration.

Management actions designed to allow for the greatest mix of activities to occur without conflict have been implemented. These include: special zoned areas for specific uses; rotation of uses and users on the same site, trail, or within the same area; and more assigning where, when, and how long visitors can use the Forest through this issuing of passes or permits. Some sites or areas are "rest rotated" to allow for natural healing, or for major maintenance. Vegetation management is practiced in many sites to provide for the long-term succession of the desired vegetation.

Measures taken to keep Wilderness use within carrying capacities, including a permit system, are in place in some Wildernesses, reducing the freedom of visitors. Nearly all lands which permit timber production adjacent to Wildernesses are roaded, but many of these roads are closed to public use.

Improved transportation systems enable more distant visitors, both foreign and domestic, to enjoy the Forest's varied offerings. Many of these visitors are part of tour packages designed to sample a broad spectrum of experiences across the country over a relatively short period of time. State-of-the-art high-tech monitoring devices are in place to aid in data gathering, surveillance, control, and management of many resources, including recreation activities.

Wilderness demand will continue to increase by about 124 percent between the first and fifth decades and will exceed capacity after the second decade. Capacity will be reached sooner in the Goat Rocks and William O. Douglas Wildernesses, which are now nearing capacity. Opportunities to experience solitude will decrease.

Measures taken to keep Wilderness use within carrying capacities, including a permit system, are in place on some Wildernesses, reducing the freedom of visitors. Adjacent to Wildernesses, all lands which permit timber production will be roaded, but many of these roads will be closed to public use.

Recreation demand for all Primitive and Semi-Primitive recreation, including Wilderness use, will have increased about 70 percent between decades one and five. These recreation demands will exceed capacity and are expected to cause overcrowding in dispersed unroaded recreation areas outside Wilderness. Roaded recreation use (Roaded Natural and Roaded Modified) will

increase by about 90 percent between decades one and five, but demands can be met overall in the next 50 years.

Inventoried roadless areas assigned to prescriptions which permit roads and/or timber harvesting will not meet the roadless area criteria. Approximately 81,710 acres will retain their roadless character.

An additional 500 miles of trail will have been constructed during the second and third decades. Development after the second decade will be limited to areas where demand materializes.

Scenery

Viewshed Corridors are in a managed condition, except where other more restrictive management exists, such as for spotted owl. Natural-appearing scenery has been maintained along the most heavily used recreation routes and attractions. Away from these significant routes and attractions, evidence of human activities is frequently more dominant in forested areas where timber management occurs.

Wildlife and Fish

Cavity excavator populations have not declined between the first and fifth decades, and are at least 40 percent of their potential population levels.

Habitat capability for northern spotted owls has gradually declined, from 92 pairs at the end of the first decade to 58 pairs.

Mountain goat habitats have improved because of limitations on timber harvesting and restricted access in goat winter range.

Deer and elk populations are about six percent below the first-decade level.

Resident and anadromous fish populations increased, primarily because of habitat improvements and enhanced riparian management.

Vegetation, Including Old Growth

As a result of the devastating 1980 eruption of Mount St. Helens, a large portion of the National Volcanic Monument was left as bare soil. It is now largely covered with heavy brush fields. Trees up to about 12 inches dbh extend above the brush. Most of the trees are scattered and near the fringes of the blast area. No trees have been planted in the National Volcanic Monument; its purpose, for research, scientific study, recreation, and interpretation, is to remain largely natural. An area of about 20,000 acres, centered in the Clearwater drainage just east of the National Volcanic Monument, was also devastated by the eruption. Having been reforested shortly after the volcanic blast, this area is carpeted with an almost continuous canopy of mixed conifers, mostly Douglas-fir, averaging 10 to 15 inches dbh.

Those portions of the Forest where timber harvest is not permitted have changed slowly, if change is apparent, largely due to ecological succession. Additional roads, trails, and recreation sites have appeared. They are generally not immediately apparent to the viewer. In the one-half of the Forest where timber harvest is permitted, a significant reduction has occurred in those age classes older than 110 years. Where those age classes accounted for more than 40 percent of the suitable timberland at the end of the first decades, they now total just under 30 percent. At the same time, stands in the 30-100 year age classes have increased from 39 percent to about 52 percent of the suitable timberland. The number of acres aged 20 years and

under have remained about the same. Approximately 150,000 acres, or 78 percent of the old growth existing at the time the Plan was implemented, remain.

Soil and Water

Forest soil productivity has been maintained. Water yield, timing, and quality have also been maintained. There has been localized improvements in water quality and site productivity as a result of watershed improvement projects.

Transportation

The principal road systems are now complete with improved or paved surfaces. Other roads are closed or are available for use by seasoned forest travelers with high-clearance vehicles. Local road construction declined by 55 percent from the first decade level. Local road closures will continue until needed for the next timber entry. About 28 percent of the road system, primarily local roads, continue to be closed.

Pacific Northwest Strategy

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.

Forest Management Objectives

Projected Outputs and Effects

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

Figure IV-1 also contains the annual funding levels necessary to meet the proposed outputs and activities. If actual funding is significantly different, outputs of goods and services will vary accordingly.

Resource Summaries, including a narrative description of objectives by resource, follow Figure IV-1.

FIGURE IV-1 PROJECTED ANNUAL OUTPUTS AND EFFECTS							
Outputs	Unit of Measure	Activity Code	First Decade	Second Decade	Third Decade	Fourth Decade	Fifth Decade
Recreation							
Developed Site Recreation Use	1,000 RVDs	AN12	910	1,180	1,410	1,690	2,038
Developed Site Construction/ Reconstruction	PAOT	AN22	6,560	1,000	0	0	0
Dispersed Recreation Use, Non- Wilderness (Roaded and Unroaded)	1,000 RVDs	AN12	1,155	1,395	1,615	1,870	2,175
Unroaded Recreation (Non-Wilderness)	1,000 RVDs	AN12	190	218	218	218	218

Trails							
Construction/Reconstruction	Miles	AT22	340	230	220	200	0
Maintained (total system) (summer)	Miles	AT23	1,250	1,360	1,560	1,750	1,750
Wild and Scenic Rivers 3/ Rivers Recommended for Wild & Scenic Rivers Designation:							
Cispus River (Includes 1 private mile)	Miles	AN12	47				
Lewis River		AN12	33				
Muddy Fork Cowlitz		AN12	6				
Clear Fork Cowlitz		AN12	15				
Wilderness							
Wilderness Use	1,000 RVDs	AW1	168	197	197	197	197
Wildlife and Fisheries							
Wildlife and Fish Use 1/	1,000 RVDs	CW1	446	446	437	491	458
Wildlife Habitat Improvement		CW2					
Structural	Structures		5,504	5,504	5,504	5,504	5,504
Non-Structural	Acres		3,620	9,864	9,864	6,919	6,919
Wildlife Indicator Species	Habitat In.						
Deer	Number	CW1	20,530	19,963	19,800	21,699	19,400
Elk	Number	CW1	5,132	4,991	4,850	5,425	4,850
Mountain Goat	Number	CW1	228	222	210	243	280
Spotted Owl	Pairs	CW1	92	84	75	67	58 2/
Pileated Woodpecker	Pairs	CW1	552	456	359	263	167
Pine Marten	Female Terr.	CW1	1,130	938	747	555	364
Cavity Excavators	% Habitat Pot.	CW1	40	40	40	40	40
Resident Fish Harvested	Number	CA1	290,000	295,000	296,000	297,000	297,000
Anadromous Fish							
Commercial Fish Harvest Potential	Pounds	CA1	8,900	30,700	52,500	68,700	81,100
Additional Fish due to Habitat Improvement	Number	CA2	800	5,600	7,200	9,500	11,200
Vegetation and Timber							
Old Growth:							
Amount of Existing Old Growth Retained	Acres	ET11	188,400	178,800	169,200	159,600	150,000
Timber Program Quantity	MMCF	ET11	76.0	76.0	76.0	76.0	76.0
Timber Program Quantity	MMBF	ET11	414.6	N/A	N/A	N/A	N/A
Allowable Sale Quantity	MMCF	ET11	61.2	61.2	61.2	61.2	61.2
Allowable Sale Quantity plus salvage	MMBF	ET11	334.0	N/A	N/A	N/A	N/A
Long-Term Sustained-Yield (LTSY)	MMCF		65.3	65.3	65.3	65.3	65.3
Reforestation	Acres	ET24	6,800	7,350	6,350	6,430	6,870
Fuel Wood	CF	ET12	13,600	13,600	13,600	13,600	13,600
Timber Stand Improvement:							
Precommercial Thinning	Acres	ET25	7,100	5,200	7,100	6,200	5,030
Release	Acres	ET251	2,060	1,380	140	110	1,360
Land Suitable for Timber Production 4/	Acres	ET251	676,500				
Land Tentatively Suitable for Timber Production 4/	Acres	ET251	946,900				
Timber Yield Levels:							
Full Yield	Acres		427,900				
50-99% of Full Yield	Acres		239,300				
1-49% of Full Yield	Acres		9,300				
Forage							
Permitted Grazing	AUMs	DN1	4,100	4,100	4,100	4,100	4,100
Air, Soil, and Water							
Air Quality	Tons of Particulate	FA1	12,000	12,000	12,000	12,000	12,000

Water Yield		1,000 Ac. Ft.	FW1	8,200	8,200	8,200	8,200	8,200
Sediment		Tons/Year Index	FW1	3,400	3,500	3,400	3,400	3,700
Watershed Improvement		Acres	FW22	195	160	160	160	160
Energy and Minerals 4/								
Access Restrictions of Energy and Mineral Resources:								
Mineral Potential	Restrictive Level	Acres						
High:								
Mineral Potential	High		GM1	400				
	Moderate		GM1	1,400				
Lands	Low		GM1	200				
Moderate:								
Mineral Potential	High		GM1	9,500				
	Moderate		GM1	1,000				
Lands	Low		GM1	11,500				
Low:								
Mineral Potential	High		GM1	181,090				
	Moderate		GM1	329,380				
Lands	Low		GM1	546,320				
In-Service Mineral Material Use		1,000 Tons of Rock	GM	466	327	275	250	246
Small Hydroelectric Project Sites 4/		Miles of Streams Severely Restricted	FW1	320				
Fire Management								
Fire Management Effectiveness Index 4/		\$/1,000 Protected Acres	PF1	1,527				
Fuel Treatment (Final Harvest and Thinning Harvest Acres)		Acres	PF2	10,500	8,400	9,200	8,300	9,600
Transportation								
Timber Purchaser Road Construction/Reconstruction		Miles	LT222	112	90	78	78	88
Roads Suitable for (open) Public Use: Passenger car		Miles	LT23	1,560	1,640	1,660	1,670	1,680
High Clearance Vehicles		Miles	LT23	1,840	2,090	2,230	2,330	2,450
Roads Closed		Miles	LT23	1,230	1,400	1,500	1,560	1,640
Total System		Miles	LT23	4,630	5,130	5,360	5,660	5,770
Arterial and Collector Roads Construction/Reconstruction		Miles	LT222	70	58	58	58	58
Economic								
Potential Return to Government		Million \$		49.0	56.6	67.0	72.9	73.3
Potential Payment to Counties		Million \$		12.3	14.2	16.8	18.2	18.3
Potential Jobs		Jobs		6,980	N/A	N/A	N/A	N/A
Potential Income		Million \$		140	N/A	N/A	N/A	N/A
Human Resource Program		Person Years	HS	26	24	24	25	26
Landownership 3/								
Landownership Categories:								
A. National Forest Land:								
I. Retain (Congress Dir.)			JL1	290,930				
II. Retain (Plan)			JL1	613,570				
III. Neutral			JL1	447,810				
IV. Dispose			JL26	19,410				
V. More Study			JL1	0				
B. Other Ownerships:								
I. Acquire (Congress Dir.)			JL26	100				
II. Acquire (Plan)			JL26	23,760				
III. Neutral			JL26	71,890				
IV. Not Needed			JL26	44,870				

V. More Study		JL26	640				
Costs							
Operational Costs	Million \$		16.5	17.8	18.4	18.6	18.9
Capital Investment Program	Million \$		10.7	7.5	7.1	7.1	8.1
Total Budget	Million \$		27.2	25.3	25.5	25.7	27.0
Landlines							
Location	Miles	JL24	180	100	100	80	50
Maintenance	Miles	JL23	200	200	200	200	200
Congressionally Designated Boundaries (Wilderness, NVM, Wild/Scenic Rivers)	Miles		300	150	100	100	50
<p>1/ Wildlife and Fish User Days (WFUDs): Predicted wildlife and fish use is based on game and non-game population level as represented by indicator species. It is also based on harvest levels commensurate with the predicted habitat capability levels (See Figure iV-1).</p> <p>2/ The intent is to maintain at least 50 spotted owl habitat areas through time.</p> <p>3/ These items are not annual outputs in the traditional sense. The values displayed are not intended to accumulate, or increase by decade. Rather, these figures represent the total opportunities available in the first five decades after implementation of the Forest Plan. There is no defined schedule for taking advantage of these opportunities by decade. As an example, the four rivers recommended for Wild/Scenic River designation are expected to remain in a recommended status until Congress acts upon the recommendation. In the case of landownership, the acres by Landownership Category are intended to be considered when future ownership adjustments are made.</p> <p>4/ These items are directly related to the assignment of Management Area Categories in Alternative S and are not expected to change by decade except through amendment or revision of the Plan.</p>							

Resource Summaries

Recreation

Developed Recreation

Developed recreation will continue to be an important program on the Forest. New facilities will be constructed, and existing facilities rehabilitated in order to provide capacity to meet demand. The Forest’s current capacity at developed recreation sites is about 11,923 PAOT (people at one time). Most use of developed sites occurs during the summer months. Additional facilities are being developed to accommodate winter use, which is expected to increase as a result.

Approximately 58 percent of the increased PAOT capacity of the facilities scheduled for construction and reconstruction during the first decade is associated with the Mount St. Helens National Volcanic Monument. Most of the remainder is for expansion and rehabilitation of existing sites not directly associated with the Monument. The largest development in the Monument during the first decade is the Coldwater Lake-Johnston Ridge Complex which is expected to be open year-round. (see Appendix A).

The emphasis for the first decade, outside the Monument, will be to improve existing popular campgrounds. Those campgrounds that are non-fee and capable of a favorable cost/revenue ratio will be converted to fee status by the installation of facilities required to meet the criteria for fee sites, such as potable water and toilets. Conversion of sites to fee status will be selective and is not expected to cause a substantial displacement of the non-fee site users.

Primary management activities for developed sites will be to develop and/or upgrade facilities to appropriate standards, and to complete vegetative management plans. Additional emphasis also will be placed on construction of day-use facilities: Picnic sites, trailheads, viewpoints, interpretive sites, and nature trails.

Such improvements will meet ROS objectives, barrier-free access objectives, and Forest Service developed site standards. Some facilities will be replaced, some expanded. Developed sites may be considered for closure or removal of facilities to reduce capacity in areas found to be

lacking in demand, where resource damage has occurred due to maintenance limitations, or not meeting ROS objectives.

Where economically efficient, developed Forest campgrounds and picnic areas will be considered for operation under contract by concessionaires. Opportunities for partnerships to reduce operation and maintenance costs will be explored with the public and other agencies. The popular Campground Host Program will be continued throughout the Forest. Interpretive programs will be provided at larger campgrounds.

Knutson-Vandenberg (K-V) funds associated with timber sale activities will continue to be used to expand and improve existing developed sites, including trailheads. In some instances, new trailhead parking areas can be developed on logging landings and short spur roads.

Expansion of the White Pass Ski Area is anticipated during the first decade. Management of organization and club sites, recreation homes, and the Cispus Environmental Learning Center will continue as in the past. Requests for expansion of organization and club facilities will be considered on a case-by-case basis.

Dispersed Recreation

Fourteen percent (193,370 acres) of the Forest will be available for non-wilderness unroaded recreation. This will help alleviate some overcrowding in the Wildernesses. It includes 10,020 acres of Primitive, 153,760 acres of Semi-Primitive Non-Motorized, and 29,590 acres of Semi-Primitive Motorized recreation. Approximately 21,900 acres in unroaded areas less than 2,500 acres in size will be managed to provide the social and managerial setting usually associated with Semi-Primitive Classes, even though the recreation experience may not be truly Semi-Primitive due to the sights and sounds of humans. Road closures on adjacent lands may help provide the physical setting required for the semi-primitive experience.

About seventy-three percent of the Forest (998,940 acres) will provide roaded recreation (Roaded Natural and Roaded Modified). This land will be managed according to assigned Prescriptions and direction in the Recreation Opportunity Spectrum Users Guide.

In Management Areas with a recreation emphasis, the social, physical, and managerial settings will be monitored to assure that recreation attributes which facilitate the desired opportunity setting are being protected. Management of these areas will be guided by input from user groups and sample field contacts with visitors to identify needs and expectations. Area-specific capacity estimates will be developed as guides for management of the desired opportunity setting.

The importance of driving for pleasure will be recognized in transportation planning and road management. This activity will be enhanced during timber harvest activities by improving or establishing overlooks and scenic vistas along roads managed for scenic values.

Tools such as the "Green Dot" system will be more extensively applied to improve hunting quality.

Commercial outfitters and guides for river rafting, hunting, fishing, backpacking, climbing, and other commercial services may be permitted, if there is demonstrated demand consistent with resource objectives and recreation experience considerations.

Coordination to ensure that current activities are compatible with the plans of other agencies and groups will occur with USDI, National Park Service, Mount Rainier National Park, Washington State Department of Wildlife, Washington State Parks and Recreation, Washington State Historic Preservation Office, Washington State Advisory Council on Historic Preservation, and county planning commissions. Coordination of plans will also occur

with Pacific Power and Light Co., local and regional tourism and development councils, professional organizations including outfitters and guides, private campgrounds, and others.

Roadless Areas totaling 81,710 acres will remain undeveloped. This includes the portion of the Midway roadless area assigned the Roaded Recreation MAC, which has no scheduled timber harvest, or roads. (See Appendix C of the FEIS for locations and descriptions). In addition, 4,290 acres not scheduled for timber harvest or roading during the next 15 years should retain their roadless character at least until the Forest Plan is revised. The existing road in the Silver Star area will be closed and rehabilitated.

Trails

There are 1,068 miles of trail on the Forest with primary summer use, including 317 miles within Wildernesses. About 340 miles of trail are expected to be constructed or reconstructed during the next 10 years, most of it in the National Volcanic Monument (see Appendix A). The Trail System Plan developed in participation with various trail user groups will be updated with input from these same groups. See Figure IV-2, Mileage Summary. See Appendix D for list of existing and proposed trails.

The Forest will seek to expand partnerships with the State of Washington Interagency Commission on Outdoor Recreation, user groups, and other volunteers, in planning, constructing, reconstructing, and maintaining trails and trailheads.

Trail system planning will continue to be an integral part of all project planning to assure continuation of a top quality trail program.

(Figure IV-2)

Wilderness Trails: Motorized equipment or vehicles are not permitted on the 317 miles of trail in Wildernesses. Wilderness management will include trail maintenance levels. Emphasis is on reconstruction of existing trails to protect the Wilderness resource and to meet the objectives of the WROS Class through which a trail passes.

Pacific Crest National Scenic Trail: A total of 112 miles of the Pacific Crest National Scenic Trail traverses the Forest. It is managed in accordance with the standards and objectives of the "Pacific Crest Trail Comprehensive Plan." Where the trail passes through Wilderness, location, design, construction, and maintenance standards will be modified to the extent needed to meet the intent of the WROS Class through which it passes.

Non-Wilderness Trails: There are approximately 751 miles of trail outside the Wilderness in the current trail system. They will be managed to maintain a balanced spectrum of travel opportunities. Difficulty, mode of travel, distance, and designation are involved. Some trails, for example, are designated for the exclusive use of hikers. When possible, conflicting trail uses will be separated. Each Forest trail has been assigned a trail management level, with associated standards and guidelines for adjacent management. This offers a range of protection from roading and timber harvest impacts. See Appendix D for list of Trail Management Levels by individual trail. Trail management levels are described in the Forest-Wide Standards/Guidelines.

High-Clearance Routes: Approximately 2,000 miles of the Forest road system will be managed to encourage high-clearance vehicles and discourage highway vehicles.

Off-Road Vehicle (ORV) Trails: The Forest Trail System designates specific trails for ORV use, providing a variety of opportunities from Semi-Primitive Motorized to Roaded Modified. The objective is to develop loop trail systems and to minimize resource damage and conflicts with other recreationists. Off-trail travel by ORVs will generally not be permitted, except for

oversnow machines. The objective for motorized trails will be developed on a mile-for-mile basis during the first decade; i.e., before a mile of trail can be closed to motorized use, a replacement mile must be made available elsewhere on the Forest for motorized use. See Figure IV-2.

In the Blue Lake area, assigned the Unroaded Recreation Prescription (UH), the continued use of ORVs will be permitted on designated trails. Designated trails in the northern half of Dark Divide will also be available for motorized use.

The Forest Travel Plan should be reviewed annually and revised if necessary to indicate which trails are open to motorized vehicles, both year-round and seasonally.

Approximately 10 miles of motorized trail will be available for ATV use within the first decade. Additionally, during the first decade, two to three areas with six to ten miles each of four-wheel drive routes will be established. Further study is required prior to establishing specific four-wheel drive routes.

Management of motorized use on roads and trails within one-half mile of Mt. Rainier National Park will be negotiated with the National Park Service.

National Recreation Trails and National Historic Trails: There are no National Historic Trails on the Forest. The Boundary and Ape Cave Trails are National Recreation Trails. Forest trails will be evaluated for possible inclusion in the National Recreation or National Historic Trail Systems.

Winter Recreation: A winter trail system provides opportunities for cross-country skiing and snowmobiling through the Forest. The Forest will continue the cooperative agreement with the State of Washington for grooming, and installing of appropriate trail signs on approximately 50 miles of winter trails. Snowmobile trail mileage varies from year to year depending on logging activities and snow conditions. Snowmobile parking areas with plowed access will be constructed to facilitate use of snowmobile routes.

The cross-country ski trail system will be expanded to meet anticipated demand. The proposed expansion of the White Pass Ski Area is expected to provide additional opportunities for downhill skiing.

(Figure IV-3)

Information and Education

Information

Public information services will be expanded in the first decade of the Plan to respond to demand. Expansion will encompass staffing as well as facilities, equipment, and written materials. The emphasis will continue toward sharing information services with other agencies and private outlets where possible. The Forest's public outreach programs will be intensified to allow certain segments of the public to become more familiar with recreational opportunities on the National Forest.

Education

Environmental education will focus on natural processes, human interaction with the natural environment, and cultural values. Key areas of the Forest for environmental education include Research Natural Areas, the NVM, and the Cispus Learning Center.

The Cispus Learning Center will continue to be managed under permit as an outdoor education facility serving a broad spectrum of patrons, mainly public school students, as part of the Association of Washington School Principals and Educational Service District No. 113. As an integral part of the Forest Plan, the following broad direction is applicable:

1. The Cispus Center Use Area of about 4,000 acres is recognized. The use area extends southward from the center to include the upper slopes of Burley Mountain. While the use area is not a formal land allocation, it does serve to identify those lands of greatest concern to the Center's administration.
2. Within the use area are several Management Area Categories, including Wild/Scenic River, Administrative Site, Visual Emphasis, and Roaded Recreation. In addition, a area of about 250 acres of mature/old growth is assigned to Special Interest, set aside at the request of Center administration. Except for the Special Interest Area and the Administrative Site, Forest Service activities will occur normally, as governed by the Standards/Guidelines and other management direction. No additional reduction in timber harvest or other activities is expected in the use areas because of the Cispus Center.
3. The Burley Mountain and Covell Creek Trails No. 256 and 223 will be managed as Level I trails.
4. The Randle District Ranger will coordinate proposed activities within the use area with the Center Administration. Coordination includes providing advanced notice, information and education, and possibly some agreement on the timing of Forest Service activities.

Special Interest Areas

Eight Special Interest Areas (under 36 CFR 294.1) amounting to 31,750 acres (Figure IV-4) will be managed to maintain the special features in a substantially natural condition and provide for an appropriate level of public access and enjoyment. An implementation schedule will be prepared for each of these areas within 10 years after approval of the Forest Plan.

(Figure IV-4)

In addition to the areas identified in Figure IV-4, there is a long list of special features identified by the Management Direction Code 9L which are also deserving of special management (see Appendix C). They include a wide range of features, such as waterfalls, scenic spots, caves, and botanical, historical, and geological sites. They differ from the above areas (Codes SD, GD, GL, and BL) in two respects. First, they are relatively small in size; they range from one to 1,250 acres. The second and biggest difference in these latter areas, however, is that they are not significant enough to qualify for classification under CFR 294.1.

Wild and Scenic Rivers

The following four river segments (113 miles) are recommended to Congress for designation as part of the National Wild and Scenic Rivers System. Until Congress has taken action, values which make them eligible and suitable for Wild and Scenic Rivers designation will be protected on National Forest lands (except for approximately 1 mile of the Cispus River crossing private land).

(Figure IV-5)

Additional river segments (132 miles on 12 rivers) will require further study in order to determine suitability. This will require a separate environmental analysis, including documentation, for each river, and coordination with state and local governments and adjacent

private landowners. Until these analyses are completed, the values contributing to their particular classification will be protected on National Forest lands.

(Figure IV-6)

Cultural Resources

The cultural resource program will be fully coordinated with other resource management activities on the Forest. Cultural resource surveys will precede all ground-disturbing projects, including Forest Service projects off National Forest land. Non-ground-disturbing projects, such as termination of special use permits, will be surveyed to determine the potential impact on cultural resources.

All cultural resource sites will be evaluated prior to any potential project impact. Monitoring for other impacts, such as erosion and vandalism, will occur.

Decisions regarding significant cultural resources will be based on historic preservation laws, regulations and policies, and the Forest-wide Standards/Guidelines.

The location and number of surveys conducted each year will depend primarily on the location and number of ground-disturbing activities proposed. About 12,000 acres are expected to be inventoried annually during the first decade of plan implementation. Information collected during these inventories will be used to refine the cultural resource sampling strategy.

Wilderness and other withdrawn areas contain cultural resources which need to be inventoried. Depending on available funding, priorities for non-project-related inventory will be:

1. Areas which are being impacted by natural processes or intensive public use.
2. Areas with reported but unverified sites.
3. Areas where cultural resources are highly probable as determined by known land use patterns, terrain features, resource distributions, and the nature and extent of previous landscape modifications.

All sites located during a project-related survey will be documented in accordance with Regional standards. As time and funding permit, inventories will also be prepared for the current backlog of unrecorded or insufficiently-recorded sites. The goal will be to add 12 new sites per year to the inventory base. This will:

1. Aid in the development of a database which can reliably contribute to State wide efforts in preservation planning.
2. Facilitate the development of appropriate research strategies.
3. Provide the basis for evaluation of significance.
4. Aid in the formulation of informed management decisions.

An assessment of significance is pivotal to management of cultural resources. It will influence the selection of sites meriting further considerations or investigation, as well as the decision as to whether to preserve or ultimately permit alteration or destruction of the resource.

Sites will be treated as individual properties, thematic groups, or historic districts. The major emphasis, however, will be away from the evaluation of single sites. No property can be viewed in isolation when assessing its importance. Efforts will be made to look at the local or

regional context of the cultural resource and to determine the relationship of the property to others within the same historic context and/or specific geographic area.

In the case of archaeological sites on the Forest, some test excavations will be necessary to determine the boundaries, depth of deposits, and/or basic nature and condition of the properties. This information is vital to determining the extent and significance of these sites.

Many known cultural resources are within Management Areas where activities can be expected to produce a moderately high level of impact. This may require the development of mitigation alternatives. A variety of approaches will be considered to protect significant sites from adverse effects due to projects, public use, and natural deterioration. These alternatives may include, but are not limited to:

1. Adjustment of project boundaries to ensure complete avoidance of the site as well as protection of its environmental setting.
2. Adoption of methods or techniques that will minimize disturbance to the site and its environmental setting.
3. Removal of the cultural property (historic) to another appropriate location after documentation of the property in place.
4. Mapping, photodocumentation, and scaled drawings of historic properties prior to alteration or destruction.
5. Excavation of archaeological sites utilizing a professionally sound research design in keeping with the statewide research plan, and carried out in consultation with interested Native American groups. Such excavation would be undertaken through contract, meeting the guidelines specified in FSM 2361.29 and 36 CFR 66.

Cultural resource management plans will be developed for selected National Register sites and Districts on the Forest, in consultation with the Washington SHPO. Measures to correct problems of deterioration or destruction of significant cultural resource properties will also be developed, as needed.

The ultimate goal of the cultural resource program will be the use and/or interpretation of appropriate cultural resource properties for the benefit of the general public.

All inventoried sites will be assessed as to suitability for interpretation or appropriateness for scientific research. Coordination with the American Indian community may be necessary. Involvement of interested volunteer groups and appropriate educational institutions will be encouraged.

Native American traditional uses will be considered. They may not relate to National Register criteria, but are critical elements to consider in appraising cultural land use and making decisions as to site preservation, protection, or alteration/removal.

The Handshake Agreement between Chief Yallup and Forest Supervisor Bruckert granting Native Americans exclusive berrypicking rights to a 700 acre portion of the Sawtooth Berryfields east of Forest Road 24 will continue to be recognized.

Scenery

Visual quality is to be maintained in a near-natural appearance for selected scenic travel routes which include: All major scenic highway viewsheds, roads and trails within the Mount St. Helens National Volcanic Monument, and most major Wilderness portals.

In addition, lands within recreation allocations and lands surrounding with developed sites will be managed to maintain their scenic quality.

Lands within view of 21 selected scenic travel routes (viewshed corridors) will be managed under Retention or Partial Retention Visual Quality Objectives (VQO) in the foreground and Partial Retention or Modification in the middleground. Standards/Guidelines and other direction for the Modification VQO are intended to be applied to these viewsheds shown in Figure IV-7 as Modification. For purposes of this plan, all portions of the Forest not specifically included in Figure IV-7 or otherwise assigned a VQO of Preservation, Retention, or Partial Retention are considered to be background. A viewshed management schedule will be developed for each selected viewshed corridor. The primary management activity in these viewsheds will be to coordinate with other resource programs to assure that visual quality objectives are met.

Of the total Forest, both viewshed and non-viewshed, 185,310 acres will be managed under a Preservation VQO and 518,910 acres are assigned Retention and Partial Retention VQOs. Of the 675,500 acres suitable for timber management, approximately 189,740 acres will have Retention or Partial Retention VQOs to protect Visual Quality.

A total of 667,500 acres will be managed under the Modification VQO. Viewed from Forest roads, the natural condition of these lands will appear moderately to highly altered. Even in these areas of substantial alternation, visual management principles are applied to blend alterations with natural land forms.

Opportunities to restore landscapes containing undesirable visual impacts to a desired visual quality level will be identified.

Visual management principles are described in *National Forest Landscape Management*, Volumes 1 and 2. Published handbooks within *The Visual Management System* include "Utilities," "Range," "Roads," "Timber," "Fire," "Ski Areas," and "Recreation." The visual management system is to be used in all resource programs to maintain high levels of scenic quality. The visual management system will also be applied in Wildernesses to maintain high scenic quality. Construction, rehabilitation, or reconstruction of trails or campsites may require visual management consideration. Based on the application of visual management direction set forth in Management Prescriptions, Forest-wide Standards/Guidelines, and handbooks, the inventoried viewsheds will appear as indicated in Figure IV-7. A location map, Figure IV-8 follows.

Monitoring will be conducted to ensure that the visual quality objectives are being met.

(Figure IV-7)

(Figure IV-8)

Wilderness

A total of 180,000 acres in seven Wildernesses are assigned to the following WROS classes: 5 percent in Transition, 9 percent in Trailed, 78 percent in General Trailless, and 8 percent in Dedicated Trailless (Figure IV-9).

Limits of Acceptable Change (LAC) have been established for various Wilderness resource values such as vegetation, soil, and solitude. Limits of Acceptable Change may be found in Appendix A. LACs aid in identifying and reducing adverse impacts in Wildernesses. The LAC process establishes acceptable Wilderness conditions and prescribe actions to protect or achieve those conditions. If limits are exceeded, remedial action will be taken. Strategies will be developed by 1995 to bring into compliance these areas which are out of compliance with the

Limits of Acceptable Change and the Wilderness Act, and to maintain those which are in compliance.

To reduce impacts, managers will directly influence visitor behavior to avoid degradation of sensitive areas or sites. Such controls will include public information and education in Wilderness ethics. Minimum-impact camping techniques will be advocated. The overall goal for managing visitation will be to provide Wilderness experiences in undeveloped and unconfined places. Indirect, unobtrusive, and subtle management techniques will be favored.

More stringent controls may periodically be needed at more sensitive sites. This could include regulations to prohibit camping in sensitive areas and a permit system to limit the number of visitors. Such measures, however, can themselves have an adverse effect, reducing the freedom and independence of visitors. These methods will be used sparingly and only when necessary.

(Figure IV-9)

Implementation schedules addressing trails, outfitters, types of use, wildlife measures and fish stocking will be developed for each Wilderness. Involvement of interested users and adjacent landowners/managers will be encouraged.

Wildlife

Deer and Elk

The Forest-wide goal for deer and elk is to maintain habitat for about the current potential population level of elk, with an increase of about 10 percent for deer. This goal may be interpreted to mean that habitat carrying capacity should not vary more than 10 percent per decade. Referring to Figure IV-1, the habitat index reflects a decrease of about 2 percent for deer and elk during the first decade of the Forest Plan. In the second decade, deer/elk populations are about 5 percent below current levels. By decade 4, not shown in Figure IV-1, the habitat capability rises to about 1 percent over the current level, decreasing again in the fifth decade to 7 percent below current. By adjusting hunting seasons and bag limits, the Washington Department of Wildlife may help to encourage an increase in deer over elk.

Timber harvest produces openings in which needed forage grows. In the biological winter range, the amount of timber harvest planned will not be sufficient to maintain the current habitat capability. This is due to two factors: the amount of previous harvest areas that are now fully stocked with young trees, and the requirement to maintain optimal cover or mature stands over 44 percent of the biological winter range. The availability of forage during winter months in openings and in optimal cover is crucial. Enhancement of forage on winter range will be required to maintain the habitat capability projected in Figure IV-1. In Management Areas with scheduled timber harvest within the biological winter range, up to 75 percent of existing and future regeneration harvest areas should be fertilized and seeded with forage species palatable to deer and/or elk. The need for fertilization and seeding will be determined on a case-by-case, interdisciplinary basis, before any on-the-ground application occurs. Those treatments will utilize forage species appropriate to the area and consider reforestation difficulties which may be present.

Forage seeding will follow ecological guidelines set in the Forest Plant Association and Management Guide, Western Hemlock Zone, and must meet reforestation requirements. These treatments must also be coordinated with the Washington Department of Wildlife to alleviate or avoid animal damage problem areas.

While most forage seeding will occur in biological winter range, key spring and fall habitats should also be considered.

Revisions of existing sale area improvement plans may be necessary to avoid a considerable delay in establishing this forage seeding program. Without these revisions, the deer and elk habitat capability levels shown in IV-1 would not be reached in the first decade because it would be several years before forage seeding would actually begin in future harvest areas.

Another important habitat requirement is optimal cover. At least 44 percent of the biological range in each of the 25 National Forest System (NFS) watersheds should be maintained in stands of large sawtimber (21 in. dbh or larger) which meet the criteria for optimal cover; in the event that 44 percent of the range within a watershed does not meet the criteria for optimal cover, no scheduled harvest may be permitted in stands meeting those criteria. Harvest may occur in other stands, if permitted by the applicable MAC Standards and Guidelines, and provided a plan is in effect to increase the optimal cover to at least 44 percent.

The current condition of winter range varies considerably from watershed to watershed. Because of this, the amount of timber harvest required to reach the objective will also vary. FORPLAN was used to determine acreages to be harvested each decade in each treatment class within the biological winter range areas to achieve this objective. The distribution, size, and shape of these harvest areas will need to be examined and monitored in each wintering watershed.

Roads which are open to vehicular traffic can significantly reduce the habitat capability for deer and elk. Achievement of the deer/elk management goal will require that the applicable road management Standards/Guidelines be met within the biological winter range. The intent is to move from the current average of about 3.0 miles of open road per square mile to an average of about 1.7 miles per square mile. The current mileage includes 1.2 miles of primary or through roads, and 1.8 miles of secondary roads. The Forest Service has no jurisdiction over primary roads, most of which are federal, state or county highways. The current 1.8 miles of secondary roads could be reduced to about 0.5 miles per square mile, leaving enough flexibility to manage for recreation, timber, and other resources. Refer to Figure IV-10, Influence of Open Roads of Deer and Elk.

In the Bear Creek area near the Columbia River Gorge, the intent is to manage principally for deer rather than elk, in cooperation with the Department of Wildlife. To favor deer, the Standards/Guidelines applicable to Bear Creek are somewhat different than those applied to other winter range areas of the Forest. Generally, less timber harvest and smaller regeneration harvest units are expected in Bear Creek.

(Figure IV-10)

State game harvest regulations may also have a considerable effect on the degree to which habitat capability levels projected correspond with actual population levels. The period of this Forest Plan will provide an opportunity for the Forest and the State to refine mutual, quantified deer and elk population and habitat objectives.

Mountain Goats

Habitat capability for mountain goats will be managed to provide a forage/cover ratio that maintains the present carrying capacity of 230 animals. This will be done by providing 50 percent of the area in optimal cover. However, an increase of 19 percent in potential goat population will occur by the fifth decade (see Figure IV-1), and will then decline to 229 by the fifteenth decade. The amount of timber harvest in mountain goat winter range will vary depending on the existing condition of the area. It will be minor, not exceeding 4 percent, and it will be performed in a manner which enhances the habitat.

Road management will be crucial to success in increasing goat habitat capability. Logging systems which do not require roads should be used unless no reasonable alternative exists. Most local and many collector roads should be closed (0.63 mile of open roads per square mile is the management direction). Timber harvest and road building should be precluded November 1 to June 15 in goat winter range, and all local and minor collector roads should be closed to traffic during the same period.

Spotted Owls

Spotted owl management in this Plan is intended to be in compliance with Amendment to the Pacific Northwest Regional Guide -- Spotted Owl Habitat Management, December 8, 1988.

There are two objectives of spotted owl management on the Forest. The first is to contribute to the maintenance of a viable population of northern spotted owls in the Pacific Northwest. The northern spotted owl is a sensitive species on the Forest Service list and is on the State of Washington's list of endangered species. Second, the spotted owl is an indicator species for a number of species which use or are dependent on mature and old-growth forest. Its numbers are used to indicate whether adequate habitat is being maintained for this group of species. The Pacific Northwest Region of the Forest Service has set the MR number for the spotted owl pair areas on the Forest at 50.

Implementation of this Plan is expected to reduce habitat capability for spotted owls from 101 pairs to 92 pairs by the second decade (see Figure IV-1). This estimate is based on the total amount of suitable habitat which would be available on the Forest.

The actual reduction, however, will probably be larger because of increased fragmentation in habitat areas not managed for spotted owls. Not enough is known about the effects of fragmentation (interspersion of clearcuts and young forest stands among areas of suitable spotted owl habitat) to quantify this reduction. There is evidence, however that fragmentation favors the barred owl, which may compete with the spotted owl, and increases great horned owl densities. Great horned owls prey on spotted owls.

The Forest Plan provides for 48 Spotted Owl Habitat Areas (SOHAs), and 2 reserved owl areas. Reserved areas are entirely within Wilderness or the National Volcanic Monument. All of the 48 SOHAs are managed under the dedicated (no timber harvest) Spotted Owl MAC, in management areas including at least 2,200 acres of suitable owl habitat. Where portions of SOHAs are managed within other dedicated MACs such as Wilderness, Unroaded Recreation, or Wild/Scenic Rivers, these MACs are at least as restrictive as the Owl MAC. In all cases, management must provide at least 2,200 acres of suitable spotted owl habitat within each of the 48 SOHAs and both reserved owl areas.

By the midpoint of the fifth decade, the habitat capability for spotted owls is expected to be at least 58 pairs.

Figure IV-11 shows which SOHAs are in the Plan and which are managed under the Spotted Owl MAC. As indicated, most SOHAs are within more than one MAC.

(Figure IV-11)

Pileated Woodpeckers and Pine Marten

The management direction for the pileated woodpecker and pine marten is to meet the MR direction for these species. The MR level is based on a network of areas five miles apart for the pine marten. Mature stands will meet the requirements for these species.

In the first decade, these species will decrease about 15 percent below the present level (see Figure IV-1). By the fifth decade, habitat capability would decrease to 74 percent of the present level. This is based on the total acres of suitable habitat on the Forest.

The MR level for pileated woodpecker is 82, and for pine marten it is 162. However, 167 woodpecker and 364 pine marten habitat areas will be retained over time. These figures include all habitats assigned the Pileated Woodpecker and Pine Marten MACs, as well as those habitat areas within other more restrictive MACs which permit no timber harvest.

Cavity Excavators

Habitat will be managed to maintain effective populations of excavators at a minimum of 40 percent of their potential population level on suitable timberland.

The Plan predicts no decline in cavity excavators during the first decade; this is contingent on effective implementation of the Forest-wide Standards/Guidelines for snags and down logs.

To achieve cavity excavator management direction, timber sales will be designed to meet both snag requirements and state logging safety standards. If only green trees were left, there would be a short-term decrease in trees which could be used by cavity excavators. The time required for snag creation can be reduced by topping green trees to reduce windthrow and hasten deterioration.

The following silvicultural factors should be considered in the selections and management of wildlife trees. Green trees are retained under the Standards/Guidelines as a source of future snags in and adjacent to timber harvest areas:

1. Wildlife trees with green crowns (which are not blown out) have an opportunity to disseminate seeds which land in mineral soil exposed by harvest/site prep activities. These seeds have a high probability of successfully germinating and growing on the site prior to planting operation. They would likely be a component of the future stands occupying the site.
2. From a tree improvement standpoint, green trees selected as wildlife trees should have straight boles (no crook or sinuosity) and should not be forked (particularly should not exhibit multiple forking). Bole straightness and forking are traits which have a high probability of being inherited by seedlings from the parent trees. Attention to the characteristics of the parental generation will enhance the wood quality of succeeding generations. Lack of attention to inherited traits will decrease long-term productivity of future timber management.
3. Tree resistance to diseases that are associated with old age, such as heartrot, stem rot, etc., is probably not hereditary. Root rots tend to be site-endemic, and insect attack is usually secondary to disease or overstocking, so "old culls" are not necessarily dysgenic. However, since root rot spreads longer and farther from infected live trees than from stumps, trees with root rot should not be left as wildlife trees. Leaving windfirm cull trees without root rot is acceptable if the stems are straight and unforked. Due to the ability of overstory dwarf mistletoe to severely infect understory seedlings and saplings, no mistletoe-infected wildlife trees should be left in regeneration harvest units. If all potential wildlife trees are mistletoe-infected, a different species should be planted.

Threatened, Endangered, and Sensitive Species

One federally-listed endangered species, the peregrine falcon, and one federally-listed threatened species, the bald eagle, have been sighted on the Forest. There are no official sightings of the gray wolf (endangered), but it may occur on the Forest.

Forest species being considered for Federal listing are the Larch Mountain salamander, the Townsend's big-eared bat, the California wolverine, the North American lynx, Swanson's hawk, and bull trout.

Species on the Forest which are listed by the State of Washington as endangered, threatened, or sensitive are usually also listed by this Region of the Forest Service as sensitive wildlife species. The northern spotted owl is on the endangered list, and the bald eagle and western pond turtle are on the threatened list. Species proposed to be placed on the potential threatened list are the North American lynx, Swanson's hawk, and bull trout. The State of Washington is considering the pileated woodpecker, western bluebird, golden eagle, northern goshawk, Lewis' woodpecker, Vaux's swift, Dunn's salamander, spotted frog, chinquapin hairstreak (butterfly), and western gray squirrel for listing as sensitive. The northern spotted owl is addressed under Old-Growth Species.

Management activities will be reviewed to make sure that Sensitive, Threatened, or Endangered animal species are being protected. Management guides must be prepared for Threatened, Endangered, and Sensitive animal species as they are identified.

Fish

The objectives for both resident trout and anadromous fish are to maintain current fish habitat capability where applicable, and to increase fish habitat capability by habitat mitigation or enhancement. Resident trout habitat capability is expected to increase slowly over time. The increase will be a result of the addition of instream structures and/or riparian plantings. Forest Service habitat improvement projects will create instream habitat diversity and replace or restore large conifers in the riparian zone, which is expected to increase trout populations. No significant changes are expected in lake habitat capability.

Anadromous fish are expected to increase. This will be due partially to the possible passage of salmon and steelhead around Condit Dam on the White Salmon River and the possible expansion of chinook salmon in the Wind River drainage. The remainder of the gain will be attributable to instream and riparian habitat improvement projects on anadromous streams and a high level of protection in the riparian zones of these streams. Riparian management is expected to provide the maximum availability of trees for deposit as woody debris into streams, both now and in the future.

Initially, habitat improvement projects will contribute most to the changes. Eventually, however, the natural structuring of habitat by trees will become more important.

Constant coordination between all fisheries management agencies will be necessary to ensure that habitat and fish are both sustained and enhanced.

The Forest's current fish habitat capability is considered the minimum level and measures to increase this capability will be implemented.

Timber

Objectives for the timber resource are to produce a continuing supply of wood products, maintain an even flow of harvest and to provide a positive economic return to the government.

The ASQ for the next ten years will be approximately 61.2 MMCF (334 MMBF) per year.

Both regeneration (57.1 MMCF) and intermediate (6.8 MMCF) silvicultural harvesting techniques will be used.

Suitability

Timber harvest is scheduled from 676,500 acres of suitable Forest land. Figure IV-12 is a summary of the Forest timber land classification.

Lands not appropriate for timber production include 133.1 thousand acres assigned to Management Requirements, 127.6 thousand acres due to multiple use constraints, and 9.7 thousand acres that are economically inefficient.

(Figure IV-12)

Figure IV-13 displays the distribution of the suitable land base by Management Area Category. Scheduled timber harvest will come only from those MACs with suitable acres.

(Figure IV-13)

Productivity

About one-third of the area not restockable within 5 years is in the less-than-20-cubic-foot productivity class. Timber productivity classification is shown in Figure IV-14. According to a 1981 inventory, average growth on the Forest is approximately 70 cubic feet per acre per year for trees 5 inches dbh or larger to a 4-inch top. Most of the lands currently withdrawn are in the upper elevations where productivity is lower.

(Figure IV-14)

Allowable Sale Quantity

The allowable sale quantity, expressed as an annual average, is 61.2 MMCF or 334 MMBF. In addition, there are about 14.8 MMCF (81 MMBF) of saw timer and convertible products that are defective or too small to be included in the allowable sale quantity. Figure IV-15 displays the allowable sale quantity and the timber sale program quantity on an annual basis.

(Figure IV-15)

Figure IV-16 translates the allowable sale quantity (from Figure IV-15) into acres of annual activity. About 6,800 acres of regeneration harvest is expected each year.

(Figure IV-16)

Selection of these practices is a function of the stand conditions and Management Area goals. Both Figures IV-15 and IV-16 are tentative and may be adjusted based on final field location, examination, and measurement. A schedule of sales is included in Appendix A.

Over the long term, the allowable sale quantity is the base sale schedule. Figure IV-17 shows the allowable sale quantity at or below the long-term sustained-yield capacity. The principle of nondeclining even flow is followed. ASQ is 94 percent of LTSYC.

(Figure IV-17)

Vegetative Management

The Forest Plan incorporates the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation. In implementing the Forest Plan through project activities, the Forest will comply with the Record of Decision issued by the Regional Forester dated December 8, 1988, and the Mediated Agreement of May, 1989. Use of vegetation treatment methods (biological, manual, mechanical, prescribed burning, or herbicides) is allowed only when other methods (i.e., prevention) 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.

Present and Future Stands

Figure IV-18 presents estimates of timber volumes for the present and future Forest growing stock. Standing volumes will be decreased by one third, but growth will increase by 67 percent as more acres of managed stands are created.

(Figure IV-18)

Old Growth

The goal is to maintain sufficient old-growth stands to meet legislative and regulatory direction for ecological diversity, to maintain viable populations of old-growth-dependent species, and to provide easily-accessible stands for recreational enjoyment.

This Plan maintains a total of 85,830 acres of existing old growth (1988 Inventory). Figure IV-19 shows management area categories where existing old growth is retained. No timber harvesting is scheduled in these areas. In addition, approximately 8,100 acres of old growth will be retained on lands classified as not suitable timber land within management area which have scheduled timber harvest. Included are such lands as those which might sustain irreparable resource damage, and those trail and riparian corridors permitting no scheduled harvest.

The remaining 103,780 acres of old growth will be available for timber harvest within management areas permitting harvest. During the first decade, 9,600 acres of old growth is expected to be harvested, or an average of about 960 acres each year. The total old growth remaining at the end of the first decade of plan implementation is expected to be about 188,000 acres.

(Figure IV-19)

Research Natural Areas

The goal is to manage Research Natural Areas (RNAs) in a natural state for research, and/or to maintain biological diversity. They provide opportunities for research, study, observation, monitoring, and those educational activities that retain undisturbed conditions. In effect, they provide a baseline for biological diversity found on the Forest.

The six existing RNAs (Butter Creek-W6; Goat Marsh-A8; Thornton T. Munger-F8; Sisters Rock-YC; and Cedar Flats and Steamboat Mountain-Y8) have specific direction found in the appropriate Management Area Category direction.

Potential RNAs will follow the process for establishing new sites, which includes the following steps:

1. Sites are recommended to the Forest by agency personnel or any member of the public;
2. The Pacific Northwest Research and Experiment Station and RNA Committee evaluate the proposal. The Area Ecologist and District Ranger or Monument Manager consider boundaries and management conflicts;
3. Forest ID Team considers input and makes a recommendation to the Forest Supervisor for or against establishment;
4. Forest Supervisor approves or disapproves recommendation. If establishment is approved, the Forest Supervisor recommends Forest Plan amendment to Regional Forester; and
5. Establishment report to Chief for approval.

Four areas, including Big Lava, Weigle Hill-Jimmy Creek, Monte Cristo, and Smith Butte are currently being evaluated.

Vegetation - Threatened, Endangered and Sensitive Plants

Management activities will be reviewed to make sure that Sensitive, Threatened, or Endangered plants are being protected. There are no known plant species on the Forest which are listed as endangered or threatened.

There are 53 plant taxa on the R-6 Sensitive Species List which are known or suspected to occur on the Gifford Pinchot National Forest. These plants occur in a variety of habitats, ranging from mature timber stands to small openings in the forest to subalpine meadows.

The degree of management needed to maintain viable populations of sensitive plants on the Forest varies by species. Some plants may be virtually protected by their location within existing Wildernesses, while others, located in Timber Production areas, may be threatened by a variety of project activities. Adversely impacted species will have highest priority for management guide development. Such guides require either an extensive existing base of information or a significant amount of field work and literature searching. For some of the sensitive plants, the existing base of information is adequate for the development of guides, while for others, the only information may be a single collection record from prior to 1900.

Based upon the existing information and the likelihood of threats, all sensitive plants have been placed into one of three categories listed below:

Verification: This category includes plants for which the Forest has very little information. Generally, these are from old collection records which did not include site-specific information. These locations need to be verified, followed by development of management guides if they are verified.

Monitor: This category includes plants for which the Forest has specific location information, but which have either a very limited number of sites or a low degree of potential threat. Plants in this category need continuing monitoring efforts as well.

Species Management Guides: This category includes plants for which management guides have been completed. Guidance direction given will be coordinated with activities occurring on the Forest.

Water

The objective is to meet or exceed State and Federal Water Quality Standards. Public interest in the management of riparian areas and in water quality will continue at a high level. Their

concerns and Forest Service management needs require that activities in riparian areas that might impact water uses be monitored and documented to ensure that watershed management goals are achieved.

All resource management practices will be designed to meet established water quality goals. Watersheds supplying domestic water for towns, recreation sites, and individuals will be managed so that water quality of the source stream is not degraded below existing or natural levels. Streams that support major fisheries will also be managed to meet the no-degradation goal. The Bear Creek Watershed on the Wind River Ranger District, supplying water to the town of Carson, will continue to be managed for multiple resource outputs, recognizing high-quality water as the key resource. Vegetation retained along streams, particularly where the Enhanced management option is applied, serve as important wildlife travelways between a wide range of habitat types.

Riparian areas along streams will be managed to protect water quality. Both "Enhanced management," which schedules no harvest, and "Maintained management," which limits timber harvest within an influence zone, typically 100 feet on either side of a perennial stream, will maintain channel stability and long-term water quality. In addition to following riparian area Standards/Guidelines and the use of "Best Management Practices," the involvement of hydrologists and soil scientists in project planning is essential to meet watershed management goals.

During implementation of this Plan, the 25 major Forest watersheds will be divided into 362 subwatersheds for more detailed analysis of effects for monitoring purposes.

A risk rating for management activities will be given to each subwatershed. This rating will assist in identifying early signs of possible cumulative effects. Most management activities have only short-term effects upon water quality and quantity. Some of these effects, however, can adversely affect other resources, especially fisheries. This makes it important to manage all watersheds to prevent negative cumulative effects on the quality and quantity of the water resource. Chapter V contains the minimum level of water monitoring for this Plan.

Appendix A summarizes inventoried watershed improvement needs for the Forest. During the planning phase for timber sales, the opportunity for accomplishing these projects and other that are found during sale reconnaissance should be considered for K-V sale are improvement funding. Multiple-functional funding, e.g., watershed, fisheries, and roads and trails, and the use of volunteer groups would be considered to accomplish all projects.

The Watershed Improvement Needs Inventory will be updated annually (See Appendix A for project scheduling).

Soil

The primary goal of management is to maintain or enhance soil productivity. The level of soil productivity maintenance or enhancement is related closely to the type and amount of management activities. The activities related to harvest of timber have the greatest potential for reducing site quality. The conversion of old-growth stands to young, thriving stands, and the maintenance of stands through cultural treatments, including thinning and fertilization, have the greatest potential for displaying productivity potential or improving the health of a site.

To maintain the general soil productivity level, the Forest will adhere to the Forest-wide Standards/Guidelines under Water, Soil, and Air. Further, FSM 9/83 R-6 Supp. 50 provides additional direction and definition relative to ground-disturbing activities. Planning for the use of "Best Management Practices" (BMPs) will benefit both soil productivity and water quality.

Monitoring of the effects of land management activities carried out under the direction of this Forest Plan will determine whether these activities are having an effect on soil productivity. Although mitigating measures and constraints will be implemented for all activities that have the potential to degrade the soil resource, some impacts will still occur. Monitoring will determine the effectiveness of these mitigating measures. Monitoring will be done by district personnel and the soil scientist. Specific guidance and details can be found in Chapter V.

Soil restoration activities will be done in coordination with water quality restoration needs. These activities will include those lands degraded by excessive erosion, compaction displacement, and mass movement. All identified projects are listed in the "Water Improvement Needs Inventory." New projects will be added to the inventory and prioritized. Project selection will be based on the potential value to soil productivity and the watershed, and also on funding availability. Existing projects will be inspected annually and needed maintenance will be done on those soil and water projects to prevent further resource damage or loss of investment.

The Soil Resource Inventory (SRI), including maps, descriptions of mapping units, and interpretations, is adequate for early planning stages of projects. As projects develop, refinement of SRI information and mapping will be maintained at the Supervisor's Office with work copies provided to the Field Units.

The resource land suitability process for maintaining consistency of classification and accounting of areas will be coordinated by the Forest Soil Scientist, and Silviculturist in compliance with 36 CFR 219.14a and FSM 2412, GP Supp. 150.

Existing fertilization trial plots will be remeasured and maintained for 10 years. The Forest Soil Scientist and Silviculturist will evaluate the need to maintain these trial plots beyond 10 years. Additional needs for trial plots will be evaluated.

Nursery and orchard soil information needs will be regarded as high priority during the planning period. Other coordination will be done with range, geology and minerals, fuel management, fisheries, wildlife, recreation, land management planning, and engineering.

Geologic Resources and Services

Geologic services are currently provided by Engineering with funding assistance from Minerals & Geology and Timber. Geologic services are provided in three main areas:

Geologic Resource Management

Geologic resources are defined as earth construction materials (mineral materials), groundwater, underground space (caves), and geologic points of interest.

Geologic resource management includes the inventory, evaluation, and analysis of geologic resources. The location, extent, significance, quality, and quantity of geologic resources are taken into account.

The primary information source is the Geologic Resources and Conditions (GRC) TRI (Total Resource Information) subsystem. This subsystem is currently installed in the TRI system.

The GRC maps display the location of geologic resources and conditions and are used to provide preliminary recommendations and evaluations for Forest planning, area analysis, and project planning. The maps are then supplemented with field verification and site-specific investigations, as necessary, for project design.

Mineral Materials: The primary workload in the past has been associated with mineral material used in road, facility, foundation, and earth structure construction for timber harvest. Future workload in this area will decline slightly as road construction declines. New sources of materials will continue to be located, however, as existing sources become depleted or closed because they become uneconomical or create unacceptable resource impacts.

Forest policy and direction for management of earth construction material is contained in the Forest Rock Resource Management Plan. This plan, originally written in 1982 and currently being updated and revised, is assessed yearly to keep it in line with current direction. It contains Forest policy, responsibility for major work areas, standards of performance for source planning documents, and procedural guidelines.

The Rock Resource Plan provides a vital link from the Prescription for a particular Management Area to the site-specific location of rock sources for a given project. This helps assure that materials source development activities are performed within the framework of that Management Area Prescription.

Groundwater: Groundwater investigation and analysis is currently conducted on a project basis as needed. This will continue in the future, with a slight increase in workload within this planning period as National Volcanic Monument projects are designed.

Groundwater will continue to be developed in the Forest interior to provide potable water for developed recreation sites and administrative facilities.

Underground Spaces (Caves): Cave areas will require evaluation to determine their biological, cultural, geological, and recreational values, and to determine sensitivity to management activities.

Geologic Points of Interest: Geologic points of interest will be evaluated in relation to proposed management activities. Significant features will be protected from degradation. Many will be analyzed and interpreted for public, scientific, and educational purposes.

A process was developed in 1985 to assess the significance of geologic points of interest. The Special Interest Management Area Category has been assigned to several of the more significant of these features.

Identification of Land and Resource Opportunities and Constraints

Preliminary estimates of the location, magnitude, and extent of geologic resources and conditions occur in the timber sale planning process, transportation planning, and recreation planning. This type of geologic service will continue at an increased level due to improved geologic information and investigative techniques.

Forest caves and other significant geological features should be analyzed to determine whether they have significant values, and to determine appropriate direction for future management of these features. Suitable uses of project mitigation to protect these values should be included in the analysis. This analysis should be completed within 10 years after the Forest Plan is approved. Also, caves will be evaluated as required by the Federal Cave Resources Protection Act of 1989. Geologic features within the National Volcanic Monument will be evaluated and protected according to the direction in the Mount St. Helens National Volcanic Monument Comprehensive Management Plan.

Assessment of Geologic Condition of Potential Development and Management Sites.

Geologic conditions are feature or processes which affected the safety, cost, or feasibility of management activities. They include areas of unstable slopes, rock outcrop, and wet ground.

Site investigations and analyses are performed for roads, foundations, earth structures, timber sale unit layout and design, landslide mapping and analysis, fish/wildlife habitat improvements, groundwater developments, interpretation of geologic points of interest, evaluation of caves and cave significance, materials source development, and soil productivity.

Slope stability investigation and analysis will occur at increased levels, especially when associated with timber sale layout and design, recreation planning, soil productivity, and construction of engineered structures.

Minerals

Exploration, development, and production of mineral and energy resources will be monitored to ensure that they are conducted in an environmentally-sound manner. These activities will be integrated with the planning and management of other National Forest resources.

Lands disturbed by mineral and energy activities will be reclaimed for other productive areas.

Locatable Minerals

Without major new discoveries, technological improvements, or substantial changes in the supply/demand situation, the number of new mining claims is expected to decline. Activity will most likely be concentrated in areas having a known potential for the occurrence of locatable minerals. Currently there are between 800 and 900 unpatented mining claims on the Forest. From 4 to 6 operating plans for mining claims are expected to be processed each year.

Leasable Minerals

Without a return to the energy shortages of the 1970s, the number of oil, gas, and geothermal leases will decline and interest in leasing coal will remain negligible.

Geophysical surveys and exploratory drilling for oil, gas, and geothermal energy will provide better information about the availability of these resources. Based upon newly-acquired data, future leases will concentrate on areas with a high potential for the occurrence of energy minerals.

During the first 10 years after the plan is implemented it is expected that 3 to 5 oil and gas lease applications, and 10 to 20 geothermal lease applications, will be processed each year.

Common Variety Minerals

The public's interest in these mineral commodities will continue at about the present level. The demand for Forest Service road construction material, however, will decline. This resource will continue to be inventoried to identify sources needed for specific projects. Periodic Forest-wide appraisals of mineral materials will be completed and up-to-date fair market values established to prevent competition with off-Forest commercial suppliers.

Withdrawals

All lands in the Wildernesses and National Volcanic Monument are withdrawn from mineral entry subject to valid existing rights. All existing withdrawals will be reviewed as required by law and unneeded withdrawals will be revoked. As a result, more area will be available for mineral exploration and development. Unpatented mining claims located within Wildernesses

will either be abandoned or operating plans will be submitted and valid existing rights determined.

Transportation

Local Roads: Approximately 560 miles of new local road are called for in the first decade of this Plan. Of these, 125 miles will be built in areas currently unroaded but assigned to prescriptions which permit timber harvest. A total of 560 miles of local road will be reconstructed.

Arterial-Collector Roads: The proposed construction and reconstruction of the arterial-collector road system to meet the resource objectives of this Plan will total approximately 700 miles during the first decade. Replacement or rehabilitation work will be required on 54 of the 140 existing bridges. Many of these structures have exceeded their design life and represent a future high risk of failure at current legal highway loads.

Some of these bridges will require extensive rehabilitation: e.g., replacement of the deck and running surface. Others are temporary structures scheduled to be replaced with permanent bridges. A few are no longer needed and will be abandoned or removed. Refer to Appendix A for the project scheduling of these bridges.

NFMA regulations state that "roads constructed on National Forest System lands should be designed to standards appropriate to the intended uses, considering safety, cost of transportation, and impacts on land and resources." Appropriate road design standards are identified through the Road Management Objectives process (design criteria and design standards in FSH 7709.11).

The Transportation Inventory System (TIS) database is a road and bridge inventory system used to record both physical characteristics and management objectives for the transportation system. In addition to the TIS inventory, all Forest roads are shown on primary base series maps at 1:24,000 scale. These maps and the TIS inventory comprise the Forest Development Transportation Plan that is referred to in NFMA regulations.

Management

Approximately 1,620 miles of Forest roads will be managed to accommodate standard highway passenger cars and will meet the standards for the Highway Safety Act (PL 89-564) by the end of the first 10 years.

Roads that are open at least part of the year, but are managed for travel by high clearance vehicles, will total about 2,120 miles at the end of the planning period.

Approximately 1,230 miles of road will be closed year-round during this period.

The Forest Road Management Plan is a programmatic approach to establishing a proper mix of traffic management and road maintenance. It includes several operations and management programs that shape the Forest road management policy.

These programs are annual operation plans and are listed in Figure IV-20. They will not be described in detail.

The proposed management for all existing Forest development roads is documented in the Road Management Objective (RMO) forms and the Transportation Information System (TIS) data base.

The RMO process is a method for identifying the road management objectives for each Forest development road. Direction for this process is found in FSH 7709. It will ensure that road design and operations meet standards required by resource objectives.

Some of the data pertinent to road management in TIS are maintenance level, service level, road management scheme (encourage, accept, discourage, eliminate, and prohibit), mileage, and surface type for each individual road on the Forest.

Annual road maintenance activities are documented and scheduled with the Forest Road Maintenance Plan data base. This system aids in annually prioritizing maintenance activities within the constraints of budget.

(Figure IV-20)

Lands

Landline Location

About 70 percent of the Forest's property lines are currently surveyed, marked, and posted to Forest Service standard. An additional 20 percent should be completed within 10 years after the Forest Plan is approved. About 20 miles of line will be located each year.

Cost-Sharing

All major roads with cost-share potential should be identified within ten years after approval of this Forest Plan. Cost-sharing on most of these roads will be completed. New work shared will be limited to reconstruction and occasional short segments of spur road.

Right-of-Way Acquisition

If no significant changes in landownerships occur, purchase of road and trail easements will progress at the rate of about four per year.

If the major landowners within the Forest dispose of significant portions of their holdings and these become small ownerships, the number of easements needed to provide adequate public and administrative access will multiply.

Purchases

The acquisitions within the Mount St. Helens National Volcanic Monument are expected to be completed by 1991.

Land Exchange

Current land exchanges will be completed as soon as possible.

Most future exchanges will be to resolve any remnant of ongoing exchanges or to meet some site-specific public need.

In the Mineral Block, northwest of Morton, Washington, ownership adjustment is proposed to improve administration and management of National Forest lands. See Figure III-4 in Chapter III.

Small, site-specific exchanges involving areas where public and private needs coincide will continue.

Mt. Rainier National Park

Klapatchie Point and Backbone Ridge, a total of 240 acres, have been administratively transferred to the National Park Service since the Draft Environmental Impact Statement and Forest Plan were published.

Utility Corridors

It is anticipated that the existing corridors will meet regional needs through the next 10 years, although the carrying capacity of these existing corridors may eventually have to be increased. It is possible that one or more of the three new corridors proposed by the Western Regional Corridor Study Committee will be needed before the year 2020; however, no firm construction proposals have been made. Any such proposal would require a separate environmental analysis. If a new utility corridor were actually proposed for development, the intent would be to place the corridor in one or more of the Management Area Categories which have few if any constraints on utilities. Corridors should not occur in Wildernesses, the National Volcanic Monument, or Wild Rivers upon Congressional designation under the Wild/Scenic Rivers Act. Refer to *Lands* in the Forest-wide Standards/Guidelines.

Management Prescriptions

Introduction

The Prescriptions, in conjunction with the Regional Guide for the Pacific Northwest Region and the Forest Service Manual/Handbook system, provide on-the-ground management direction for implementing the Forest Plan.

Standards/Guidelines (S/Gs) are divided into two types: Forest-wide Standards/Guidelines, which generally apply across the Forest, or relatively large portions thereof; and Standards/Guidelines found in Management Area Categories (MACs). Prescriptions include groups of Standards/Guidelines, covering the full range of resource values, and are applied to specific areas of the Forest called Management Areas. In practice, certain Forest-wide Standards/Guidelines are also applied to the Management Area, and are considered to be an integral part of the MAC Standards/Guidelines.

At times it will appear that there are conflicts between the Forest-wide Standards/Guidelines and those found in the MACs. In these instances the MAC Standards/Guidelines will usually prevail. The general rule is that the most restrictive S/G will apply unless otherwise stated. For instance, where a Wild River occurs within a Wilderness, the Wilderness limitations on the use of heavy equipment also apply to the Wild River.

An example of the relationship between Forest-wide Standards/Guidelines and MAC Standards/Guidelines is presented later in this section.

A series of maps depicting the management area boundaries and Prescriptions assigned to each is included with the Forest Plan. However, these maps have rather limited utility for those who may wish to study the application of management direction in more detail. For those who have a need to review more precisely the location of individual management area boundaries, a Control Map is prepared and maintained in the office of the Forest Supervisor. The control map is prepared at a scale of at least 2.64 inches per mile and serves as the authoritative reference for interpreting and implementing the spatially-related direction in the Forest Plan. In actual practice, the District Rangers and Monument Manager will use information contained within their individual TRI, GIS, or other data management system in current use. The intention is that those data bases will reflect the information shown on the Control Map. As with other

parts of the Forest Plan, the Control Map may be changed or updated through amendment or revision of the Forest Plan.

In applying the Prescriptions, including the Standards/Guidelines, the land manager should consider the needs of, and any effects upon, the several resources involved. It must be clear that this direction is not intended to imply single-use management; however, Multiple-Use, as defined in the Multiple-Use Sustained-Yield Act of 1960, does not mean that all resource uses must occur simultaneously on each acre on the Forest.

The degree of flexibility on applying management direction is identified by the terminology in the Standards/Guidelines. To understand the intent of the direction, the interpretations of the terms are critical.

The first intent is conveyed by the words "will" and "shall." With this degree of restriction, the action is mandatory in all cases.

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

The third type of direction uses the words "practical" or "practicable" and acknowledges that a given practice is not always feasible and practical in every situation. It is intended to encourage, but not require, a practice.

The fourth uses the word "may" and has to do with activities which may or may not be appropriate, depending on circumstances. For example, livestock grazing may be consistent with the objectives of certain Management Areas, but specific sites may or may not contain suitable forage. This direction is intended to allow for taking advantage of compatible opportunities, or to provide for exceptions when objectives of a particular standard can be met through alternative methods.

The Standards/Guidelines describe what will, should or may occur in a particular areas to achieve the desired future condition or goal. Projects to implement the Forest Plan should document how the Forest Plan Standards/Guidelines are to be met. Where Standards/Guidelines permit alternative actions, reasons for selecting a proposed action will be documented through the NEPA process. If a proposed project cannot meet the required standards, then the project should be modified or dropped, or the Forest Plan may be amended to permit implementation of the project.

Some Standards/Guidelines require end results. For example, "...number of snags of a certain size to remain after harvesting," or "at least 50 percent of the suitable timberland should be in mature or old-growth timber." It is understood that if such conditions do not exist at the time a management activity occurs, the next best, or closest possible solutions, will be substituted.

Standards/Guidelines are mandatory, not discretionary, and will not change simply to permit achievement of the timber, recreation, or other resource objectives or targets estimated by the Forest Plan. Adequate monitoring and evaluation to determine if the timber harvest level (ASQ), or other objectives can be achieved over time without violating Standards/Guidelines should allow the Forest Plan to be amended to reconcile differences before problems occur. In amending the Forest Plan, one or more of the following can be changed: MACs, prescriptions, objectives (e.g., ASQs), and/or standards and guidelines.

Unless otherwise indicated, all Standards/Guidelines are intended to apply to each geographically separate Management Area. For example, direction such as "...harvesting may not exceed 5 percent per decade..." is applicable to each Management Area to which the

direction is assigned, rather than all separate such areas collectively (MAC). Some Visual Quality Objectives are an exception to this rule. By definition, VQOs are applicable on a viewshed basis, which may include a number of management areas (refer to Figure IV-5, Visual Condition of Viewsheds). Other VQOs, such as those assigned to Wilderness, Special Interest Areas, Unroaded Recreation, and Wild and Scenic Rivers, are intended to apply to the entire management area, regardless of the Viewshed.

In the case of deer and elk management, some Standards/Guidelines may be applied across all management areas within the biological winter range regardless of the assigned MAC. Refer to Wildlife under these Forest-wide Standards/Guidelines, as well as the Deer/Elk MAC.

The Forest-wide Standards/Guidelines are intended to apply within the Mount St. Helens National Volcanic Monument unless they are precluded by the Comprehensive Management Plan (CMP) or the Act which created the Monument. Management Requirements (Mrs.) are also applicable. In addition, three Wild and Scenic Rivers are proposed within the Monument.

Forest-wide Standards/Guidelines generally apply across the Forest, or to large portions thereof. MACs contain Standards/Guidelines covering the full range of resources, and are applied to specific areas of the Forest called Management Areas. Each MA contains one or more Prescriptions.

Both the Forest-wide and Management Area Category Standards/Guidelines are listed under a set of resource headings, such as Recreation, Wildlife, Range, Timber, Water/Soil/Air, and Facilities or Engineering.

Additional direction may be found in the Establishment Report and Management Prescriptions for each RNA.

An example

The following exercise may be helpful in understanding the relationship between Forest-wide Standards/Guidelines and MAC Standards/Guidelines and Prescriptions.

Let's say you are interested in Standards/Guidelines for the Midway/High Lakes area on the north end of the Mt. Adams Wilderness. If you look at the map for Alternative S, you will notice that this area is labeled "RM", this is the Prescription for that area.

The first letter, R, denotes the Management Area Category this area is in. These MAC categories are in boxes on the left-hand side of the map legend. Management Area Category R, D is Roded Recreation With or Without Timber Harvest (D is with harvest, R is without).

In the legend, there is a brief description of the MAC. In this case, you will learn that areas in this category provide many of the same types of dispersed recreation opportunities as do Management Area Categories "U" and "J" (Unroaded Recreation categories). The legend tells you that the major differences are that these areas are accessed by roads and that some of them permit moderate levels of timber harvest.

The second letter in the prescription denotes the unique Recreation Opportunity Spectrum (ROS) Class and Visual Quality Objective (VQO) for the area. In other words, every prescription that ends in the letter "M" has the same combination. The legend tells you that 35,710 acres across the Forest are assigned the RM Prescription, that all these acres are in the Roded Natural (RN) ROS Class, and that all are under a Partial Retention (PR) VQO. It also tells you that no harvest is permitted in this prescription.

There is more direction on the management of this area than is given by the map and legend. For additional information, you need to turn to the Standards/Guidelines for the MAC and

Prescription in question; in this case, page IV-96 of this document. There you will find Standards/Guidelines for the full range of resources. For example, you will find that *firewood cutting is allowed for this Prescription*. You will learn that livestock grazing may be permitted, but that animals should be kept away from fields being managed for berrypicking during the harvest season; *no restrictions are mentioned for grazing in riparian areas*. These are two examples of Forest-wide Standards/Guidelines being more restrictive than MAC Standards/Guidelines, and generally the more restrictive Standards/Guidelines apply.

An area marked "DM" on the map is a Roaded Recreation With Timber Harvest Prescription; it has the same ROS/VQO management, but limited harvest is allowed. You will note that the Standards/Guidelines on page IV-96 are slightly different due to harvest being allowed.

This exercise illustrates the importance of becoming familiar with all Standards/Guidelines in this chapter. It is not possible to get all the needed information based on a study of only a part of the document.

Forest-wide Standards/Guidelines are listed by resource in the following section. In some instances, as with Riparian Areas, Recreation Opportunity Spectrum Classes, Visual Quality Objectives, Road Management, Restocking Standards, etc., it is appropriate to list the relative Standards/Guidelines together in one place. To avoid duplication, those Standards/Guidelines are listed under those headings rather than being spread throughout the resources. These listings being on page IV-69.

Forest-wide Standards/Guidelines

Recreation

Planning and Inventory

These Standards/Guidelines are designed to protect or enhance scenic and recreational values.

Visual Quality Objectives should be considered for viewsheds seen from campgrounds, viewpoints, picnic areas, and other developed sites, as well as those seen from designated travel routes such as roads and rivers.

1. The Visual Quality Objectives assigned in each Management Area should be the minimum level acceptable and should be met by all activities. (Specific Visual Quality Objective direction is found on page IV-79)
2. Locations where rehabilitation may be required to meet established visual quality standards should be inventoried for accomplishment in all Management Areas permitting vegetative manipulation.
3. The Recreation Opportunity Spectrum (ROS) class assigned in each Management Area (except Wilderness) is the minimum level acceptable and should be met by all activities. (Specific ROS direction is found on page IV-75). See Wilderness Management Strategy for WROS direction.)
4. Opportunities to provide sites for wildlife viewing should be evaluated.
5. Geological and botanical features, waterfalls, cultural sites not eligible for the National Register, and similar items should be evaluated for their recreational value. Where determined to be significant, these values should be protected. Actual boundaries and measures of protection will be determined in the Environmental Analysis for any project which may adversely affect the item. Refer to Standards/Guidelines for caves under Minerals and Geology in these Forest-wide Standards/Guidelines.

6. Trails are assigned one of three Management Levels and should be managed according to the Standards/Guidelines applicable to that level, unless the Standards/Guidelines for the underlying Management Area are more restrictive. (Specific trail management direction is found on page IV-81.)

Facility Reconstruction and Construction, Site Management, and Maintenance

1. Recreation facilities, including buildings, campsites, roads, utility systems, and signing should be planned, developed, maintained, and operated for safe public use, to current standards, in a cost-effective manner. Construction or reconstruction of facilities will comply with the approved site development plan.
2. No new sites for recreation residences will be developed on National Forest land.
3. Facilities should be designed to accommodate the disabled wherever practicable.
4. Industrial operations should not infringe upon public use of established recreation sites or the roads which access the sites. Infringements include such things as competing for campsites or piling culverts or other materials on sites or along roads. This direction is not intended to preclude any needed contract work.

Use Administration, Other Than at Facilities and Sites

1. Unless otherwise noted, off-road vehicle (ORV) direction found in the MACs does not apply to over-snow machines. Snow machines are generally excluded from such areas as Wilderness, Wild Rivers, RNAs, the Experimental Forest, and areas to which the Semi-Primitive Non-Motorized ROS class is assigned. They are generally acceptable elsewhere on the Forest where adequate snow protects soil and vegetative resources. Designated areas such as cross-country ski areas may be closed to snowmobiles.
2. "The Forest Travel Plan" will provide information on where travel, including the use of ORVs, is permitted or limited. The Travel Plan should be reviewed annually and revised, if necessary, to meet Forest Plan objectives.
3. During the first 10 years of plan implementation, no mile of trail open to motorized use can be closed to such use unless a replacement mile is made available elsewhere on the Forest.

The following Cultural Resource Management Standards/Guidelines will be used to ensure that the necessary planning, inventory, evaluation, assessment, and protection (or mitigation of effects) is carried out on all cultural resources.

Cultural Resources

Cultural Resource Planning

1. A cultural resource management plan will be written for each Federally-owned site listed on, or determined eligible for, the National Register of Historic Places, including those under special use or Granger-Thye permit.
2. A management plan should be written for the Forest cultural resource program. The plan should include recommendations for enhancement and interpretation of cultural resources, as well as recommendations for generating use fees.

Cultural Resource Inventory

1. Prior to any ground-disturbing activity, proposed project areas will be examined for cultural resources by a cultural resource specialist or technician under the direction of a specialist. Included are: (1) this projects which are permitted, but not performed by the Forest Service, and (2) Forest Service projects on other than National Forest lands. The inventory will be conducted as early as feasible in the project planning stage, and results will be documented in the Environmental Analysis for the project.
2. A cultural resource inventory will be conducted prior to the routine maintenance, rehabilitation, movement, or removal of any structure which may have cultural value. Included are those privately owned on National Forest lands under special use permits.
3. An inventory to identify all reasonable locatable cultural resources on National Forest lands should be completed within ten years after approval of the Forest Plan.
4. Cultural resource inventory work will be coordinated with the State Historic Preservation Officer, through the Forest Cultural Resource Specialist.
5. The Forest "Cultural Resource Overview" should be updated as needed.
6. Caves, rock shelters, lava tubes, and talus slopes will be inventoried when they are within project areas or are subject to recreational use. Refer to Standards/Guidelines for caves under Minerals and Geology in these Forest-wide Standards/Guidelines.
7. An inventory will be kept of sites identified by Native Americans under the American Indian Religious Freedom Act.

Cultural Resource Evaluation Assessments

1. All cultural resources, including sites and structures, will be evaluated to determine eligibility for the National Register of Historic Places. If determined eligible, they will be managed as if listed on the Register. The State Historic Preservation Officer will be consulted when determining eligibility, with the Keeper of the National Register consulted as needed. Sites or structures determined to be eligible for the Register will be nominated.
2. The potential effects of proposed activities on any cultural resource will be assessed prior to any disturbances. Assessment will be performed in consultation with the State Historic Preservation Officer (SHPO) and the Federal Advisory Council on Historic Preservation.

Cultural Resource Management, Protection, and Enhancement

1. Cultural resources eligible for the National Register will be protected from potential effects of project activities or their historic values conserved through appropriate mitigation.
2. Cultural resources eligible for the Register will be protected from depredation due to public use and natural deterioration.
3. Measures to avoid or mitigate project effects and to protect cultural sites and structures will be developed in consultation with the State Historic Preservation Office and the Federal Advisory Council on Historic Preservation.
4. Federally-owned historic buildings not in use should be considered for special use permits or Granger-Thye permits.

5. Suitable cultural resources should be developed and interpreted for recreational use when adequate provisions are available to protect the resource.
6. Information gathered in the evaluation of sites and structures should be used in the Forest interpretive program. Displays, brochures, interpretive trails, or signing may be employed.
7. Specific cultural resource site locations are exempt from disclosure to the general public.
8. All cultural resource inventories and excavations by non-Forest Service personnel will require a permit.
9. Rights and privileges provided by the Medicine Creek Treaty of 1854 for the Nisqually, Puyallup, Squaxin Island, and Steilacoom Indian Tribes (including (1) the right of taking fish at usual and accustomed grounds and stations in common with all citizens, and erecting temporary houses for curing, (2) the privilege of hunting and gathering roots and berries on lands under US administration, and (3) the privilege of pasturing their horses on lands under US administration) and the Yakima Treaty of 1855 for the Yakima Indian Nation will be reserved for those groups. Within Treaty areas, resource management plans will be coordinated with these Tribes.
10. Outside of Treaty areas, resource management plans should be coordinated with local Tribes where appropriate.
11. Outside and within Treaty areas, traditional food and plant material gathering sites used by Native Americans may be managed for continued production of native roots, berries, nuts, herbs, beargrass, and other plant materials typically gathered from the land.
12. Religious sites and resources identified under the American Indian Religious Freedom Act will be managed in consultation with Native Americans.
13. Existing and potential historic structure maintenance will be identified and reviewed annually.
5. Newly identified peeled cedar sites will be protected with a 200-foot buffer until placed in one of the following categories:
 1. Preservation - The site will be protected with a 200-foot buffer.
 2. Available for harvest - Mitigation will occur before the site is released for harvest.Continuing management of peeled cedar sites will be done under the Peeled Cedar Management Plan and Programmatic Memorandum of Agreement with the State Historic Preservation Office and Advisory Council of Historic Preservation.
15. The "1932 Handshake Agreement" between Chief Yallup and Forest Supervisor Bruckert granting Native Americans exclusive berrypicking rights to a portion of the Sawtooth Berryfields east of Forest Road 24 will continue.

Wildlife and Fish

Surveys, Planing, Prescriptions, Monitoring, Cooperation, and Administration

The wildlife management Standards/Guidelines in this section address the following areas: Sensitive, Threatened, and Endangered species; snags reserve trees, and down logs; cooperation with other agencies; and special habitat not covered elsewhere in the Forest Plan. Any project

which could affect wildlife or fishery habitats will be reviewed. Review will consist of at least an inventory of fish and wildlife habitat and associated significant species, and will identify limited and important habitats and/or species.

Threatened, Endangered, and Sensitive Species

1. All project areas affected by management activities will be reviewed for Sensitive, Threatened, or Endangered plant and Animal species.
2. A biological evaluation will be conducted before any ground disturbing activities occur which may adversely affect sensitive species.
3. Plant and Wildlife Species Management Guides should be prepared for each sensitive species.
4. When eagles are found, a survey and habitat inventory will be conducted in the Cowlitz, Nisqually, and Lewis Rivers, and other drainages to identify active bald eagle nests and potential habitat.
5. Consultation with the US Fish and Wildlife Service will be required for each program activity or project that the Fish and Wildlife Service determines may affect threatened or endangered species, and will be conducted in such a manner that they will not impair recovery of any threatened or endangered species.

Cavity Excavators

1. Dead and defective tree habitat will be maintained for primary cavity excavators after timber harvesting for other vegetative manipulation. Such habitat includes, snags, standing defective trees, and down trees or logs.
5. The cavity excavators for which habitat will be maintained include the following species:
 1. Red-breasted sapsucker
 2. Williamson's sapsucker
 3. Downy woodpecker
 4. Hairy woodpecker
 5. Black backed woodpecker
 6. Northern flicker
 7. Red-breasted nuthatch
6. Habitat will be managed to maintain effective populations of the listed excavators at a minimum of 40 percent of their potential population levels on suitable timberland.
7. Snags, including defective trees, will be at least 15 inches dbh, and should be at least 40 feet in height. Snags, and/or green wildlife trees, may be managed either in clumps within the cutting unit boundary or distributed over the timber harvest area. Snags/wildlife trees should be plainly marked or bounded to permit adequate protection during logging and slash disposal. Considering the potential for windthrow and other factors, at least some of the snags should be scattered over the harvest area to provide representation of varying elevations and aspects.
8. A minimum of 0.68 hard snags per acre of regenerated stand will be maintained in the seedling/sapling/pole size classes (less than 12 inches dbh). In all other size classes, a minimum of 1.38 hard snags per acre will be maintained.

9. Because of safety considerations during logging and the fact that snags will require replacement as they fall down over the rotation period, some or all of the "snags" to be retained will be in the form of sound, green wildlife trees. After timber removal and throughout the rotation, these trees will be converted to snags as needed to maintain the required level of dead/defective tree habitat. Wildlife trees to be retained should usually be 15 inches dbh or larger. In some cases, they may be as small as 6 inches dbh at the time of harvest; however, at the time they are converted to snags, they must be at least 15 inches dbh.

Management of wildlife trees should emphasize retaining the needed number of trees, rather than simply leaving extra trees or larger trees. For example, tops may be blown out of scattered green trees to make them less susceptible to windthrow, assuring that they remain on site for a longer period of time.

Following are the minimum number of wildlife trees per acre to be maintained over a rotation:

- a. In the Western Hemlock Working Group:

High Sites - 3.6 trees per acre
Medium Sites - 4.8 trees per acre
Low Sites - 6.3 tree per acre

(Specific numbers of wildlife trees to be maintained and snags to be created by decade are found in Figure IV-??).

In some instances, timber removal will occur adjacent to a previously harvested unit which has fewer than the required number of snags/wildlife trees. Where this is the case the number of snags/wildlife trees required for the new unit will be increased to compensate for at least a portion of the deficient habitat. The number of snags/wildlife trees to be compensated for should be based upon the percentage of the old unit perimeter joined by the new unit.

7. In addition to snags and wildlife trees, an average of at least three down logs per acre will be left evenly distributed in timber harvest and other activity areas. Down logs will be at least 21 inches in diameter at the large end and 16 feet long. If material in this condition is not available, the largest present will be left. Occasionally, it may be necessary to leave merchantable down logs to provide adequate habitat.
 8. The minimum level of snags, wildlife trees, and down logs will be maintained and protected from harvest and fuel treatment operations, firewood cutting, and future salvage activities.
 9. The amount of dead/defective tree habitat, including wildlife trees, to be maintained will be determined for each regeneration timber harvest area and the subsequent stand. All determinations will be done on a case-by-case, interdisciplinary basis.
5. The following silvicultural factors should be considered in the selection and management of wildlife trees. Green wildlife trees are retained under the Standards/Guidelines as a source of future snags in and adjacent to timber harvest areas:
 - a. Wildlife trees with green crowns (which are not blown out) have an opportunity to disseminate seeds which land in mineral soil exposed by harvest/site prep activities. These seeds have a high probability of successfully germinating and

growing on the site prior to planting operation. They would likely be a component of the future stand occupying the site.

- b. From a tree improvement standpoint, green trees selected as wildlife trees should have straight boles (no crook or sinuosity) and should not be forked (particularly should not exhibit multiple forking). Bole straightness and forking are traits which have a high probability of being inherited by seedlings from the parent trees. Attention to the characteristics of the parental generation will enhance wood quality of succeeding generations. Lack of attention to inherited traits will decrease long-term productivity of future timber management.
- c. Tree resistance to diseases that are associated with old age, such as heartrot, stem rot, etc., is probably not hereditary. Root rots tend to be site-endemic, and insect attack is usually secondary to disease or overstocking, so "old culls" are not necessarily dysgenic. However, since root rot spreads longer and farther from infected live trees than from stumps, trees with root rot should not be left as wildlife trees. Leaving windfirm cull trees without root rot is acceptable if the stems are straight and unforked. Due to the ability of overstory dwarf mistletoe to severely infect understory seedlings and saplings, no mistletoe-infected wildlife trees should be left in regeneration harvest units. If all potential wildlife trees are mistletoe-infected, a different species should be planted.

Deer and Elk

1. The Forage-Based Model For Evaluating Elk Habitat Potential will be used in project planning to provide the quality, quantity, and distribution of cover and forage needed to reach management objectives for each planning area. Refer to *Western States and Provinces Elk Workshop Proceedings*, March, 1986, p. 101, Oregon Department of Fish and Wildlife. This direction applies to all projects within inventoried or biological deer/elk winter range and mountain goat winter and summer range, regardless of the MAC/Prescription assigned.
2. The following direction should be applied in all management areas within the biological deer/elk winter range, regardless of the assigned Management Area Category (MAC) prescription:
 - a. At least 44 percent of the biological range in each of the National Forest System (NFS) watersheds should be maintained in stands of large sawtimber (21 in. dbh or larger) which meet the criteria for optimal cover. (The Forest is divided into 25 NFS watersheds, each of which is assigned a name and number.)

In the Bear Creek area, where the management emphasis favors deer over elk, 44 percent of the combined 7S and 7M Management Areas should be in optimal cover. Optimal cover, within these two prescriptions, may contribute to the 44 percent optimal cover requirements for the National Forest System Watershed which includes the Bear Creek area.

- b. In the event that 44 percent of the range within a watershed or in the Bear Creek does not meet the criteria for optimal cover, no scheduled harvest may be permitted in stands meeting those criteria. Harvest may occur in other stands, if permitted by the applicable MAC Standards/Guidelines, and provided a plan is in effect to increase the optimal cover to at least 44 percent.
- c. In Management Areas with scheduled timber harvest, up to 75 percent of existing and future regeneration harvest areas should be fertilized and seeded with forage species palatable to deer and/or elk. The need for fertilization and seeding will be determined

on a case-by-case interdisciplinary basis, before on-the-ground application occurs. These treatments will utilize forage species appropriate to the area and consider reforestation difficulties which may be present.

- d. Road management objectives which are applicable if more restrictive than those in the assigned MAC: Roads not needed for through traffic, access to an active project, or access to a specific recreation destination should be closed either permanently or seasonally, from December 1 to April 1, to reduce wildlife harassment. Through roads, and those to recreation destinations, should be managed to accommodate passenger car traffic.
- e. In addition to a - d above, those Standards/Guidelines found under Timber in the Deer/Elk Winter Range MAC (E,7) should be applied when practical to all other management areas which permit scheduled harvest. The intention is to distribute forage, thermal cover, and optimal cover as evenly as possible, over the biological winter range; however, application of these timber S/Gs outside MAC E,7 should not adversely affect the timber harvest, or other resource outputs that would otherwise be expected from those MACs and their applicable Standards/Guidelines.

Cooperation With Other Agencies

1. Any project which could affect a federally listed Threatened or Endangered species will be coordinated with the US Fish and Wildlife Service and Washington Department of Wildlife.
2. Projects, programs, policies, and other activities affecting fish and wildlife should receive advice and review of the State Departments of Wildlife and Fisheries.
3. To provide quality big game hunting, and to prevent overharvesting wildlife and the imposition of even more restrictive measures, seasonal access may be limited on portions of the Forest, in cooperation with the State Department of Wildlife.

Special Habitat Management Objectives

1. Special habitats such as caves, cliffs, mineral licks, and talus slopes will be evaluated during project planning to determine biological significance, habitat value, and any necessary protection measures. Refer to Standards/Guidelines for caves under Minerals and Geology in these Forest-Wide Standards/Guidelines.
2. Hardwoods should be managed to provide mature and older stands for wildlife habitat.
3. Dry meadows 1 acre or larger in size (Ecoclass MD), oak patches, and dry shrublands meeting the criteria for Ecoclass HO and SD should be evaluated during project planning to determine habitat value and necessary protection measures. Dry meadows include an influence area of typically 300 feet in width. Fifty percent of the suitable timberland within the 300-foot influence area should be in mature or old-growth trees. Eighty-five percent of the stands should be maintained in pole-size or larger trees for big game hiding cover. For Management Direction concerning moist or wet natural openings, refer to Riparian direction in these Forest-wide Standards/Guidelines.

The total area of created openings contiguous to 30-acre or larger natural openings should normally not exceed one-third the size of the natural opening and not occupy more than one-third of the natural opening perimeter. Opening should not be created adjacent to any natural openings (regardless of size), unless adequate vegetation along the edge can be developed or retained in sufficient density to protect wildlife and visual management

objectives. The determination of adequate vegetation will be made by an appropriate ID Team.

4. Activities in calving, fawning, and kidding areas should be timed to minimize disturbance and displacement of elk, deer, and mountain goats. Access and operations should be restricted between May 15 and July 1 in calving/fawning areas, and April 15 and July 1 in kidding areas.
5. Project planning should consider the need for direct habitat improvements such as forage seeding, fertilization, and prescribed burning.
6. Road, trail, and area closures may be employed to reduce wildlife harassment in such areas as seasonal big game ranges, rutting and calving areas, nesting sites, fish spawning/holding areas, and other reproduction sites. Also included are places where unique, uncommon, or vulnerable habitats for wildlife are found.

The objective of road closures is to mitigate negative effects of the roads on wildlife. For wildlife purposes, road closure priorities will be based on the location of important wildlife habitat, and the amount of forest cover present, the proximity of riparian habitat, and the existing degree of visibility. Effective enforcement capability is essential in the design of road closures. Area closures should be implemented in areas where "wheel-track," off-road-driving-created roads are causing wildlife disturbance and displacement.

Habitat Management Objectives for Raptors and Herons

Bald Eagle

1. Picnicking, camping, blasting, firearm use, timber harvest, and low level aircraft operations should not be allowed within 400 meters of nests and roosts during periods of eagle use. These activities should also be regulated up to 800 meters from nests and roosts where eagles have line-of-sight vision. Critical nesting periods vary throughout the recovery area but generally fall between January 1 and August 31. Key wintering areas need protection from disturbance from approximately November 15 to March 15.
2. Site-specific management plans should be prepared for each nest site, roost site, and feeding area.
3. Known nesting territories should be surveyed annually to determine occupancy, activity, success, and productivity of the sites.
4. Additional management information may be found in the Pacific Bald Eagle Recovery Plan.

Peregrine Falcon

1. A survey of historic and potential nest sites should be completed within five years after approval of the Forest Plan.
2. Cooperate with the Washington Department of Wildlife to enhance opportunities to establish peregrine falcon populations on the Forest.
3. Site-specific management plans will be prepared for nest sites, foraging areas, and roost sites, if falcon use occurs. Management activities and human intrusion should be excluded from April 1 to August 1. Road and trail closures may be required when a nest site is active or occupied.
4. Additional management information may be found in the Peregrine Falcon Recovery Plan.

Golden Eagle

1. A survey of historic and potential nest sites should be completed within five years after approval of the Forest Plan.
2. Site-specific management plans should be prepared for nest sites, roost sites, and foraging areas, if eagle use occurs. Management activities and human intrusion should be excluded from March 1 to August 1. Road and trail closures may be required when a nest site is actually occupied by birds, or is in use for nesting purposes.

Osprey, Swanson's Hawk, Goshawk, Ferruginous Hawk, and Great Gray Owl

A protective area with a radius of approximately 660 feet should be established around each identified nest site. A management plan should be prepared for each nest site. Plans should describe specific requirements for each site, as well as for major feeding areas. The plans should be based on known reactions of birds to human intrusion, and include the following direction as a minimum:

1. Even-aged silvicultural practices, including clearcutting, shelterwood, and seed tree cutting, should not be permitted within the protective area. Other management activities, including intermediate timber harvesting, which do not significantly change the vegetative character may be permitted.
2. Management activities and human intrusion should not occur within the protective area when the nest is actually occupied by birds, or in use for nesting purposes. Road and trail closures may also be required.

Great Blue Heron

1. A protective area with a radius of approximately 660 feet should be established around each heron rookery.
2. Management activities and human intrusion should not occur within the protective area from March 1 to August 31.
3. When the colony is no longer active or occupied, all restrictions on management activities may be removed.

Range***Planning and Inventory***

1. A range inventory and analysis should be completed for the Forest at least once every 10 years.
2. An allotment management plan should be developed for each active allotment.
3. Allotment analysis and periodic evaluation should be conducted throughout the season. The analysis and evaluation should cover the protection of soils, water, botanical areas, and wildlife habitat. Also covered should be native plant vigor, composition, and utilization. Protection may include such measures as range rotation and curtailment in critical areas; e.g., natural openings and riparian areas with the use of salting, fencing, and other methods.
4. Grazing permittees will maintain structural and nonstructural range improvements.

5. When management activities remove natural barriers, fences will be constructed or extended as needed to maintain livestock control.
6. In watersheds which supply domestic water, livestock grazing may be permitted if an analysis of potential effects determines that degradation of that supply will not occur.

Ecosystem Description and Inventories

The Forest's "Plant Association and Management Guide(s)" should be consulted prior to management activities which may alter vegetative types.

Timber

Planning and Inventory

Suitable lands should be managed for the most efficient level of timber production consistent with other resource management goals.

1. Except where necessary for other resource values, all stands scheduled for final harvest will have reached at least 95 percent of the Culmination of Mean Annual Increment (see Glossary).
2. A Ten-Year Timber Sale Action Plan for proposed timber sales, based upon the harvest schedule identified in this Forest Plan, should be updated annually.
3.
 - a. Timber removal may be necessary in the event of catastrophic fires, volcanic eruption, windthrow, disease or insect infestation. If such removal is needed in Management Areas which do not call for scheduled timber harvest, it must be authorized by the Forest Supervisor. Such decisions should include consultation with appropriate state agencies to minimize adverse impacts on fish and wildlife values.
 - b. Ordinary salvage, including scattered mortality salvage of dead and dying material, may be permitted as specified in each Management Area Category (MAC)/Prescription. Such salvage is subject to all applicable Standards/Guidelines: e.g., if the MAC does not permit roads, salvage must be done without the use of mechanized ground equipment within the management area. It is recognized that there is no specific way to define the difference between catastrophic salvage, resulting from an unusual act of nature, and ordinary salvage, which is a more normal, somewhat predictable occurrence. The determination will depend upon consideration of a number of factors on a case-by-case basis. In all cases, the land manager must consider the possible effects on wildlife habitat, esthetics, and other resources before the decision to salvage is made.
5. An area should not be harvested unless seed of the correct species, seed zone, and inventory is available or natural regeneration is prescribed.
6. Future timber inventories will include riparian areas.
7. Utilization standards should be reviewed periodically and adjusted if practical to encourage the removal of additional usable fiber.
8. Available Plant Association and Management Guides should be utilized in planning activities on the ground.

Silvicultural Exam and Prescription

1. The treatment or manipulation of vegetation requires silvicultural examinations and Prescriptions. Exceptions to this are: removal for safety reasons, rights-of-way clearing, and mineral operations.
2. Both even-aged and uneven-aged silvicultural systems should be considered available when selecting the harvest method to be used on a specific site. The selection criteria are found in Appendix F of the FEIS. Both systems are included in the selections of silvicultural prescriptions under the heading, "Silvicultural Exam and Prescriptions," found near the end of these Forest-Wide Standards/Guidelines.

The prescribed silvicultural treatment will be based upon the Standards/Guidelines for the specific Management Area in which it is applied.

3. There will be no conversion of tree species unless a specific Management Area requires conversion to meet Standards/Guidelines.

Reforestation

1. Suitable lands planned for harvest will be satisfactorily reforested within 5 years of final harvest felling. Suitable lands deforested by fire, insects, and other natural causes will be reforested according to the objectives for the Management Areas. (See Forest-wide Reforestation and Stocking Standards and Tables on pages 130 - 132 of the Appendix.)
2. To reduce susceptibility to disease and insect infestation, species diversification should be fostered. This can be accomplished by such means as planting a variety of species and allowing for natural regeneration.

Timber Stand Improvement

All regenerated stands will be considered for timber stand improvement. Priority should be based upon stand condition, requirements of the silvicultural Prescription, and levels of benefits expected. This process should be documented.

Timber Sale Preparation

1. Openings created by even-aged timber harvesting methods will not exceed limits established by the Regional Land Management Guide. Openings in the Douglas-fir type of the coastal Douglas-fir zone (Western Hemlock Working Group on the Gifford Pinchot National Forest) will be no larger than 60 acres and no larger than 40 acres, elsewhere. Exceptions are permitted in the following cases:
 - a. When natural catastrophic situations such as fires, windstorms, or insect and disease attacks occur.
 - b. When larger openings will reduce resource damage to soils, water, fish and riparian values. This might include the use of a logging system which would minimize overall resource disturbance.
 - c. When required to prevent the spread of insects or disease.
 - d. When visual resource management requires shaping and blending of openings.
 - e. When existing shelterwood units are larger than the maximum size.

In all of the latter instances, openings can be increased by no more than 50 percent without review by the Regional Forester and 60-day public notice. To exceed this 50 percent limit or to increase the standards limits on openings for any other reason, a 60-day public notice and review by the Regional Forester is required.

2. Created openings will be separated by blocks of land that generally are not classed as created openings and that contain one or more logical regeneration harvest units. These areas shall be large enough and contain a stand structure appropriate to meet resource requirements of the Forest Plan. Resource requirements may include wildlife habitat, watershed, landscape management, and others. Two or more even-aged harvest areas which are contiguous, cornering, or otherwise share a common boundary of any length, will be considered a single created opening. Their combined acreages will not exceed the size limits for created openings.
3. The total area of created openings contiguous to 30-acre or larger natural openings should normally not exceed one-third the size of the natural opening and not occupy more than one-third of the natural opening perimeter. Openings should not be created adjacent to any natural openings (regardless of size), unless adequate vegetation along the edge can be developed or retained in sufficient density to protect wildlife and visual management objectives. The determination of adequate vegetation will be made by an appropriate interdisciplinary team.
4. For silvicultural purposes, a harvested area will no longer be considered a created opening when trees are 4-1/2 feet in height, meet the required stocking level, and are free to grow.
5. Tree removal in Management Areas with no scheduled timber harvest will be limited to that specified in individual Management Prescriptions (except in the case of catastrophic events).
6. Separate utilization standards are used in determining harvest levels for the first and future decades of the planning horizon as follows:

First Decade	Min. dbh ¹ (inches)	Min. Top ² dib (inches)
Existing mature trees, except lodgepole pine (First and Future decades)	9	6
Existing commercial thinning size trees and lodgepole pine	7	4
Future Decades All, except surviving stands of first decade existing mature.	7	4

¹dbh = diameter at breast height
²dib = diameter inside bark.

Standards in individual timber sale contracts may vary depending on market demand and logging costs.

7. Where questions arise concerning timberland suitability, the process described in FSM 2400, GP Supplement No. 150, will be used.

Nursery Management

Direction for Nursery management will be provided in the "Five-Year Nursery Improvement & Development Plan," which is prepared by the Nursery Superintendent and Forest Supervisor, and approved by the Regional Forester.

Genetic Forest Tree Improvement Program

1. Genetically superior planting stock will be used to reforest all appropriate sites in accordance with the Forest's "Tree Improvement Plan."
2. Select trees will be the source of genetically superior seed until seed orchards come into production.
3. Select trees should be protected from damage by management activities. Select tree protection measures include such things as retaining adjacent standing trees that minimize windthrow potential and restriction of activities that may damage select tree limbs, boles, or roots.
4. Seed orchards will be actively managed for the production of genetically superior tree seed.
5. Evaluation plantations will be managed to yield useable data on tree genetics until the data are no longer needed.

Timber Engineering and Management Research

1. Representatives from the Forest and Pacific Northwest Research Station (PNW) will meet annually to coordinate research activities on the Forest. On lands outside the Experimental Forest and RNAs, coordination should include:
 - a. The location of existing and proposed research sites. All sites should be located on maps and photos and installed in the Districts' TRI system. Research in Wildernesses requires Regional Forester approval.
 - b. Opportunities to consolidate research sites.
 - c. The termination of sites no longer required for research.
 - d. The Subunit Manager should notify PNW of any proposed activities adjacent to the Experimental Forest, RNAs, or any research study plot.
 - e. The accomplishment of specific research needs identified by the Forest Supervisor.
5. Timber harvesting within 250 feet of the Thornton T. Munger Research Natural Area should occur only when trees in adjacent harvest areas have reached a height that will prevent serious windthrow in the RNA.

Water, Soil, and Air

Planning and Inventory

1. All management activities will meet Forest Service Region 6 Streamside Management Goals to protect or enhance water quality, fish, riparian vegetation, and other aquatic resources.
2. Air quality will comply with the Washington State Smoke Implementation Plan. Class I Airshed standards will be met as required by the Clean Air Act of 1977. The Act defines a Class I Airshed as:

- a. An international park,
- b. Wildernesses and national memorial parks exceeding 5,000 acres in size, and
- c. National parks which exceed 5,000 acres in size, all of which were in existence when the Clean Air Act Amendments of 1977 were enacted.

Currently, Mount Rainier National Park and the Mount Adams and Goat Rocks Wildernesses are the only Class I Airsheds within or adjacent to the Forest.

To realize clean air objectives, the following measures may be taken:

- Prohibit burning on visibility sensitive days (holidays) and on weekends from July 1 to Labor Day.
 - Burning will be monitored to ensure that smoke intrusion in the designated Class I areas does not occur on visibility sensitive days.
 - Better utilization methods may be explored and used to reduce emissions.
 - Slash should be piled when possible to avoid burning on sensitive days.
 - The spread, location, and size of prescribed fires in Wildernesses and adjacent Management Areas will be monitored to determine visibility impacts on Class I areas. When it is determined that impairment of air quality from such fires is or may become major, the fire may be classified as a wildfire and appropriate suppression measures taken.
 - Techniques for reducing smoldering after prescribed burns should continue. For example, this can be accomplished through PUM (piling unutilized material), use of mass ignition systems, burning with increased fuel moisture in the large fuels, or use of logging systems and techniques that allow an increased use of large residue (slash) for firewood removal and other wood products (chips, etc.)
3. Proposals by other agencies and the private sector which have a potential to degrade the quality of air over National Forest lands will be analyzed. A report of the findings will be provided to the Washington State Department of Ecology.
 4. The Watershed Improvement Needs Inventory, an on-going list of projects needed to protect or enhance watershed values, should be updated annually (priorities and costs included).
 5. The Washington State Shoreline Management Act will be consulted whenever activities on National Forest lands may affect adjacent or downstream landowners.
 6. "Soil Management Guidelines, Gifford Pinchot National Forest" (Dec. 17, 1977), as amended, will apply unless on-the-ground assessment indicates a change in the guidelines is necessary.
 7. Geologic conditions will be considered in the location and design of roads and other construction projects; unstable areas identified in the Forest's "Geologic Resources and Condition Maps" will be avoided unless a thorough economic analysis justifies an exception or unless on-the-ground investigation indicates a change in the assessment is necessary. Apparent conflicts which may arise between these Geologic Conditions and the "Soil Management Guidelines" (above) will be resolved by the Forest Geologist and Soil Scientist.

8. Best Management Practices - State requirements shall be complied with in accordance with the Clean Water Act for protection of waters of the State of Washington (Washington Administrative Code [Chapter 173-201 and 202], Department of Ecology [DOE]; Washington's administrative code contains water requirements for protection of various classes of surface waters), through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with the Clean Water Act, regulations, and Federal guidance issued thereto.

In cooperation with the State of Washington, the Forest shall use the following process:

- a. Select and design BMPs based on site-specific conditions, technical, economic, and institutional feasibility, and the water quality standards for those waters potentially impacted.
- b. Implement and enforce BMPs.
- c. Monitor to ensure that practices are correctly applied as designed.
- d. Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards.
- e. Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected.
- f. 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.

The process agreed to in the following Memorandum of Understanding (MOU) shall be used to implement the State Water Quality Management Plan on lands administered by the USDA Forest Service:

The Washington Department of Ecology and US Department of Agriculture, Forest Service (7/79), and "Attachment A" referred to in this MOU (Implementation Plan for Water Quality Planning on National Forest Lands in the Pacific Northwest) 12/78).

General Best Management Practices are described in "General Water Quality Best Management Practices", Pacific Northwest Region, November, 1988. This provides guidance but is not a direction document. Also included in this document is a description of the process and limitations and use of these BMPs. Each BMP listed includes the title, Objectives, Explanation, Implementation and Responsibility, and Monitoring. Evaluations of ability to implement and estimated effectiveness are made at the project level.

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

The sensitivity and significance of the project determines whether the site-specific BMP prescriptions are documented in an EA, EIS, sale plan, project plan, or in analysis files.

Best Management Practices relating to protection of water quality shall be followed for any chemical application projects. In the event of an accidental spill of hazardous materials, procedures shall be followed as set forth in the Oil and Hazardous Substances Pollution Contingency Plan (FSM 7443).

9. Inventories of water quality and quantity information collected by State and other Federal agencies should be obtained for project planning, design, and implementation.
10. Minimum in-stream flow requirements will be established for all hydroelectric projects in cooperation with the appropriate State agencies.

Cumulative Impact

In watersheds, or other areas where project scoping identifies an issue or concerns regarding the cumulative effects of activities on water quality, stream channels, wildlife, soils, vegetation, other resources, or on secondary effects such as social and economic impacts, a cumulative effects assessment will be made. This will include land in all ownerships in the area. Activities on National Forest System lands in these areas should be dispersed in time and space to the extent practicable and, at least to the extent necessary to meet MRs on intermingled ownerships, scheduling of activities should be coordinated.

Administration/Management

1. When streamflow is temporarily diverted to accommodate construction or other activities, it will be restored to the natural course as soon as is practical.
2. A Ranger District liaison officer will be designated to provide coordination on all hydroelectric projects.
3. Activities involving sources of domestic and municipal water, especially those in which pesticides and fertilizer are used, will be given monitoring priority.
4. Significant capital investment projects will not be sited within Federal Energy Regulatory Commission (FERC) power withdrawals unless it would be practical to relocate them if the hydroelectric site is developed. (Applications for permit and license automatically establish a withdrawal on the described lands; lands included in an application for exemption, however, are not withdrawn.)
5. No more than a total of 20 percent of an activity area may be compacted, puddled, displaced, or subjected to a severe burn as a result of the activity. This standard is further qualified as follows:
 1. Prescribed burning activities must result in less than 10 percent of the activity area burned rated as a severe intensity.
 2. Any mass failures are to be included in the displaced soil category.
 3. An activity area is the total area for which a ground-impacting activity is planned. It may be the units of a timber sale, a slash disposal project, site preparation project, or grazing allotment, and includes the transportation system (including landings) in and directly adjacent to the activity area.
6. The Bear Creek Watershed will continue to be the major source of municipal water for residents in the area of Carson, Washington, and will be managed under terms of the "Management Policy Statement for Bear Creek Watershed." This agreement with the Public Utility District of Skamania County was signed by the Forest Supervisor May 1, 1967.
- 7.

1. Protect established snow courses and related hydrometeorological data sites including a 400-foot buffer zone in all directions from the sampling points, or a mutually-agreed-upon buffer zone as specified on data site sketch maps, from any disturbing influence such as road building, timber harvest, or vegetative disturbance which will affect snow accumulation or measurement. Snow courses and related data sites will be noted in Ranger District TRI/GIS or other data management systems to remind Forest managers of the need to protect these sites.
2. Make no change in management or use of a data site which would impair its value for data collection unless there is no other alternative; in such a case, Regional Forester approval of the changes will be made only after the State Conservationist has been notified in writing. Such notice should be given sufficiently far in advance that an alternative data site can be selected and a correlation between the two established. A five-year minimum is desirable. Comparable uses of the site will be continued.

Rights/Use Management

1. The Water Rights-Use-Needs Inventory should be kept current.
2. A State water right will be required for each use of water, with the exception of activities covered by the Reservation Principle (on this Forest, Watershed Protection and Timber Management).

Minerals and Geology

General Technical Inventory and Evaluation, and Site Specific Technical Investigations

1. The Forest's "Geologic Resource Inventory" and "Geologic Resources Condition Map" will be used to assess the impact of those management activities affecting the geologic resource.
2. Inventories and investigations should be conducted for mineral potential to minimize conflicts with possible future mineral development and other Forest activities. The Mineral Potential Map will be used to assess the impacts of management activities. Mineral resources will be considered in proposals for planning, withdrawals, exchanges, and any development project.
3. Caves will be evaluated as required by the Federal Cave Resources Protection Act of 1988. Caves determined to be significant under the Act will be considered for listing on the National Significant Caves List. Specific locations of Significant Caves are exempt from disclosure to the general public.
4. A Forest-wide, comprehensive cave management analysis should be completed within ten years after approval of the Forest Plan. Management Plans should be prepared for caves with high resource, educational, or recreational values, hazardous conditions, or heavy use. If the analysis determines that cave management or protection is required, the cave should be placed in one of the following classes. Caves determined through analysis to have no significant values, and documented as such, will no longer be protected.

Class 1: Sensitive Caves

Caves considered unsuitable for exploration by the general public either because of their pristine condition, unique resources, or extreme safety hazards. They may contain resources that would be impacted by low levels of visitation. These caves are not shown on maps or

discussed in publications intended for general public use such as guides, brochures, and magazines.

Class 2: Directed Access Caves

Caves with directed public access and developed for public use. These caves are shown on maps or have signs directing visitor access; they frequently have guided tours and artificial lighting. Regardless of the level of development, public visitation is encouraged. The caves may have sensitive resources that are protected.

Class 3: Undeveloped Caves

Caves that are undeveloped or contain unmaintained or minimal developments that are suitable for explorations by persons who are properly prepared. In general, these caves contain resources that resist degradation by recreational use. However, public use will not be directed toward them.

5. Prior to a determination of significance under the 1988 Cave Act, or Forest-wide comprehensive cave management analysis, the following direction is applicable:

Prior to ground-disturbing activities which may adversely affect them, an analysis should be prepared for caves and similar unique geological features. The analysis should document any biological, hydrological, cultural, recreational, geological, mineralogical, paleontological, educational, or scientific values. The following measures may be used to protect caves and similar geologic features:

- a. Limitation of logging, road construction, and other uses of heavy equipment above or in the vicinity of a cave with a thin roof, or the course of such a cave, if there is potential for damage.
- b. Retention of vegetation in the vicinity of a cave of cave course. If it is required, to protect the cave's microenvironment.
- c. If timber harvesting is permitted in the vicinity of a cave, trees may be directionally felled away from a cave and its course.
- d. Avoidance of the alteration of cave entrances, or their use as disposal sites for slash, spoils, or other refuse.
- e. Limitation of management activities within any area draining into a cave if they may affect the cave ecosystem with sedimentation, soil sterilization, the addition of nutrients or other chemicals, including pesticides, herbicides, and fertilizers, or change the cave's natural hydrology.
- f. Avoidance of diversion of surface drainage into caves.
- g. Limitation of public access, if required to prevent damage to the cave resources or if there are unusual safety hazards.
- h. Avoid advertising the location of caves to the general public in printed documents or by signing.
- i. Scientific or educational use of caves may be permitted by the Forest Supervisor.

Process of Exploration Proposals, Lease Applications, and Site Development Proposals

(The Standards/Guidelines under this heading are in response to requests for permits, or other approval, from persons, organizations, or agencies outside the Forest Service).

1. Under the mining law, claimants are entitled to access to their mining claims. Access for exploration and development of locatable mineral resources will be analyzed in response to a proposed operating plan. A decision on approval of reasonable access will be made as a result to appropriate environmental analysis.
2. Operating plans will include reasonable and operationally feasible requirements for timely and effective coordination with other resources.
3. Reclamation plans should describe final management objectives for specific mined areas and detail reasonable procedures and time frames to accomplish those objectives. Reclamation bonds will be based on actual reclamation costs and formulated using appropriate technical and other resource input.
4. Mining claimants should be notified of impending Forest Service actions that may affect their claims. Reasonable efforts should be made to protect claim corners and mine workings from disturbance as a result of Forest Service activities.
5. Mineral lease applications will be reviewed in a timely fashion and conditions and appropriate special stipulations necessary to protect surface resources will be applied.
6. A "No Surface Occupancy" stipulation will be applied to leases only (a) when surface occupancy would cause significant resource disturbance which cannot be mitigated by any other means, (b) where resource impacts would be irreversible or irretrievable, or (c) when the activity is incompatible with the surface management objectives.
7. The development of common variety mineral material sources will be evaluated and administered according to the Forest's "Rock Resource Management Plan."

Rural Community and Human Resources

1. Meaningful job opportunities should be provided for senior citizens.
2. Volunteers should be recruited and utilized in maintenance, construction, and administration activities. Opportunities to engage volunteers in activities such as wildlife inventories, trail work, and other recreational projects will be sought.
3. Job opportunities will be made available to minorities, women, and the handicapped in accordance with the Forest's Affirmative Action Program for Civil Rights.

Lands

Special Use Permits (Nonrecreation) and Right-of-Way Grants for Roads and Trails

(The Standards/Guidelines under this heading are in response to requests for permits, or other approval, from persons, organizations, or agencies outside the Forest Service).

1. Existing domestic water systems without permits should be inventoried and terminated if found to be inconsistent with the objectives of the Management Area. New permits should be limited to those which do not conflict with Management Area objectives.

2. Utility Corridors are excluded from consideration in Wildernesses, the National Volcanic Monument, and Wild Rivers upon Congressional designation under the Wild and Scenic Rivers Act. Corridors should be avoided in the following MACs/areas.
 - a. Rivers proposed for designation as Wild Rivers
 - b. Scenic and proposed Scenic Rivers
 - c. Research Natural Areas
 - d. Riparian Areas
 - e. Spotted Owl/Pileated Woodpecker/Pine Marten Areas
 - f. Threatened, Endangered, and Sensitive Species Habitats
 - g. Special Interest Areas
 - h. Developed Recreation Sites.
 - i. Unroaded Recreation
 - j. Wildlife Special Areas
 - k. Mountain Goat Habitat
 - l. Experimental Forest
6. Permits, leases, and rights-of-way not consistent with the objectives of the Management Area should not be recommended. Nonconforming uses should be terminated when opportunity permits.
7. New utility proposals should be accommodated within existing designated utility sites or corridors to the maximum extent feasible.

Withdrawals, Modifications and Revocations

Areas with mineral potential should be recommended for mineral entry withdrawal only when mitigation measures would not adequately protect other resources and when such resources are determined to have greater public values. In most cases, PL 84-267 (Multiple Use of Surface of Public Land), 36 CFR 228 and 36 CFR 261 will provide adequate protection of surface resources. Subject to valid existing rights, withdrawals from entry under the general mining law will be in conformance with Section 204 of PL 94-579 (Federal Land Policy and Management Act).

Property Boundary Location

Property and congressionally designated area boundaries will be located prior to any management activity which may affect these areas. For timber sales, the boundary should be located and marked at least 2 years before the sale.

Landownership Planning

All lands within the Forest boundary, public and private, are assigned to one of five landownership categories, depending upon their location and mix of resource values. These assignments are intended to serve as a guide for the Forest's ongoing land exchange/ownership adjustment program. The five categories are:

Category I - Retention of public lands or acquisition of lands in other ownerships is essential.

Category II - Retention or acquisition as opportunity occurs, needed to benefit special areas or needs. Public ownership is beneficial.

Category III - Neutral lands available for acquisition or disposal. Public ownership not essential.

Category IV - Lands to be disposed of, or lands not expected to be acquired such as homes, lands. Public ownership is not beneficial.

Category V - More study is needed to determine proper category.

Rights-of -Way Acquisitions and Cost-Share Agreements

(R/Ws In-service generated. Cost-Share Agreements normally In-service)

5. Rights-of-way and cost-share agreements required for timber sales will be:
 - a. Identified in the position statement for the proposed sale.
 - b. Completed through the preliminary title search in the Environmental Assessment.
 - c. Approved, with rights-of-way package in the Timber Sale Report.
6. General rights-of-way should:
 - a. Be identified early to allow choice of location with least impact on Forest and involved landowner.
 - b. Be complete through preliminary title search before design engineering commences.
 - c. Secure approval of rights-of-way package before easement is used.
7. Existing Rights-of-way:
 - a. Review each case to determine the adequacy of rights received in the deed.
 - b. Acquire necessary additional interests in existing road and trail rights-of-way to meet Forest objectives.
 - c. Aggressively pursue the resolution of access rights on roads and trails which are presently on the National Forest Transportation System.

Facilities

(Roads, buildings, and related structures required for management of National Forest Lands.)

Transportation Planning and Inventory

1. In determining road density and design standards, the goal should be to design and construct roads appropriate to the intended uses, considering sagely, cost of transportation, and impacts on other resources.

The development, maintenance, and management of the Forest development road system is to continue as needed to respond to resource management objectives. Many road-related

activities will occur in support of the timber management program, with additional projects undertaken to facilitate recreational use, Forest administration, and resource protection.

2. All new roads constructed which are planned for closure should be designed with a turn-around/parking area as a standard road design criteria. Turn-around/parking areas, gates, barriers, and signs should be funded as part of the initial road package. Gates should be installed and closures put into effect upon completion of construction whenever possible.

Road, Bridge, and Culvert Construction and Reconstruction

1. All "fishbearing" (used for spawning, rearing, or migration on a year-round or permanent basis) stream-crossing projects will be coordinated with the Washington State Department of Game and Fisheries. The streams crossed by such projects should be evaluated prior to project work to determine impact upon fisheries. (Refer to Forest-wide Standards/Guidelines for Riparian Areas.)
2. Construction or maintenance work crossing fishbearing streams should be located and timed to protect spawning and egg incubation.
3. Following construction work, erosion control and restoration should be completed during the same season, or as soon as practicable.

Road Operation

1. Traffic service levels should be established with consideration of resource management objectives, economics, traffic volumes, traffic mix, and safety.
2. Arterial and major collector roads should be managed for a mix of passenger car and commercial traffic and should meet the standards set for roads subject to the Highway Safety Act (PL 89-564).
3. Minor collector and local roads should be managed for standard passenger car use only if there is a specific recreation access requirement, such as some campgrounds and major trailheads. Otherwise, they should be managed for other resources and should not be maintained for public travel. (Refer to Road Management Schemes for more specific direction).
4. The assigned traffic service level for minor collector and local roads should be consistent with the road management objectives for the area. The intent is to manage roads in a manner consistent with the resource objectives for each Management Area, while maintaining a reasonably uniform service level for the entire route as it passes through several Management Areas.
5. The "Forest Road Management Plan" is used in determining the proper mix of development, traffic management, and maintenance of the road system. This Plan is a collection of management programs such as the Commercial Road Rules, Road Maintenance Plan, Road Share-Cost Agreements, Forest Sign Guide, Forest Travel Plan, and Road Management Objectives.
6. The "Forest Travel Plan" will provide information on where public travel is permitted or limited. The Travel Plan should be reviewed annually and revised, if necessary, to reflect Forest Plan objectives.
7. The Flood Emergency Road Maintenance Plan (FERM) should be updated annually.

8. Local roads not required for resource use, protection, or some other demonstrated access need should be closed. Access needs and road closures should be addressed in the Road Management Objectives for the road.
9. Road closures should use the fewest barriers to reduce traffic over the largest possible area. For wildlife purposes, closure priorities should consider the location of important wildlife habitat, the amount of forest cover present, the proximity of riparian habitat, and the existing degree of visibility. Effective enforcement capability is essential in the design of road closures. Area closures should be considered where ORV use of primitive roads, or "wheel tracks," are disturbing or displacing wildlife.
10. Management activities within one-half mile of Wilderness or Semi-Primitive areas should be sensitive to the need for a feeling of remoteness or isolation within those areas. Timing of activities and access limitations may be considered in management areas adjacent to those areas. Such limitations are not expected to affect the amount of timber to be harvested or other resource outputs.
11. Road closures designated in the Road Management Objective process should be accomplished within one year after the resource activity concludes when applying the Eliminate or Prohibit traffic management schemes. When resource conflicts are minimal, the Discourage traffic scheme may be used to allow a road to close itself.
12. Road maintenance should not be performed to encourage access for wood or Christmas tree cutting, hunting, or unfunded purposes.
13. Forest Roads 25 and 99 should be open for public travel, providing access to the National Volcanic Monument from Memorial Day until closed by winter snows.
14. All non-system roads constructed in the planning period must be revegetated within 10 years of completion of the contract, lease, or permit through which they were constructed.
15. The following direction should be applied if it is more restrictive in all management areas within the biological deer and elk winter range, regardless of the assigned MAC or Management Prescriptions:

Roads not needed for through traffic, access to an active project or providing access for a specific recreation destination should be closed either permanently or seasonally from December 1 to April 1 to reduce wildlife harassment.

Through roads and those to recreation destinations, if open, should be managed to accommodate passenger car traffic.

Fire, Administration, and Other Construction/Preconstruction and Facility Maintenance

1. Construction or maintenance work crossing fishbearing streams should be located and timed to protect spawning and egg incubation.
2. Following construction work, erosion control and restoration should be completed during the same season, or as soon as practicable.
3. Alteration or maintenance of designated historic structures requires a site development plan and must be performed in consultation with the State Historic Preservation Office.
4. Buildings, utility systems and related facilities should be planned, developed, maintained and operated for safe use, support of Forest resource programs, and cost effectiveness.

The construction of new buildings or additions to existing buildings and utility systems shall comply with the approved site development plan.

Protection

Fire Management Planning and Analysis

Fire protection programs should be developed to prevent unplanned ignitions which exceed 10 acres in size 96 percent of the time.

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

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

The mix of aerial and ground detection activities will be reviewed periodically to maintain the most cost-efficient combination.

Provide equipment and training for USDA Forest Service employees outside of the fire management organization to assist in initial attack.

Escaped Fire Suppression

5. Suppression decisions will be based on an Escaped Fire Situation Analysis (FS-5100-Z). This analysis will be made for all escaped fires when:
 - a. A fire has escaped initial attack or has been determined to exceed the protection objectives of the area.
 - b. Alternative suppression strategies can be identified before large expenditures in time or money are incurred.
 - c. The fire will extend into the next burning period.
6. Alternative Suppression Strategies which should be considered are:
 - a. Confine: To restrict the fire within boundaries established either prior to the fire, during the fire, or in an escaped fire situation analysis. In most cases this will be restricted to Fire Intensity Level (FIL) 1 or 2.
 - b. Contain: To surround a fire and any spot fires it produces with a control line which can reasonably be expected to check the fire's spread under prevailing and predicted conditions. It is restricted to FIL 1 - 2 and, in isolated case, 3 - 4.
 - c. Control: To complete the control line around a fire and any interior islands to be saved, burn out any unburned areas adjacent to the fire side of the control line, and cool all hot spots that are immediate threats to the control line.

No other alternatives may be considered. The suppression strategy to be used will depend on the Standards/Guidelines for the given Management Area. The Control strategy may be used whenever the fire hazard is severe.

Treatment of Activity Fuels and Natural Fuels, Fuelbreak Construction and Fuel Treatment Area Maintenance

1. Fuel treatment priorities will be:
 - a. Priority 1: Fuel treatment adjacent to communities where life and property are threatened by wildfire.
 - b. Priority 2: Fuel management support to functional and project planning.
 - c. Priority 3: Maintaining the fuel profile established by previous fuel treatment if the fire management analysis process verifies continued need.
 - d. Priority 4: The treatment of prior activity fuels.
 - e. Priority 5: The treatment of natural fuels where suppression capability alone cannot reasonably assure the cost-efficient attainment of resource management goals and objectives.
6. All slash-creating projects will be analyzed to determine whether slash must be treated.
7. A fuel treatment plan will be prepared for all projects which do not meet acceptable fuel levels. (An acceptable level is one with fuels which would produce fires that can be kept to 10 acres 96 percent of the time.)
8. Management activities will not be undertaken if slash cannot be reduced to an acceptable level.
9. The following fire hazard reduction applications should be considered.
 - a. **Utilization:** Harvest techniques such as top yarding, improved utilization methods identified in mill operation and log manufacturing studies, and residue treatment methods that optimize firewood use.
 - b. **Rearrangement:** Fuels may be redistributed on-site to a less hazardous condition or one which produces faster deterioration or removal.
 - c. **Removal:** Fuels may be moved off-site for use, storage, or disposal.
 - d. **Disposal:** The reduction or elimination of fuels by prescribed burning or manual, mechanical, chemical, or biological means.
 - e. **Conversion:** Replacing flammable vegetation with less flammable material
 - f. No reduction.

Pest Suppression and Prevention

To meet Forest objectives, Integrated Pest Management Prescriptions will be utilized to manage pests within the Standards/Guidelines for each Management Area. They may include manual, mechanical, cultural, biological, chemical, prescribed fire, and regulatory methods. Private landowners and other public agencies should be consulted and a cooperative effort made to control or minimize pest infestations when appropriate.

Riparian Areas

Riparian Areas will be managed to maintain or enhance wildlife and fish habitat, protect water quality and other aquatic and riparian resource values. Streams, lakes and ponds will provide suitable habitat for fish and other aquatic species. All waters meet State and Federal water quality standards. The capability of floodplains to handle floods will not be reduced.

Preferential consideration to riparian-dependent resources will be given when conflicts among land use activities occur (FSM 2526.03). Riparian areas serve to protect water quality by acting as a water temperature buffer and serving as filter strips along streams to prevent or reduce sedimentation. Additionally, large woody debris supplied from riparian zones serve to provide in-channel structures for fish habitat, act as sediment retention structures and provide for channel stability. Woody debris supplied by riparian areas provides an essential link in the biotic food chain. Riparian areas provide travel corridors for wildlife species and offer the complex, multi-storied stands structure needed by some species. The vegetative diversity that exists in riparian areas is generally higher than that which occurs on adjacent hillslopes.

In the future, vegetation will be diverse, ranging from natural openings and limited timber harvest areas through mature and old-growth stands. The Riparian Area will provide a continuous source of large woody debris. Created openings that occur along Class I and II streams will be small and widely distributed. Few roads, recreation sites, or other facilities will be found in riparian areas. Riparian habitats will support a wide variety of wildlife and vegetation. In management areas without scheduled timber harvest most vegetative changes will be the result of natural succession or natural occurrences.

Riparian Areas are divided into five types:

1. Riparian Area A includes Class I, II, and III streams and an influence area along each bank, typically 100 feet wide (as measured from the mean high water level). The actual riparian area width may vary depending upon vegetation type, geomorphology, and other factors. This may include upslope lands when specifically needed to protect water quality.
2. Riparian Area B includes Class IV streams (intermittent streams) and an influence area along each bank, typically 25 feet wide, as measured from the mean high water level or the level of actual channel formation or annual scour. Riparian Area B may also include high-risk ephemeral headwall areas.
3. Riparian Area C is comprised of floodplains and typically a 100-foot influence area extending from the identified floodplain or area on inundation. Floodplains include at least that area subject to a 1 percent (100-year recurrence) or greater chance of flooding in any given year (Executive Order 11988). Side channels and backwaters are included in this category and influence areas should be measured from the margins of such areas. Areas C are not entirely separate and unique areas. Each Area C includes one or more Riparian Area A streamclasses. Activities within the flood plain should comply with the Standards/Guidelines for the appropriate Area A streamclass.
4. Riparian Area D includes lakes, ponds (WL)*, marshes, wet meadows (MS, MT, MW), moist meadows (MM), wet shrublands (SW, SS), and forblands (F) which are on slopes of less than 20 percent, and an influence area of typically 300 feet.
5. Riparian Area E includes moist shrublands (SM, SS), wet shrublands (SW), moist meadows (MM), and forblands (F) on slopes of greater than 20 percent. An influence area of up to 300 feet may be included when necessary.

*Ecoclass Codes

The following Standards/Guidelines apply to Riparian Areas A through E unless otherwise indicated. If direction in a Management Area Category is less restrictive, the direction here will prevail:

Recreation

Planning and Inventory

1. The Visual Quality Objectives and Recreation Opportunity Spectrum classes will be those of the Management Area in which the Riparian Area is found.
2. Neither newly developed recreation sites nor expansions to existing sites will be located on the riparian influence area of Riparian Areas A, B, or C. Developed and dispersed recreation sites should be located at least 100 feet from the edges of lakes, stream, ponds, wet meadows, marshes, and springs. Existing sites will be made to comply with Executive Order 11988 and 11990. Water oriented facilities may be developed providing the riparian values can be protected.
3. Trails should be located away from Riparian Areas D and E.
4. Dispersed recreational activities which degrade the quality of riparian areas should be regulated or eliminated; e.g., the trampling of streambanks and lakeshores.

Cultural Resource Protection and Enhancement

Authorized excavation of cultural resource sites should be conducted in a manner which minimizes impacts on Riparian Areas. Necessary rehabilitation will be promptly performed.

Facility and Site Reconstruction and Construction

Facilities will be designed to minimize adverse impacts on all Riparian Areas, and to protect investments.

Facility and Site Management and Use Administration

1. Whenever damage occurs due to recreational activities, streambanks and other Riparian Areas should be promptly restored by revegetation and stabilization.
2. Off-road vehicles will be limited to designated trails and stream crossings. Oversnow machine use may be permitted if snow is of sufficient depth to protect riparian values.

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

1. Stream and lake surveys should be conducted prior to management activities which could adversely affect wildlife or fish habitat. Ongoing stream and lake habitat surveys should identify opportunities for habitat and fish passage improvement.
2. In marshes and wet meadows where vegetative encroachment is a problem, trees and other competing vegetation may be removed.

Range

Planning

1. Livestock grazing may be permitted if riparian values are protected. Of particular concern are:
 - a. Water quality
 - b. Stability of stream and lake banks
 - c. Soil compaction
 - d. Riparian vegetation

- e. Fish and wildlife habitat
 - f. Sensitive plants
6. Bedding grounds will not be permitted.
 7. Water developments (stock tanks), salting, fencing, driving enclosures, and seasonal use should be placed or timed to disperse grazing stock away from Riparian Areas.

Nonstructural and Structural Improvements and Maintenance

Rehabilitation projects on areas degraded by livestock grazing and other management activities should be done as soon as possible.

Timber

Two levels of standards are developed for timber activities in Riparian A areas. One set, "Enhanced Management," allows no timber activities. The other, "Maintained Management," allows timber activities.

Planning and Inventory, Regeneration and Intermediate Harvest

When riparian lands are in a Management Area which has scheduled harvest, the following Standards/Guidelines (Figure IV-21 included) apply if they provide more specific and restrictive direction. The intent is to provide protection and/or enhancement to the existing riparian values.

THE FOLLOWING FOUR STANDARDS/GUIDELINES APPLY TO RIPARIAN AREA A WHERE THE "MAINTAINED MANAGEMENT" LEVEL STANDARDS ARE APPLIED:

1. Timber management activities should be dispersed throughout the drainage basin. Past harvest activities and natural conditions will be considered in maintaining or enhancing required riparian habitat for riparian indicator species and to meet water quality goals. Cumulative effects relative to watershed condition must be a part of an Environmental Analysis process (see Forest-wide Standards/Guidelines for Water, Soil, and Air). Floodplains and wetlands will be taken into account during sale planning pursuant to Executive Orders 11988 and 11990.
2. Some riparian-related wildlife species require particular types of dead and down woody material. Woody material is also valuable for channel stability and fish habitat. Timber salvage should be authorized only if an Environmental Analysis clearly indicates removal outweighs the in-place value of material to wildlife, fish and channel stability.
3. The current level of hardwood stands should be maintained and species diversity should be fostered on all riparian lands.
4. Duff, ground cover and understory vegetation, including nonmerchantable-size conifers, should be protected during timber management activities.

(Figure IV-21)

THE FOLLOWING STANDARDS/GUIDELINES APPLY TO RIPARIAN AREAS D AND E:

1. Ecoclass codes (codes identifying the lake, meadow, etc.) for Riparian Areas D and E are in the Forest Data Base Ecoclass Subsystem for location and extent of land involved by each unique water or non-forest-classified land. Usually, the inventory identifies these ecoclass features down to 3 acres. Many smaller areas which have not been inventoried exist on the Forest. During a project Environmental Analysis, these small uninventoried features must be evaluated for their riparian values. These areas can be added to the data base upon management decision, and the appropriate standards and guidelines should be applied.
2. Riparian wetlands, which are in close proximity and function, both hydrologically and biologically in an interconnected manner, may be managed as a single riparian complex.
3. There should be no disturbance of lakes, pond, marshes, shrublands, or forblands. Logging and other equipment should not be operated within these natural openings. Trees should be felled away from them.

THE FOLLOWING STANDARDS/GUIDELINES APPLY TO ALL RIPARIAN AREAS:

Intermediate Harvest, Reforestation, and Timber Stand Improvement

Fuel treatment and site preparation should be designed to protect hardwood and conifer reproduction, understory and ground cover vegetation, snags, leave trees, and downed material as described above.

Reforestation and Timber Stand Improvement

1. Herbicides and other pesticides will not be applied in Riparian Areas.
2. Stream temperature, water quality, and other riparian values should be protected by planting large and/or genetically superior conifers, hardwood seedlings, and cuttings spaced for optimum growth.
3. Animal damage control measures should be used only when stocking is reduced below that needed to meet riparian objectives.

Timber Sale Preparation and Harvest Administration

1. Special measures required to meet riparian objectives (e.g., leaving unmerchantable-size conifers, directional felling, protection of leave trees) should be highlighted on timber sale maps and in the timber sale prospectus.
2. Designate reserve trees, snags, and downed materials which are to remain after timber harvest for maintenance or improvement of riparian values.
3. Sale administrators should inspect activities within the Riparian Area frequently to ensure that objectives are met.
4. Firewood cutting, except for campfire use, is not permitted in Riparian Areas.

Nursery Management

Water quality standards and protection of the fishery and other riparian values should be met in Nursery operations.

Genetic Forest Tree Improvement Program

Genetic improvement activities should be limited to select trees and evaluation plantations.

Water and Soil

Inventory and Planning

1. All management activities should meet Forest Service Region 6 Streamside Management Goals (FSM 2526.05) to protect or enhance water quality, fish, wildlife, vegetation, and other riparian values.
2. Ongoing watershed condition inventories should be conducted to provide a current information base for use in planning activities.
3. Priority for watershed rehabilitation should be given to the improvement of water quality and other riparian values in areas affecting Class I or II streams and lakes. This includes domestic and municipal water sources, fish hatchery sources, and anadromous fishery streams.
4. The capability of floodplains to contain floods should not be reduced.

Improvements

Logs and other debris that have become a natural part of a stream channel should not be removed. Large organic debris in lakes and streams will be allowed to function naturally.

Administration/Management

Construction activities in or adjacent to perennial streams should be performed during the lowflow season. Hydrologic project approvals will be obtained for all projects which may effect stream channels. (Memorandum of Understanding with Washington Department of Wildlife.)

Minerals and Geology

Inventory, Evaluation, and Processing of Site-Specific Development Proposals

Development of common variety mineral material sources may be permitted where impacts can be suitably mitigated. Operating plans should provide for the protection of riparian values and meet State Water Quality standards.

Lands

Special-Use Management (Non-Recreation), Right-of-Way Grants for Roads and Trails, Federal Energy Regulatory Commission (FERC) License and Permits

1. Activities requiring special use permits should be located outside the Riparian Area. Necessary activities in Riparian Areas may be allowed, providing their impact on riparian values is not significant or permanent.
2. Special use permits and Federal Energy Regulatory Commission (FERC) licenses for hydroelectric projects should provide sufficient requirements to minimize environmental impacts. Pipelines and transmission lines should be located outside the riparian area.
3. Permits, leases, rights-of-way, and easements should not be located in Riparian Areas, including influence areas, whenever alternatives are available.

Facilities

Transportation Planning and Inventory, Arterial/Collector/Locator Road Preconstruction and Fire, Administrative, and Other (FA&O) Construction/Preconstruction

1. Whenever road construction adversely affects riparian values, erosion control measures should be intensified and in place by the end of the construction season.
2. Roads and other facilities should avoid riparian and influence areas. Minimizing damage to riparian values should be a central consideration in the location of stream crossings.
3. New stream crossings on fishbearing streams should be designed to allow fish passage. Environmental Analysis for these projects should include an analysis of fishery values, including those above the crossing, to determine if the additional engineering costs are warranted.

Protection (Fire and Pest Management)

Fire Management Planning and Analysis and Prevention

1. Water quality, riparian vegetation, and fish habitat will be considered in locating developed tanker fill sites.
2. Suppression Strategy should be B (Contain) or C (Control).
3. In meeting fire suppression objectives, minimum-impact suppression methods should be used. Minimum-impact suppression methods include such things as wetline instead of hand or machine fireline, handline instead of machine fireline, and avoiding the use of arterial and ground retardants.
4. The use of heavy equipment should be discouraged in Riparian Areas.
5. In Timber-"Maintained Management" areas, Fire Hazard Reduction Application Remove or Disposal should be used. Fuels should be disposed of outside the Riparian Areas along Class I, II, and III streams. If this is not possible, fuels should be treated with methods other than broadcast burning or machine piling.

Pest Suppression and Prevention

Pests which adversely affect riparian vegetation should be suppressed or prevented using techniques which do not degrade water quality. Cultural and biological methods will be favored.

Recreation Opportunity Spectrum (ROS)

(Apply to all Management Area Categories except Wilderness)

Primitive

Access

There will be no roads; off-road vehicles will not be permitted. Power equipment and ORVs may be permitted for trail construction and maintenance during periods of low visitation.

The creation of trails by visitors will be discouraged in trailless areas.

Trails should be constructed and maintained for the safety of visitors, to minimize or prevent resource damage, to distribute use, and when required by law, not for visitor convenience. They should be built to the Difficult or Most Difficult Standard and maintained at the minimum level. Local native materials should be used.

Facilities

Facilities should not be provided for the convenience of the visitors. They should be limited to those required to protect resources. Camp units should not be designated in trailless areas; they may be designated in trailed areas, but not developed.

Visitor Contact, Direction, and Interpretation

The control of visitors is minimal. Visitor direction necessary to protect the ecological and social values of primitive areas will be provided by personal contact and information conveyed outside the area (at trailheads and administrative sites).

The area should be managed to limit encounters between visitors to one per day in trailless areas and six per day on trails. Combinations of persons and recreation livestock in excess of 12 should require written permission. Parties traveling cross-country should be no larger than six persons. No more than one designated camp unit should be visible from any other.

Recreation sites should be placed and recreation stock tethered away from the foreground view of lakeshores, streams, and key interest features, and at least 100 feet from main or through trails.

Open campfires may be limited to designated sites in trailed areas.

Semi-Primitive Non-Motorized

Access

There will be no roads and off-road vehicles are not permitted. Existing primitive roads will remain closed, regraded to a natural contour, and revegetated.

Trail standards may range from Very Difficult to Least Difficult.

Some trails may be provided for the exclusive use of hikers.

Trails will be designed to disperse use and take advantage of scenic views and other points of interest whenever possible.

Trails will not be constructed or maintained to a standards higher than that designated.

Native, local, or natural-appearing materials will be used in trail construction and maintenance, including culverts and bridges.

Power equipment and ORVs may be permitted for trail construction and maintenance during periods of low visitation.

Facilities

Recreation facilities will be provided to protect resource values or distribute visitation rather than for the comfort of users.

Visitor Contact, Direction, and Interpretation

Manage these areas so that no more than 15 trail encounters between visiting parties occur each day. Groups should not be larger than 20 persons.

The location of camps and management of recreation stock will be the same as in Primitive areas.

Natural barriers and obstacles may be used to direct visitation.

Visitor contact may occur through the news media, at administrative headquarters, and at entry points to Wildernesses and other designations. There will be no on-site informational facilities.

Visitors will be primarily responsible for their own health and safety; there will be little regimentation.

Fire

Prescribed fire will be limited to areas where ground vegetation can recover in 1 year. Islands of unburned areas will be left and not more than 100 feet per mile will be burned adjacent to trails.

Semi-Primitive Motorized

Access

Off-road vehicle use is usually limited to trails which are typically difficult and challenging.

Portions of the area or trails may be closed seasonally or year-round to prevent resource damage and conflicts between different users, and accomplish management goals for adjacent areas.

Trails will be designated to disperse use and take advantage of scenic views and other points of interest whenever possible. Existing primitive roads may be designated for ORV use.

Trails will be constructed and maintained to a standard no higher than that designated.

Native, local, and natural-appearing materials will be used in trail construction and maintenance, including culverts and bridges.

Facilities

Facilities are predominantly those required to distribute users.

Visitor Contact, Direction, and Interpretation

The area will be managed to produce no more than 15 encounters between visitors per day. Groups should be no larger than 25 persons. Larger groups may be accommodated by permit.

Campsites should be located away from lakeshores, streamsides, and trails. No more than three other campsites should be visible from a given site and ORVs will avoid lakeshore and streamside areas.

There will be no on-site informational facilities.

Fire

Prescribed fires is limited to areas where ground vegetation will recover in 2 years. Burned trailside frontage will be limited to 200 feet/mile.

Roaded Natural

Access

Access should:

1. Be provided to developed sites, trailheads, and other recreation areas.

2. Be managed to provide for low to moderate concentrations of recreation users.
3. Provide opportunities for dispersed motorized or non-motorized activities.
4. Emphasize scenic values associated with driving for pleasure.

Signs should be posted on all recreation roads and trail junctions, and at all trailheads. They will indicate route numbers, distances, and destinations.

Facilities

Facilities will be provided equally for protection of the site and comfort of users.

Parking facilities will be designated to accommodate the number of visitors appropriate to a given trail or recreation site.

Adequate and safe loading facilities for recreation livestock, boats, oversnow vehicles, and other ORVs may be provided.

Facilities should be designated to accommodate handicapped persons whenever practicable.

Camp units should be placed outside the foreground view from lakes, streams, trails, and key interest features.

Visitor Contact, Direction, and Interpretation

Simple wayside exhibits may provide information about features of the area. Information may also be conveyed via the news media and maps, brochures, and contacts at administrative headquarters and entry points.

Timber

Timber harvesting and road construction is generally permitted except where specifically prohibited by the Standards/Guidelines found in the applicable Management Area Category (MAC) or Prescription.

Roaded Modified

Access

Access for a variety of vehicles--automobiles and ORVs--and a broad range of travel experiences and challenges/risk levels may be provided.

Skid trails or other low-standard roads may be used by motorcycles and other ORVs when this does not conflict with management objectives.

Road, trail, and area closures may be used to protect resource values, for safety, and to achieve recreational objectives.

Trails may be of any difficulty level.

Facilities

In general, no recreational facilities will be provided unless clearly needed for resource protection and user health and safety. Some pit or vault toilets and solid waste disposal units may be provided at frequently used sites.

Dispersed campsites are informal and will usually be chosen by the user.

Visitor Contact, Direction, and Interpretation

There will be few formal controls on visitor use. Maps and other recreational information will be available at administrative headquarters or other user contact points. On-site interpretative facilities will generally not be provided.

Timber

1. Informal campsites, hunter camps, or other areas where concentrated recreation use has occurred in the past should be retained whenever this is compatible with the management emphasis.
2. Roads and timber harvest areas should avoid crossing recreational trails whenever possible.

(Figures IV-22, IV-23, and IV-24)

The following applies to all levels:

1. Trail planning will determine the optimum long-term location for system trails. Planning should also minimize existing and future road crossings as well as other trail/road conflicts.
2. Trail relocation should occur only to move the trail to the optimum long-term location considering the recreation and other resource management objectives for the area.
3. When trails are interrupted by management activities, detours should be provided, or temporary trail closures declared and publicized. Detours or closures should be signed at trailheads and trail junctions. When a closure would remain in effect for longer than one season, a detour must be provided. When the activity is completed, trails should be reconstructed to prescribed locations and standards as soon as possible.
4. A road remains a trail crossing so long as it is generally recognizable as a road to the casual trail user.
5. A created opening is defined as having an average tree height of less than 20 feet. This applies to Level III trails only when necessary to meet underlying management area Standards/Guidelines.
6. Protection of proposed trail locations will be addressed in the project environmental assessment on a case-by-case basis.
7. When a trail passes through a MAC with more restrictive standards and guidelines, those more restrictive standards and guidelines will prevail.

(Figure IV-25)

Road Management Schemes

Summary of the Road Management System Applicable to all Management Areas with Road Access.

Roads Subject to Highway Safety Act

Major Forest roads, such as arterials and major collectors, are managed to accommodate general public travel in standards four-wheel passenger cars. They are subject to the requirements of the Highway Safety Act (PL 89-564). These roads are operated at traffic service Levels A and B and, infrequently, at Level C. Maintenance will be at Levels 3, 4, and 5. These roads, by definition, should be open to the general public without restriction except for seasonal or intermittent closures.

1. *Encourage Passenger Cars:* This management scheme invites and encourages standard four-wheel passenger car use. Destination, directional, regulatory, and warning signs should be installed and well maintained. Other forms of traffic control devices such as pavement striping will also invite public use. These routes are generally arterial and major collector routes and are portrayed as primary Forest roads on the Forest recreation map.
2. *Accept Passenger Cars:* This management scheme is to allow passenger car use on collector roads that generally have gravel surfacing and may not be open year-round. These are indicated as secondary Forest development roads on the recreation map. Warning, regulatory, and route markers are the only necessary roadside signing.
3. *Discourage Passenger Cars:* This scheme is used on an intermittent or seasonal basis to discourage public use. It is most often applied when a road is temporarily not suitable for travel, such as during times of deep snow. Warning signs are posted to dissuade the public from using the road.
4. *Prohibit Passenger Cars:* Main roads can be closed to provide for public safety or for the protection of resource values by issuing a CFR closure order prohibiting public use. This management scheme may be applied during volcanic activity, floods, avalanche hazard periods, or when there is structural damage to bridges or roads.

Roads not Subject to the Highway Safety Act

Forest development roads not intended to be opened or maintained for standard passenger car use are exempt from the requirements of the Highway Safety Act. These are generally maintained for traffic only during commercial activities such as timber management, mineral exploration and extraction, and range management.

These minor collector and local roads are generally operated at traffic service level C or D and maintained at levels 1 or 2 when not being used for timber haul. During timber haul the surface maintenance frequently appears to be upgraded to a maintenance level 3. Surface maintenance is not required to be consistent with the assigned maintenance level for the road since the objective is to discourage or to limit passenger car use.

1. *Encourage High Clearance Vehicles:* The objective is to encourage high clearance vehicles, such as pickup trucks or jeeps, and to discourage passenger cars. These roads are maintained at level 2 and are indicated on the recreation map. Destination or guide signs, such as to some trailheads or special features, are posted at their entrances. The emphasis for accomplishing this traffic scheme is through road entrance management.

These roads will have one or two cross ditches across the road, or the main road's roadside ditch might continue across the junction of the lesser road. Signs discouraging passenger cars are sometimes used if more emphasis is needed beyond the cross ditches. When Encourage High Clearance Vehicle roads intersect with paved main roads, the edge line stripe along the main road will continue through the intersection.

2. *Accept High Clearance Vehicles:* The objective is to accept high clearance vehicles and discourage passenger cars. These roads are maintained at Level 2 and are available and adequate for administrative use. Some public use may occur until passage becomes unsafe or

resource damage becomes unacceptable. At that time the road management scheme usually changes to Prohibit or Eliminate.

In addition to the cross ditches at the entrances of these roads, all directional or guide signs will be removed to further discourage recognition and use of the road.

3. *Discourage High Clearance Vehicles:* The objective is to discourage all public use. The road entrances are designed to discourage four-wheel vehicle users with advisory signs, warning signs, or barriers. The maintenance level may vary depending on what permitted project use is occurring. Generally, the long-term maintenance level will be at the low tolerance of level 2. However, during timber hauling activities the commercial operators will upgrade the surface maintenance and dissuade the public from using the road with the "LOGGING USE ONLY" advisory sign.

The maintenance emphasis allows roadside vegetation to encroach to the minimum width required for passage and allows naturally deposited materials such as rocks, limbs, and logs to remain on the roadway. Installation of closed unlocked gates or other removable barriers is permissible if a proper message is posted explaining why public use is discouraged.

4. *Eliminate High Clearance Vehicles:* The objective is to eliminate all use of four-wheel vehicles over 40 inches in width. This is accomplished by physically blocking the road rather than relying on regulations. These roads are maintained at level 1 and only to prevent resource damage. Some methods of blocking entrances include guardrail-type barriers, logs, stumps, concrete barriers, false road cuts, boulders, earthen mounds, deep trenches, and a combination of these barriers. Camouflaging with brush or trees is sometimes used to conceal the entrance of these roads. Gates are not included within this management scheme.

Trail vehicles of less than 40 inches in width can still use these roads unless a CFR order is issued prohibiting such use.

5. *Prohibit High Clearance Vehicles:* The Prohibit management scheme removes all or some of the road users by force of law if the road restriction is posted on the road and a CFR order is issued. Some users can be denied use while others are permitted depending on the management objectives for a road and how the CFR order is written. Locked gates may be used in this traffic management scheme.

The maintenance level for these roads can vary between levels 2 and 1. Roads having this scheme will be displayed on the Forest Travel Plan Map.

Silvicultural Prescriptions

The selection of silvicultural Prescriptions should be determined by certain criteria and processes as outlines in Appendix F. An overstory Removal Cut should be prescribed when:

1. The stand contains a saleable quantity of merchantable timber.
2. It has at least two distinct canopy levels.
3. The highest level does not exceed the minimum stocking level.
4. The highest level is composed of mature or cull trees.
5. It is determined that the condition of trees in the upper level makes it undesirable to leave them in the stands until the lower level(s) become merchantable.

6. The lower levels contain crop trees at or near the recommended stocking level.

Commercial thinning should be prescribed when:

1. The stand contains enough excess merchantable trees to sell.
2. It is stocked to the recommended level with crop trees.
3. The growth of crop trees is being inhibited by the density of the stand.
4. The characteristics of crop trees (young stand) indicate growth will increase in an acceptable period if thinning occurs.
5. The characteristics of crop trees near rotation age indicate that growth can be maintained at an acceptable rate if thinning occurs.

A Regeneration Cut should be prescribed when:

1. A stand contains a saleable quantity of merchantable timber.
2. Its total live tree stocking is:
 - a. At or below minimum stocking level in all tree classes;
 - b. The number of trees exceeds the minimum stocking level, but trees are primarily mature;
 - c. The stocking level will soon be reduced to below the minimum level by predictable mortality; or
 - d. There is a stand structure and composition capable of supporting repeated harvest entries.
6. It has crop tree stocking to recommended level, but stocking in mature and excess trees does not permit expectation of retaining recommended crop tree stocking following the harvest activity.
7. The area is able to be reforested within 5 years.

Precommercial Thinning should be prescribed when:

1. A stand is stocked to the recommended level with crop trees.
2. It does not contain mature trees eligible for removal cutting.
3. It is so dense with excess and cull trees that crop trees will not reach merchantable size.
4. It has characteristics indicating that thinning will increase growth in an acceptable period of time. This includes a crown ratio greater than 40 percent and an absence of serious mistletoe infection.

A Salvage Cut should be prescribed when:

1. A stand contains a saleable quantity of salvageable dead trees plus other trees which can be identified as certain to die before the stand becomes eligible for another silvicultural Prescription.
2. It is ineligible for other silvicultural treatment.

3. Other treatment is deferred.

A Sanitation Cut should be prescribed when:

1. A stand approaches the above condition and jeopardizes the healthy growth of adjacent timber.

There should be no treatment when:

1. A stand is healthy and will not benefit from stocking level control.
2. Deferral of treatment is appropriate.

Harvest priority should be as follows:

1. Poorly stocked, mature stands should receive highest priority for Regeneration Harvest. Next, in order, should be: poorly stocked immature stands, defective or damaged mature stands, poorly growing immature stands, and mature stands in good condition.
2. Lightly stocked, damaged overstory with a certified understory should receive highest priority of Overstory Removal. Next, in order, should be: lightly stocked stands with healthy overwood and certified understory, lightly stocked overwood with underwood stocking above the minimum, lightly stocked stands with pole understory and an overwood which is not vigorous, and lightly stocked stands with underwood of commercial size and an overwood which is not vigorous.
3. The commercial thinning of vigorous, well-stocked young stands should receive highest priority for Intermediate Cutting. Next, in order, should be: the commercial thinning of slow-growing, well-stocked young stands; the commercial thinning of lightly stocked stands; salvage cutting; and sanitation cuts. The presence or absence of purchasers will also be a factor in the scheduling of intermediate harvest.

Restocking Standards

See 36 CFR 219.27(c)(3). Trees harvested to achieve timber production objectives must be cut using Forest management methods which reasonably assure that land can be adequately restocked within 5 years after final harvest (felling), unless management of other resources dictates a longer regeneration period. Adequate stocking (stocking standards) has been described in treatment class, and site for each working group in terms of minimum number of certified stems, spacing, and species composition. Five years after final harvest (felling) means:

1. Five years after clearcutting.
2. Five years after final overstory removal in shelterwood cutting.
3. Five years after the seed tree removal in seed tree cutting.
4. Five years after selection cutting.

The following discussion defines and clarifies the table entries:

Working Group: A stratification used to separate stands into similar conditions or problems. First defined by District/SO Silviculturists in 1979. Subalpine Fir was added due to reanalysis of land suitability in 1983.

Management Intensity: (Treatment Class) A collection of silvicultural practices, reliable levels of funding, and silvicultural needs. They are as follows:

1. Ext (Extensive Management)--Reforest, and final harvest
2. PCT (Precomm. Thin.)--Reforest, precommercial thin, and final harvest
3. Low (Low Mgt.)--Reforest, commercial thin, and final harvest
4. Intensive (Intensive Mgt.)-- Reforest, precommercial thin, commercial thin, and final harvest

Site: A measure of the timber producing potential of an area.

Number of Stems Per Acre:

1. *Min. (Minimum):* A level below which additional restocking is mandatory.
2. *Desir. (Desirable):* A level above which additional restocking is not mandatory.

Stocking levels between the minimum and desirable levels will need work only after benefit-cost and management direction analyses indicate a desire to do rework.

Acceptable Species: A list of tree species that will be used to determine stocking levels.

(Figure IV-26)

Management Area Category Standards/Guidelines

National Forest land within the Gifford Pinchot National Forest is assigned to various Management Area Categories (MACs). Each MAC has a goal, or management emphasis. Each MAC includes one or more Management Prescriptions, each with a set of Standards/Guidelines and other management practices, designed to attain multiple use goals and objectives. The direction given in this section applies only to the Management Area(s) to which the prescription is assigned, and unlike Forest-wide Standards/Guidelines, does not apply to the entire Forest.

Management Area Categories are shown on the accompanying map.

The following list displays the broad Management Area Categories which were assigned to lands on the Gifford Pinchot National Forest.

(MAC Table)

Unroaded Recreation Without Timber Harvest

Management Area Category-U

Includes the following Management Prescriptions--UD, UH, and UL

Goal

Provide a variety of dispersed recreation opportunities in a Semi-Primitive or undeveloped setting.

Description of Lands Where This MAC is Applied

Portions of the Forest with outstanding recreational attributes. They provide quality fishing, hunting, berry-picking, backpacking, and other outdoor activities. They may be located near a road but are in a substantially undisturbed condition.

Desired Future Condition

A natural to predominantly natural-appearing environment has been maintained: changes are largely the result of natural succession; campsites, sanitation facilities, and other management activities are few in number and not conspicuous. Wildlife habitats are diverse. The area affords visitors an experience which is usually free from the sight and sounds of other people. Principal access is by trail; there are no roads within the area. The opportunity to practice outdoor skills in a challenging environment is afforded. Vegetation may vary widely from natural openings to mature and old-growth stands.

Standards/Guidelines

The following direction applies to all Management Areas within MAC-U unless otherwise indicated.

Recreation

Planning and Inventory

1. Future trail and campsite locations should be identified and coordinated to access areas of interest or destination points; e.g., vistas or berry-picking areas.
2. The trail system should be designed to disperse use and enhance the optimum recreational opportunities of this area.
3. The Visual Quality Objectives and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Management Prescription UD-

VQO	-	Retention
ROS	-	Semi-Primitive Non-Motorized

Management Prescription UH-

VQO	-	Retention
ROS	-	Semi-Primitive Motorized

Management Prescription UL-

VQO	-	Retention
ROS	-	Roaded Natural

5. Cultural sites or other features of interest may be interpreted if they can be adequately protected.

Facility and Site Management and Use Administration

1. Prescribed fire, ground treatments, and tree removal may be used to retain openings for huckleberries (see General Technical Report, PNW-93, July, 1979).
2. Off-road vehicles may be permitted on trails only in Management Areas where the UH or UL prescriptions are assigned.

Wildlife and Fish

Nonstructural and Structural Habitat Improvement and Maintenance

Natural habitat characteristic of the areas (e.g., meadows) should be identified and maintained.

Range**Planning and Inventory**

1. Improvements should utilize native or natural-appearing materials whenever they are available.
2. Livestock grazing may occur when compatible with dispersed recreation.

Timber**Planning and Inventory**

There will be no scheduled timber harvest. Timber salvage should not be permitted. Trees may be removed for safety reasons, or to enhance recreation; e.g., to create a scenic view. Ordinary timber salvage should not be permitted.

Sale Preparation

Gathering campfire wood may be permitted. Firewood cutting for home or commercial use should not be permitted.

Genetic Forest Tree Improvement Program

The genetic improvement program should be limited to select trees.

Minerals and Geology**Processing of Exploration, Lease Applications, and Site Specific Development Proposals**

1. To the extent reasonable and operationally feasible, exploration should be performed in a manner which does not alter the Semi-Primitive character of the land. When practical, exploration should be timed to avoid conflict with recreational activities; i.e., not on weekends during the summer season.
2. When reasonable, facilities should be designed to minimum standards and removed when no longer needed. The site should then be rehabilitated.

Lands**Special Use Management (Nonrecreational) and Right-of-Way Grants for Roads and Trails**

Whenever practicable, nonconforming uses should be terminated.

Federal Energy Regulatory Commission Licenses and Permits

Facilities should be designed to minimize adverse effects on the natural setting. Pipelines and transmission lines should not be permitted. If unavoidable, they should be buried if practical.

Landownership Planning

Lands critical to the integrity of the Management Area should be placed in Ownership Category II, retain or acquire. The remainder should be in Category III, neutral.

Facilities

Transportation Planning and Inventory

There will be no roads constructed. Existing roads should be obliterated.

Protection

Fire Management Planning and Analysis and Initial Attack and Escaped Fire Suppression

1. The role of natural fire should be incorporated into fire planning, fuels management, and ecosystem maintenance. Prescribed fires may be used to meet management objectives.
2. During periods of low fire hazard (spring) Suppression Strategy B, contain, should be used. Strategy C, control, will be used when fire hazard is high.
3. The use of retardants and hand lines is preferred to minimize long-term fire suppression impacts.

Pest Suppression and Prevention

The suppression and prevention of pests should be limited to outbreaks which threaten the recreational values of the area or adjacent resources. Biological methods will be preferred.

Roaded Recreation

Management Area Category-R, D

Includes Management Prescriptions - RL, RM, DL, and DM

Goal

Provide a variety of dispersed recreational opportunities in areas conveniently reached by auto.

Description of Lands Where This MAC is Applied

These lands accommodate dispersed recreation--hiking, fishing, berrypicking, camping, wildlife viewing, rockhounding, winter sports--beside or near roads. They include unique or distinctive portions of the Forest with features like clustered lakes, berryfields, and roaded scenic corridors.

Desired Future Condition

Without Timber Harvest - MAC R

With Timber Harvest - MAC D

Management activities, including timber harvest (if permitted), are evident but not conspicuous. Vegetation will remain largely natural in appearance along the major travel ways and may vary from natural opening through stands of mature and old-growth timber. Travel to dispersed site over roads maintained at a variety of standards is an important aspect of the recreational experience. Much of the area provides for interaction with a near-natural environment. Recreation facilities have been kept at a minimal level of development.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-R, unless otherwise indicated.

Recreation

Planning and Inventory

1. Locations for viewing, photographing, or interpreting wildlife, cultural, geologic, biological, and other features of interest should be identified and evaluated.
2. The Visual Quality Objective and Recreation Opportunity Spectrum class assigned to these Management Areas are:

Management Prescription RL/DL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription RM/DM

VQO	-	Partial Retention
ROS	-	Roaded Natural

The assigned VQO is applicable to all public roads, recreation sites, and trails within the management area.

Facility and Site Management and Administration

Areas which are designated for management as berryfields should be maintained by such methods as emphasizing permits for plant removal and encouraging the removal of encroaching vegetation by volunteers. Future research may provide more efficient methods for perpetuating these popular berrypicking areas.

Use Administration

Off-road vehicles may be permitted in designated routes or areas.

Wildlife and Fish

Surveys, Planning, Prescriptions, and Monitoring

Opportunities for hunting and fishing may be enhanced by methods such as fish stocking and habitat improvement.

Range

Planning and Inventory

Livestock grazing may be permitted. Animals should be kept away from fields which are being managed for berrypicking during the harvest season.

Structural Improvement and Maintenance

Loading ramps, stock tanks, fences, holding pens, and other improvements should be located away from areas of concentrated recreation except for those specifically designated for recreation stock.

Timber

Planning and Inventory, Regeneration, and Intermediate Harvest

Timber harvesting will not be scheduled, and timber salvage should not be permitted in Management Areas assigned the RM or RL prescriptions. trees may be removed, however, to enhance recreation: e.g., the opening of a scenic view, construction of a road, or removal of hazard trees.

Harvest will be scheduled and ordinary salvage may be permitted in Management Areas assigned the DM or DL prescriptions, with the level of harvest determined principally by the assigned VQO and Roaded Natural ROS class. The following direction applies to the DM and DL prescriptions.

Reforestation and Timber Stand Improvement

Site preparation and slash disposal within foreground areas and adjacent to concentrated use areas should employ methods which minimize visual disturbance.

Timber Sale Preparation

Timber harvest systems which minimize ground disturbance, such as aerial, cable, or low ground pressure equipment, should be used to remove logs and debris in foreground areas.

Genetic Forest Tree Improvement Program

Select trees should be marked inconspicuously. Other genetic Forest tree improvements should be located away from areas of concentrated use.

Minerals and Geology

Inventory and Evaluation and Processing of Site Specific Development Proposals

The development of common minerals material sources, if necessary, should occur away from areas of concentrated use.

Lands

Landownership Planning

Lands needed to protect the integrity of the Management Area should be retained or acquired, Ownership Category II. The remaining land should be placed in Category III, neutral.

Facilities

Transportation Planning and Inventory, Arterial/Collector/Local Road Reconstruction, Road Operation, and FA&O Construction and Preconstruction

Roads and other facilities which are not consistent with the recreation objectives should be located away from concentrated use areas.

Local roads should be closed unless needed for a specific recreational purpose.

No additional roads or associated developments are permitted in that portion of the Midway/High Lakes Roaded Recreation Area (prescription RM) located west of Road 2329 and south of Road 5603.

Protection

Initial Attack and Escaped Fire Suppression

During periods of low fire hazard, a Containment B Fire Suppression Strategy should be used. When hazard is high, a Control Strategy should be used.

Pest Suppression and Prevention

Pest suppression and prevention methods which minimize visual disturbance should be employed. Biological and silvicultural treatments should be favored. Hazard trees should be removed.

Visual Emphasis

Management Area Category-V

Includes Management Prescriptions - VL and VM

Goal

Provide a visually natural or near-natural landscape as viewed from the designated travel route or use area.

Description of Lands Where This MAC is Applied

Scenic viewsheds are sensitive because they are viewed by many people from major roads, trails, and recreation sites, including lakes and streams.

Desired Future Condition

These areas accommodate a variety of activities which, to the casual observer, are either not evident or visually subordinate to the natural landscape. Management of the visual attributes of the corridor provides a continuing opportunity to appreciate scenic worth. Vegetation is diverse and includes a wide variety of tree species and sizes, living and dead. Stands exhibiting mature and old growth characteristics may be common. Viewing scenery, hiking, and camping occur, and access to other recreational facilities is provided.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-V, unless indicated otherwise.

Recreation

Planning and Inventory

1. The management area visual corridor should be inventoried for site where scenic, cultural, geological, biological and other features of interest may be viewed and interpreted.
2. Viewing opportunities should be enhanced by opening views to such features as distant peaks, unique rock forms, and unusual vegetation.
3. The Visual Quality Objectives (viewed from the designated travel route or site) and Recreation Opportunity Spectrum class assigned to these Management Areas are:

Management Prescription VL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription VM

VQO	-	Partial Retention
ROS	-	Roaded Natural

Facility and Site Reconstruction and Construction

1. Parking areas should be screened from the designated travel route or recreation site except where visibility might deter vandalism.
2. Industrial camps should not be allowed within the foreground of the designated route or site.

Use Administration

Off-road vehicles should be limited to specified trails.

Range

Planning and Inventory

Livestock grazing may be permitted.

Structural Improvements and Maintenance

Structures such as loading ramps, stock tanks, fences, and holding pens, should be located away from the immediate foreground.

Timber

Planning and Inventory, Regeneration, and Intermediate Harvest

Timber harvest will be scheduled, and ordinary timber salvage may be permitted in compliance with the assigned Visual Quality Objectives.

Reforestation

Site preparation methods which minimize visual disturbance should be employed in the foreground.

Timber Sale Preparation and Harvest Administration

Temporary spur roads and landings should not be visible from the designated travel route or recreation site unless there is no reasonable alternative.

Genetic Forest Tree Improvement Program

Genetic improvement activities should be limited to select trees within the immediate foreground of the designated route or sites. Select trees should be inconspicuously marked. Beyond the immediate foreground, genetic activities should meet the assigned Visual Quality Objectives as viewed from the designated route or sites.

Minerals and Geology

Processing of Exploration Lease Applications and Site Specific Development Proposals and Administration

1. Common mineral material sources should not be developed within the foreground of the designated travel route or recreation site. Visible sources existing in these areas should be identified and programmed for rehabilitation.

2. Within the foreground of the designated travel route or recreation site, and to the extent reasonable and operationally feasible, surface mining and geothermal activities should not be visible unless there is no practicable alternative. Where visible, mitigation measures should be applied.

Lands

Landownership Planning

Lands should be placed in Ownership Category II, retain or acquire.

Facilities

Transportation System Planning and Inventory, Arterial/Collector/Local Road Preconstruction, FA&O Construction and Reconstruction

1. In planning and designing the designated travel route, location of the route parking areas, viewpoints, etc. should be identified and analyzed with the visual resource in mind. Preference should be given to blending the road into the landscape rather than emphasizing speed and efficiency.
2. Material stockpiles and other facilities should not be visible in the foreground from the designated travel route.

Road Operation

Dust abatement should be considered on the designated travel route.

Vegetation adjacent to the designated travel route or recreation site should be controlled in a visually inconspicuous manner, primarily by hand or machine methods. Any use of chemicals should be timed to avoid vegetative brownout (e.g., a dormant spray used in the fall).

Local roads should be managed using the Discourage, Eliminate, or Prohibit traffic management schemes. Roads providing access to a specific recreation destination may be managed to allow passenger car use and should be maintained at a level commensurate with the recreation opportunity.

Protection

Fire Management Planning and Analysis, Prevention, and Treatment of Activity Fuels

1. The Fire Suppression Strategy should be C, Control, for all fires.
2. Fire suppression techniques which minimize impacts on visual values should be employed in areas seen from the designated travel route or recreation site.
3. Fire Hazard Reduction Application disposal should apply. Residues from thinning or harvesting activities remaining in the immediate foregrounds of areas seen from the designated travel route or recreation site should be left in the following condition:
 - a. Less than 2 feet above the ground.
 - b. Screened by shrubs, grasses, or other understory vegetation.
 - c. Sparsely distributed and behind large diameter, dead material as opposed to tangles of small limbs.

Developed Recreation

Management Area Category-2

Includes Management Prescription-2L

Goal

1. Readily-accessible, appropriately-designed facilities will provide for concentrated visitation by people seeking a convenient recreational experience.

Description of Lands Where This MAC is Applied

Developed recreation sites are usually close to water bodies, berryfields, and other areas of scenic or special interest. Except for winter recreation areas, they are usually located on relatively flat land with slopes of less than 10 percent. Soils and vegetation must be able to absorb heavy use. Camp and picnic grounds, ski areas, recreation residences, viewpoints, boat launches, and other facilities may be accommodated.

Desired Future Condition

Roads, buildings, ski lifts, tables, docks, and other physical facilities are evident, but design and construction will repeat the color, shapes and lines of the surroundings.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-2, unless otherwise indicated.

Recreation

Planning and Inventory

1. The location of unusual geologic forms, cultural features, wildlife and scenic viewing opportunities, and other features of interest should be evaluated for interpretation and development.
2. On selected sites, special facilities needed for the convenience of visitors, including the elderly, young, and handicapped, should be provided.
3. The Visual Quality Objective and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Management Prescription-2L			
VQO	-	Retention	
ROS	-	Roaded Natural	

Facility and Site Reconstruction, Construction, and Management Administration

5. Site development and management should be guided by these priorities:
 - a. Public safety and sanitation.
 - b. Long-term protection of site and facilities.
 - c. Accommodation for groups and for the handicapped.
 - d. Information services.
6. Operation and maintenance plans should be prepared.

7. New camp units should be located away from the immediate foreground of lakes and streams. Those which are now in these locations should be moved whenever practicable.
8. Every site will be surveyed for hazard trees annually. Trees determined to be dangerous will be removed.

Use Administration

Off-road vehicle use on roads should be limited to ingress and egress. ORV use may be permitted on designated trails with the same limitation.

Range

Planning and Inventory

Livestock grazing should not be permitted.

Timber

Planning and Inventory and Intermediate Harvest

1. Timber harvest will not be scheduled.
2. Trees should be removed when they may be a hazard to life or property. Methods least likely to produce lasting visual impacts should be employed. Trees may be removed to improve a ski area, provide a scenic view, or accomplish other recreational enhancements. Ordinarily timber salvage should not be permitted.

Silvicultural Examination and Prescription

As a basis for the Vegetative Management Plan, a silvicultural examination should be prepared for every Developed Recreation site. It should take into account crown closure, hazard trees, and the ability of the stand to withstand concentrated recreation.

Timber Sale Preparation and Harvest Administration

1. Firewood cutting should not be permitted unless a blowdown or other unusual circumstance makes that a practical option for clearing the area.
2. In the foreground of areas adjacent to concentrated use:
 - a. Remove portions of downed trees which are not needed to meet recreation objectives.
 - b. Flush-cut or remove stumps.
 - c. Remove logs and debris by methods which minimize ground and vegetative disturbance.

Genetic Forest Tree Improvement Program

Genetic improvement activities should be limited to select trees. Identification marks should be inconspicuous.

Water, Soil, and Air

Inventory, Planning, and Improvement

Adverse impacts of recreation on soil, water, and air should be identified. Those which may jeopardize public health and safety will be corrected immediately. Others should be treated before opening of the next season.

Rights/Use Management

Water rights should be acquired for all sources supplying or expected to supply domestic water to the recreation site.

Minerals and Geology

Inventory and Evaluation, Site-Specific Technical Investigations, and Development Proposals

1. Common mineral material sources should not be developed.
2. Potential aquifers should be evaluated prior to well location and drilling.

Lands

Special Use Management (Nonrecreation) and Right-of-Way Grants for Roads and Trails

Only those permits, leases, rights-of-way, and other special uses which are compatible with Developed Recreation should be permitted.

Federal Energy Regulatory Commission License and Permits

Feasibility studies may occur providing they are performed in a manner which does not impair recreational use of the area.

Withdrawals, Modifications, and Revocations

The recreation site or area should be withdrawn from mineral entry, subject to the determination of values, including mineral values, if required to protect the site.

Landownership Planning

All lands should be placed in Landownership Category II, acquire or retain.

Facilities

Transportation Planning and Inventory, Arterial/Collector/Local Road Preconstruction and FA&O, Road Construction and Reconstruction

roads and other facilities inconsistent with Developed Recreation should be located away from the primary use areas, closed, or removed.

Road Operation

Access roads to developed sites should be managed to permit passenger car traffic.

When vandalism is a problem, the Prohibit traffic scheme can be applied to seasonally close sites. When vandalism is not a problem, road use may be seasonally discouraged by posting closure signs.

Protection

Fire Management Planning and Analysis and Prevention

Fire Suppression Strategy C, Control, should be used at all developed sites.

Fire Hazard Reduction Priorities, utilize and dispose, should apply.

Pest Suppression and Prevention

Pest suppression and prevention methods should be used for maintaining the health of vegetation. This activity should be timed to avoid the recreation season if possible.

Special Interest

Management Area Category-S, G, B, 9

Includes Management Prescriptions-SD, GD, GL, BL, and 9L

Goal

Maintain the special feature(s) in a substantially natural condition. While providing for an appropriate level of public access and enjoyment.

Description of Lands Where This MAC is Applied

Areas with a special feature or features which are important enough to deserve particular attention. Areas S, G, and B qualify for classification under Code of Federal Regulations (CFR 294.1).

Scenic Areas - SD

Places of outstanding or matchless beauty. Management prescription SD.

Geologic Areas - GD and GL

Outstanding formations, fossils, caves, or other geologic features which display the earth's evolutionary processes.

Botanical Areas - BL

Lands containing plant species or communities which are significant because of form, color, occurrence, habitat, location, life history, arrangement, ecology, environment, rarity, or other quality.

Other Areas - 9L

These lands, like those described above, are unique because they include features deserving special management. They include a wide range of features, such as waterfalls, scenic spots, caves, and botanical, historical, and geological sites. They differ from the above areas in two respects. First, they are relatively small in size; ranging from one acre to about 1,200 acres, most are 20 acres or less. The second and most significant difference in these areas, however is that they are not significant enough to qualify for classification under Code of Federal Regulations (CFR 294.1).

Desired Future Condition

Visual evidence of management activities is subordinate to the special feature(s). Fences, signs, viewpoints, and other facilities may exist if needed to protect the feature(s) or provide for public use and enjoyment. Plant communities are usually the product of natural succession. Vegetation may range from natural openings through stands of mature and old-growth timber.

Most features included in this MAC will remain in a substantially undisturbed condition. Some, however, may be partially altered to provide access or recreational facilities.

In most Special Interest Areas, there is an opportunity to interact with the natural environment. In some, there is an opportunity for solitude; in others, the experience is shared.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-S, G, B, 9, unless otherwise indicated.

Recreation

Planning and Inventory

1. The location of trails, campsites, viewpoints, and other recreational opportunities should be identified and evaluated for development.
2. Access to cultural features, wildlife viewing areas, berryfields, and other features of interest should be evaluated for development and interpretation.
3. All areas, except for those to which the 9L Prescription is assigned, will be classified as Special Interest Areas under the Code of Federal Regulations (CFR 294.1).
4. The Visual Quality Opportunity Spectrum class assigned to these Management Areas are:

Management Prescription SD and GL-

VQO	-	Retention
ROS	-	Semi-Primitive Non-Motorized

Management Prescription GL, BL, and 9L-

VQO	-	Retention
ROS	-	Roaded Natural

NOTE: In the event that oversnow machines are permitted within management areas assigned Prescriptions SD or GD, the ROS class is changed to Semi-Primitive Motorized for the duration of such use.

The assigned VQO is applicable to all roads, trails, and use areas within the management area.

Use Administration

1. Off-road vehicles, including oversnow machines, should not be permitted in management areas assigned Prescriptions BL, GD, GL, or SD, except oversnow machines may be permitted in GD, DL, and SD when snow is deep enough to ensure that resource damage will not occur.
2. Off-road vehicles, including oversnow machines, may be permitted in 9L areas on a case-by-case basis.
3. Hazard trees near use areas should be removed.

Facility, Site, and Trail Reconstruction and Construction

Trails and facilities should be subordinate to features for which the Management Area was created.

Wildlife

Nonstructural and Structural Habitat Improvement and Maintenance

Native or natural materials should be used.

Range

Planning and Inventory

Domestic livestock grazing may be permitted if it does not detract from the special feature(s) and public use and enjoyment. No grazing should be permitted in areas assigned the BL prescription.

Nonstructural/Structural Improvements and Maintenance

1. Native or natural materials, should be used in improvements.
2. Stock tanks, fences, and holding pens should be located away from the special interest feature, or areas where recreation is concentrated.
3. Revegetation or rehabilitation necessitated by stock grazing should be initiated no later than the following season.

Timber

Planning and Inventory, Regeneration, and Intermediate Harvest

1. There will be no scheduled timber harvest.
2. Trees should be removed when they are a hazard to life or property. Logs and debris from these operations should be yarded away from roads, trails, and other concentrated use areas. Trees may be removed to enhance recreation; e.g., the creation of a scenic view or construction of a road. Ordinary timber salvage should not be permitted.

Timber Sale Preparation

Firewood cutting, except for campfire use, should not be permitted.

Genetic Forest Tree Improvement Program

With the exception of seed orchards, genetic improvement activities may be permitted when they do not adversely affect special feature(s) or public use and enjoyment.

Minerals and Geology

Processing of Exploration Proposals, Lease Applications, and Site Specific Development Proposals

1. Common mineral material sources may not be developed.
2. Recommendation for development should include reasonable, operationally feasible requirements for protecting special features.
3. Recommendations on the design of facilities should be appropriate to the nature of the special feature involved.
4. When facilities are no longer needed they should be removed and the area rehabilitated.

Lands

Special Use Management (Nonrecreational) and Right-of-Way Grants for Roads and Trails, FERC License and Permits

Permits, leases, rights-of-way, and easements not compatible with Special Interest Area objectives should not be permitted. Nonconforming uses should be discontinued when the opportunity permits.

Withdrawals, Modifications and Revocations

The area should be recommended for withdrawal under the public land laws, subject to the determination of values, including mineral values.

Landownership Planning

Lands which are critical to the integrity of the Special Interest Area should be retained or acquired, Landownership Category II. The remainder of the area should be in Category III, neutral.

Facilities

Transportation Planning and Inventory, Arterial/Collector/Local Road Preconstruction and FA&O Construction and Preconstruction

There should be no roads in management areas assigned the SD or GD Prescriptions. They may be permitted in GL or BL areas when required for recreation purposes. Existing roads in 9L areas may be permitted if needed for through traffic. All other roads in 9L area should be closed, and new roads should not be constructed.

Protection

Initial Attack and Escaped Fire Suppression

The Suppression Strategies should be A, confine, or B, contain, depending on the nature of the special feature(s) and value of development.

Treatment of Activity Fuels

Fire Hazard Reduction Applications rearrangement, removal, or disposal should be used. Rearrangement, removal, or disposal fuel treatment applications should be employed along travel routes and in or adjacent to special features. The remainder of the area should utilize the fuel treatment application which best meets the natural condition of the area.

Pest Suppression and Prevention

Pest suppression and prevention methods which minimize visual disturbance should be employed. In Botanical areas, the plant or plants of interest will be the primary concern. Biological and silvicultural treatment methods will be preferred. Hazard trees near use areas should be removed.

Wild and Scenic Rivers

Management Area Category-8, N, 6

Includes Management Prescriptions-A7, 8D, W7, NA, NL, 6F, 6L, and 6M

Goal

Protect the Wild, Scenic, or Recreational River characteristics pending possible addition to the National Wild and Scenic Rivers System.

Description of Lands Where This MAC is Applied

Lands within 1/4 mile of designated rivers within the Forest boundary appearing to be both eligible and suitable for addition to the National Wild and Scenic Rivers System. Also included are those eligible river corridors for which suitability has not yet been determined. Suitability for those rivers will be determined after the Forest Plan is approved.

Desired Future Condition

Wild Rivers - A7, 8D, and W7

Wild Rivers are generally inaccessible by road, but can be reached by trail or water. Vegetation is varied in size, species, and age, and is predominantly the product of natural succession. Vegetation in all three categories may vary from natural openings through stands of mature and old-growth timber. Along Wild Rivers, the opportunity to interact with a natural environment, away from the sights and sounds of other people, is available. A high degree of challenge is offered.

Scenic Rivers - NA and NL

Some structures, farming, and evidence of timber harvest may be visible, but the shorelines are largely undeveloped. The rivers are accessed in some places by road and in some instances a major travel route parallels the river. A challenging interaction with the natural environment is available.

Recreational Rivers - 6F, 6L, and 6M

Development is acceptable. The full range of agricultural and forestry uses may be evident; parallel roads or railroads on one or both banks, as well as bridge crossings and other river access points, are acceptable.

Standards/Guidelines

The following direction applies to all Management Area in MAC-8, N, 6, unless otherwise indicated. Wild and Scenic Rivers within Wildernesses and the National Volcanic Monument are subject to the management direction for those areas. Additional Management Direction is described in the Wild and Scenic Rivers Act and guidelines for its implementation:

Recreation**Planning and Inventory**

5.

- a. Those rivers determined to be suitable, and their intermediate environment are recommended for designation under the Wild and Scenic Rivers Act of 1968.

Rivers for which suitability has not yet been determined will require additional analysis after the Forest Plan is approved. If the analysis finds one or more rivers or segments to be suitable, those will also be recommended for designation under the Act. Until the analysis is completed, no activities should be permitted that would alter the eligibility or potential classification of the stream.

- b. Many of the Wild and Scenic River corridors include lands which are actually extensions of other management areas outside of, by adjacent to, the river corridor. Included is habitat for Spotted Owl, Pileated Woodpecker, and Pine Marten needed to meet Management Requirements for the Forest. Also included are lands having attributes needed to complete other prescriptions such as Special Interest Areas, Developed Recreation Sites, and Visual Emphasis Viewsheds. Where the management direction for these lands is more restrictive than that for the Wild and Scenic, or Recreational River corridor in which they occur, the more restrictive direction applies; e.g., if a portion of a Recreation River corridor serves to meet the Spotted Owl MR, then no timber harvest should be scheduled. The "included" management area prescriptions are considered to be a part of these recommendations for designation under the Act.
2. Cultural resource surveys for identification of significant resources are encouraged. Cultural resources and other features of interest which are not jeopardized by public exposure may be interpreted.

The Visual Quality Objectives and Recreation Opportunity Spectrum Classes assigned to these Management Areas are:

Wild River

Management Prescription-A7 and 8D

VQO	-	Retention
ROS	-	Semi-Primitive Non-Motorized

Management Prescription-W7

VQO	-	Preservation
ROS	-	Special Area

*Within Wildernesses, the Wilderness Recreation Opportunity Spectrum is used.

Scenic River

Management Prescription NA and NL-

VQO	-	Retention
ROS	-	Roaded Natural

Recreation River

Management Prescription 6L-

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-6F and 6M

VQO	-	Partial Retention
ROS	-	Roaded Natural

Prescription A7 is applicable only within the National Volcanic Monument.

Prescription W7 is applicable only within Wilderness, MAC-W

Facility and Site Reconstruction and Construction

Site design and facility selection should be compatible with the assigned ROS or WROS Level:

Wild River

Facilities are generally not permitted in wildernesses. Along other Wild Rivers, recreation sites should be limited to simple comfort and convenience facilities located away from the river shore.

Scenic River

Recreation sites may be established in close proximity to the River, but should be widely spaced, blend with the natural landscape, and be screened from the River.

Recreation River

Recreation facilities may be established in close proximity to the river, although extensive development is not required. Site development may still be kept to a minimum, with visitor services provided outside the river area.

Facility and Site Management and Use Administration

1. Off-road vehicles are not permitted in Wild River corridors they may be permitted in Scenic and Recreation River corridors on designated trails.
2. Guide service and other recreation concessions in keeping with the assigned ROS or WROS class may be permitted.

Wildlife

Nonstructural and Structural Habitat Improvement and Maintenance

Structural habitat improvements should utilize native or natural-appearing materials.

Range

Planning and Inventory

Livestock grazing may be permitted.

Timber

Planning and Inventory, regeneration, and Intermediate Harvest

Wild Rivers

Timber harvest will not be scheduled. Ordinary timber salvage is not permitted.

Scenic rivers

Timber harvest will not be scheduled in management areas assigned the NA prescription. Harvest will be scheduled consistent with the assigned Visual Quality Objectives in the NL prescription. Timber salvage is not permitted in the NA prescription, but may be permitted in corridors assigned the NL prescription.

Recreation Rivers

Timber harvest will not be scheduled in 6F areas.

In other Recreation river corridors, harvest will be scheduled consistent with the assigned Visual Quality Objectives. Ordinarily timber salvage may be permitted.

Timber harvest and related activities are also limited due to the “included” prescriptions described under RECREATION, Standard/Guidelines No. 1 (b).

Timber Sale Preparation and Harvest Administration

1. Firewood cutting for home or commercial use should not be permitted in areas recommended for Wild River classification. It may be permitted where timber has been harvested in Scenic and Recreation Rivers. Gathering firewood for campfire use may be permitted in any classification.
2. To minimize visual disturbance, log and debris removal within the foreground of the river should be done by aerial or cable systems, with low ground pressure equipment, or hand piling.
3. Logs and debris should be skidded away from foreground areas as seen from the river, use areas, and major travel routes.

Genetic Forest Tree Improvement Program

Genetic improvement activities in Wild Rivers, Scenic Rivers without scheduled timber harvest, and in the immediate foreground along all other Scenic River, are limited to select trees. In all other corridors, genetic activities may be permitted if they meet the assigned Visual Quality Objectives.

Water and Soil

Planning and Inventory

Rivers will be classified Streamside Management Unit Class I (see Glossary).

Minerals and Geology

Inventory and Evaluation and Processing of Site Specific Development Proposals

1. Common mineral material sources should not be developed.
2. A no-surface occupancy stipulation will be encouraged in mineral leases.
3. Prior to, and in some instances after designation under the 1968 Act, rivers are generally subject to mining claim location and mineral exploration. Approved plans will include reasonable mitigation and reclamation measures to minimize surface disturbance, sedimentation and visual impairment.

Lands

Special Use Management (Nonrecreation), Right-of-Way Grants for Roads and Trails and FERC Licenses and Permits.

1. Utility corridors, dams, diversions and hydro-electric power facilities will be prohibited to the extent of Forest Service authority. Existing facilities may be maintained.
2. Locating new utility lines within Scenic River corridors should be discouraged. Where no reasonable alternative exists, road should cross, not parallel, the river or be limited to the existing right-of-way.

3. Federal licenses or permits for water resource projects, including dams and transmission lines, will not be recommended unless the project will not have a direct and adverse affect on the Wild or Scenic River character.

Landownership

National Forest lands should be placed in Ownership Category II, Retain.

All other lands should be in Category V, Additional Study.

Wild and Scenic Rivers Study

Encourage the participation and cooperation of public and private landholders, particularly in river corridors including other ownerships.

Facilities

Transportation Planning and Inventory

1. Roads should not be permitted in Wild River corridors.
2. In Scenic River corridors, roads may occasionally cross or come near the river, but they should be infrequent and inconspicuous.
3. Roads are generally permitted in Recreation River corridors.
4. Roads and other facilities are also limited due to the included: prescriptions described under RECREATION, Standard/Guideline No. 1 (b).

Road Operation

Roads accessing developed recreation sites within Scenic and Recreation River corridors should be managed to accommodate passenger car traffic.

Local roads not required for a specific recreational objective should be closed using Eliminate or Prohibit traffic management schemes.

Major through roads should be managed using the Encourage traffic management scheme.

Protection

Fire Management Planning and Analysis, Prevention and Treatment of Activity Fuels

Heavy equipment should not be used in the foreground as seen from the river.

Initial Attack and Escaped Fire Suppression

1. The Fire Suppression Strategy C (Control) should be used.
2. In Wild River Corridors use suppression techniques which result in the least possible evidence of human activity.

Pest Suppression and Prevention

1. Strategies which protect the Wild, Scenic, or recreation character of these areas and avoid the degradation of water quality should be used to suppress the outbreak of pests.

2. Unacceptable damage to sensitive visual areas should be prevented with Integrated Pest Management strategies; cultural methods should be preferred.
3. Pest suppression and prevention methods which maintain the visual and recreation attributes of these areas and protect adjacent resource values should be emphasized.

Mount St. Helens National Volcanic Monument

Management Category-A

Includes Management Prescriptions-AB, AD, AL, A8 (Goat Marsh RNA)m and A7 (Wild River)

Goal

Manage the Mount St. Helens National Volcanic Monument to protect the geologic, ecologic, and cultural resources, allowing geologic forces and ecological succession to continue substantially unimpeded. Permit scientific study, research, recreation, and interpretation, consistent with the provisions of the Act.

Description of Lands Where This MAC is Applied

This MAC applies to all lands within the boundaries of the National Volcanic Monument as identified in Public Law 97-243.

The purpose of this MAC is to link the direction found in Public Law 97-243 (Mount St. Helens National Volcanic Monument) to the Forest Plan. This Act calls for the protection of the natural and cultural resources, while allowing the geologic forces and ecological succession to continue substantially unimpeded. The Comprehensive Management Plan (CMP) provides the basic direction for this area; however, where direction is absent, these Prescriptions and the Forest-wide Standards/Guidelines will apply. refer to MAC-Y for additional direction concerning the Goat Marsh Research Natural Area, Prescription A8. For additional direction for Wild Rivers, Prescription A7, see MAC-8, N, 6.

Desired Future Condition

Emphasis is given to allowing the natural geologic and ecologic processes to occur for study and research. The blast zone provides the general public with a very dramatic picture of the effects of the 1980 eruption; these will become less noticeable as time passes. Facilities such as roads and viewpoints will be constructed to facilitate appreciation of the area.

Standards/Guidelines

Recreation

Planing and Inventory

1. Recreational and interpretive facilities shall be provided for public use.
2. The following Visual Quality Objectives and Recreational Opportunity Spectrum classes assigned to these Management Areas are:

Management Prescription-AB		
VQO	-	Retention
ROS	-	Primitive

Management Prescription-AD and A7

VQO	-	Retention
ROS	-	Semi-Primitive Non-Motorized

Management Prescription-AL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-A8

VQO	-	Preservation
ROS	-	Roaded Natural

Prescription-A8 applicable only to the Goat Marsh Research Natural Area. Prescription-A7 is applied only to Wild River corridors within the Monument. Refer to the Research Natural Area and Wild and Scenic river MACs for additional direction for these areas.

During the winter, approximately 30,000 acres of the area assigned Prescription-AD is assigned the Semi-Primitive Motorized ROS class. This assignment is made so that oversnow machines may be allowed if snow depth and other considerations permit.

3. All new developments should be located in areas of low risk from volcanic activity.

Facility and Site Preconstruction and Construction

Facilities should be developed according to direction found in the Comprehensive Management Plan (CMP).

Use Administration

1. Where appropriate, access within the Monument may be prohibited or limited to protect the significant features of the Monument. These are identified in the CMP.
2. Motorized vehicles are permitted for emergency use, essential administration, and authorized scientific research. Off-road vehicles are not permitted away from roads during the summer. With adequate snow to protect soil and vegetation, oversnow vehicles may be permitted during the winter in designated areas.
3. Mountain bicycles are permitted on trails, unless specifically prohibited to protect selected research and interpretive opportunities, or to eliminate user conflicts.
4. Recreational use will be limited in special, unique, and high value habitats such as cliffs, caves, talus, wetlands, deer and elk winter range, riparian corridors, calving areas, and ptarmigan habitat.
5. Management of recreational use will be coordinated with research activity. Use must not substantially affect natural features or impede natural recovery processes.
6. Hunting and fishing are allowed within the Monument. Any restrictions are found in the Monument Fish and Wildlife Management Plan (a cooperative plan with the Washington Departments of Wildlife and Fisheries).

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

1. Five Spotted Owl Management Areas will be maintained within the Monument. Management Requirements for other indicator species will also be maintained.

Development and management which concentrates recreational activity in these areas should not be permitted. Dispersed recreational use is acceptable.

2. Fish stocking may occur as provided for in the Monument Fish and Wildlife Plan.
3. All snags and down logs will be retained except for those instances where removal is required for human safety or to protect property.

Range

Planning and Inventory

Livestock grazing should not be permitted.

Timber

Planning and Inventory, Regeneration, and Intermediate Harvest

Timber harvest will not be scheduled. Harvesting is not permitted except for that necessary to prevent fire, disease, and other agents which endanger irreplaceable features within the Monument. Harvest may also be permitted to prevent damage to significant resources adjacent to the Monument or for public safety. Ordinary timber salvage is not permitted.

Lands

Special Use Management (Nonrecreation), FERC License and Permits, and Withdrawals

1. Subject to valid existing rights, all Federal lands are withdrawn from all forms of entry or appropriations.
2. Nonconforming uses should be discontinued when opportunities arise.
3. Except for valid existing rights, Federal lands within the Monument are withdrawn from location, entry, and patent under the United States mining laws and from disposition under all laws pertaining to mineral and geothermal leasing.
4. Research projects will be by special use permit.

Landownership Planning

Lands should be retained or acquired, Landownership Category I, in accordance with Public Law 97-243.

Facilities

Road Operation

1. Open roads will be limited to those specifically designated as open in the Comprehensive Management Plan (CMP). Other existing roads will be closed or obliterated.
2. Roads in Deer and Elk Winter Range will be closed from December 1 to April 1, except for the plowing of Road 83 to access the Swift Creek Son-Park and Highway 504 to Johnston Ridge, to provide recreation access. Parking for winter sports will be located outside of inventoried winter range.
3. Off-road vehicle use on Deer and Elk Winter Range is prohibited from December 1 to April 1, except for a minor portion of Road 81 (on the edge of winter range) where on-trail use is allowed to access higher elevation winter sports areas.

Protection

Fire Management Planning and Analysis, Prevention, Detection, Initial Attack and Escaped Fire Suppression, and Treatment of Activity Fuels.

1. Open campfires will be prohibited in blowdown and fringe areas during periods of high fire danger.
2. The Suppression Strategy A (confine) or B (contain) should be used depending on the surrounding values. Suppression Strategy C (control) will be used in the blowdown areas.
3. Modified fire suppression tactics which would minimize surface disturbance in sensitive areas should be considered.

Law Enforcement, Search and Rescue

Closure to public use necessitated by volcanic activity will continue to be jointly established by the Forest Service, State of Washington, and other appropriate agencies.

Pest Suppression and Prevention

Catastrophic infestation control actions will be determined by an interdisciplinary process to ensure that methods used are within the intent of the Monument Act.

Wilderness

Management Area Category-W

Includes Management Prescriptions-Ws, W3, W4, W5, W6 (Butter Creek RNA), and W7 (Wild Rivers)

Goal

Preserve the Wilderness character. Allow for natural processes and provide opportunities for solitude, challenge, and inspiration. Within these objectives, and following a policy of nondegradation management, provide for appropriate levels of recreational, scenic, educational, scientific, and in some cases, historical uses.

Description of Lands Where This MAC is Applied

This MAC is applied to Wildernesses classified under the Wilderness Act of 1964 and the Washington State Wilderness Act of 1984.

Desired Future Condition

The area retains its primeval character without permanent alterations or human habitation. It appears to have been affected primarily by forces of nature; evidence of human intrusion is substantially unnoticeable. Vegetation is the result of natural succession, and may vary from none to natural openings to stands of mature and old-growth trees. Wildlife habitat and interactions among species are the result of natural processes. The area contributes to the protection of both natural plant and animal gene pools. No roads are present except as required to serve valid mineral or energy projects initiated prior to December 31, 1983. The area provides outstanding opportunities for solitude and primitive-type recreation without motorized activities. Isolation from the sights and sounds of others is likely, as is the experience of independence, closeness to nature, tranquillity, and self-reliance. Subtle differences in the

environment may be apparent, depending on which of the following Wilderness Recreation Opportunity Spectrum class the visitor is in:

1. *Dedicated Trailless*: No trails are found in these areas. Access is by cross-country travel only. Recreation attractions are frequently found in these areas. Outstanding opportunities for isolation and solitude exist. A maximum degree of outdoor skill is often needed in an environment offering a high degree of challenge and risk.
2. *General Trailless*: No system trails are found in these areas; however, some user-made trail may be present. Relatively little use occurs because of the lack of trails and destination attractions.
3. *Trailed*: Most inventoried system trails not in transition areas are found here. A moderate to high degree of opportunity exists for exploring and experiencing isolation, independence, and self-reliance in a natural environment. Visitors should be prepared for overnight camping.
4. *Transition*: These areas include system trails and user-made trails worn to mineral soil over long distances. Little challenge or risk exists compared to the other WROS classes. The highest number of encounters with other users and the most evidence of human use is in these areas. Transition areas usually extend into the Wilderness 3 to 5 miles and are frequently referred to as "day-use areas."
5. *Special Area*: These include such areas as those congressionally acknowledged as having significant cultural or historical value, and those with special wildlife values.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-W, unless otherwise indicated. Refer to MAC-Y for additional direction concerning the Butter Creek Research Natural Area. Prescription W6 in the Tatoosh Wilderness.

Recreation

Planning, Inventory, and Use Administration

The Visual Quality Objective assigned to these Management Areas is:

VQO - Preservation

1. The Wilderness Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Management Prescription-W2
WROS - Dedicated Trailless

Management Prescription-W3
WROS - General Trailless

Management Prescription-W4
WROS - Trailed

Management Prescription-W5
WROS - Transition

Management Prescription-W6 and W7
WROS - Special Area

Prescription W6 is applicable only to the Butter Creek RNA. Prescription W7 applies only to Wild River corridors within Wilderness.

5. The following Standards/Guidelines summarize the Limits of Acceptable Change, and apply to specific WROS classes. Please refer to Figure B-1 in Appendix B for a more complete display of the Limits of Acceptable Change:
 - a. *Dedicated Trailless* (Prescription-W2): The maximum number of Recreation Visitor Day use (RVDs) permitted should not exceed 0.25/acre/year. Encounters between parties should be limited to an average of one per day. Party size, including stock animals, should not exceed six. Livestock are not encouraged in Dedicated Trailless areas. Party size may be increased by written permit. There should be no vegetation loss at campsites, and no mineral soil exposed by visitor use.
 - b. *General Trailless* (Prescription-W3): RVDs permitted should not exceed 0.001/acre/year. Encounters between parties should be limited to an average of two per day. Party size, visitors, and stock should not exceed 12, but can be up to 30 by written permit. Vegetation loss at campsites should not exceed 200 square feet, or less than 1 percent of any acre. Mineral soil exposed should be less than 20 square feet.
 - c. *Trailed* (Prescription-W4): RVDs permitted should not exceed 5/acre/year. Encounters between parties should be limited to an average of five per day. Party size, visitors, and stock should not exceed 12, but can be up to 30 by written permit. Vegetation loss at campsites should not exceed 400 square feet, or 1 percent of any acre. Mineral soil exposed should be less than 50 square feet.
 - d. *Transition* (Prescription-W5): RVDs permitted should not exceed 15/acre/year. Encounters between parties should be limited to an average of eight per day. Party size, visitor and stock, should not exceed 12, but may be up to 30 by written permit. Vegetation loss at campsites should not exceed 600 square feet, or 1 percent of any acre. Mineral soil exposed should be less than 75 square feet.
 - e. *Special Area* (Prescriptions-W6 and W7): Each of the areas is assigned a secondary management prescription which is fully compatible with the Wilderness classification. Example, the Butter Creek Research Natural Area is a Special Area within the Tatoosh Wilderness. In addition to the secondary Standards/Guidelines applicable to Special Areas, visitor use capacities and standards for protection of resources such as soil and vegetation will be established for each area. Refer to Appendix B for the capacities and Standards established for the Butter Creek RNA and Wild Rivers within Wilderness.
6. An Annual Implementation Schedule will be prepared for each Wilderness to ensure that Forest Plan direction and objectives are met.
7. If user impacts exceed standards such as those for vegetation loss or soil exposed, limitations on use may be applied to specific use areas.
8. If active measures are required to meet the WROS standards, measures such as: pulling back vehicle access points, lowering standards of access roads, trailheads, and trails, or diverting use should be considered prior to implementing a use permit system.

9. If it becomes necessary to establish priorities for Wilderness visitation, highest priority should be given to uses which (1) least later the Wilderness environment, and (2) are dependent upon the Wilderness environment. Other use should be encouraged outside the Wilderness.
10. Improvements such as primitive toilets must be necessary for the protection of the Wilderness resource and not for the convenience of users. Improvements should be constructed of natural materials and designed to harmonize with the environment.
11. Commercial outfitting and guide services may be authorized where compatible with general public use and Wilderness management objectives.
12. Install and maintain the minimum number of signs. These should be located only where necessary for protection of the Wilderness resources and for basic visitor orientation.
13. Trails and Trailless WROS areas should provide for varying levels of difficulty for foot and/or horse travel while minimizing physical and visual impacts on the land. Trails or Trailless areas may be designated for use only by hikers or horses where necessary to reduce user conflicts, prevent resource damage, or to provide a variety of recreation experiences.
14. Recreation stock is prohibited on lakeshores, streambanks, and other wet areas except for watering. Such use may not be permitted on particularly sensitive wet areas. Stock should not be held overnight out of view, and at least 200 feet from water, trails, or camp areas.
15. Motorized and mechanized equipment, including off-road vehicles and bicycles, is not permitted.
16. Private and commercial aircraft shall be discouraged below 2,000 feet above ground level; military aircraft shall be discouraged from overflight training missions.
17. The landing of aircraft or dropping of supplies within the Wilderness is prohibited. Exceptions may be granted for emergencies or administrative purposes.
18. Project work crew, contractors, and other administrative users should abide by the same group size limitation as the public. Work should be scheduled during the low-use season.
19. Party campsites should be separated and be at least 200 feet from trails, lakes, streams, and meadows.

Cultural Resource Protection and Enhancement

1. Structures eligible for the National Register of Historic Places, or approaching 50 years of age, may be retained if they are:
 - a. Necessary for Wilderness purposes or administrative needs as provided in Sections 4(b) and (c) of the Wilderness Act.
 - b. Of national, regional, or local significance and are not directly or indirectly resulting in significant degradation of Wilderness values.

Structures not meeting at least one of these criteria may be removed or allowed to deteriorate naturally.

2. Structures ineligible for the National Register, or less than 50 years of age, should be removed or allowed to deteriorate naturally if they are not considered necessary for Wilderness purposes or administrative needs as provided for in Sections 4(a) and (b) of the Act.

3. Cultural resources, or other features of interest, may be interpreted, provided it is done outside the Wilderness. Informal verbal interpretations may be permitted in the Wilderness. Cultural resources in Wilderness will not be signed on the ground for the general public.

Wildlife and Fish

Survey, Planning, Prescriptions, Monitoring, Cooperation and Administration

1. Fish stocking may continue at lakes and streams where it historically occurred. Barren waters may be considered for stocking, if there is mutual agreement that no appreciable loss of scientific values or adverse effects on Wilderness resources will occur.
2. Native fish species will be used in the stocking program.
3. Aircraft stocking will be permitted only on those lakes stocked by aircraft prior to Wilderness classification. No landing of aircraft is permitted. Stocking should be done before or after the visitor season, if possible.
4. Chemical treatment of waters is permitted for the re-establishment of native species, establishment of Threatened or Endangered aquatic species, or to correct undesirable conditions resulting from the influence of human activity.
5. Management activities and decisions will emphasize maintaining native species, with particular emphasis on the habitat requirements of Threatened and Endangered species. Manage to protect known populations of Threatened and Endangered species where necessary for their perpetuation and aid in their recovery in areas of previous habitation. Actions *taken* to protect or recover Threatened or Endangered species may include habitat manipulation and special protection measures within Wilderness. When alternate areas outside Wilderness offer equal or better protection, action should be taken outside of the Wilderness first. Indigenous species may be re-established. Threatened or Endangered species may be established to correct the undesirable influences of human activities.
6. Visitor activity may be regulated on a seasonal basis to minimize the impact on natural population levels or distribution of native plant and animal species.
7. Where appropriate, fire should be allowed to play a natural role in maintaining plant and animal diversity to ensure a natural abundance and distribution of native species.
8. Exotic plants and non-native animal species will not be introduced.
9. Trails and camping areas should avoid areas such as critical mountain goat habitat, critical fish spawning habitat, marmot concentrations, and other areas where significant concentrations occur, to reduce harassment of the animals. Existing facilities should be relocated.

Range

Administration and Management

1. Permanent corrals shall not be permitted.
2. Commercial livestock grazing may be permitted where it occurred prior to passage of the Wilderness Act.
3. Livestock use shall be managed so that native plant and animal species are maintained. Non-native plant species shall not be introduced. The possibility of accidental introduction

will be minimized by prohibiting the use of hay, straw and unprocessed grain as supplemental feed.

4. Pack and saddle stock shall use supplemental feed (certified weed-free) in areas where native forage is not able to recover and maintain its composition and vigor into the next growing season, or where grazing would result in degradation of visual quality.

Timber

Planning and Inventory

No scheduled timber harvest, reforestation, or timber stand improvement activities will occur. Ordinary timber salvage is not permitted.

Timber Sale Preparation

Firewood gathering, except for campfires, will not be permitted,

Genetic Forest Tree Improvement Program

Genetic improvement activities will be limited to cone collection for genetic sampling. All pickers will adhere to the following as a minimum:

1. Trees or areas designated for picking will not be conspicuously marked or cultured.
2. Natural processes must be allowed to continue; i.e., no more than 50 percent of the cones from any tree or area will be removed in any one year.
3. Caution is required in removing cones; i.e., do not unnecessarily damage trees; avoid shooting in areas of popular public use, as during hunting seasons.
4. Pickers will conform to all established Wilderness standards, including use capacities.

Water, Soil, and Air

Rights/Use Management

1. Except as provided for in the Wilderness Act, watersheds shall not be altered or managed to provide increased water quantity, quality, or timing of discharge.
2. Livestock and human use shall be regulated to maintain all water bodies at the Streamside Management Unit Class I standard (nondegradation). Any water body found to be below standard should be restored to the prescribed quality.

Minerals and Geology

Inventory and Evaluation and Processing of Site Specific Development Proposals

Common variety mineral sources will not be inventoried or developed.

Processing of Exploration, Lease Applications, and Site Specific Development Proposals, and Administration

1. No new mineral or energy leases will be issued.
2. Exploration and development of valid existing claims for locatable minerals or oil/natural gas and geothermal leases will be conducted in a manner which minimizes degradation of Wilderness values.

Lands

Special Use Management (Nonrecreation), Right-of-Way Grants for Roads and Trails and FERC License and Permits

Permits, licenses, easements, and rights-of-way should not be recommended.

Withdrawals, Modification, and Revocation

All lands are withdrawn from mineral entry at the time the area is designated as Wilderness, except for claims which are valid at the time of designation.

Landownership Planning

All lands will be placed in Ownership Category I (retain or acquire).

Facilities

Transportation Planning, Road Construction and Reconstruction

Forest Service roads and other administrative facilities will not be permitted. Any existing road will be returned to a natural condition unless it serves a valid mining claim or lease. Such roads would not be open to the public, and all maintenance would be the responsibility of the claimant or lessee.

Protection

Fire Management Planning and Analysis, Detection, and Initial Attack and Escaped Fire Suppression

1. Use suppression techniques which result in the least possible evidence of human activity.
2. Naturally-occurring fires shall be permitted to burn in specific areas if they meet the prescription parameters for the zone. All naturally-occurring ignitions are considered prescribed until declared wildfire, in which case the appropriate suppression strategies will be used.
3. Detection flights should avoid over-flight of the Wilderness.
4. Fuelbreaks will not be constructed.

Pest Management and Suppression

Insects and disease will be controlled only if a significant threat is posed to resources outside the area. Biological methods will be favored.

Spotted Owl, Pileated Woodpecker, and Pine Marten

Management Area Categories-O, L, and P *

Spotted Owl

- O, includes Management Prescription OL, OM, and OX.

Pileated Woodpecker

- L, includes Management Prescriptions LL, LM, and LX.

Pine Marten

-- P, includes Management Prescription PL, PM, and PX.

Goal

Provide habitat for one or more reproducing pair of spotted owls or pileated woodpeckers, or for one breeding female pine marten and other wildlife species associates with mature and old-growth forests.

* Although the Management Area Categories/Prescriptions for these species are separate and distinct, they are included together here because of the close similarity in the Standards/Guidelines for each.

Description of Lands Where This MAC is Applied

Spotted Owls

Lands where spotted owls are known to exist, and lands which have been inventoried as suitable spotted owl habitat.

1. A Spotted Owl Habitat Area (SOHA) includes at least 2,200 acres of suitable habitat, located within a 2.1 mile radius of the site, a central point between two nest sites, or an activity center, if no nest site has been identified. Management areas providing habitat for three or more owl pairs are spaces within 12 miles of each other measured edge to edge. Distances between all other SOHAs do not exceed six miles.

In general, suitable owl habitat meets the following criteria:

- a. Relatively large diameter of dominant trees in the stand.
 - b. Multi-layered canopy of trees with a moderate to high canopy closure in overstory, midstory, and understory layers.
 - c. Large, tall trees with cavities, broken tops, mistletoe, or platforms of branches capable of holding accumulated organic matter suitable for nesting.
 - d. Dead standing trees and fallen decayed trees to support abundant populations of prey species, especially northern flying squirrel and woodrat.
 - e. Stands with the above conditions and larger than 60 acres in the area.
5. These lands meet the requirements for habitat and spacing between Spotted Owl Habitat Areas described in the Pacific Northwest Regional Guide, as amended by the Final Supplement Environmental Impact Statement--Spotted Owl Guidelines.
 6. Due to existing natural vegetation and the effects of past management practices, few areas on the Forest include 2,200 contiguous acres meeting all of the criteria for suitable owl habitat. In these management areas, it was necessary to include some intermingled lands not meeting the habitat requirements in order to obtain the minimum requirement of 2,200 acres of suitable habitat.

In some instances, the management area exceeds 2,200 acres in size because it provides habitat for more than one pair of owls.

Pileated Woodpecker

These management habitat areas include at least 300 acres of suitable pileated woodpecker habitat. They are comprised of mature stands (at least 100 years old) of large saw timber or old growth and are found in the Western Hemlock, Silver Fir, Red Alder, and Mountain Hemlock Working Groups. These areas are spaced within 5 miles across the Forest.

Pine Marten

These management areas are intended to include 160 acres of suitable pine marten habitat; trees are typically 100 years of age, large saw timbers, or old growth. These habitat areas are located no more than 3 miles apart.

Desired Future Condition

Each SOHA also provides one Pileated Woodpecker and one Pine Marten habitat area. In turn, each Pileated Woodpecker area also includes one Pine Marten habitat.

The vegetation is described above as suitable for each species. Over time, the vegetation should assume more of the characteristic features of mature and old-growth stands, in the absence of major fires, wind throw, or insect/disease outbreaks. Roads are absent or closed in many of the areas, but will be evident to some degree in others. Typically, there are opportunities for interaction with a natural-appearing environment, to hunt, hike, and to view wildlife.

Standards/Guidelines

The following direction applies to all Management Areas in MACs O, L, and M, unless otherwise indicated:

1. Development or management which concentrates recreational activity should not be permitted, particularly near the nest site in MAC-O when it is occupied by spotted owls.

The Visual Quality Objective and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Spotted Owl

Management Prescription-OL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-OM

VQO	-	Partial Retention
ROS	-	Roaded Natural

Management Prescription-OX

VQO	-	Modification
ROS	-	Roaded Natural

Pileated Woodpecker

Management Prescription-LL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-LM

VQO	-	Partial Retention
ROS	-	Roaded Natural

Management Prescription-LX

VQO	-	Modification
ROS	-	Roaded Natural

Pine Marten**Management Prescription-PL**

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-PM

VQO	-	Partial Retention
ROS	-	Roaded Natural

Management Prescription-PX

VQO	-	Modification
ROS	-	Roaded Natural

Recreation**Facility and Site Reconstruction and Construction**

Recreation facilities should not be constructed unless there is no practical alternative.

Use Administration

Off-road vehicles may be permitted on designated trails only, but should not occur near MAC-O nest sites while occupied by spotted owls.

Wildlife**Surveys, Planning, Prescriptions, Cooperation, and Administration**

1. Direct habitat improvement projects, such as the creation of snags and down material, are encouraged.
2. Habitat loss or potential loss from new road corridors or other management activities will be compensated for by addition of similar adjacent habitat to the management area through amendment or revision of the Plan.
3. No spotted owl management activity shall adversely affect Federal Threatened and Endangered species or their habitats.

Range**Planning and Inventory**

Livestock grazing may be permitted. In MAC-O, grazing should be permitted only in areas of previous timber harvest, and only when the occupied nest site will not be disturbed.

Timber

Planning and Inventory

1. Timber harvest will not be scheduled.
2. Ordinary timber salvage is not permitted on Spotted Owl management areas and should not be permitted in Pileated Woodpecker or Pine Marten areas.
3. Individual trees or small groups may be cut to improve wildlife habitat only--for instance, to provide additional snags or down material. Alteration of the vegetative character of the area is not permitted.

Timber Sale Preparation

Firewood cutting, except for on-site camp use, should not be permitted.

Genetic Forest Tree Improvement Program

Genetic improvement activities should be limited to select trees.

Minerals and Geology

Inventory, Evaluation, and Processing of Site Specific Development Proposals

1. Common mineral material sources may be inventoried and developed only if there is no practical alternative.
2. To the extent reasonable and operationally feasible, exploration and development should be performed in a manner which does not significantly disturb spotted owls, pileated woodpecker, or pine marten. Transportation and other facilities should be designed to minimum standards, and obliterated when the project terminates. Mineral leases may include a stipulation of no surface occupancy near nesting or denning sites.

Lands

Rights-of-Way Grants for Roads and Trails

Rights-of-Way in the vicinity of active nest sites should be permitted only if no practicable alternative exists in spotted owl and pileated woodpecker management areas, MACs O and L.

Withdrawals, Modifications and Revocations

Subject to a determination of resource values, including mineral values, some or all of the Management Area may be recommended for withdrawal from mineral entry.

Landownership Planning

Lands should be placed in Ownership Category II, retain or acquire.

Facilities (Including those required for National Forest activities or purposes)

Transportation Planning and Inventory and FA&O Reconstruction and Construction

1. Facility construction, other than roads, should not be permitted.
2. Roads should not be constructed unless there is no other reasonable access for resource activities in adjacent Management Areas.

In Spotted Owl and Pileated Woodpecker Management Areas, roads should not be planned near active nest sites. In spotted owl areas, construction, if permitted, should occur between August 31 and March 15.

Road Operation

Existing roads required for through traffic may remain open.

Local roads providing access to existing recreation sites may remain open if it is demonstrated that the owl, woodpecker, or marten values are adequately protected. Such local roads should be managed for passenger car use.

All other roads should be closed using the Eliminate or Prohibit traffic schemes.

Protection

Escaped Fire Suppression

Suppression Strategy C, Control, should be used.

Pest Suppression and Prevention (Insects and Disease)

Only major pest outbreaks which seriously threaten large portions of the stand or adjacent resources should be actively suppressed.

Wildlife Special

Management Area Category-I

Includes Management Prescriptions-IL, IM, and IX

Goal

Sustain or enhance a limited and significant habitat to support dependent wildlife.

Description of Lands Where This MAC is Applied

Distinctive habitats such as marshes, caves, mineral licks, and particular groves of old growth. These habitats are generally fragile, limited in size, uncommon, and important to numerous species of wildlife. They require a separate MAC because they do not clearly met the criteria for other wildlife MACs.

Desired Future Condition

Management activities are not evident in most of the area; there are few or no roads, and signs of other activities are minimal. Vegetation is generally the product of natural succession, although some enhancement of habitat may have occurred; e.g., planting of browse species. Vegetation ranges from natural openings through stands of mature and old-growth timber. Recreational activities which entail high densities of users will not be encouraged; however, some hunting and fishing may occur. These areas may be of particular interest to naturalists.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-I, unless otherwise indicated.

Recreation

Planning and Inventory

1. Opportunities for viewing, photographing, interpreting wildlife, cultural, biological and other features, should be evaluated and may be permitted when it is determined they would not result in harassment to wildlife. Generally, development or management which concentrates recreational activity should not be permitted.
2. The Visual Objectives and Recreation Opportunity Spectrum classes applied to these Management Areas are:

Management Prescription-IL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-IM

VQO	-	Partial Retention
ROS	-	Roaded Natural

Management Prescription-IX

VQO	-	Modification
ROS	-	Roaded Natural

Facility and Site Trail Reconstruction and Construction

Other than trails, recreation facilities should not be built.

Use Administration

Off-road vehicles, including oversnow machines, should not be permitted.

Wildlife

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

Direct wildlife and fisheries habitat improvements should be emphasized.

Range

Planning and Inventory

Grazing will not be permitted.

Timber

Planning

1. Timber harvest will not be scheduled.
2. Individual trees or small groups, may be cut to improve wildlife habitat; for instance, to provide snags or down material. Alteration of the vegetative character of the area is not permitted. Ordinary timber salvage should be permitted only if an Environmental Assessment clearly indicates removal outweighs the in-place value of the material to Wildlife.

Timber Sale Preparation

Firewood cutting, except for campfire use, should not be permitted.

Genetic Forest Tree Improvement Program

Genetic improvement activities should be limited to select trees.

Minerals and Geology

Inventory and Evaluation and Processing of Site Specific Development Proposals

Common mineral material sources should not be inventoried or developed.

Processing of Exploration, Lease Applications and Site Specific Development Proposals

1. Where reasonable and practical, exploration should be conducted in a manner which does not adversely affect wildlife. It should take into account wildlife cycles such as migration and calving.
2. Plans for exploration or development will include reasonable, operationally feasible requirements intended to minimize disturbance to wildlife. Transportation and other facilities should be designed to minimum standards and be obliterated and rehabilitated when the project terminates. Roads should not be recommended in areas assigned Management Prescription ID.

Lands

Special Use Management (Nonrecreational) and Right-of-Way Grants for Roads and Trails

Leases, rights-of-way, easements, and other permits should be granted only if they do not adversely affect the habitat. Nonconforming uses should be ended when opportunity allows.

FERC License and Permits

Recommendations for exploration and project permits should minimize disturbance to wildlife and habitat.

Withdrawals, Modifications and Revocations

Subject to a determination of values, including mineral values, some or all of the area should be withdrawn from mineral entry if required to protect the habitat.

Landownership Planning

All lands will be placed in Ownership Category II, retain or acquire.

Facilities

Transportation Planning and Inventory, Road Operations, FA&O Construction/Reconstruction

New roads and other facility construction should not be permitted. Existing roads should be closed and obliterated if not required for through traffic.

Local roads that remain open should not be managed for public travel in passenger cars. Seasonal closures should be applied where needed to protect wildlife.

Protection

Fire Management Planning and Inventory and Prevention

The use of prescribed fire to maintain or enhance wildlife habitat may be permitted.

Initial Attack

In periods of low fire hazard, Fire Suppression Strategy A, Confine, should be used. During the fire season, Strategy C, Control, should apply.

Pest Suppression and Prevention

Pest suppression and prevention should be undertaken when outbreaks threaten wildlife objectives within the area and when adjacent areas are seriously threatened. Biological methods should be favored and suppression efforts should concentrate on the perimeter.

Mountain Goat

Management Area Category-M, Q

Includes Management Prescriptions-QL, QM, and QX Winter Range and MM and MX Summer Range.

Goal

Manage habitat to provide forage and cover that maintains the present (1990) carrying capacity of 230 animals.

Description of Lands Where This MAC is Applied

Places where mountain goat are known to exist or to have existed in the past.

Winter Range - Q

Winter range habitat is typically characterized by mid-elevation steep slopes with heavy coniferous forest cover. These areas may have avalanche chutes, rock outcrops, cliffs, and ledges.

Summer Range - M

Summer range is characterized by higher elevation habitat where coniferous slopes and rocky and ledge-type terrain are interspersed. Gently sloping meadows within the above habitat are commonly used for feeding and, sometimes, resting.

Desired Future Condition

On summer range and locally on winter range, open ridge areas, rock outcrops, talus slopes, and avalanche chutes are common and are generally in a natural condition. On winter and locally on summer range, some timber harvest areas may be evident but are usually screened by trees. Most trees on forested land will be pole size or larger. Vegetation ranges from natural openings through stands of mature and old-growth timber. There are few roads, and those that do exist usually are closed to motorized traffic. The area is used by backpackers and hunters and affords outstanding opportunities to view scenery and wildlife.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-Q, unless indicated otherwise.

Recreation

Planning and Inventory

1. Development or management which concentrates recreational activity should not occur.
2. New trails should be designed to avoid key habitat features such as rock outcrops, talus slopes, avalanche chutes, and kidding areas.
3. Existing trails which conflict with mountain goats should be relocated or be limited in use to reduce harassment.
4. The Visual Quality Objective and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Winter Range

Management Prescription-QL

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-QM

VQO	-	Partial Retention
ROS	-	Roaded Natural

Management Prescription-QX

VQO	-	Modification
ROS	-	Roaded Natural

Summer Range

Management Prescription-MM

VQO	-	Retention
ROS	-	Roaded Natural

Management Prescription-MX

VQO	-	Modification
ROS	-	Roaded Natural

5. Cultural resources will generally not be interpreted.

Facility Site Reconstruction and Construction

Facilities should be limited to those required to protect resources.

Use Administration

ORV use may be permitted on designated trails or routes only.

Off-road vehicles, including oversnow machines, should not be permitted on mountain goat summer range, Management Prescriptions-MM, and MX, April 15 - December 1, and on winter range, Management Prescriptions QL, QM, and QX November 1 - June 15.

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation, and Administration

A mountain goat population survey should be completed every 5 years in cooperation with the Washington Department of Game.

Range**Planning and Inventory**

Any conflicts between grazing domestic livestock and mountain goats should be resolved in favor of mountain goats.

Timber**Planning and Inventory, Regeneration, and Intermediate Harvest**

Timber harvest will be scheduled. It will be done to provide mountain goat habitat. Logging systems which do not require roads should be used unless no reasonable alternative exists.

On Winter Range-Management Prescriptions-QL, QM, and QX

1. A maximum of 4 percent of lands classified as suitable for timber production in the Western Hemlock Working Group (3.6% in the True Fir Group), may be regeneration harvested per decade. These harvest rates, based upon an average rotation age of 240 years in the Western Hemlock Working Group (280 yrs. in the True Fir Group), are required to provide the desired levels of forage and optimal cover.
2. A minimum of 50 percent of suitable timberland in the winter range should be large sawtimber (21"+ dbh) to provide optimal cover in blocks of at least 100 acres in size.
3. The object of intermediate harvest should be to gain rapid tree diameter growth while generally maintaining a closed canopy for thermal cover.

On Summer Range-Management Prescriptions-MM and MX

A maximum of 5 percent of the suitable timberland may be regeneration harvested per decade.

A minimum of 30 percent of the land suitable for timber production should be maintained pole size (9"+ dbh) to large sawtimber to provide optimal cover.

Silvicultural Exam and Prescriptions, and Reforestation

Prescriptions and reforestation plans should provide for direct wildlife habitat improvements such as forage seeding, fertilization, prescribed burning, and the development of optimal cover.

Reforestation and Timber Stand Improvement

1. Herbicides should not be used if they jeopardize desirable wildlife browse species.
2. Prescribed burning should be used in site preparation whenever practicable to enhance forage production on both summer and winter range and optimal cover development on winter range.

Timber Sale Preparation and Harvest Administration

1. Timber harvest and road building should not be performed on winter range, Management Prescriptions QL, QM, and QX, between November 1 and June 30.

2. Regeneration timber harvest units should be no larger than 30 acres; most will be between 10 and 20 acres.
3. Thermal cover should be provided on at least two sides of timber harvest openings.
4. To provide hiding and thermal cover, a buffer of at least 200 feet should be maintained adjacent to avalanche chutes, cliffs, and rock outcrops which are important mountain goat habitat. Timber harvest should not occur within this 200-foot area.
5. Firewood cutting may be permitted.

Genetic Forest Tree Improvement Program

Genetic improvement activities should be limited to select trees and evaluation plantations.

Minerals and Geology

Processing of Exploration, Lease Applications, and Site Specific Development Proposals and Administration

1. Common mineral sources which adversely affect mountain goats should not be developed.
2. To the extent reasonable and operationally feasible, exploration should be performed in a manner which does not significantly disturb mountain goats.
3. To the extent reasonable, activities may be limited from November 1 to June 30 to protect mountain goats.
4. Cliffs, rock outcrops, and avalanche chutes should be avoided when practicable.

Lands

Federal Energy Regulatory Commission (FERC) License and Permits

Exploration should be performed in a manner which does not significantly disturb mountain goats.

Landownership Planning

Lands should be placed in Ownership Category II, retain or acquire.

Facilities

Road Construction and Operation

Construction of roads and other facilities should not be permitted from November 1 to June 15 in winter range, Management Prescriptions-QL, QM, and QX; see Forest-wide Standards/Guidelines for timing restrictions in kidding areas.

Roads should be constructed only if no reasonable alternative exists.

Major through routes should be managed for standard passenger car use. Some local roads required to access recreation destinations may also be managed for passenger car use. All other roads should be maintained only for intermittent timber management activities. Local roads not being used for resource management activities should be closed using the Eliminate or Prohibit traffic schemes.

All local and minor collector roads in Mountain Goat Winter Range, Management Prescriptions-QL, QM, and QX should be closed from November 1 to June 15.

Protection

Escaped Fire Suppression

During periods of low fire hazard in higher elevations, Fire Suppression Strategy A, Confine, should be used. Strategy B, Contain, should be used there and at lower elevations during periods of moderate fire hazard, unless fire intensity or resource values require C, Control.

Pest Suppression and Prevention

Pest which adversely affect vegetation essential to mountain goats should be suppressed. Biological and cultural methods will be favored.

Deer and Elk Winter Range

Management Area Category-E, 7

Includes Management Prescriptions-EM, ES, 7M, and 7S

Goal

Manage habitat in conjunction with all other MACs/Prescriptions within the biological winter range to provide a mix of forage and cover that, over time, maintains the current (1990) carrying capacity (within 10%) of 5,200 elk, and provides a 10 percent increase over the current carrying capacity of 21,000 deer. Accomplishment of this goal will require a cooperative program with the Washington Department of Wildlife, particularly in increasing the current deer population.

Description of Lands Where This MAC is Applied

This typically includes lands up to 2,200 feet in elevation on south- and west-facing aspects, to 2,000 feet on east-facing aspects, and to 1,800 feet on north-facing aspects. Other areas that deer and/or elk utilize during an average winter are also included.

Desired Future Condition

Management activities, including timber harvest, are locally apparent. Tree species and sizes are varied and well distributed. Optimal cover may be present, particularly if required to ensure that at least 44 percent of the biological winter range is in optimal cover. Regeneration harvest areas are usually less than 30 acres in size, and well dispersed. Dispersed recreation, viewing wildlife, and hunting are among the recreational opportunities, although many roads are closed during the winter months.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-E, 7 unless otherwise indicated.

(Refer to Wildlife under the Forest-wide Standards and Guidelines for additional information concerning Standards/Guidelines applicable to other MACs within the biological range.)

Recreation

Planning and Inventory

1. The Visual Quality Objectives and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

Management Prescription-EM and 7M

VQO	-	Partial Retention
ROS	-	Roaded Natural

Management Prescription-ES and 7S

VQO	-	Modification
ROS	-	Roaded Natural

NOTE: Inclusion of the Partial Retention VQO in management prescriptions EM and 7M is not intended to be a conflict; rather, Partial Retention is essentially compatible with deer/elk management. Generally, the only significant difference to Partial Retention in these prescriptions is a limitation on the size of regeneration timber harvest units in immediate foreground areas (up to about 500 feet). Some limitations on unit size also occurs in middleground viewing areas. Because of the relatively small area to which these unit size limitations are applicable, they should have little adverse effect upon deer/elk outputs across 7, E MAC as a whole.

2. Cultural resources and other features of interest may be interpreted if no significant adverse effects on wildlife occur.

Use Administration

Off-road vehicles may be permitted on designated trails only.

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation, and Administration

1. A deer and elk population survey should be taken at least every 5 years in cooperation with the Washington Department of Game.
2. Direct habitat improvements such as forage seeding, fertilization, burning, and road closures should be initiated to improve deer and elk carrying capacities. Forage seeding and fertilization projects should be consistent with guidelines in the Plant Association Guide for the Western Hemlock Zones.

Range

Planning and Inventory

1. Livestock grazing may be permitted.
2. Conflicts between domestic livestock and big game should be resolved in favor of big game.
3. Improvements should be available to, and not adversely affect, wildlife.

Timber

Planning and Inventory, Regeneration, and Intermediate Harvest

Also, see Deer/Elk under the Forest-wide Wildlife Standards/Guidelines for associated Standards/Guidelines applicable to the entire biological winter range.

1. Timber harvest will be scheduled. Ordinary timber salvage may be permitted.
2. *Outside Bear Creek:* Thermal and optimal cover should be in contiguous blocks at least 60 acres in size, and distributed over the management area. The intention is that no acre of forage (regeneration harvest unit) should be more than about 800 feet from thermal/optimal cover, and no acre of thermal/optimal cover should exceed about 2,000 feet from cover.
3. *Bear Creek:* Management Prescriptions-7M and 7S are assigned to the Bear Creek area only: Bear Creek is near the southwest corner of the Forest, and is a unique winter range habitat. Here the vegetation differs from that typically found in winter range areas on the Forest. Much more undergrowth (browse species) is found under extensive stands of mature trees; this unusual vegetation is more typical of drier sites.

This unique vegetative character permits a somewhat different management approach as follows:

- a. Regeneration harvest units should normally be 10 to 20 acres in size, with a maximum size of 20 acres.
- b. Thermal and optimal cover should be in contiguous blocks of at least 60 acres in size, and dispersed over the management area. The intention here also is that forage should not be more than 800 feet from thermal or optimal cover, and thermal/optimal cover should not be more than about 2,000 feet from forage.
- c. Within the 7S and 7M areas, the minimum amount of optimal cover to be maintained should be at least 44 percent of the combined 7S and 7M management areas.

Prescriptions 7M and 7S are expected to sustain or increase the Bear Creek area's deer carrying capacity while placing little emphasis on elk numbers. Smaller regeneration harvest units and less frequent entries than usual in winter range should help to reduce wildlife harassment.

4. Some stands may be harvested prior to CMAI where necessary to meet forage objectives.

Silvicultural Exams and Prescriptions and Reforestation

1. Prescriptions and reforestation plans should provide for direct wildlife habitat improvements such as forage seeding, fertilization, and prescribed burning to improve wildlife habitat values. Forage seed and fertilization, when included in an approved reforestation plan, should take place immediately after site preparation.
2. Planting or seedling density should not be less than 12 by 12 foot spacing to ensure adequate openings for forage production.

Timber Sale Preparation and Harvest Administration

1. Firewood cutting, except for campfire use, should be limited to designated timber harvest areas.
2. Timber harvest units should be irregularly shaped to increase edge for wildlife habitat.
3. Timber harvest activities may be limited from December 1 to April 1 to prevent harassment of big game.

Minerals and Geology

Processing of Exploration, Lease Applications, and Site Specific Development Proposals

To the extent reasonable, mineral activities may be limited from December 1 to April 1 to prevent the harassment of big game.

Lands

Special Use Management (Nonrecreation) Right-of-Way Grants for Roads and Trails, FERC License and Permits

Recommendations for permits, leases, rights-of-way, and easements should afford protection for deer and elk from December 1 to April 1.

Landownership Planning

All lands should be placed in Ownership Category II, retain or acquire.

Facilities

Road Construction and Operation

Roads not needed for through traffic or access to an active project or a specific recreation destination should be closed, either permanently or seasonally from December 1 to April 1, to prevent wildlife harassment.

If open, through roads and those to recreation destinations should be managed to accommodate passenger car traffic.

Protection

Initial Attack and Escaped Fire Suppression

Fire Suppression Strategy B, Contain, should be used.

Treatment of Activity Fuels, Pest Management Plan Inputs and Prevention

Protection of wildlife habitat and adjacent resource values should be emphasized in pest suppression and prevention activities.

Timber Production

Management Area Category-T

Includes Management Prescription -TS

Goal

Optimize timber production, the utilization of wood fiber, and other commodities in a manner which assures the future productivity of the land.

Description of Lands Where This MAC is Applied

Portions of the Forest which are generally suitable for commodity production. They are primarily timber producing lands but also include areas with such market values as minerals, energy, and forage for domestic livestock grazing. Some lands not suitable for timber management may occur within these areas.

Desired Future Condition

Evidence of land managed intensively for timber production and other commodities is apparent. All tree sizes and mixtures of native species from seedlings to mature sawtimber are well distributed. Accumulated volumes of fuels are light and destructive fires seldom occur. Recreational opportunities are available for hunters, fishermen, off-road vehicle operators, and other motorists.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-T.

*Recreation***Planning and Inventory**

1. The Visual Quality Objectives and Recreation Opportunity Spectrum class assigned to these Management Areas are:

VQO	-	Modification
ROS	-	Roaded Natural

2. Where appropriate, recreational activities compatible with intensive commodity management may be encouraged. Driving for pleasure, hunting, dispersed camping, wildlife viewing, berrypicking, cross-country skiing, the use of off-road vehicles, and interpretation of cultural or other features of interest and interpretation of cultural or other features of interest are examples of possible activities.

Use Administration

Off-road vehicles may be permitted on designated routes or areas.

*Range***Planning and Inventory**

Grazing may occur.

Nonstructural Improvement and Maintenance

Plant species selected for range improvement should not significantly compete with Forest tree species.

*Timber***Planning and Inventory**

1. Full timber harvest will be scheduled, and ordinary timber salvage is almost always permitted, except where limited by Forest-wide Standards/Guidelines (primarily in Riparian and other Management Requirement (MR) areas.).

Regeneration Harvest

All regeneration harvest methods will be determined on a case-by-case basis.

*Lands***Landownership Planning**

To sustain the Forest's capability to meet the demand for wood fiber, highly productive lands should be placed in Ownership Category II, retain or acquire; other lands should be classified as Category III, neutral.

Facilities

Transportation Planning and Inventory

Local roads should be developed to most economically accommodate optimum timber production over the long term.

Road Operation

Major through routes and roads providing access to a specific recreation destination should be managed to accommodate passenger car traffic. Other roads should be maintained primarily for commodity production.

Roads being managed for commodity production will generally accept high-clearance vehicle use. However, closures may be applied to roads not being used for commodity production by using the Eliminate or Prohibit traffic schemes. The Discourage traffic scheme can also be used to close roads by allowing the roads to degenerate until they are no longer passable.

Fire, Administration, and Other (FA&O) Construction and Reconstruction

Fire, administration, and other structures may be permitted if no alternative exists and they are needed for resource protection.

Protection

Fire Prevention

The industrial inspection program should be emphasized.

Escaped Fire Suppression

Suppression Strategy C, Control, should be used in younger, less-than-sawlog-size stands. Elsewhere, Strategy B, Contain, or C, Control, should be used.

Pest Suppression and Prevention

1. Insects and disease should be aggressively suppressed using the most cost-effective strategies. This may include such activities as stump treatment for root rots and application of pesticides for defoliators and cone insects. Cost-effective pest prevention activities should be intensive.
2. These lands should be surveyed for *Phellinus weirii* as soon as practicable, with emphasis placed on the lower elevations in the Cowlitz River Drainage.

Research Natural Area

Management Area Category-Y

Includes Management Prescriptions-F8, A8, YC, Y8, and W6

Goal

Manage the Research Natural Area in a natural state for research and education, and/or to maintain biological diversity.

Description of Lands Where This MAC is Applied

Existing Research Natural Areas, classified under the code of Federal Regulations, 36 CFR 251.23. Three of these RNAs are found within the National Volcanic Monument and Experimental Forest (Prescriptions-A8 and F8) and Wilderness-(W6) MACs. As indicated in those Management Area Categories (A, F, and W), direction may be different than that found under MAC-Y. In case of conflict, the direction in other MACs can be no less restrictive for the RNAs involved than those found under MAC-Y. Also applies to potential RNA which are actively being evaluated for RNA status through the Forest Planning process.

Desired Future Condition

Except for development which may have occurred prior to classification, human activities are not evident. Alteration is almost entirely the product of natural processes. Vegetation may vary across the full range of Forest species and sizes including mature and old-growth stands. They provide opportunities for research, study, observation, monitoring, and those educational activities that maintain unmodified conditions.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-Y, unless otherwise specified. In consultation with the Forest Supervisor and District Ranger, the Director of the Pacific Northwest Forest and Range Experiment Station is responsible for approving management implementation plans and or overseeing and coordinating approved research on all Research Natural Areas (RNAs), except for those RNAs in congressionally-designated areas, such as Wilderness and National Monuments. The authority to approve management plans and coordinate approved research on RNAs in congressionally-designated areas rests with the Regional Forester. The Regional Forester should coordinate plans for research with the Station Director.

Recreation

Planning

1. Incidental dispersed use may be permitted, but recreational use of the area will not be encouraged. Camping, collecting plants, berry picking, and other uses which threaten or interfere with research, educational opportunities, or other purposes for which the RNA was established, will be prohibited.
2. The Visual Quality Objective and Recreation Opportunity Spectrum class or Wilderness ROS class assigned to these Management Areas are:

Management Prescriptions-YC

VQO	-	Preservation
ROS	-	Semi-Primitive Non-Motorized

Management Prescriptions-A8, F8, and Y8

VQO	-	Preservation
ROS	-	Roaded Natural

Management Prescription-W6

VQO	-	Preservation
ROS	-	Special Area

Prescription-A8 is applicable only in the National Volcanic Monument, MAC-A. F8 is applicable only in the Experimental Forest, MAC-F.

Prescription-W6 is applicable only within Wilderness, MAC-W.

3. Interpretation of cultural and other features of interest will not be permitted, except for research or educational purposes.
4. Trail construction or reconstruction will be permitted only if required to meet the needs of research, for educational purposes, or to protect RNA values. RNAs will not be shown on maps intended for sale to the general public.

Use Administration

Off-road vehicles, including snow machines, should not be permitted.

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

1. No active management will occur unless it is required to protect Sensitive, Threatened, or Endangered Species, or is included in an approved RNA management prescription.
2. Exotic plants and animals are not permitted. Endemic species may be removed if actions are deemed necessary to protect the features for which the RNA was established, or to protect adjacent resources.

Range

Planning

1. Livestock grazing will usually occur only if required for noxious weed control or to preserve the vegetation for which the RNA was created.
2. In research natural areas where livestock grazing is not part of the management prescription, the Regional Forester and Station Director shall, as appropriate, establish a level of acceptable casual or incidental livestock use that can be tolerated and is consistent with the management prescription for the research natural area.

Timber

Planning and Inventory

Timber harvest will not be scheduled. Ordinary salvage and other timber management activities will not occur. This does not preclude the cutting of snags and other trees if they are a hazard to life or property. Felled trees should remain in place within the Research Natural Area.

Timber Sale Preparation

Firewood cutting, including campfire wood, will not be permitted.

Minerals and Geology

Inventory and Evaluation and Processing of Site Specific Development Proposals

1. Common variety mineral material sources will not be inventoried or developed.
2. Leasing of mineral or energy resources will only be permitted with a no surface occupancy stipulation.

Lands

Special Use Management (Nonrecreational), Right-of-Way Grants for Roads and Trails

Rights-of-way, easements, and other permits not required for research or educational purposes will not be permitted if there is a practical alternative.

Federal Energy Regulatory Commission (FERC) License and Permits

Licenses or permits will be recommended only when projects are consistent with RNA management.

Withdrawals, Modifications and Revocations

The RNA will be recommended for withdrawal under the public lands laws.

Property Boundary Location

RNA boundaries will be surveyed and marked as soon as practical. Posting of markers and signs should not call public attention to these areas.

Landownership Planning

All lands will be placed in Ownership Category II, retain or acquire.

Facilities

Transportation Planning, Road Construction and Reconstruction

1. When approved by the Station Director, in consultation with the Forest Supervisor, temporary facilities needed for research (e.g., gauging stations and instrument shelters) may be installed.
2. New roads and facilities will be permitted only if they contribute to the Research Natural Area objectives. Existing roads and facilities may be reconstructed if limited to the original clearing limit, and approved by the Station Director.

Protection

Initial Attack and Escaped Fire Suppression

Fires may be permitted to burn if they are within a prescription designed to accomplish objectives of the RNA. In protecting RNAs within congressionally-designated areas, the management direction for the RNA must meet the statutory mandates for the area.

Treatment of Activity Fuels

1. There will be no treatment of fuels. Fire Hazard Reduction Application, no reduction, should be used.
2. The Station Director, with the concurrence of the Forest Supervisor, may authorize management practices that are necessary for noxious weed control or to preserve the

vegetation for which the research natural area was created. These practices may include prescribed burning.

Pest Suppression

No action will be taken against endemic insects or disease unless the outbreak threatens adjacent resources or would significantly alter the natural ecological processes within the RNA. Where pest management activities are prescribed, they shall be as specific as possible against target organisms and induce minimal impact on other components of the ecosystem.

Experimental Forest

Management Area Category-F

Includes Management Prescriptions-F5 and F8 (Thornton T. Munger RNA)

Goal

Manage the Experimental Forest as a center for Forest research and demonstration, providing a variety of long-term research opportunities.

Description of Lands Where This MAC is Applied

The existing Wind River Experimental Forest.

The Experimental Forest is specifically set aside for research essential to managing the Nation's timber and range resources. It is administered by the Pacific Northwest Forest and Range Experiment Station in cooperation with the Gifford Pinchot National Forest.

Desired Future Condition

Research activity is apparent. Stand structure and composition ranges from natural openings to stands of mature and old-growth timber. Roads and trails provide passenger car and foot access to most of the Experimental Forest.

Management and development of the forage, recreation, timber, wildlife, and water resources on Experimental Forests and Ranges will be a joint responsibility of the Station Director and the Regional Forester. The Director will determine whether a proposed use or occupancy is compatible with the research program. Conflicts between research and any other activities will be resolved in favor of research. For additional direction, refer to the 1987 Wind River Experimental Forest Research Management Plan.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-F, unless otherwise indicated. refer to MAC-Y for additional direction concerning the Thornton T. Munger Research Natural Area, Prescription F8.

Recreation

Planning

1. The Gifford Pinchot National Forest and PNW will jointly determine the Visual Quality and Recreation Opportunity Spectrum objectives to be met. The following options should be considered:

The Visual Quality Objective of Retention, Partial Retention, Modification, or Maximum Modification. The Semi-Primitive Non-Motorized, Semi-Primitive Motorized, or Roaded Natural class on the Recreation Opportunity Spectrum.

For planning purposes in the Draft Forest Plan, the following Visual Quality Objectives and Recreation Opportunity Spectrum class have been assumed.

Management Prescription-F5

VQO	-	Modification
ROS	-	Roaded Natural

Management Prescription-F8

VQO	-	Preservation
ROS	-	Roaded Natural

Prescription F8 is applicable only to the Thornton T. Munger RNA.

2. Research planners should be attentive to the visual quality requirements of adjacent Forest lands.
3. Unless it is specifically required for research, recreation use of the areas should not be encouraged. Firewood/Christmas tree cutting, collecting plants, berrypicking, hunting, fishing, and other activities which threaten research and education values may be discouraged or prohibited.
4. Picnicking and camping should be permitted in designated areas only.
5. Interpretive signs may be placed along the Pacific Crest Trail and elsewhere to describe ongoing research projects.
6. Cultural resources and other features of interest may be interpreted.

Use Administration

Off-road vehicles, including snow machines, should not be permitted.

Trail Construction, Reconstruction, Maintenance, and Operation

1. PNW and the Forest should plan trail reconstruction, construction, and maintenance based on the expected needs of research. Trails should be primitive unless a higher standard is required by research.
2. Trail work should usually be done by the Forest. Opportunities should be sought to combine it with other activities; e.g., training crews in fireline construction. It may also be contracted by PNW.

Research

Opportunities should be sought for both dispersed and developed recreation research. Recreation may be permitted or encouraged if required to meet specific research goals. (Refer to Problem Analysis for PNW Research Work Unit No. 4901).

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

1. Minimum Management Requirements for the Forest's wildlife indicator species should be met unless they conflict with significant research.
2. An area of about 430 acres in the Panther Creek Division will be managed as a dedicated (no planned timber harvest) Spotted Owl Habitat Area. This area is part of a Spotted Owl Habitat Area (SOHA) on adjacent National Forest System land.

The SOHA provides opportunities for research on questions pertaining to spotted owl management. For example, the following questions could be examined:

- a. The relationship of owl use to stand structure,
 - b. Owl movement within the Mouse Creek drainage.
 - c. The effects of nearby timber harvesting on owl behavior.
6. In the southern fork of Mouse Creek, about 35 acres will be managed as a dedicated Pileated Woodpecker Habitat Area.
 7. Both the Spotted Owl and Pileated Woodpecker areas in (2) and (3) should remain intact as long as they are required to meet the Management Requirements for the Forest. This intent should be jointly reviewed by PNW and the Forest at least every 10 years when the Forest Plan is revised.

Wildlife, Fish, and Plant Habitat Research

1. Research to determine the impacts of fish and wildlife manipulation should be encouraged.
2. Research on the adequacy of Management Requirements for wildlife should be emphasized.

Range

Administration and Management

Grazing should be limited to range research projects on transitory forage areas.

Timber

Planning and Inventory

1. Timber harvesting will not be scheduled. Timber harvest, silvicultural treatments, and ordinary salvage may occur as required for research purposes.
2. District Ranger will assist PNW in slash disposal and reforestation planning to ensure that the cost of work required on the Experimental Forest is included in requests for K-V funding.

Intermediate Harvests

1. Entry for removal of ordinary salvage is permissible with the approval of the Station Director. Funding for preparation and administration of these sales will be from the Forest's salvage sale fund.
2. Individual tree salvage sales may be proposed by either PNW or the District, but all must be approved by the Station Director.
3. Research plots should be protected.

Silvicultural Exams & Prescriptions

The District, with PNW participation, should inventory the Experimental Forest with stand exams within 5 years after approval of the Forest Plan. Current Region 6 stand exam procedures should be used.

Reforestation

1. Regeneration will be in accordance with research objectives.
2. Atypical sources and methods may be used.

Timber Stand Improvement

PNW and the District will jointly plan and conduct all precommercial thinning.

Timber Sale Preparation

The District staff will assist PNW with Experimental Forest timber sales.

Harvest Administration

1. The District will administer timber sales on the Experimental Forest in consultation with PNW.
2. The District and PNW should jointly sponsor prebid conferences to clarify research-related sale objectives before contract bids are submitted.

Genetic Forest Tree Improvement Program

1. The Forest will manage the Planting Creek Seed Orchard in cooperation with PNW. It is intended that the orchard should remain intact as long as the genetically superior seed produced is required by the National Forest System. The status of the orchard should be reviewed by PNW and the Forest at least each 10 years, when the Forest Plan is scheduled for revision.
2. Selection of candidate trees as genetic seed sources should be encouraged. If possible, such trees should have crowns within 10 feet of existing timber harvest areas.
3. Select trees should be protected.

Nursery Expansion

Expansion onto the Experimental Forest will not be permitted.

Timber Engineering Research

Encourage use, testing, and development of new harvesting systems.

Timber Management Research

Encourage use of the Experimental Forest in developing improved methods for establishing and manipulating timber producing forests, including yield predictions.

Utilization Research

Research should take advantage of both natural and created opportunities for utilization research.

Water, Soil, and Air

Inventory

PNW and Forest soil scientists should jointly determine baseline soil inventory and data needs.

Monitoring

Some research projects are designed to estimate the magnitude of various environmental impacts. When activities exceed the Management Requirements for soil, water, and air, the District and PNW should jointly determine if corrective action is needed to protect adjacent resource values.

Rural Community and Human Resources

Youth Conservation Corps Program and Volunteers

The participation by volunteers and young people in research projects should be encouraged.

Lands

Right-of-Way Grants for Roads and Trails

Except for those required for research, rights-of-way, easements, and other permits should not be permitted if there is a practical alternative.

Withdrawals, Modifications and Revocations

The entire Experimental Forest should be recommended for withdrawal from mineral entry based on a PNW statement of reasons and rationale.

Property Boundary Locations

Boundaries of the Experimental Forest should be jointly determined and posted by PNW and the District.

Landownership Planning

All lands should be placed in Ownership Category II, retain or acquire.

General Administration

Regional and Forest Level Planning

1. Representatives of PNW, the Forest, and the District should meet annually to review the research program and plan future operations in the Experimental Forest and interactions with surrounding Forest land.
2. A forester or forestry technician should be housed at the Experimental Forest to assist in coordinating public information, technology transfer of research, and maintenance and measurement of studies with the District. (Note: The Station Director and Regional Forester will determine who funds this position.)
3. The District TRI/GIS, other data base system, should be used to record plot locations. Information should be updated annually by PNW scientists.

Resource Economics Research

The economic trade-offs of alternate land management treatments will be studied on appropriate sites.

Facilities

Transportation Planning, Construction, and Reconstruction

1. A road management plan for research projects should be developed by the Forest and PNW. Other roads in the Experimental Forest should be compatible with research objectives. New roads, unless needed to serve research needs, should avoid crossing the Experimental Forest.
2. New roads should not be permitted unless approved by the Station Director, and should not cross PNW control areas.

Road Operation

The Road Management Objectives should be reviewed by PNW and the District annually to assure compatibility with the research program. At a minimum, all roads open to public travel should be managed to allow passenger car access.

Protection

Fire Management Planning and Analysis

1. A cooperative fire protection plan for the Experimental Forest should be jointly prepared by the Forest and PNW.
2. Prevention and suppression activities and priorities should be based on the threat to scientific values. Suppression Strategy C, Control, should be used.

Pest Suppression and Insect and Disease Research

The Forest and PNW should actively seek opportunities to design and implement control programs.

Administrative Sites

Management Area Category-3

Includes Management Prescription-3W

Goal

Provide for facilities required to accomplish the administration of the National Forest in an efficient manner.

Description of Lands Where This MAC is Applied

Existing sites such as Ranger Stations, engineering zone compounds, road maintenance shops and compounds, scale stations, lookouts, and the Wind River Nursery, seed orchards, the Cispus Center, the Mount St. Helens National Volcanic Monument Headquarters, work centers, guard stations, and additional lands required for these and other activities which must be performed in order to administer National Forest System lands.

Desired Future Condition

Buildings, roads, and other structures are quite evident; most have required the creation of openings. Since most of the activities are on-going, structures are generally permanent. They are

well kept, neat, and orderly in appearance. Vegetation varies widely from ornamental trees and shrubs to stands of old-growth timber.

Standards/Guidelines

The following direction applies to all management areas in MAC-3.

Recreation

Planning and Inventory

1. Cultural, biological and other features of interest should be inventoried. Public access may be provided when it does not conflict with the functions of the administrative site.
2. The Visual Quality Objective and Recreation Opportunity Spectrum class assigned to these Management Areas are:

VQO	-	Modification
ROS	-	Rural

Recreational facilities should be few or absent.

Use Administration

Off-road vehicles should not be permitted.

Range

Planning

Domestic livestock grazing should not be permitted.

Timber

Planning and Inventory and Intermediate Harvest, and Other

1. Timber harvest will not be scheduled.
2. Trees should be removed to protect life and property or as necessary for insect attack or disease control. Trees may be removed to enhance recreation and allow facility expansion. Ordinary timber salvage should not be permitted.

Water, Soil, and Air

Rights/Use Management

Water rights should be acquired for all sources supplying water for domestic use or irrigation at the site, unless the Reservation Principal (see Glossary) applies.

Minerals and Geology

Inventory and Evaluation, Site Specific Technical Investigations, and Processing of Site Specific Development Proposals.

1. Common mineral material sources should not be inventoried or developed.
2. Potential aquifers should be evaluated prior to well location and drilling.

Lands

Special Use Management (Nonrecreation) and Right-of-Way Grants for Roads and Trails

Permits, leases, rights-of-way, or easements inconsistent with the purposes of the administrative site should not be permitted.

Federal Energy Regulatory Commission (FERC) License and Permits

Feasibility should be conducted in a manner which does not interfere with operations of the administrative site.

Withdrawals, Modifications, and Revocations

Subject to the determination of values, including mineral values, portions of the area should be recommended for withdrawal under the public land laws if required to protect special values.

Landownership Planning

All lands should be placed in Ownership Category II, retain or acquire. Sites outside the Forest boundary operating with leases or other temporary permits are exceptions.

Facilities

Road Operation

Access roads and parking lots should be managed to encourage or accept general public use.

Some storage areas may require gates or fences to protect Government property.

Fire, Administrative, and Other (FA&O) Construction/Reconstruction

1. Boundaries of administrative sites adjacent to private lands should be surveyed and posted prior to site planning and construction. Existing sites should be surveyed and posted prior to further development.
2. Temporary buildings should be limited to temporary activities or circumstances. They should not be built in lieu of permanent structures. Plans should be developed for the removal or replacement of temporary structures.
3. Plans should be developed to blend new construction with architecture and landscape themes of the existing compound facilities.
4. A site development plan will be prepared for all administrative sites to increase operating efficiency. It should include consideration of the direction above.

Protection

Fire Management and Analysis Planning and Prevention

Fire plans will adhere to State, County, and local fire ordinances and laws.

Escaped Fire Suppression

Fire Suppression Strategy C, Control, should be used.

Treatment of Activity Fuels

Fuel Treatment Priority 1, protect life and property, should apply and all fuels will be removed or disposed of.

Pest Suppression and Prevention

The protection of developments and existing vegetation should be emphasized in pest suppression and prevention activities.

Utility Sites and Corridors

Management Area Category-4

Includes Management Prescription-4W

Goal

Provide effective and economical utilities with the least impact on the various resources involved.

Description of Lands Where This MAC is Applied

Existing sites and corridors for such purposes as communication, signal relay, canals, penstocks, pipelines, and power transmission lines. Proposed sites and corridors determined to be the most efficient, cost effective, and environmentally sound places to accommodate these facilities.

Desired Future Condition

Signs of human activities are frequently dominant. Buildings, antennas, pipelines, high voltage powerlines, and similar structures will usually be visible. The vegetation is mostly ground cover in the form of small conifers and hardwood brush. Vegetation partially screens smaller sites from distant views and provides edge habitat for wildlife. Recreational opportunities are frequently available for operating off-road vehicles, viewing distant scenery, and gathering miscellaneous Forest products.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-4W.

Recreation

Planning

1. Opportunities to harvest Christmas trees, view wildlife, operate off-road vehicles, hunt, cross-country ski, and pursue other recreational activities may be provided.
2. The Visual Quality Objective and Recreation Opportunity Spectrum class assigned to these Management Areas are:

VQO	-	Modification
ROS	-	Rural

3. Permittees will be required to sign or otherwise adequately mark items or areas which may be safety hazards to the public.

Use Administration

Off-road vehicles may be permitted on designated trails or areas.

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

Wildlife habitat improvements such as forage seeding and other vegetative manipulations should be considered.

Range

Planning

Livestock grazing may be permitted.

Timber

Planning and Inventory and Timber Stand Improvement

1. Timber harvest will not be scheduled.
2. Commercial size trees, when present, may be harvested. Ordinary salvage may be permitted.

Lands

Special Use Management (Nonrecreation)

1. Adherence to Federal standards for the use of chemicals to control vegetation will be required in permits.
2. Additional facility needs should utilize existing sites and corridors whenever possible.
3. When a site or corridor is no longer in use, it should be rehabilitated.

Landownership Planning

All lands should be placed in Ownership Category III, neutral.

Facilities

Road Construction and Operation

Roads constructed to develop, service, or maintain facilities within this Management Area should not be maintained or managed for public use. However, public use may be permitted when conflicts with other resources are minor. Closures using the Prohibit traffic scheme should be applied if protection of facilities is required.

Roads passing through a corridor for other purposes should be managed commensurate with the adjacent Management Areas.

Protection

Escaped Fire Suppression

Fire Suppression Strategy C, Control, should be used.

Treatment of Activity Fuels

Fuel Treatment Priority 1, protect life and property, will be used and all fuels should be disposed of removed.

Pest Suppression and Prevention

The protection of adjacent resource values should be emphasized in pest suppression and prevention activities.

Chapter V

Implementation of the Forest Plan

Introduction

Implementation of the Gifford Pinchot National Forest Plan requires moving from an existing management program, with a budget and “targets” for accomplishment, to a new management program with a budget, goals, and objectives that provide a different way of addressing the issues and concerns people have voiced about Forest management. This Forest Plan, when used in conjunction with the Forest Service Manual and the Pacific Northwest Regional Guide, establishes the direction for the Gifford Pinchot National Forest for the next 10 to 15 years.

This chapter explains how management of the Gifford Pinchot National Forest moved to the Proposed Action described in the FEIS. The following sections describe aspects of implementation that are influenced by previous management activities and objectives, the relationship between project planning and this Forest Plan, the goals of monitoring and evaluation, and the circumstances which could require the Plan to be amended or revised.

Implementation Direction

Implementation of the Forest Plan occurs through identification, selection, scheduling, and execution of management practices to meet management direction provided in the Plan. Implementation also involves responding to proposals by others for use and/or occupancy of National Forest System lands.

Project Scheduling

The schedule of proposed and probable projects is contained in Appendix A of this document. A listing of possible projects to meet or accelerate the 10-year management practice schedule is maintained by the unit managers. These listings will routinely change as projects are implemented or removed from the listings for other reasons, and as new projects take their place. Projects are scheduled in response to the planned output of goods and services and the annual budget.

Consistency with Other Instruments

This Forest Land and Resource Management Plan, upon implementation, will supersede all present land management plans for the Gifford Pinchot National Forest with the exception of the *Mount St. Helens National Volcanic Monument Comprehensive Management Plan (CMP)*, October 18, 1985, and subsequent plans required by the CMP.

Management direction in the CMP which applies or appears to apply outside the National Volcanic Monument is not applicable. Direction contained in this Forest Plan is intended to apply to all National Forest land outside the boundary as described in the 1982 Act which created the Mount St. Helens National Volcanic Monument (NVM). In addition, unless the NVM Act or CMP clearly precludes it, the Forest-Wide Standards/Guidelines apply to the NVM if they are more restrictive than those for the Monument. This is also true for the Standards/Guidelines found in Management Area Categories (MAC), provided a comparable management area boundary is established within the NVM. Examples are Wild/Scenic Rivers and Wildlife MRs.

In addition, several documents designed to give further guidance to management activities (e.g., the Forest Travel Plan and the Tree Improvement Plan) have been or will be developed “under the umbrella” of this Forest Plan. If portions of these documents are found not to be in agreement with the Forest Plan, they will be brought into compliance. In all cases, the Forest Plan shall prevail. Other plans responding to changing circumstances such as floods, and operational plans (e.g., the Law Enforcement Plan and Affirmative Action Plan) will remain in effect upon implementation of the Forest Plan.

Land management plans to be replaced include the following:

5. Unit Plans for these planning units:
 - a. Cowlitz
 - b. Upper Cispus
 - c. Lone Tree
 - d. Mount St. Helens
 - e. Clear Creek
 - f. Upper Lewis River
 - g. White/Panther (Draft EIS)
 - h. Trapper/Siouxon
 - i. Bear
6. Ranger District Multiple Use Plans for those portions of the Forest not covered by Unit Plans.
7. Timber Management Plan, 1975.

All outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of lands included in the Forest Plan will be brought into agreement with this Forest Plan, subject to the valid existing rights of the parties involved; this will be done as soon as practicable, generally within three years of the date of this Plan.

Budget Proposals

The Plan’s scheduled projects are translated into multi-year program budget proposals that identify needed expenditures. The schedule is used for requesting and allocating the funds needed to carry out the planned management direction. Upon approval of a final budget for the Forest, the annual program of work is finalized and carried out. Accomplishment of the annual program is the incremental implementation of the management direction of the Forest Plan. Outputs and activities in individual years may be significantly different from those shown in Chapter IV depending on final budgets.

Environmental Analysis

Projects and activities permitted through this Forest Plan are subject to analysis under the NEPA process as they are planned for implementation. Additional analysis may be required on a drainage, Management Area, or other basis, ensuring that transportation systems, as well as all resource uses, meet the requirements of the Forest Plan when considered together for actual application on the ground. Such analysis will be fully under the “umbrella” of the Forest Plan and will be accomplished on an Interdisciplinary Team basis. The Forest Plan is a programmatic document. Therefore, discussion of the effects of the proposed project will occur in the appropriate analysis document (depending on significance of effects), whether that be an Environmental Analysis (EA), or Cumulative Effects Assessment (CE).

Monitoring and Evaluation Program

Introduction

The Monitoring Plan identifies the key activities and effects to be tracked during implementation of the Forest Plan to ensure that activities conform to the Management Area direction, outputs satisfy the objectives of the Plan, and that effects and costs are reasonably equivalent to those projected in the Plan.

At intervals in the Monitoring Plan, implementation shall be evaluated to determine how well objectives have been met and how closely Standards/Guidelines have been applied. Based upon this evaluation, the ID Team shall recommend to the Forest Supervisor such changes in management direction, revisions, or amendments to the Forest Plan as are deemed necessary.

The Actions/Effects To Be Monitored listed in the Plan are not intended to include all future monitoring of resource activities on the Forest. As a general rule, the actions/effects in the Monitoring Plan are those which may lead to written changes in the Forest Plan if they are not adequately met. This same rule weighed strongly in establishing the Variability Threshold for each action/effect. For instance, monitoring the harvest of Christmas trees or checking cut and fill stakes on construction projects are unlikely, in themselves, to cause any adjustment in the Forest Plan. Such items not included in the Plan are assigned to the appropriate Forest line or staff officers responsible for monitoring and corrective action as required. If, in the future, one or more of these items becomes more significant, it may be considered for addition to the Monitoring Plan as an amendment to the Forest Plan.

In some instances, there is a need to gather additional information, or to perform research to determine whether assumptions used in preparing the Forest Plan were correct. These usually require several years to resolve. Some of the more significant of these "validation" questions are discussed in Chapter II under the heading "Needed Information."

Monitoring within the Mount St. Helens National Volcanic Monument will be done as specified in the Comprehensive Management Plan for the Monument. In addition, Forest Plan monitoring fully applies to the NVM, unless the NVM Act or CMP specifically precludes such monitoring.

The Monitoring Plan includes the following components, or column headings:

1. *Actions/Effects To Be Monitored*: Specifically identifies the purpose of monitoring, what will be monitored.
2. *Units of Measure*: The specific units or format in which the monitoring results will be reported.
3. *Variability Threshold*: The tolerance limit within which the results of monitoring can deviate. Exceeding the threshold will cause additional analysis and/or action to ensure outputs, effect, and costs are as predicted in the Forest Plan. In some cases, this may lead to amendment or revision of the Forest Plan. Deviations which do not exceed the threshold will be analyzed and corrected as needed through other ongoing processes, and ordinarily would not result in amendment or revision of the Forest Plan.

The thresholds shown are not absolute limits, but are the ID Team's best estimate of the appropriate level based on past experience and the best available information. Some thresholds, particularly those based on limited samples or highly variable data, may, in the future, prove to be statistically inappropriate.

4. *Suggested Method of Monitoring*: Brief description of some of the ways monitoring of the objective might be accomplished, based largely on past experience. If other methods are

used when monitoring is actually done, the level of specificity should be similar to that suggested.

To the degree possible, all monitoring should utilize established monitoring systems, such as the Forest Service Management Review system, FSM 1410.

5. *Monitoring and Evaluation Responsibility:*
 - a. Staff officer (ultimate responsibility).
 - b. Delegated responsibility.
6. *Monitoring Frequency:* Describes the size or extent of the sample and how often it is to be measured. This frequency may vary depending on the degree of deviation observed. Where repeated checks indicate a very low deviation, the number of samples may be reduced. Likewise, excessive deviations may require more frequent sampling. When monitoring is actually done, a statistical analysis will be required on some cases to more accurately determine the size of the sample to be measured.
7. *Data Storage Location:* The place where monitoring data, analysis, and evaluation reports are stored.
8. *Annual Cost:* Cost of monitoring only, included planning, equipment, performance, evaluation, and reporting. It does not include the cost of analyzing or resolving a problem that has been identified.
9. *Risk Index/Reliability/Precision:* Weighs the risk of not reasonably achieving the outputs, effects, and costs predicted in the Forest Plan. The cost of making an error may be biological, economic, or political. The likelihood of an error occurring may be related to the level of resource knowledge, pressure on the resource, or the amount of resource available. In both cost and likelihood of making an error, a rating of one to three is used, with one being the least costly or likely to occur.

Reliability is a measure of how accurately monitoring reflects the total Forest situation. Precision measures the accuracy of data which is collected.

(Figure V-1)

(Figure V-2)

Amendment and Revision

The Forest Plan incorporates legal mandates, professional judgement, and the public's stated concerns into a future vision of the Forest. It charts a path for getting there by developing management goals and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest. National Forest planning is a dynamic process, and the products—Forest Plans—are similarly dynamic. Forest Plans can and should be modified if conditions warrant. As management goals are applied on the ground or as new information is learned about resources,